2024 Annual Monitoring Report
North Baptiste Waste Transfer Station
Environmental Compliance Approval
No. A361603

Prepared for:

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Project Number: 240205-08
March 28, 2025

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Executive Summary

BluMetric Environmental Inc. (BluMetric®) is pleased to provide a summary of the 2024 environmental monitoring at the North Baptiste Waste Transfer Station (WTS), herein referred to as "the Site", in Maynooth, Ontario. This summary is presented as a plain language summary to be used in addition to the final report titled "2024 Annual Monitoring Report North Baptiste Waste Transfer Station, Environmental Compliance Approval No. A361603" (BluMetric, 2025).

It should be noted that this summary provides an overview of the main findings of the report to which it pertains. This summary does not provide a comprehensive report, and its review should not be considered a substitute for reading the report in its entirety.

Summary Statements, Conclusions, and Recommendations

Site visits were made on April 29, July 11, and October 29, 2024. Generally, the WTS was observed to be in good condition at the time of all site visits.

Site Operations

The Site currently collects waste in covered waste bins, which is picked up and transferred to another WDS. The Site has segregated collection areas for scrap metal, tires, large bulk items, electronic waste, and a recycling transfer station for household blue box recyclable containers and paper fibres. Based on the assumed recycling values for the entire year, it is estimated that a total of 14% of residential waste was recycled in 2024. There were no documented complaints, rejected waste, or emergency situations reported for the Site in 2024.

Vegetation was observed to be well established on the cap. Site operations should continue in accordance with the ECA issued in January 2020.

Groundwater

The ECA was revised in January 2020 (No. A361603) and now requires monitoring of groundwater quality conditions. Groundwater samples were successfully collected in May and October 2024 from the five groundwater monitoring wells located at the Site.

The groundwater elevation data suggests groundwater is flowing radially away from the landfill with the primary groundwater flow direction to the southeast. Groundwater results have been compared to the Ontario Drinking Water Standards, Objectives and Guidelines (ODWSOG), Reasonable Use Criteria/Reasonable Use Values (RUC/RUV), and Provincial Water Quality Objectives (PWQO) criteria. A summary of exceedances is provided within the report.

Groundwater quality in 2024 was generally within historical ranges for the Site. Monitoring wells NB-MW3, NB-MW4, and NB-MW5 are considered impacted by leachate. Groundwater at the Site is expected to discharge to surface at or before the property line and therefore it is expected that groundwater downgradient from the WDS property boundary is not being impacted by leachate and is compliant with Guideline B-7-1.

Groundwater sampling should be conducted at all monitoring locations as per the ECA issued in January 2020. Select metals were recommended for removal in 2019 but since no agreement has been received from the MECP, they have continued to be sample as part of the groundwater monitoring program. Upon MECP approval, these parameters should be removed from the groundwater suite of parameters.

In response to the MECP's SW Technical review recommendation that a leachate indicator well be installed, BluMetric recommends that NB-MW3 continue to be used as the leachate well for the east and NB-MW5R be used as the leachate well for the south.

Surface Water

There are eight surface water monitoring locations at the Site to characterize surface water flow and quality. Surface water samples were successfully collected in April and July 2024 at all monitoring locations; however, the October sampling was limited due to insufficient water. The background sample (MCG-A) was not collected in the fall due to dry conditions.

Surface water results have been compared to PWQO, and Table A and Table B criteria from the WDS Technical Guidance (MOE, 2010). A summary of exceedances is provided within the report.

Monitoring locations MCG-B, MCG-C, and MCG-D indicate impacts to the east and south of the Site, while MCG-H may also be demonstrating impacts.

Surface water sampling should continue at all established monitoring locations, and should be conducted in the spring, summer, and fall of each year, following a storm event if possible (precipitation greater than 10 mm over 24 hours).

Toxicity Surface Water

Toxicity samples were collected from MCG-C and MCG-H during the spring and fall sampling events for single-concentration acute lethality testing of Daphnia magna (48 hour) and rainbow trout (96 hour). The single concentration test is typically reported as a "pass" or "fail" test, with 50% mortality being the passing limit. The results from the spring at MCG-C had a 3.3% mortality for Daphnia magna. All other results from the toxicity testing at both locations indicated that the percent mortality for Daphnia magna and Rainbow Trout were 0%.

Trigger Mechanisms and Contingency Plan

Trigger assessment points for surface water are toxicity sampling results at MCG-C and MCG-H. As discussed above all toxicity testing in 2024 passed, therefore additional sampling was not required.

Landfill Gas

Results in 2024 (0 to 10 parts per million [ppm]) indicate gas concentrations on the Site are currently not a hazard concern; concentrations are less than 1.0% methane gas (10,000 ppm, LEL-20%) in an on-site building, or its foundation. Gas concentrations should continue to be monitored during semi-annual sampling events.

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1 Introduction

This report provides a summary and analysis of environmental monitoring activities at the North Baptiste Waste Transfer Station (WTS), in Maynooth, Ontario. The WTS, as shown in Figure 01 is herein after referred to as "the Site". The Corporation of the Municipality of Hastings Highlands (MHHs or Municipality) retained BluMetric Environmental Inc. (BluMetric®) to conduct the 2024 environmental monitoring and sampling program and prepare the 2024 Annual Report.

This report is being prepared for the Corporation of the Municipality of Hastings Highlands (the Municipality). The Municipality owns and operates the Site, and it is operated under Environmental Compliance Approval (ECA) A361603 which is included in **Appendix A**. The report covers all work and activities conducted for the period from January 1, 2024, to December 31, 2024.

The most recent MECP Groundwater Technical Review was on the 2018 Annual Monitoring Report and the most recent MECP Surface Technical Review was on the 2020 Annual Monitoring Report, which was received on June 4, 2021.

The intent of this report is to be consistent with the general requirements of the Ontario Ministry of Environment, Conservation and Parks (MECP) document titled; *Monitoring and Reporting for Waste Disposal Sites (WDS), Groundwater and Surface Water: Technical Guidance Document* (MOE 2010), referred to as the "WDS Technical Guidance". The Monitoring and Screening Checklist from the WDS Technical Guidance has been completed and is included as **Appendix B** of this report. The screening checklist was completed with the Operational Status set as "open" as the WDS is closed however the WTS operated throughout 2024.

1.1 Location

The WTS is located on the south side of North Baptiste Lake Road, approximately 1.5 km from the intersection with Highway 62 and just north of Hickey Settlement (Figure 01). The civic address is 353 North Baptiste Lake Road, Maynooth, Ontario and is located approximately 9 km south of Maynooth. The total site area is 3.207 hectares (ha) (rounded to 3.2 ha in the remainder of this report) located on Part of Lot 3, Concessions 10 (formerly Herschel Township), now part of the Corporation of the Municipality of

Hastings Highlands (MHHs). The WTS facility layout, road network, and site features are shown on Figure 02.

The Site includes a former WDS, which was closed and capped in August 2018. The former WDS has a 0.69 ha approved footprint, with an actual final footprint area of 0.51 ha. Buffer lands (area of land encompassing the former fill area to protect the surrounding land from WDS impacts) surround the former WDS footprint. The remainder of the 3.2 ha owned by MHHs is comprised of buffer lands. An additional buffer area unowned by MHHs is located to the north of Site. The final Closure Plan for the WDS and conversion of the Site to a WTS was approved in 2017. The North Baptiste WDS had been in operation since at least 1968.

1.2 Ownership and Key Personnel

The facility is operated by the MHHs, with the municipal office located in Maynooth, Ontario. The Municipality owns the 3.2 ha property on which the WTS and former WDS is situated.

The facility's operational representative is responsible for all activities on-site. The Competent Environmental Practitioner (CEP) for both groundwater and surface water is Jaclyn Kalesnikoff, P.Geo., of BluMetric. Ms. Kalesnikoff is a Professional Geoscientist as designated by Professional Geoscientists Ontario (PGO).

Table 1: Contact Information

Role	Name	Address	Phone Number	Email
Site Owner / Contact	The Corporation of the Municipality of Hastings Highlands CAO – David Stewart	P.O. Box 130 33011 Highway No. 62 Maynooth, ON K0L 2S0	(613) 338-2811 ext.289	dstewart@hastingshighlands.ca
CEP	Senior Hydrogeologist, BluMetric – Jaclyn Kalesnikoff, P.Geo.	1682 Woodward Dr, Ottawa, ON K2C 3R8	(877) 487-8436 ext. 339	jkalesnikoff@blumetric.ca

1.3 Description and Development of the WDS

In addition to domestic waste bins, North Baptiste WTS includes recycling bins for metal, plastic, paper/cardboard products, as well as segregated areas for scrap metal and tires. Brush is no longer accepted at the Site. The Ontario Electronic Stewardship (OES) has approved the North Baptiste WTS for the collection of Waste Electrical and Electronic Equipment (WEEE) wastes. Regulations came into effect in 2020 with respect to this material, now referred to as Electrical and Electronic Equipment (EEE). The regulation with respect to EEE falls under the Resource Recovery and Circular Economy Act, 2016, and the regulation was filed on September 21, 2020.

1.4 Monitoring and Reporting Program Objectives and Requirements

The objectives of the monitoring and reporting program are to identify and mitigate impacts to the environment caused by the municipal solid WDS. The monitoring and reporting program has been developed with these objectives in mind. In addition, the monitoring and reporting program are designed to adhere to the WDS Technical Guidance (MOE, 2010) document and the ECA for the Site. The amended ECA (January 2020) stipulates under Schedule B the requirements for groundwater monitoring on a semi-annual basis and surface water monitoring each spring, summer and fall.

2 Physical Setting

2.1 Geology And Hydrogeology

2.1.1 Surficial Geology

The surficial geology of the area consists of glaciofluvial outwash (till) deposits such as gravel and sand (MNDM, 1991). The immediate area of the Site is characterized by generally sandy or gravelly overburden, with appearances of clay, and with a thickness ranging from approximately 2.4 to 38.4 metres (m), as indicated on nearby water well records.

Figure 03 illustrates the locations of private water wells within 1.5 km of the Site. The water well record (ID #7268327) for the closest water well located approximately 200 m west of the Site indicates that overburden consists of gravel with boulders to a depth of approximately 17 m below ground surface (mbgs). Other well records within 1.5 km of the Site indicate the maximum depth of overburden in the area is up to approximately 36 mbgs.

2.1.2 Bedrock Geology

Bedrock in the area is classified as clastic metasedimentary rocks (e.g. conglomerate, limestone, siltstone) or a tectonite unit. The tectonite unit rocks consist of tectonites, straight gneisses, porphyroclastic gneisses, unsubdivided gneisses in major deformation zones, mylonites, and protomylonites (MNDM, 1991). Water well records indicate the bedrock in the vicinity of the Site is granite.

2.1.3 Surface Water Features

The Site is upgradient and adjacent to the north side of a small, unnamed lake. The lake is surrounded by a large marsh area which lies immediately to the east and south of the Site. A small creek located just to the east of the Site flows southward from North Baptiste Lake Road and into the wetland area, the creek continues eastward flowing under highway 62 until it reaches O'Shaughnessy Lake. These features and the topographic contours can be seen on Figures 01 and 03.

Selby Creek is located 0.8 km east and southeast of the Site. It flows towards the marsh area from the northwest and exits the marsh area at the southeast. After this confluence, it continues to flow eastward for approximately 2.3 km to O'Shaughnessy Lake located east of Highway 62.

3 Description of Monitoring Program

3.1 Site Inspections and Operations Monitoring

In 2024, Site visits and inspections occurred on April 29 (spring event), July 11 (summer event), and October 29 (fall event), 2024. The inspection checklists are included in **Appendix D, Item D-1**.

The WTS was observed to generally be in good condition during all Site visits in 2024 (e.g., signage, tidiness, etc.). Vegetation growth on the cap has established and is growing well.

During the spring, summer and fall inspections, the following notable conditions were observed:

- Tall vegetation concealed part of the entrance sign during the summer inspection.
- Metals and bulk waste were observed outside of their containment areas during the summer and fall inspections.
- There is likely a blockage due to off-site beaver activity downstream of the WTS as flooding was observed during the spring, summer, and fall inspections.
- The MCG-B sample location is indicated to be in a seep location in the spring and summer, with red staining observed during the summer Site inspection.

Select photographs taken during the Site visits are provided at the end of the text following the tables and figures.

3.2 Monitoring Locations, Frequency and Monitoring Parameters

3.2.1 Groundwater Monitoring

Monitoring wells on the Site were originally drilled and installed in 1996 as part of the Site Development Plan, Capacity and Operations Report (Greer Galloway, 1996). Each monitoring well was drilled until assumed bedrock refusal. Well depths range from 5.49 mbgs (NB-MW4) to 9.45 mbgs (NB-MW5) and each well screens a water-bearing overburden till unit. Monitoring wells NB-MW2 and NB-MW5 were re-drilled and re-instrumented in 2016 and are denoted as NB-MW2R and NB-MW5R. The monitoring well logs are included in **Appendix C**.

There are currently five groundwater monitoring wells located at the Site. Groundwater elevations were measured at each of the five monitoring wells and groundwater samples were collected and analyzed to characterize groundwater quality. The monitoring requirements for the North Baptiste WTS and former WDS are defined in Schedule B of the Site ECA with modifications to the program recommended and/or approved by the

MECP periodically. The locations and descriptions of the groundwater monitoring wells are provided in Table 2. The locations of the Site monitoring wells are shown on Figure 04.

Table 2: Groundwater Monitoring Well Details

Groundwater Monitoring Well Name	Northing (m)	Easting (m)	Relative Location
NB-MW1	5,006,444	269,950	Background well, 60 m north and west of the disposal area
NB-MW2R	5,006,470	270,038	Downgradient, 75 m northeast of the disposal area
NB-MW3	5,006,410	270,053	Downgradient, 15 m east of the disposal Area/ leachate well for the east
NB-MW4	5,006,373	270,049	Downgradient, 20 m southeast of the disposal area
NB-MW5R	5,006,338	270,011	Downgradient, 20 m south of the disposal area/ leachate well for the south

Note: UTM Zone 18 NAD 83 coordinates, data based on 2016 geodetic survey

Groundwater samples were collected on April 29, 2024 (spring event) and October 29, 2024 (fall event). The laboratory reports and chain of custody records are included in **Appendix D, Item D-2**. Table 3 lists the groundwater quality monitoring parameters.

Table 3: Groundwater Quality Monitoring Parameters

Category	Parameters
Organic Parameters	Chemical Oxygen Demand (COD), Phenols
Inorganic Parameters	Alkalinity, Chloride, Hardness (Total), Nitrite, Nitrate, Sulphate, Phosphorous (total), Total Kjeldahl Nitrogen (TKN), Ammonia (N)-Total, Dissolved Organic Carbon (DOC) Metals: Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Strontium, Thallium, Titanium, Vanadium, Sodium, Zinc, Lead
Physical/Chemical Parameters	pH, Conductivity, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Turbidity

Field measurements of groundwater pH, temperature, conductivity and oxygen reduction potential (ORP) were collected at the time of sampling and are discussed in Section 4.1.

During the fall monitoring event, the conditions of groundwater monitoring wells were inspected. Any repairs, such as new locks, labels or well caps, were made as necessary on the replacement wells drilled in 2016. Watertight casings and seals remain in place at these two monitors to ensure that surface water and foreign materials cannot enter groundwater monitoring wells. These 2016 groundwater monitoring wells are fitted with a vermin proof cap to meet the requirements of Ontario Regulation 903. They are locked to provide protection against vandalism and are in line with industry best practices. The remaining 1996 monitoring wells were installed without steel casing protection (MW1, MW3, MW4). These wells are difficult to access with heavy equipment as they are in the marshy area east of the Site, therefore they have not been upgraded. However, because of the difficult access, these wells are unlikely to be damaged by equipment or encountered by the public.

3.2.1.1 Groundwater Elevations

During each monitoring event, groundwater elevations were collected from each of the five monitoring wells using a Solinst electronic water level meter prior to purging/sampling activity. Groundwater elevation data is summarized in Table 4.

Table 4: Groundwater Elevation Data

Monitoring Well ID	Casing Depth (mbtoc)	Elevation (masl)*	Water Level	Water Level	Elevation	Elevation
			29-April-24	29-Oct-24	29-April-24	29-Oct-24
			(mtpvc)	(mtpvc)	(masl)	(masl)
NB-MW1	7.66	402.06	5.31	5.1	396.75	396.96
NB-MW2R	4.60	395.10	0.89	0.89	394.21	394.21
NB-MW3	5.24	394.66	0.63	0.65	394.03	394.01
NB-MW4	6.14	395.04	0.90	0.85	394.14	394.19
NB-MW5R	5.90	395.33	0.86	0.93	394.47	394.40

Notes: * Elevation data is based on 2016 geodetic survey
mbtoc - Metres below top of casing
masl - Metres above sea level
mtpvc – Metres above top of PVC

3.2.1.2 Groundwater Flow Direction

The groundwater elevation data suggests groundwater is flowing radially away from the landfill with the primary groundwater flow direction to the east – southeast towards NB-MW3 and NB-MW4, as seen in Figure 05 and Figure 06. There was minimal change in the water level observed in the eastern and southern wells near the adjacent wetland

between the spring and fall monitoring events while the groundwater elevation at the upgradient background well NB-MW1 dropped approximately 0.2 metres from the spring to the fall monitoring event.

3.2.2 Surface Water Monitoring

Surface water sampling was conducted on April 29, July 11, and October 29, 2024. The eight current surface water sampling stations and one former sampling location are shown on Figure 04 and are described in Table 5. The monitoring requirements for the surface water monitoring at the North Baptiste WDS/WTS are defined in Schedule B of the Site ECA with modifications to the program recommended and/or approved by the MECP periodically.

A modification to the surface water monitoring plan that was incorporated in 2022 was to change in the location of the background sample. MCG-A2 replaced MCG-A as the background location following MECP review in 2019 and is currently listed in the ECA as the background sampling location. However, MECP correspondence from June 2021 indicated that based on a review of analytical results, MCG-A was more representative of the surface water conditions entering the landfill area and that MCG-A2 could be removed from the surface water monitoring program. MCG-A was sampled as the background surface water sampling location in 2024.

Also in 2022, sample location MCG-E moved from its original location on the west side of Highway 62, to the east side of Highway 62 where it could be accessed from a public road without crossing private property.

A sample could not be collected from MCG-A during the fall 2024 monitoring event due to dry conditions. The remainder of samples were collected according to the monitoring plan.

Table 5: Surface Water Monitoring Locations

Surface Water Location Name	Northing (m)	Easting (m)	Relative Location
Current Surface Water Monitoring Locations			
MCG-A	5,006,619	270,040	Background sample, north of the WDS.
MCG-B	5,006,394	270,048	Ponded water at toe area of the landfill, downstream of the WDS (east).

Surface Water Location Name	Northing (m)	Easting (m)	Relative Location
MCG-C	5,006,273	270,050	Downstream of the WDS in the wetland area to the south.
MCG-D	5,006,215	270,055	Downstream of the WDS in the wetland area to the south.
MCG-E	5,006,098	271,790	Selby Creek downstream from the WDS, east of Highway 62.
MCG-F	5,006,816	271,070	Selby Creek prior to confluence with drainage from wetland/pond adjacent to the WDS.
MCG-G	5,006,074	270,077	Background sample south of the WDS.
MCG-H	5,006,311	270,140	Location in creek before entering small lake/pond in the wetland.
Former Background Surface Water Monitoring Location			
MCG-A2	5,006,672	270,014	Removed from sampling program, replaced by MCG-A in spring 2022.

Note: UTM Zone 18 NAD 83 coordinates

As discussed in previous reports, MCG-F is thought to best represent upstream water quality (BluMetric, 2021). Application of de-icing chemicals along North Baptiste Lake Road may be impacting this upstream location as well as the downstream location MCG-E located just east of Highway 62.

Surface water temperature, pH, conductivity, and dissolved oxygen field measurements were recorded at the time of sampling. Surface water samples were analyzed for the parameters listed in Schedule B of the ECA and are shown in Table 6.

Table 6: Surface Water Quality Monitoring Parameters

Category	Parameters
Biological Parameters	Biochemical Oxygen Demand (BOD5)
Organic Parameters	Phenols
Inorganic Parameters	Alkalinity, Chloride, Nitrite, Nitrate, Sulphate, Phosphorous (total), TKN, Ammonia (N)-Total, Un-Ionized Ammonia, Hardness, Calcium. Metals (Total): Aluminum, Arsenic, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Manganese[1], Magnesium, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Zinc, Lead.
Physical/Chemical Parameters	pH, Colour, Conductivity, TDS, Total Suspended Solids (TSS), Turbidity

Note:
1 – Manganese was added to the list of parameters based on the MECP review of the 2020 Annual Monitoring Report, received on June 4, 2021.

Surface flow measurements were collected by using a Global Flow Probe for open channel flow. The flow velocity in meters per second (m/s) was recorded along with the width and depth of flow. Table 7 summarizes the calculated flow measurements and water clarity observations for each location.

Table 7: Surface Water Sampling Locations and Observations

Date	Location	Field Observations
April 29, 2024	MCG-A	Flow = 0.013 m^3/s. The water was clear. Garbage noted at and around location. Sample collected.
	MCG-B	Ponded water at landfill toe with no visible flow. The water was clear with a red precipitate that settled. Sample collected.
	MCG-C	Flooded area due to beaver activity, no direct flow channel, no flow observed. The water was clear with a light brown colour. Sample collected and one pail for toxicity collected.
	MCG-D	Large, flooded area, no direct flow path. Water was clear with a light brown colour. Sample collected.
	MCG-E	Flow = 0.518 m^3/s. Water was clear. Sample collected.
	MCG-F	Flow = 0.075 m^3/s. Water was clear. Sample collected.
	MCG-G	Flow = 0.1 m^3/s. Water was clear. Sample collected.
	MCG-H	Flooded area due to beaver activity, no observed flow. Water was clear with a light brown colour. Sample collected and one pail for toxicity collected.
July 11, 2024	MCG-A	Flow = 0.053 m^3/s. Water was clear. Sample collected.
	MCG-B	Ponded water at landfill toe with no visible flow. The water was clear with organics and duck weed Sample collected.
	MCG-C	No flow, flooded swamp. Water was clear with a brown colour had organics present. Sample collected.
	MCG-D	Large, flooded area in swamp. Water was golden brown and had suspended sediment. Sample collected.
	MCG-E	Flow profile not measurable due to extremely high water. Water was clear with a brown colour and suspended sediment. Sample collected.
	MCG-F	Flooded area with turbulent flow too strong to profile. Water was clear with a brown colour and had suspended sediment. Sample collected.
	MCG-G	Flow = 1.22m^3/s. Water was clear with a brown colour and floating sediments due to strong current. Sample collected.
	MCG-H	Large, flooded area with no flow. Water was clear. Sample collected.

Date	Location	Field Observations
October 29, 2024	MCG-A	Location dry. No sample collected.
	MCG-B	Standing water location at WDS toe. No flow, 0.1 m depth, high organics, covered with leaves and pine needles. The water was clear with a black colour. Sample collected.
	MCG-C	Large, flooded wetland area. No flow observed. Sample collected and one pail for toxicity collected.
	MCG-D	No flow, standing water in swamp. The water was clear with a light brown colour and some organics present. Sample collected.
	MCG-E	Flow = 0.064 m^3/s. Water was clear. collected.
	MCG-F	Flow = <0.0225 m^3/s. Water was clear, small visible flow, too low for meter to detect. Sample collected.
	MCG-G	Flow = <0.018 m^3/s. Water was clear, small visible flow, too low for meter to detect. Sample collected.
	MCG-H	Large, flooded area with no observed flow, 0.25 m deep. Water was clear with a brown colour. Sample collected and one pail for toxicity collected.

Note: m^3/s – cubic metres per second

3.2.3 Landfill Gas Monitoring

The primary gas present at landfill sites is methane. Methane cannot cause an explosion unless it accumulates to a concentration above its lower explosive limit (LEL) in an enclosed area. The LEL for methane is 5% in air. Regulation 232/98 methane concentration limits are as follows:

- Less than 2.5% methane gas (25,000 parts per million [ppm], LEL=50%) in the subsurface at the property;
- Less than 1.0% methane gas (10,000 ppm, LEL=20%) in an on-site building, or its foundation; and
- Less than 0.05 % methane gas (500 ppm, LEL=1%) in a building, or its foundation, which is located off-site.

An RKI Eagle gas monitor with methane detection was used to measure landfill gas concentrations at the Site during the semi-annual monitoring events. Routine landfill gas monitoring within any buildings or structures on site and NB-MW1 is required at the Site based on the Site Closure Plan (BluMetric, 2018). Voluntary gas monitoring was completed in the remaining monitoring wells during the semi-annual monitoring events.

3.3 Monitoring Procedures and Methods

3.3.1 Groundwater Sampling

Groundwater wells were purged a minimum of three borehole volumes or until the well was purged dry. In the case where a well was purged dry, samples were collected after sufficient water had returned for sampling purposes. Field parameters were recorded at the time of sampling and included temperature, pH, conductivity, and ORP measurements, During sampling events, the field parameters were measured using a YSI Multi-parameter system calibrated as per the manufacturer's instructions. Samples collected for dissolved metals and DOC were field filtered using a single use 0.45 µm in-line filter. This protocol ensured that the samples collected were representative of groundwater chemistry at the time of sampling and that no cross-contamination of the wells would occur. All purge water was collected in buckets and disposed of on-site, downgradient of the monitoring well. Clean nitrile gloves were used for each sample.

Samples were collected in laboratory prepared and supplied bottles and submitted to Bureau Veritas Laboratories in Mississauga, Ontario for analysis.

Groundwater samples were stored at approximately 4° Celsius (C) during shipment to Bureau Veritas. Chain of Custody forms accompanied the samples from submittal to the laboratory until the chemical results were provided to BluMetric. Laboratory reports and chain of custody forms are compiled in **Appendix D, Item D-2**.

3.3.2 Surface Water Monitoring

Field parameters were recorded at the time of sampling and included temperature, pH, conductivity, and dissolved oxygen measurements. During sampling events, the field parameters were measured using a YSI Multi-parameter system calibrated as per the manufacturer's instructions. Surface water samples were filtered by the laboratory for analysis of dissolved mercury and aluminum.

Surface water samples were collected in laboratory prepared and supplied bottles, and submitted to Bureau Veritas Laboratories in Mississauga Ontario, for analysis.

Surface water samples were stored at approximately 4° C during shipment to the laboratory. Chain of Custody forms accompanied the samples from submittal to the laboratories until the chemical results were provided to BluMetric. Laboratory reports and chain of custody forms are compiled in **Appendix D, Item D-3**.

Attempts were made to sample after rain events. The timing of surface water sampling ideally coincides within 24 hours of a 10 mm precipitation event for the surface water sampling events, however, this was not always achievable for the 2024 program. The spring sampling event occurred on April 29 and was preceded by 5.6 mm of rain between April 27 and April 28. The summer sampling event occurred on July 11 and was preceded by 31.5 mm of rain on July 10. The fall sampling event occurred on October 29 with 2.5 mm of rain between October 27 and 28. Recorded precipitation and temperature values at Environment Canada's Bancroft, Ontario Weather Station are presented in **Appendix E**.

Supplemental sampling of surface water for analysis of toxicity to organisms at MCG-B and MCG-C was recommended by the MECP (2010, 2012). In 2017, the MECP recommended that toxicity sampling be completed during the fall sampling event in lieu of the spring event when water is diluted. However, BluMetric indicated in previous reporting that those locations are typically dry or too low to sample during the fall event. Therefore, toxicity sampling is carried out in the spring, and again in the fall if sufficient water is present. In addition, historical toxicity sampling location MCG-B has been changed to MCG-H, as MCG-B is a ponded location with no connection to the nearby surface waters.

Toxicity samples were collected from MCG-C and MCG-H during the spring and fall sampling events. The surface water toxicity samples were submitted to Nautilus Environmental for single-concentration acute lethality testing of Daphnia magna (48 hour) and rainbow trout (96 hour). Toxicity laboratory reports are compiled in **Appendix D, Item D-4**.

3.3.3 Landfill Gas Monitoring

There are no sampling valves, ports, or vapour monitors on-site. Gas monitoring was conducted using a calibrated RKI Eagle gas monitor in the on-site Attendant's building and for all groundwater monitoring wells during both groundwater sampling events (spring and fall) in 2024.

Gas monitoring measurements from the attendant's building are collected by inserting the intake of the gas monitoring equipment through a small hole or gap within the structures while these structures remain closed. Gas monitoring measurements from the groundwater monitoring wells are collected prior to collecting groundwater levels or samples by inserting the intake tubing of the gas detector under the cap of the monitoring well before removing the cap and by keeping the best seal possible around the cap and gas detector intake tubing.

3.3.4 Field QA/QC Program

The Quality Assurance/Quality Control (QA/QC) program for the Site included the collection of field duplicate samples to demonstrate that field sampling techniques utilized by BluMetric personnel can yield reproducible results. Field duplicates were collected concurrently with the original sample. Field duplicates were collected at a minimum 10% frequency during the sampling program at the WDS.

Precision is a measure of the reproducibility of analytical results and can be expressed quantitatively by the relative percent difference (RPD) between the original sample(s) and their corresponding field blind duplicate sample(s). The RPD is defined by the following equation:

$$RPD = 2 \times \frac{|(S - D)|}{(S + D)} \times 100$$

Where: S = concentration in the original sample
D = Concentration in the duplicate

An RPD is calculated where the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are greater than 5X the laboratory reportable detection limits (RDL), which represents the RPD qualification criteria. A lower level of precision is expected where the above criteria are not met. A high level of reproducibility with respect to sample results collected at the Site is indicated by an RPD value below 10% for electrical conductivity, 20% for metals and inorganics, and 30% for BTEX and PHC. These criteria are used as a general guideline and correspond to those recommended within the O. Reg. 153/04 Analytical Protocol (MOE, 2011) and by the Ontario QA/QC Interpretation Guide – Environmental Services (Maxxam, 2015). An RPD below the recommended criteria is considered acceptable, indicating that the sampling methodology can produce repeatable results.

All equipment for field parameter testing and gas monitoring are calibrated in the field during each sampling event, or by the supplier.

One blind field duplicate per media was collected during each Site visit and submitted for analysis. The field duplicate bottles were filled simultaneously with the actual sample bottles for a given location. The laboratory prepared bottles (identified and duplicate) for each group of chemical parameters (e.g. metals, nutrients, etc.) was first filled for the identified location and then the duplicate for that same group of chemical parameters was immediately filled. This continued until the two sample bottles for each group of parameters were filled.

4 Monitoring Results

4.1 Groundwater Quality

The 2024 field measurements indicated conductivity ranging from 106 µS/cm at NB-MW2R (upgradient) to 1086 µS/cm at NB-MW3 (downgradient) for the spring event, and from 93.3 µS/cm at NB-MW2R to 1213 µS/cm at NB-MW3 for the fall event. The field pH values for the spring ranged from 6.41 at NB-MW1 to 8.00 at NB-MW4 (downgradient). The field pH values for fall ranged from 6.42 at NB-MW3 to 8.58 at NB-MW4. Historical groundwater data up to and including 2024 is provided in **Appendix F, Item F-1.**

Ontario Drinking Water Standards and Operational Guidelines (ODWSOG)

The 2024 groundwater parameters with concentrations exceeding the ODWSOG are summarized in Table 8. The full laboratory results are presented in Table 13 following the text.

Table 8: Groundwater Quality Results Exceeding ODWSOG

Monitoring Well Location	Parameter	Sampling Event(s)
NB-MW1 (Background)	Alkalinity	April, October
	Hardness	April, October
	Turbidity	April, October
NB-MW2R	Hardness	April, October
	Turbidity	April, October

Monitoring Well Location	Parameter	Sampling Event(s)
NB-MW3 (Leachate well for east)	Chloride	October
	Hardness	April, October
	Total Dissolved Solids	April, October
NB-MW4	Hardness	April
	Turbidity	April, October
NB-MW5R (Leachate well for south)	Hardness	October
	Turbidity	April, October
	Manganese	April, October

Note: Background alkalinity for the region are typically below criteria.

Reasonable Use Values (RUVs)

The water quality results for background groundwater monitoring well NB-MW1 from 2006 to 2024 were used to calculate Reasonable Use Values (RUV), as per the guidance offered by MECP Procedures B-7 and B-7-1 using the following equation.

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

Where:

- C_m: is the maximum allowable concentration in groundwater beneath adjacent property (RUV);
- C_b: is the median background concentration before any effects from human activity;
- C_r: is the maximum concentration that should be present based on use (ODWSOG); and
- x: is the constant that reduces the contamination to a level considered by the MECP to have only a negligible effect on the use of the water (0.25 for a health-related parameter and 0.5 for an aesthetic or physical parameter).

Table 9 summarizes the data that were used to calculate Cm values (RUV) for the landfill leachate indicator parameters:

Table 9: Reasonable Use Calculations

Parameter*	Cb (mg/L)	Cr (mg/L)	x	Cm (mg/L)
Sodium	21.8	200	0.5	**110.9**
Aluminum	0.01	0.1	0.5	**0.055**
Boron	0.005	5	0.25	**1.2538**
Copper	0.001	1	0.5	**0.5005**
Iron	0.0205	0.3	0.5	**0.1603**
Manganese	0.002	0.05	0.5	**0.026**
Nitrate	0.34	10	0.25	**2.755**

Note:
* Metals results are for dissolved metals in groundwater

Parameters that exceed the RUVs are shown in Table 10.

Table 10: Groundwater Concentrations Exceeding RUV

Groundwater Monitoring Location	Parameter *	Sampling Event(s)
NB-MW3	Manganese	October
NB-MW5R	Manganese	April, October

Note:
* Metals results are for dissolved metals in groundwater

Provincial Water Quality Objectives (PWQO)

The groundwater results were compared to the PWQO due to the potential for groundwater to discharge to surface water at the Site. The full results are also presented in Table 13 at following the text. The following exceedances of the PWQO were identified:

- NB-MW1 – Total phosphorus (spring, fall),
- NB-MW2R – Total phosphorus (spring, fall),
- NB-MW3 – Total phosphorus (spring, fall), and cobalt (fall),
- NB-MW4 – Total phosphorus (spring, fall),
- NB-MW5 – Total phosphorus (spring, fall).

Groundwater alkalinity concentrations at the Site are naturally low, as observed from historical monitoring data. The background well (NB-MW1) mean concentration (2006-2024 data) for alkalinity is 24.6 mg/L. PWQO state that alkalinity cannot decrease by more than 25% of the natural concentration (i.e., alkalinity concentrations should be at or above 18.45 mg/L). As impacts from the WDS tend to increase the alkalinity of groundwater at the Site, the downgradient wells therefore do not exceed the PWQO for alkalinity.

4.2 Surface Water Quality

Surface water quality results were compared to PWQO and Table A and Table B criteria from the WDS Technical Guidance (MOE, 2010). Table 11 summarizes the surface water parameters that exceeded the applicable criteria. The full analytical results are presented in Table 14 at the end of the text. Historical surface water data up to an including 2024 is provided in **Appendix F, Item F-2.** Note that surface water sampling location MCG-A was dry during the fall monitoring event.

Table 11: Surface Water Quality Results Exceeding Criteria

Surface Water Monitoring Location	Parameter*	Criteria Exceeded	Sampling Event(s)
MCG-A (Background)	Aluminum (dissolved)	PWQO	April
	Cadmium*	PWQO, Table B	April, July
	Copper	PWQO	April
MCG-B	Phenols	PWQO	April, July, October
	Total Phosphorus	PWQO	April, July, October
	Boron	PWQO	July
	Cadmium**	PWQO, Table A (Fall only), Table B (Summer and Fall)	April, July, October
	Copper	PWQO, Table A	October
	Iron	PWQO, Table A	April, July, October
	Lead	Table A	October
	Zinc	PWQO, Table A, Table B	July, October
MCG-C	Total Phosphorus	PWQO	July
	Aluminum (dissolved)	PWQO	July
	Cadmium**	PWQO	April, July, October
	Iron	PWQO	April, July, October
MCG-D	pH (below criteria)	PWQO	July
	Total Phosphorus	PWQO	July, October
	Aluminum (dissolved)	PWQO	April, October

Surface Water Monitoring Location	Parameter*	Criteria Exceeded	Sampling Event(s)
	Cadmium**	PWQO, Table B (Summer only)	April, July, October
	Cobalt	PWQO	July, October
	Copper	PWQO	April, July
	Iron	PWQO, Table A (Summer and Fall only)	April, July, October
	Lead	PWQO	July
MCG-E (Creek- Downstream)	Total Phosphorus	PWQO	July
	Aluminum (dissolved)	PWQO	July
	Cadmium**	PWQO	April, July, October
	Copper	PWQO	July
	Iron	PWQO, Table A	July
MCG-F (Creek- Upstream)	Cadmium**	PWQO	April, July, October
	Iron	PWQO, Table A (Fall only)	July, October
MCG-G (Background - west)	Total Phosphorus	PWQO	July
	Cadmium**	PWQO	April, July, October
	Iron	PWQO Table A (summer only)	April, July, October
MCG-H	Aluminum (dissolved)	PWQO	July
	Cadmium**	PWQO	April, July, October
	Iron	PWQO	July

Notes: Background pH for the region is typically below criteria.
*Metals results are for total metals in surface water unless otherwise indicated
**The detection limit for cadmium exceeds the PWQO criteria.

Surface water alkalinity concentrations at the Site are naturally low. The background monitoring location (MCG-A) mean concentration (2006-2024 data) is 18.29 mg/L. PWQO criteria states that alkalinity cannot decrease by more than 25% of the natural concentration (i.e., alkalinity concentrations should be at or above 13.72 mg/L). Alkalinity concentrations at most sample locations during the spring sampling event were below 13.72 mg/L, with only three locations having concentrations above 13.72 mg/L (MCG-D, MCG-F and MCG-G).

All toxicity samples collected in 2024 passed for single-concentration acute lethality testing of Daphnia magna (48 hour) and rainbow trout (96 hour).

4.3 Landfill Gas Results

An RKI Eagle gas monitor with methane detection was used to monitor landfill gas at the Site. Gas readings collected on April 29, 2024, were 0 ppm at the Attendant's Building, 0 ppm at monitoring wells NB-MW1 and NB-MW4, 5 ppm at NB-MW3 and NB-MW5R, and 10 ppm at NB-MW2R.

Gas readings collected on October 29, 2024, were 0 ppm at the Attendant's Building, and 0 ppm at all monitoring wells, NB-MW1, NB-MW2R, NB-MW3, NB-MW4, and NB-MW5.

4.4 QA/QC Results

Two groundwater duplicates and three surface water duplicates were collected during the sampling events to evaluate the consistency of the analytical results and sampling methodology. Exceedances of the recommended RPDs (10% for electrical conductivity and 20% for metals and inorganics) are highlighted in the evaluation tables presented in **Appendix D, Item D-5**.

Exceedances of the recommended RPDs are as follows:

- Groundwater: No exceedances in the spring for the duplicate collected at NB-MW4; turbidity RPD (34%) exceeded for the fall event for the duplicate collected at NB-MW3.
- Surface water: no exceedances for the spring duplicate collected at MCG-F; alkalinity RPD (33%) and turbidity RPD (47%) exceedances for the summer event for the duplicate collected at MCG-E; and total dissolved solids RPD (33%) exceedance for the fall event for the duplicate collected at MCG-E.

The four RPD values in exceedance of the recommended RPDs represent less than 1% of all analyzed parameters during the 2024 monitoring period. Therefore, the results of the 2024 QA/QC program are considered acceptable with a high degree of reproducibility.

5 Assessment, Interpretation and Discussion

5.1 Groundwater Assessment

Landfill leachate indicator parameters for groundwater at the Site are considered to include alkalinity (upper limit only), sulphate, nitrate, and dissolved metals (sodium, aluminum, copper, manganese, boron, iron, and zinc). Previously, parameters such as total phosphorus had also been identified as leachate indicators for the Site. However, as the concentration of total phosphorous exceeds at the background location (spring and fall) and can be typically high in wetland areas due to high organics, it is no longer considered a key leachate indicator for the Site.

The 2024 groundwater quality results for the North Baptiste WDS are summarized in Tables 13 (following the text). Parameters with concentrations outside the RUVs, ODWSOG, and/or PWQO criteria are flagged. Historical groundwater chemistry results are provided in **Appendix F, Item F-1**. Chemistry trend graphs for select parameters are provided following the tables, figures, and photographs at the end of this report. Groundwater quality in 2024 was generally within historical ranges for the Site.

Monitoring well NB-MW1 is located just north of the WDS property boundary and is the upgradient background monitoring location. The alkalinity concentrations at NB-MW1 are typically below the ODWSOG (lower limit) and are representative of background conditions. These results remained consistent for 2024. The turbidity concentrations were above the ODWSOG for this reference location, which is consistent with recent turbidity results (monitoring of turbidity was initiated in 2019). Monitoring between 2014 and 2020 indicated potential impacts at NB-MW1 due to road de-icing salts, however, a general decreasing trend in parameters associated with road salt (sodium, chloride, and conductivity) is observed between 2020 and 2022 followed by a return to increasing trends observed in 2023 and 2024. A new high dissolved sodium concentration at NB-MW1 at 40 mg/L was measured in April 2024. No other apparent trends are observed at NB-MW1 with other parameter concentrations remaining within the historical range.

All downgradient monitoring wells, including NB-MW5R, are located within the waste site boundary at least 30 m from the property line. Similar to background location NB-MW1, NB-MW2R had low alkalinity concentrations (marginally above the lower limit), and elevated turbidity. The remaining downgradient monitoring wells (NB-MW3, NB-MW4, and NB-MW5R) had elevated concentrations of alkalinity relative to the upgradient background location. The elevated alkalinity concentrations indicate that the three downgradient wells are impacted by the WDS, however all alkalinity results except the background well remain within the ODWQS limits. The turbidity concentrations were above ODWSOG all locations in 2024 except NB MW3, however, most locations were below the turbidity concentration recorded at background location NB-MW1 with the exception of NB-MW5R.

The trend graphs show that chloride, conductivity, and sodium concentrations at NB-MW1 (background) have shown increasing concentrations over the years, most notably from 2014 to 2020. These concentrations began to decrease from 2020 to 2022 followed by a return to increasing trends observed in 2023 and 2024. These impacts may be attributed to de-icing of the nearby North Baptiste Road. A decreasing trend in nitrate concentration is apparent since 2017, following an increasing trend that was observed between 2010 and 2017.

Similar to NB-MW1, increasing trends for chloride, dissolved sodium, and conductivity are apparent at NB-MW2R between 2010 and 2019. These concentrations have generally continued to decrease between 2019 and 2024. In addition, concentrations of dissolved iron, dissolved manganese, nitrate, and sulphate have generally been decreasing.

The trend graphs clearly show that concentrations of chemical parameters for alkalinity, chloride, dissolved boron, dissolved cobalt, conductivity, dissolved sodium, sulphate, and TDS are typically greatest at NB-MW3 (east). Concentrations of dissolved boron and nitrate indicate a downward trend at this location while concentrations of chloride, conductivity, and TDS indicate an upward trend. Dissolved sodium concentrations at this location have also been showing an increasing trend since 2020, while it had previously been showing a decreasing trend since 2010. No apparent trends were observed for the remaining monitoring parameters.

Concentrations of leachate indicator parameters at NB-MW4 and NB-MW5R (and previously NB-MW5) have generally appeared to be relatively consistent with the exception of dissolved manganese and dissolved aluminum concentrations at NB-MW5R. Dissolved manganese has shown an overall decreasing trend since it reached a maximum measured concentration in the fall event of 2019. The concentration of dissolved aluminum has sporadically spiked since 2016. A general spike in concentrations of alkalinity, dissolved aluminum, dissolved boron, dissolved cobalt, conductivity, iron, and TDS at NB-MW5R was observed in 2016, however, all concentrations have since decreased to within the historical range of concentrations.

Now that vegetation has established on the closed waste mound, monitoring of these trends from 2020 to 2025 will determine if there are any downward trends associated with the capping of the waste mound.

A comparison of groundwater quality results to PWQO was requested by the MECP because of the potential for groundwater to discharge to surface. This comparison is provided in Table 13 (following the text). The concentration of total phosphorous exceeded PWQO in all groundwater samples collected in 2024, consistent with 2021-2023 results. Concentrations of total phosphorus ranged from 0.17 mg/L to 2.6 mg/L. The lowest concentrations of total phosphorus were recorded at NB-MW3, the location considered most impacted by leachate. This suggests that elevated total phosphorus at the remaining groundwater monitoring locations may be attributed to the surrounding wetland areas, rather than the waste mound. Total phosphorus at the background location NB-MW01 ranged from 0.76 to 1.8 mg/L, and at downgradient monitoring well MW2R ranged from 0.81 to 1.2 mg/L.

It was previously noted that groundwater in the vicinity of the waste mound (NB-MW3, NB-MW4 and NB-MW5R) is considered impacted by leachate. Therefore, groundwater that discharges to surface has the potential to adversely impact surface water in the vicinity of the WDS. A review of surface water data is presented in Section 5.2 and identifies PWQO exceedances immediately downgradient of the WDS. Therefore, close monitoring of NB-MW3, NB-MW4, and NB-MW5R should continue to identify if concentrations begin to increase.

Groundwater at the Site is expected to discharge to surface at or before the property line and therefore it is expected that groundwater downgradient from the WDS property boundary is not being impacted by leachate and is compliant with Guideline B-7.

The MECP Surface Water Technical Reviews of the 2018 and 2020 Annual Monitoring Reports recommended that a leachate indicator well be installed and that leachate indicators from this well be used to eliminate parameters from the monitoring program. Since the exact location of historical landfill trenching is unknown, and due to the "radial" flow away from the Site, it would be difficult to determine where to put a leachate well and have it be indicative of leachate flowing in all directions. In 2020, BluMetric recommended in lieu of adding a leachate well through the closed and capped mound, that NB-MW3 continue to be used as the leachate indicator well (BluMetric, 2021). To address the radial flow away from the Site, the use of NB-MW3 and NB-MW5R as leachate wells for the east and south, respectively, should be considered.

In response to the MECP's Surface Water Technical Review to reduce the parameters tested at the Site, BluMetric (2019) recommended) that arsenic, magnesium, mercury, nickel, and silver be eliminated from the parameter list. No concurrence was received from the MECP; therefore, these parameters have continued to be monitored and will continue to be monitored in 2025.

5.2 Surface Water Assessment

Surface water quality in 2024 was within historical ranges for the Site. Tables are provided in **Appendix F, Item F-2**. Surface water monitoring locations are shown on Figure 04.

Surface water monitoring locations MCG-A, MCG-F, and MCG-G are considered to best represent background surface water conditions for the North Baptiste WDS and nearby Selby Creek. Location MCG-A is located upstream of the WDS in the ditch that flows from the north and enters the wetland area surrounding the landfill on the east. It should be noted that only under wet conditions does this location have an observable flow and direct flow path.

Monitoring location MCG-G is located upstream from the WDS in a creek that flows from the west and enters the wetland area on the south side of the former landfill. Monitoring locations MCG-B, MCG-C and MCG-D are in the wetland area around the toe of the WDS, and do not have observable flow or direct channels.

Location MCG-F (upstream) is located along Selby Creek east of the WDS, prior to the confluence with the tributary that leaves the marsh adjacent to the WDS. Monitoring location MCG-E is located along Selby Creek (downstream), after the confluence with the tributary that leaves the marsh adjacent to the WDS and east of Highway 62.

Background surface water monitoring location MCG-A replaced MCG-A2 in 2022 as a background location for the downgradient wetland stream to the east of the mound. MCG-A was only sampled during the spring and summer events due to dry conditions during the fall sampling event. The concentrations of total aluminum and total copper at MCG-A exceeded the PWQO during the summer event. Historically, concentrations of parameters such as total aluminum, total cobalt, total copper, total iron, total lead, total phosphorus, and total zinc exceeded the PWQOs, while pH was sporadically below the lower PWQO criterion.

Select surface water parameter trend graphs following the text shows an overall stable trend in alkalinity, conductivity, sulphate, and TDS at MCG-A. Of these four parameters, TDS concentrations have the most variability but overall do not show an increasing or decreasing trend.

MCG-B is located in a depression at the toe of the waste mound. The select surface water parameter trend graphs show that conductivity, sulphate, and TDS are within the historical range of results with no apparent trend in water quality. Large fluctuations for values of alkalinity and TDS are apparent at this sample location. Alkalinity reached a new maximum recorded concentration during the summer 2024 sampling event. Alkalinity concentrations at MCG-B are variable but show a slight increasing trend since 2012.

Western background location MCG-G is located on the west and south side of the Site and slightly upgradient of the waste mound. Select trend graphs for this location show a stable trend for alkalinity, conductivity, and sulphate, while TDS is showing a slightly fluctuating values with no apparent trend.

MCG-C is located directly south of the waste mound. Select trend graphs for this location show fluctuating values for alkalinity. Sulphate concentrations at this location have been on a decline since 2012 when the two highest concentrations were recorded. TDS and conductivity have also declined since peaking in 2012 with some variability of results but continue to remain within the historical range of results.

A review of surface water quality at monitoring locations MCG-B and MCG-C indicates impacts from landfill leachate migration as indicator parameters exceed PWQO and other surface water criteria identified in Table 11. Concentrations of alkalinity, conductivity, and sulphate are also elevated compared to background location MCG-A. MCG-D is located directly south of the waste mound and south of MCG-C. Select trend graphs for this location show a generally stable trend for alkalinity, conductivity, TDS, and sulphate. with generally stable results for conductivity and TDS. Results for all parameters remain with the historical range of results with no apparent trend in water quality.

MCG-H is located down gradient of MCG-A and MCG-B where the stream from MCG-A enters the wetland. The surface water parameter trend graphs show a stable trend for conductivity and sulphate concentrations, and a slight increasing trend in TDS. While alkalinity concentrations historically remain stable, a slight increase in concentrations was observed in 2023 and 2024, with a new historical high of 70 mg/L measured in October 2024.

MCG-F is located on Selby Creek upstream of the Site. Select trend graphs for this location show a generally stable trend for sulphate, alkalinity, and TDS, and a decreasing trend for conductivity since peak concentrations were measured in 2015.

MCG-E is located approximately 1.6 km downstream of the WTS and approximately 950 m downstream of the wetland. Select trend graphs for this location show a stable trend for alkalinity, sulphate, and TDS with a slight decreasing trend for conductivity.

MCG-G had exceedances for concentrations of total iron during the spring, summer and fall sampling events in 2024. The concentrations at MCG-G are slightly elevated but generally comparable to concentrations at the background locations MCG-A and MCG-F. Concentrations at MCG-G are not indicative of impacts and the location is considered to be the western background location. Although there are metals exceedances at MCG-D, concentrations of other leachate indicator parameters such as alkalinity, chloride, conductivity, hardness, nitrate, sodium, and sulphate are all comparable or slightly elevated compared to background concentrations at MCG-G. However, based on the elevated concentrations of cobalt and iron, MCG-D is deemed impacted. MCG-H had exceedances for aluminum and copper during the summer sampling event in 2024. This exceedance is elevated in comparison to concentrations at MCG-G; the elevated concentrations of some parameters may indicate there are impacts occurring at MCG-H.

5.2.1 Surface Water Quality Comparison for Selby Creek

A comparison of surface water chemistry at location MCG-F (upstream of the confluence of Selby Creek with the tributary leaving the WDS) to MCG-E (downstream of the confluence of Selby Creek with the tributary leaving the WDS) for the 2024 results was completed for all chemical parameters tested, and the comparison table is provided in **Appendix G**. The average concentration for the monitoring period for each location was calculated, and then the percent difference was determined. The chemistry results for 2024 show relatively consistent results for each parameter, thus, the average values were used for the comparison. For leachate indicator parameters, the 2024 results demonstrate that average downstream concentrations are elevated for several parameters (e.g., alkalinity hardness, sulphate, TKN, turbidity, total aluminum, total cobalt, total copper, total zinc, and total manganese) relative to the average upstream results. However, a number of parameter concentrations (e.g., TKN, iron, sodium, and manganese) at the upstream location were elevated relative to the downstream location. The remaining leachate indicator parameters (ammonia, nitrate, total boron and total zinc) were not detectable at both the upstream and downstream locations.

The select trend graphs at the end of the text show that downstream alkalinity concentrations (MCG-E) tend to be (but not always) elevated relative to the upstream location (MCG-F). The alkalinity at MCG-F reached a historical high in the fall 2021 sampling event but has since returned to within the historical range of results. The trend graphs for conductivity show a slight decreasing trend for both the downstream and upstream locations since 2019. The sulphate concentration for nearly all sampling events is greater at the downstream location compared to the upstream location and appears to be fairly stable with some variability at both locations. There is no apparent trend for conductivity results between the two locations. The concentrations for TDS at both locations remain within the historical range of results with no apparent trend observed. Similar to conductivity, there is no apparent trend in TDS between the two locations, with many of the historical sampling events having higher TDS concentrations at the upstream sample location.

It is also noted that the upstream water source is likely from an igneous rock formation, and downstream groundwater may be from a clastic metasedimentary rock (e.g., limestone), which may affect water quality. The WDS and northern portion of Hershel Township has been mapped as igneous bedrock while the lower half is mapped as metasedimentary rocks (MNDM, 1991). The impact from de-icing chemicals also complicates the comparisons.

5.2.2 Toxicity Assessment of Surface Water Quality

Toxicity samples were collected from MCG-C and MCG-H during the spring and fall sampling events for single-concentration acute lethality testing of Daphnia magna (48 hour) and rainbow trout (96 hour). The single concentration test is typically reported as a “pass” or “fail” test, with 50% mortality being the passing limit.
The results from the toxicity testing at both locations and for the spring and fall sampling events indicated that the percent mortality for Daphnia magna and Rainbow Trout was 0%, except for one result of 3.3% mean mortality for Daphnia magna at MCG-C in the spring. All results classified as a “pass”. The toxicity laboratory results are included in **Appendix D, Item D-4**.

5.3 Landfill Gas Assessment

The RKI Eagle gas monitoring results for 2024 ranged from 0 to 10 ppm in the spring and were all 0 ppm in the fall. Gas measurements were collected from the Attendant’s building and all well heads. These results indicate methane gas concentrations are well below concentrations of concern (i.e., 10,000 ppm) for the subsurface, buildings and structures on-site.

5.4 Trigger Mechanisms and Contingency Plan

The Trigger Mechanisms and Contingency Plan was finalized in January 2020 in consultation with the MECP and is provided in **Appendix H**. Trigger assessment points for surface water are toxicity samples at MCG-C and MCG-H. Toxicity testing includes a 48-hour *Daphnia magna* single concentration test and a 96-hour Rainbow Trout single concentration test with 50% mortality as the passing limit. The surface water toxicity results for 2024 did not trigger the Tier 1 Contingency Plan response for surface water.

Groundwater trigger mechanisms have also been developed for groundwater monitoring wells NB-MW3 (east) and NB-MW5R (south). Groundwater sampling is conducted on a semi-annual basis using assessment criteria of alkalinity, chloride, dissolved iron, dissolved manganese, dissolved sodium, and TDS. The Contingency Plan is triggered if three or more of the trigger parameters exceed the 75th percentile of the historical data for the assessment point for one discreet sample. The Contingency Plan was not triggered during either event in 2024.

6 On-Site Operations

The North Baptiste WTS currently collects waste in covered waste bins (8 cubic yards). The waste is periodically picked up and transferred to one of the other WDSs operated by the MHHs. The Site has segregated collection areas for scrap metal, tires, large bulky items (eg., couches and mattresses), electronic waste and a recycling transfer station (8 cubic yard bin) for household blue box recyclable containers (eg., aluminum cans, metal cans, plastic bottles) and fibre (eg., paper and cardboard). The Municipality implemented a clear bag policy in October 2014 which was updated in May 2018, to facilitate increased waste diversion to extend the operational life of their municipal landfill sites. The clear bag policy applies to both recyclable and household waste, with non-compliant bags to be refused unless residents remove recyclables from the bag.

Signage at the WDS entrance displays the Site operating hours, tipping fees and any restrictions. Access to the WTS is controlled via a locked at the entrance. Figure 02 illustrates the aerial view of the Site after much of the capping material had been placed on the WDS mound and geotextile and granular material had been placed to cover the former WDS.

No visible signs of erosion of the former WDS cover material was observed during the 2024 Site inspections. The bulk waste pile was observed to have some items outside of its containment zone during the summer and fall inspections.

6.1 Annual Waste Summary

Although access to the Site is controlled by a locked steel security gate, it was reported that residents sometimes deposit garbage near the WTS entrance outside of normal operating hours. The Municipality takes steps to deter these occurrences. This contribution is collected by site personnel, recorded and included in the total waste volumes identified for the Site.

The quarterly breakdown for recyclables (R) and waste (W) for 2023 and 2024, excluding the segregated materials discussed in Section 6.2, are shown below in Table 12. Based on the assumed recycling values for the entire year, it is estimated a total of 14% of residential waste was recycled in 2024.

The 2024 numbers indicate that recycling quantities have decreased while waste quantities have increased at the North Baptiste Lake WTS from 2023 quantities by 10.2% and 3.4%, respectively. The waste calculations are based on bag counts at the waste sites. There were 11,682 bags deposited at the North Baptiste WDS in 2024 and an assumed 15 kg/bag (MHHs) was used in the tonnage calculations.

Table 12: Annual Recycling and Waste Tonnages

Q1		Q2		Q3		Q4		Totals	
2023									
R	**W**	**R**	**W**	**R**	**W**	**R**	**W**	**R**	**W**
6.0	35.6	7.2	41.6	11.6	52.5	5.6	39.8	**30.5**	**169.4**
2024									
R	**W**	**R**	**W**	**R**	**W**	**R**	**W**	**R**	**W**
5.1	34.0	6.6	41.9	10.7	57.2	4.9	42.2	**27.4**	**175.2**

6.2 Summary of Segregated Materials Removed

Segregated materials were also collected at the nine waste disposal/transfer sites in the MHHs. Battery quantities were not tracked by site, but a total of 975 kg was received at all nine sites. The breakdown of these waste in 2024 at the North Baptiste WTS was as follows:

- Scrap metal – 29.5 tonnes;
- Bulky waste – 20.06 tonnes;
- Electronic waste – 1.69 tonnes;
- 50 tires.

6.3 Annual Complaints, Rejected Wastes & Emergencies Summary

There were no documented complaints, rejected waste, or emergency situations reported for the Site in 2024.

7 Summary Statements, Conclusions and Recommendations

The following summary statements, conclusions, and recommendations are based on the observations and results from the 2024 monitoring program:

7.1 Site Operations

- As shown on Figure 02, the WTS provides recycling and waste bins at the north of the Site in an orderly and accessible layout for public use.
- Materials such as metal and bulky items should be scheduled for pick-up prior to exceeding the barriers defining their drop-off location.
- The final topsoil cap and seeding of the former WDS mound were completed in 2018, and the cap and vegetation was noted to be in good condition during each of the site visits in 2024.
- The covered waste bins should reduce wind-blown litter at the Site, however, any debris that is blown around the Site should be picked up on a regular basis as described in the new ECA (January 2020) which details pick-ups for along North Baptiste Road as well as the Site.
- Waste transferred to the Site should continue to be accounted for and documented by tracking the number of bags or truck/vehicles loads of waste deposited at the Site.
- Records of public concerns and/or complaints regarding the North Baptiste WTS and responses from the Municipality should continue to be collected and documented.
- Public education with respect to waste reduction and recycling should be an on-going effort by the Municipality.

7.2 Groundwater

- The groundwater elevation data suggests groundwater is flowing radially away from the landfill with the primary groundwater flow direction to the southeast.
- Monitoring wells NB-MW3, NB-MW4, and NB-MW5R are considered impacted by leachate.

- Groundwater at the Site is expected to discharge to surface at or before the property line and therefore it is expected that groundwater downgradient from the WDS property boundary is not being impacted by leachate and is in compliance with Guideline B-7-1.
- In response to the MECP's SW Technical review to reduce the parameters tested at the Site, it was recommended in 2019 that dissolved metals including arsenic, magnesium, mercury, molybdenum, nickel, silicon, and silver be removed from the parameter list. No concurrence was received from the MECP therefore these parameters will continue to be monitored.
- Trend graphs show the following:
    - a general increasing trend in chloride, sodium, and conductivity at NB-MW1 and NB-MW2R between 2010 and 2020, potentially associated with road de-icing activity, show decreasing trend between 2020 and 2022, and again show an increasing trend for 2023 and 2024.
    - a decreasing trend for nitrate at NB-MW1
    - Decreasing trends for dissolved iron, dissolved manganese, nitrate, and sulphate at NB-MW2R.
    - Concentrations at NB-MW3 are generally the highest observed at the WDS with concentrations of dissolved boron and nitrate showing a decreasing trend while chloride, conductivity, and TDS are showing an increasing trend.
    - Sodium shows an increasing trend since 2020; it had previously been showing a decreasing trend since 2010.
    - Concentrations of indicator parameters at NB-MW4 and NB-MW5R have generally appeared to be relatively consistent except for dissolved manganese and dissolved aluminum at NB-MW5R. Dissolved manganese has shown an overall decreasing trend since it reached a maximum recorded concentration in fall 2019. Dissolved aluminum concentrations has spiked sporadically since 2016.
- It is recommended that a discussion be held between the MECP groundwater and surface water reviewers, along with the Municipality and BluMetric to discuss the use of NB-MW3 (east) and NB-MW5R (south) as the leachate wells and the potential for the installation of a leachate indicator well.

7.3 Surface Water

- A review of surface water quality at monitoring locations MCG-B, MCG-C, and MCG-D indicate impacts to the immediate east and south of the WDS are occurring.
- Trends Graphs show that in general, parameters remain stable with no instances of decreasing trends and some indication of minor increasing trends observed for alkalinity at MCG-B, conductivity at MCG-E, and TDS at MCG-G and MCG-H.
- In response to the MECP's SW Technical review to reduce the parameters tested at the Site, it is recommended that total metals including arsenic, magnesium, mercury, nickel, and silver be removed from the surface water suite of parameters. No concurrence was received from the MECP therefore these parameters continue to be monitored.
- The MECP Surface Water Technical Reviews of the 2018 and 2020 Annual Monitoring Reports recommends that a leachate indicator well be installed and that leachate indicators from this well be used to eliminate parameters from the monitoring program.

7.4 Landfill Gas

- Gas concentrations should continue to be monitored during semi-annual sampling at the Attendant's building and from all monitoring wells; and
- Results from 2024 (0 to 10 ppm) indicate gas concentrations on the Site are well below concentrations of concern.

7.5 Trigger Mechanisms and Contingency Plan

- The Trigger Mechanisms and Contingency Plan for surface water and groundwater was finalized in January 2020.
- The Contingency Plan was not triggered in 2024.
- The surface water toxicity results in 2024 did not trigger the Tier 1 Contingency Plan response for surface water.

8 Limiting Conditions

The conclusions presented in this report represent our professional opinion and are based upon the work described in this report and any limiting conditions in the terms of reference, scope of work, or conditions noted herein.

The findings presented in this report are based on conditions observed at the specified dates and locations, the analysis of samples for the specified parameters, and information obtained for this project. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, locations that were not investigated directly, or types of analysis not performed.

BluMetric Environmental Inc. makes no warranty as to the accuracy or completeness of the information provided by others, or of conclusions and recommendations predicated on the accuracy of that information.

This report has been prepared for The Corporation of the Municipality of Hastings Highlands. Any use a third party makes of this report, any reliance on the report, or decisions based upon the report, are the responsibility of those third parties unless authorization is received from BluMetric in writing. BluMetric Environmental Inc. accepts no responsibility for any loss or damages suffered by any unauthorized third party as a result of decisions made or actions taken based on this report.

Respectfully submitted,
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Tables

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-A	MCG-A	MCG-B	MCG-B	MCG-B	MCG-C	MCG-C	MCG-C	MCG-D	MCG-D	MCG-D	MCG-E	MCG-E
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Apr-29	2024-Jul-11	2024-Apr-29	2024-Jul-11	2024-Oct-29	2024-Apr-29	2024-Jul-11	2024-Oct-29	2024-Apr-29	2024-Jul-11	2024-Oct-29	2024-Apr-29	2024-Jul-11
Anions						Detection Limit													
Chloride	mg/L	-	-	180	128	1	1.5	<1	12	8.4	13	13	9	17	<1	1	<1	27	13
Nitrate + Nitrite	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
Nitrate as N	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
Nitrite as N	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
Sulphate	mg/L	-	-	100	-	1	2.6	1.5	28	55	24	11	8.4	3.1	6.7	<1	1.2	6.6	1.1
Cations																			
Calcium (tot)	mg/L	-	-	-	-	0.2	2.9	1.9	94	130	88	20	16	24	3.3	3.8	5	6	3.8
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.31	0.26	14	25	13	5.7	4	6.3	0.99	1	1.6	1.1	0.71
Potassium (tot)	mg/L	-	-	-	-	0.2	0.34	0.29	19	18	17	3.6	5	4.2	0.44	0.56	0.72	0.67	0.65
Sodium (tot)	mg/L	-	-	-	-	0.1	2.3	1.1	19	21	18	9.9	11	9.4	1.9	1.4	2	19	9.7
General Chemistry																			
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	7.9	9.6	290	440	300	97	60	84	7	9.3	26	14	14
Ammonia as N	mg/L	-	-	-	-	0.05	<0.05	<0.05	0.18	<0.05	0.55	<0.05	<0.05	<0.05	<0.05	<0.05	0.056	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	3	<2	<2	29	2	2	<2	<2	<2	3	<2	<2
Colour	TCU	-	-	-	-	2	7	23	11	20	23	140	130	98	97	220	100	30	96
Electrical Conductivity	uS/cm	-	-	-	-	1	31	29	640	940	620	250	170	220	32	35	56	140	76
Hardness (as CaCO3)	mg/L	-	-	-	-	1	9.5	6.2	310	460	290	110	59	97	12	14	22	22	12
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.96	6.97	7.5	7.94	7.58	7.71	7.46	7.49	6.53	6.38	6.84	7.25	7.18
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001	0.0013	0.0011	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	30	25	385	520	405	170	150	155	45	90	40	75	70
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.11	0.23	0.65	0.71	1.2	0.63	0.76	0.57	0.44	0.85	0.68	0.23	0.47
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	0.021	0.077	0.12	0.32	<0.02	0.047	0.02	<0.02	0.11	0.099	<0.02	0.046
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	34	23	320	10	<10	<10	<10	27	<10	<10	44
Turbidity	NTU	-	-	-	-	0.1	0.2	1	11	4.4	-	0.7	1.5	-	0.5	2.4	-	0.5	4.2
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.00052	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061
Metals																			
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.005	0.07	0.21	<0.005	0.005	<0.005	0.018	0.12	0.016	0.23	0.37	0.1	0.045	0.15
Aluminum (tot)	mg/L	-	-	-	-	0.0049	0.067	0.25	0.012	0.056	0.8	0.034	0.17	0.029	0.26	0.6	0.14	0.075	0.46
Arsenic (tot)	mg/L	-	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	<0.001	<0.001
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	<0.01	0.18	0.35	0.16	0.1	0.18	0.06	<0.01	0.011	<0.01	<0.01	<0.01
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.00009	<0.00009	0.00015	0.00083	<0.00009	<0.00009	<0.00009	<0.00009	0.00013	<0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	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
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00085	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	0.0055	<0.0005	0.00064
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.001	0.0014	<0.0009	0.0041	0.0091	<0.0009	0.0014	<0.0009	0.0017	0.0024	<0.0009	<0.0009	0.0013
Iron (tot)	mg/L	0.3	-	1	-	0.1	<0.1	0.13	14	4.2	47	0.41	0.35	0.88	0.43	2	3.9	0.25	1.3
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0035	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	0.00054
Manganese (tot)	mg/L	-	-	-	-	0.002	0.0042	0.013	0.92	0.4	0.96	0.025	0.12	0.31	0.076	0.4	2.7	0.015	0.11
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	<0.001	<0.001	0.003	0.004	<0.001	0.001	<0.001	<0.001	0.0011	<0.001	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	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
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	0.0079	0.007	0.13	0.31	<0.005	<0.005	<0.005	0.007	0.013	<0.005	<0.005	0.0055

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	NB-QAQC-SW1 (MCG-E)	MCG-E	NB-QAQC-SW1 (MCG-E)	MCG-F	NB-QAQC-SW (MCG-F)	MCG-F	MCG-F	MCG-G	MCG-G	MCG-G	MCG-H	MCG-H	MCG-H
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Jul-11	2024-Oct-29	2024-Oct-29	2024-Apr-29	2024-Apr-29	2024-Jul-11	2024-Oct-29	2024-Apr-29	2024-Jul-11	2024-Oct-29	2024-Apr-29	2024-Jul-11	2024-Oct-29
Anions						Detection Limit													
Chloride	mg/L	-	-	180	128	1	13	38	38	39	39	45	38	<1	<1	<1	7.1	<1	15
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	<0.1
Nitrate as N	mg/L	-	-	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	<0.1
Nitrite as N	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
Sulphate	mg/L	-	-	100	-	1	1.5	5.9	6.2	4.5	4.5	2.7	3.2	2.7	<1	2.2	4.5	3.1	2.6
Cations																			
Calcium (tot)	mg/L	-	-	-	-	0.2	3.7	9	8.7	4.7	4.8	5.8	5.7	3.4	3.7	4.1	9.5	2.7	20
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.67	1.6	1.6	0.86	0.9	1	1.1	0.75	0.75	0.95	2.5	0.52	4.8
Potassium (tot)	mg/L	-	-	-	-	0.2	0.62	0.94	0.95	0.92	0.95	1.1	1.3	0.48	0.22	0.43	2.1	0.39	4.8
Sodium (tot)	mg/L	-	-	-	-	0.1	9.3	24	24	26	27	29	23	1.2	0.98	1.5	5.7	1.9	8.4
General Chemistry																			
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	10	27	25	8.8	14	25	17	10	12	15	36	12	70
Ammonia as N	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
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Colour	TCU	-	-	-	-	2	96	25	25	28	28	88	36	33	75	25	48	56	37
Electrical Conductivity	uS/cm	-	-	-	-	1	75	200	200	170	170	200	180	28	29	40	99	28	200
Hardness (as CaCO3)	mg/L	-	-	-	-	1	12	33	33	17	17	19	21	12	13	17	37	9.1	77
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.85	7.26	7.44	6.93	7.25	7.26	7.04	7.03	6.98	7.22	7.46	6.95	7.43
Phenols	mg/L	0.001	-	0.04	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
Total Dissolved Solids	mg/L	-	-	-	-	10	70	160	115	105	115	115	130	15	35	50	70	45	130
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.48	0.15	0.14	0.24	0.31	0.48	0.27	0.26	0.35	0.16	0.3	0.28	0.24
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.046	<0.02	<0.02	<0.02	<0.02	0.026	<0.02	<0.02	0.034	<0.02	<0.02	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	48	<10	<10	<10	<10	10	21	<10	17	<10	<10	<10	<10
Turbidity	NTU	-	-	-	-	0.1	2.6	-	-	0.5	0.6	0.6	-	0.8	1.6	-	0.3	1.3	-
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.00052	<0.00061	<0.00052	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061
Metals																			
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.005	0.17	0.02	0.02	0.045	0.044	0.062	0.043	0.046	0.05	0.031	0.022	0.17	0.012
Aluminum (tot)	mg/L	-	-	-	-	0.0049	0.45	0.027	0.026	0.057	0.058	0.14	0.17	0.084	0.17	0.051	0.026	0.21	0.015
Arsenic (tot)	mg/L	-	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	<0.001	<0.001
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	0.012
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	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
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.0013	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0011	<0.0009
Iron (tot)	mg/L	0.3	-	1	-	0.1	**1.3**	0.3	0.31	0.22	0.23	0.83	**1.5**	0.39	**2.1**	0.48	<0.1	0.19	0.16
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	0.11	0.0074	0.0082	0.02	0.02	0.078	0.13	0.028	0.11	0.048	0.0032	0.01	0.024
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Nickel (tot)	mg/L	0.025	-	-	-	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
Selenium (tot)	mg/L	0.1	-	-	-	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
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

-LEGEND-

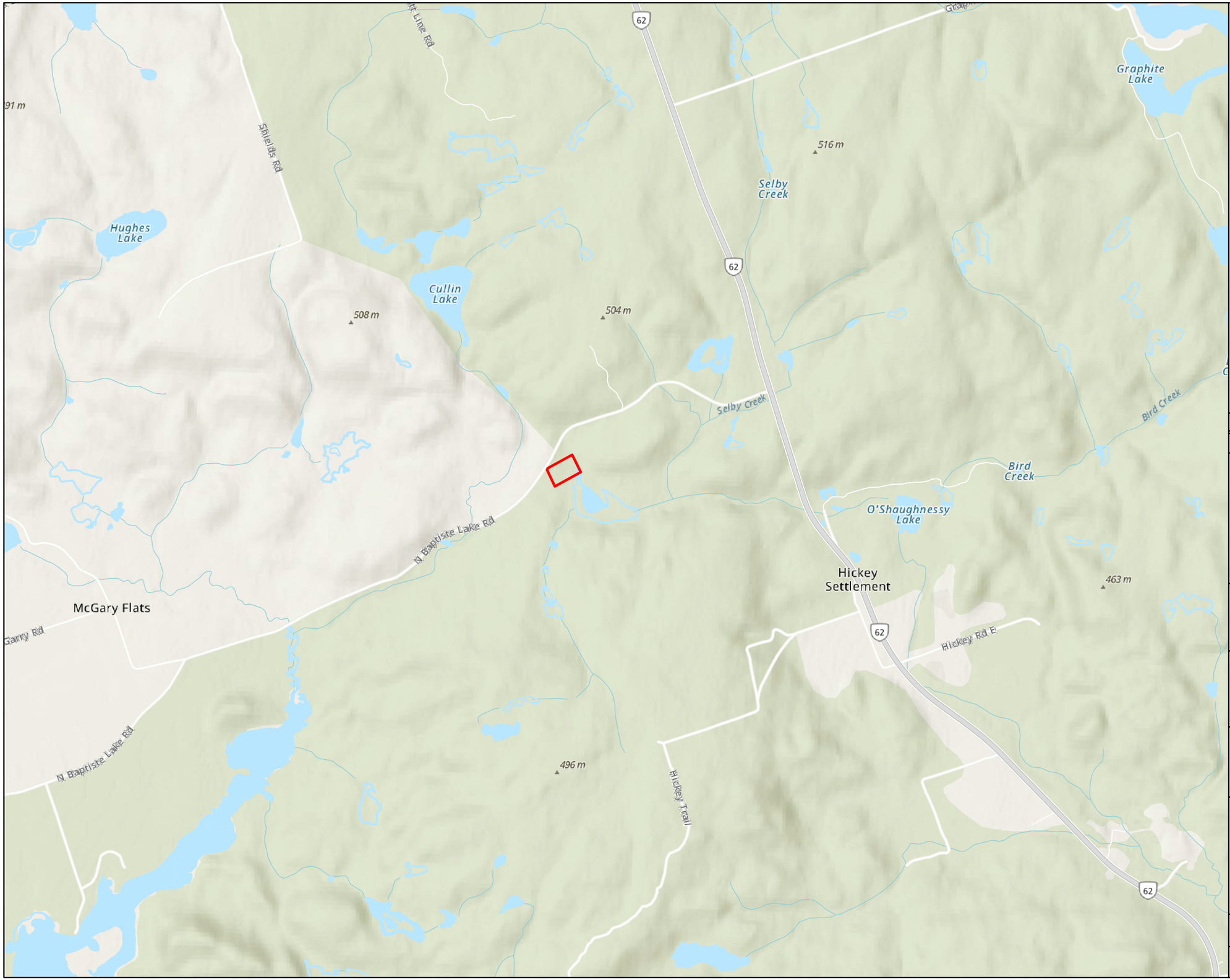
Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB MW1	NB MW1	NB MW2R	NB MW2R	NB MW3	NB MW3	NB-QAQC-GW1 (NB-MW3)	NB MW4	NB-QAQC-GW1 (NB-MW4)	NB MW4	NB MW5R	NB MW5R
Parameter	**Units**	**RUV-NB**	**ODWQS-ALL-MERGED**	**PWQO-GENERAL**	**PWQO-INTERIM**	**Sample Date**	**2024-Apr-29**	**2024-Oct-29**	**2024-Apr-29**	**2024-Oct-29**	**2024-Apr-29**	**2024-Oct-29**	**2024-Oct-29**	**2024-Apr-29**	**2024-Apr-29**	**2024-Oct-29**	**2024-Apr-29**	**2024-Oct-29**
Anions						**Detection Limit**												
Chloride	mg/L	-	250	-	-	1	79	45	3	1.8	220	260	260	27	27	29	24	25
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	0.25	0.13	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as N	mg/L	2.755	10	-	-	0.1	0.25	0.13	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1
Nitrite as N	mg/L	-	1	-	-	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
Sulphate	mg/L	-	500	-	-	1	3.6	8.2	6	6.8	16	16	16	20	20	21	17	20
Cations																		
Calcium (diss)	mg/L	-	-	-	-	0.2	21	11	7.1	6.8	96	100	100	33	33	31	22	21
Magnesium (diss)	mg/L	-	-	-	-	0.05	4	1.9	3.1	2.8	38	39	39	6.8	6.7	6.4	6.7	6.2
Potassium (diss)	mg/L	-	-	-	-	0.2	2.5	1.8	1.5	1.5	6.4	6.6	6.6	3.1	3.1	3.1	2.5	2.4
Sodium (diss)	mg/L	110.9	200	-	-	0.1	40	29	4.2	3.8	47	48	48	6.2	6.3	6.1	5.3	5
General Chemistry																		
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	26	28	34	31	130	130	130	64	63	60	40	55
Ammonia as N	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
Chemical Oxygen Demand	mg/L	-	-	-	-	4	<4	<4	<4	<4	<4	30	4.4	<4	<4	5.7	<4	<4
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	1.2	1.3	1.1	0.8	2	2.2	1.7	0.8	0.8	0.9	1.3	0.9
Electrical Conductivity	uS/cm	-	-	-	-	1	370	240	84	87	1100	1200	1200	260	260	270	200	220
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	1	70	34	30	29	390	420	420	110	110	100	82	78
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.14	7.14	7.79	7.57	7.52	7.43	7.51	8.13	8.15	7.77	7.78	7.55
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	<0.001
Total Dissolved Solids	mg/L	-	500	-	-	10	285	195	85	60	740	990	1010	195	200	160	260	220
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.14	0.12	<0.1	<0.1	<0.1	<0.1	<0.1
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**1.8**	**0.76**	**0.81**	**1.2**	**0.091**	**0.17**	**0.19**	**1.9**	**1.9**	**0.44**	**3.3**	**2.6**
Total Suspended Solids	mg/L	-	-	-	-	10	1100	610	840	810	110	180	160	2200	2300	330	3800	2600
Turbidity	NTU	-	5	-	-	0.1	67	120	24	12	2.6	1.7	2.4	15	17	11	280	170
Metals																		
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.0049	<0.0049	0.046	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	0.0063	<0.0049	<0.0049
Arsenic (diss)	mg/L	-	0.01	-	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	<0.001
Barium (diss)	mg/L	-	1	-	-	0.002	0.027	0.014	0.0027	0.0027	0.1	0.12	0.12	0.012	0.012	0.013	0.016	0.017
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Boron (diss)	mg/L	1.25375	5	-	0.2	0.01	<0.01	<0.01	<0.01	<0.01	0.14	0.14	0.13	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Chromium (diss)	mg/L	-	0.05	-	-	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
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5005	1	-	Calculated	0.0009	<0.0009	0.0016	<0.0009	<0.0009	<0.0009	0.0011	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
Iron (diss)	mg/L	0.16025	0.3	0.3	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.12	<0.1	<0.1	<0.1	<0.1	<0.1
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	<0.002	<0.002	<0.002	<0.002	0.0022	0.027	0.027	<0.002	<0.002	<0.002	0.09	0.062
Mercury (diss)	mg/L	-	0.001	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
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0021	0.002	0.0023	0.002	0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.001	<0.001	<0.001	<0.001	0.0059	0.0057	0.0058	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium (diss)	mg/L	-	0.05	0.1	-	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
Silicon (diss)	mg/L	-	-	-	-	0.05	8.7	8.9	11	12	16	15	15	9.3	9.2	8.6	9	8
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Strontium (diss)	mg/L	-	-	-	-	0.001	0.25	0.12	0.044	0.042	0.86	0.94	0.94	0.1	0.1	0.1	0.11	0.11
Thallium (diss)	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
Titanium (diss)	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
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	<0.0005	0.00072	0.0037	0.0042	0.00066	0.00065	0.00065	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc (diss)	mg/L	-	5	-	0.02	0.005	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0071	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS-ALL-MERGED	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Figures



LEGEND

Site Outline

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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N W E S

0 400 800 Metres

1:25,000

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake Waste Transfer Station

TITLE

Site Location Map

BluMetric Environmental
1682 Woodward Drive
Ottawa,ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240205-08	February 07, 2025

DRAWN	CHECKED	FIG NO.	REV
PB	EF	01	0

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LEGEND

- Surface Water
- Monitoring Wells
- Current WDS Property
- Original WDS Property
- North Buffer Zone
- Site Feature

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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N W E S

0 25 50 Metres

1:1,000

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake Waste Transfer Station

TITLE

Site Plan

BluMetric Environmental
1682 Woodward Drive
Ottawa,ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240205-08	**February 28, 2025**

DRAWN	CHECKED	FIG NO.	REV
PB	**EF**	**02**	**0**

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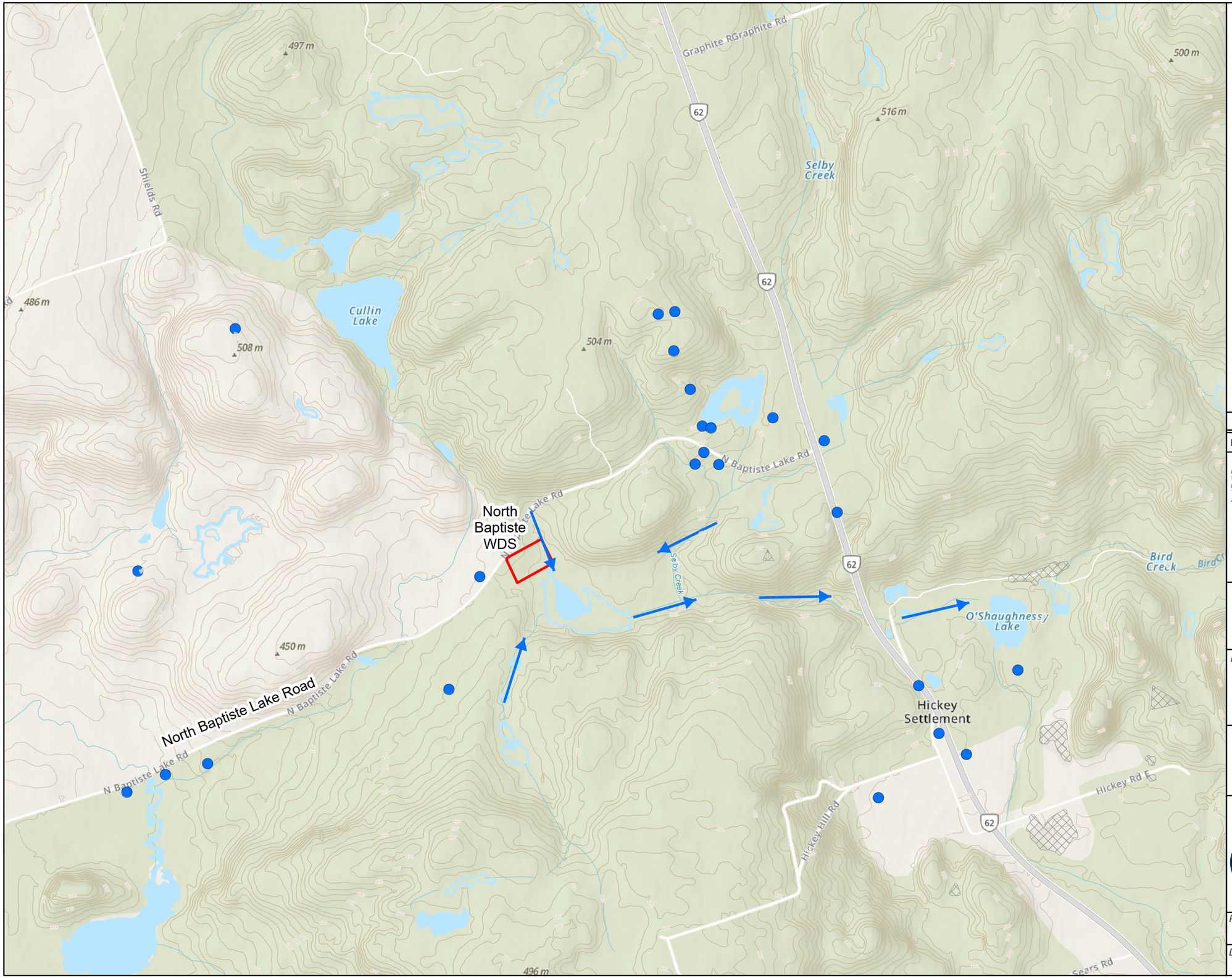

LEGEND

- Private Wells within 1.5km of site
- Surface Water Flow Direction
- Contour Lines (LIO, 2025)
- Waste Disposal Site
- Pit/Quarry

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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N W E S

0 400 800 Metres

1:18,000

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake
Waste Transfer Station

TITLE

Regional Surface Water Flow Pattern and Private Water Wells

BluMetric Environmental
1682 Woodward Drive
Ottawa,ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240205-08	**March 07, 2025**

DRAWN	CHECKED	FIG NO.	REV
PB	**EF**	**03**	**0**

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LEGEND

- Monitoring Wells
- Potential Background Surface Water Sample Location
- Surface Water Sample Location
- Former Surface Water Sample Location
- Current WDS Property
- Original WDS Property
- North Buffer Zone

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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N W E S

0 100 200 Metres

1:6,000

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake Waste Transfer Station

TITLE

Groundwater & Surface Water Monitoring Locations

BluMetric Environmental
1682 Woodward Drive
Ottawa,ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240205-08	February 07, 2025

DRAWN	CHECKED	FIG NO.	REV
PB	EF	04	0

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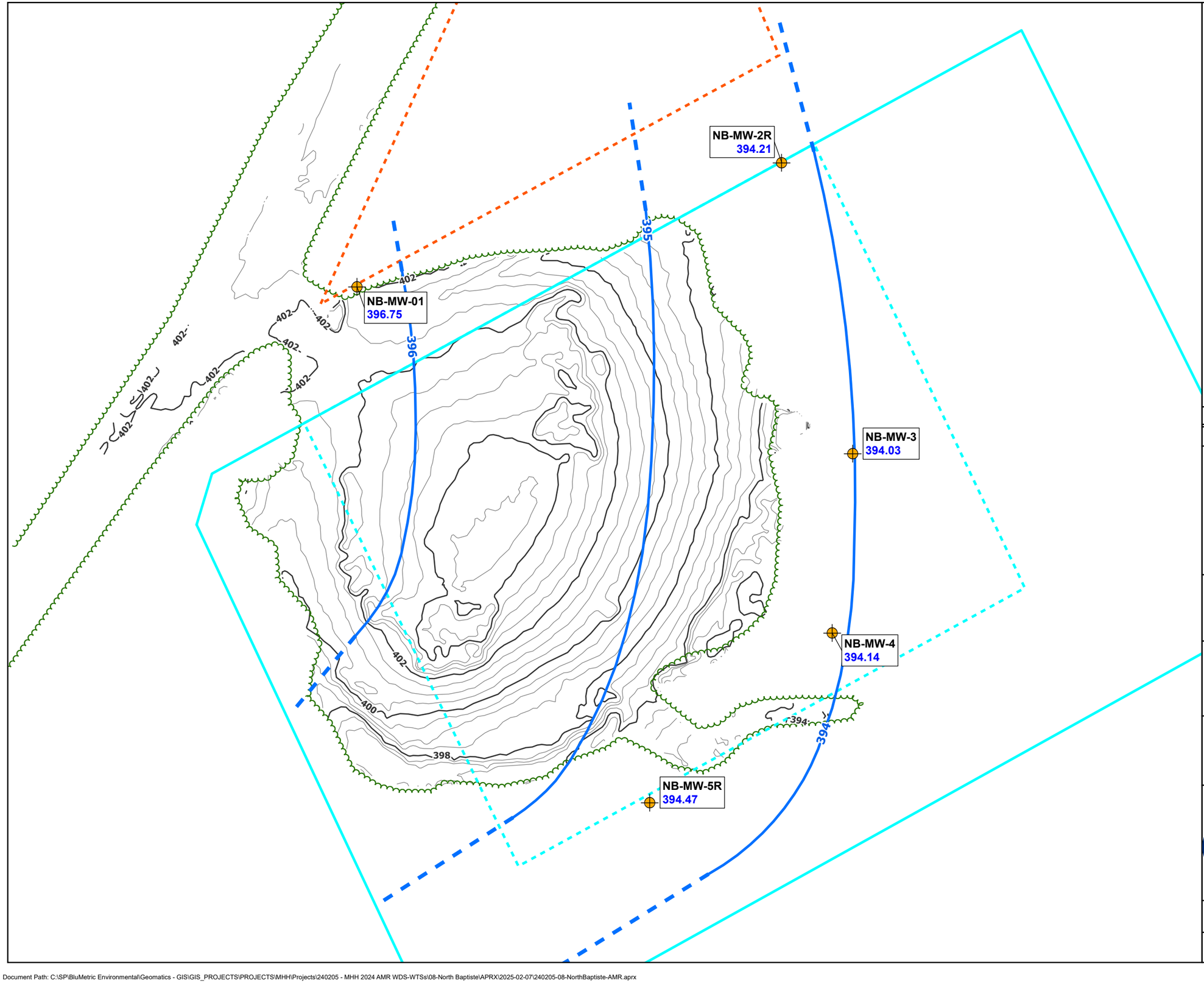

LEGEND

- Monitoring Wells
- Current WDS Property
- Original WDS Property
- North Buffer Zone
- Treeline
- Elevation Contour (2.0 m asl)
- Elevation Contour (0.5 m asl)
- Groundwater Elevation Contour (Indicated)
- Groundwater Elevation Contour (Inferred)
- 397.94 Groundwater Elevation masl (Spring, 2024)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

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N W E S

0 20 40 Metres

1:750

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake Waste Transfer Station

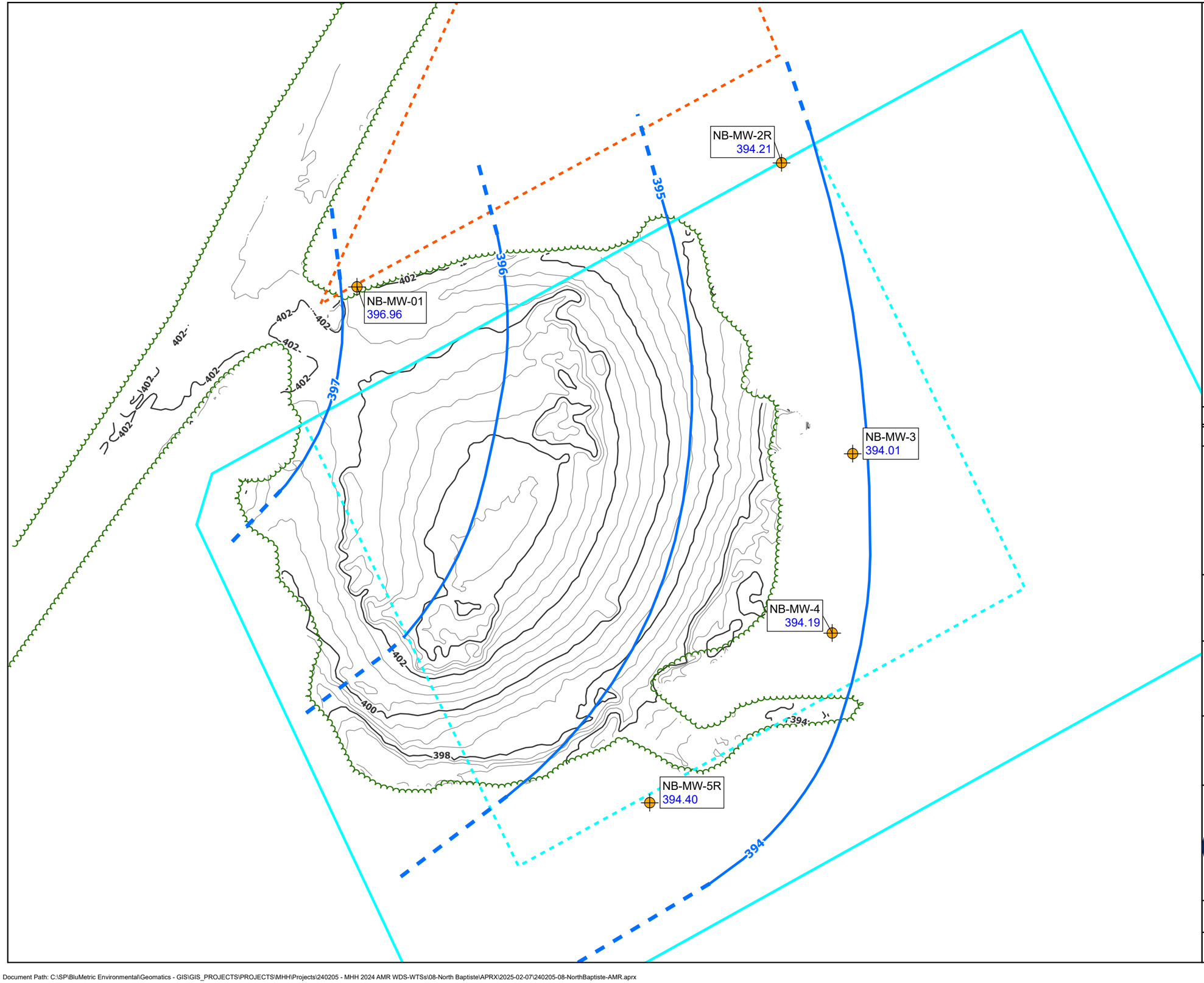
TITLE

Groundwater Flow Direction Spring 2024

BluMetric Environmental
1682 Woodward Drive
Ottawa,ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240205-08	February 07, 2025

DRAWN	CHECKED	FIG NO.	REV
PB	EF	05	0



LEGEND

- Monitoring Wells
- Current WDS Property
- Original WDS Property
- North Buffer Zone
- Elevation Contour (0.5 m asl)
- Elevation Contour (2.0 m asl)
- Treeline
- Groundwater Elevation Contour (Indicated)
- Groundwater Elevation Contour (Inferred)
- 397.94 Groundwater Elevation masl (Fall, 2024)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC.
DO NOT SCALE DRAWING.
THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

N W E S

0 20 40 Metres

1:750

CLIENT

Municipality of Hasting Highlands

PROJECT

North Baptiste Lake
Waste Transfer Station

TITLE

Groundwater Flow Direction
Fall 2024

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PROJECT #	DATE
240205-08	**February 07, 2025**

DRAWN	CHECKED	FIG NO.	REV
PB	**LH**	**06**	**0**

Site Photographs

Photo 1: Signage at Front Entrance– April 29, 2024

Photo 2: Front Entrance with Signage – April 29, 2024

Photo 3: Waste and Recycling Bins – April 29, 2024

Photo 4: Bulk Waste Area – April 29, 2024

Photo 5: Scrap Metal Area – April 29, 2024

Photo 6: Tire Area – April 29, 2024

Photo 7: Vegetation Growth on Cap – April 29, 2024

Photo 8: Vegetation Growth on Cap – April 29, 2024

Photo 9: MCG-A monitoring location – April 29, 2024

Photo 10: MCG-B monitoring location – April 29, 2024

Photo 11: MCG-C monitoring location – April 29, 2024

Photo 12: MCG-D monitoring location – April 29, 2024

Photo 13: MCG-E monitoring location – April 29, 2024

Photo 14: MCG-F monitoring location – April 29, 2024

Photo 15: MCG-G monitoring location – April 29, 2024

Photo 16: MCG-H monitoring location – April 29, 2024

Photo 17: Signage at Front Entrance – July 11, 2024

Photo 18: Front Entrance – July 11, 2024

Photo 19: Waste and Recycling Bins – July 11, 2024

Photo 20: Bulk Waste Area – July 11, 2024

Photo 21: Scrap Metal Area – July 11, 2024

Photo 22: Tire Area – July 11, 2024

Photo 23: Vegetation Growth on Cap – July 11, 2024

Photo 24: Back of Attendant's Building – July 11, 2024

Photo 25: MCG-A monitoring location – July 11, 2024

Photo 26: MCG-B monitoring location – July 11, 2024

Photo 27: MCG-C monitoring location – July 11, 2024

Photo 28: MCG-D monitoring location – July 11, 2024

Photo 29: MCG-E monitoring location – July 11, 2024

Photo 30: MCG-F monitoring location – July 11, 2024

Photo 31: MCG-G monitoring location – July 11, 2024

Photo 32: MCG-H monitoring location – July 11, 2024

Photo 33: Signage at Front Entrance – October 29, 2024

Photo 34: Front Entrance with Signage – October 29, 2024

Photo 35: Waste and Recycling Bins – October 29, 2024

Photo 36: Bulk Waste Area – October 29, 2024

Photo 37: Scrap Metal Area – October 29, 2024

Photo 38: Tire Area – October 29, 2024

Photo 39: Vegetation Growth on Cap – October 29, 2024

Photo 40: Vegetation Growth on Cap – October 29, 2024

Photo 41: MCG-A monitoring location – October 29, 2024

Photo 42: MCG-B monitoring location – October 29, 2024

Photo 43: MCG-C monitoring location – October 29, 2024

Photo 44: MCG-D monitoring location – October 29, 2024

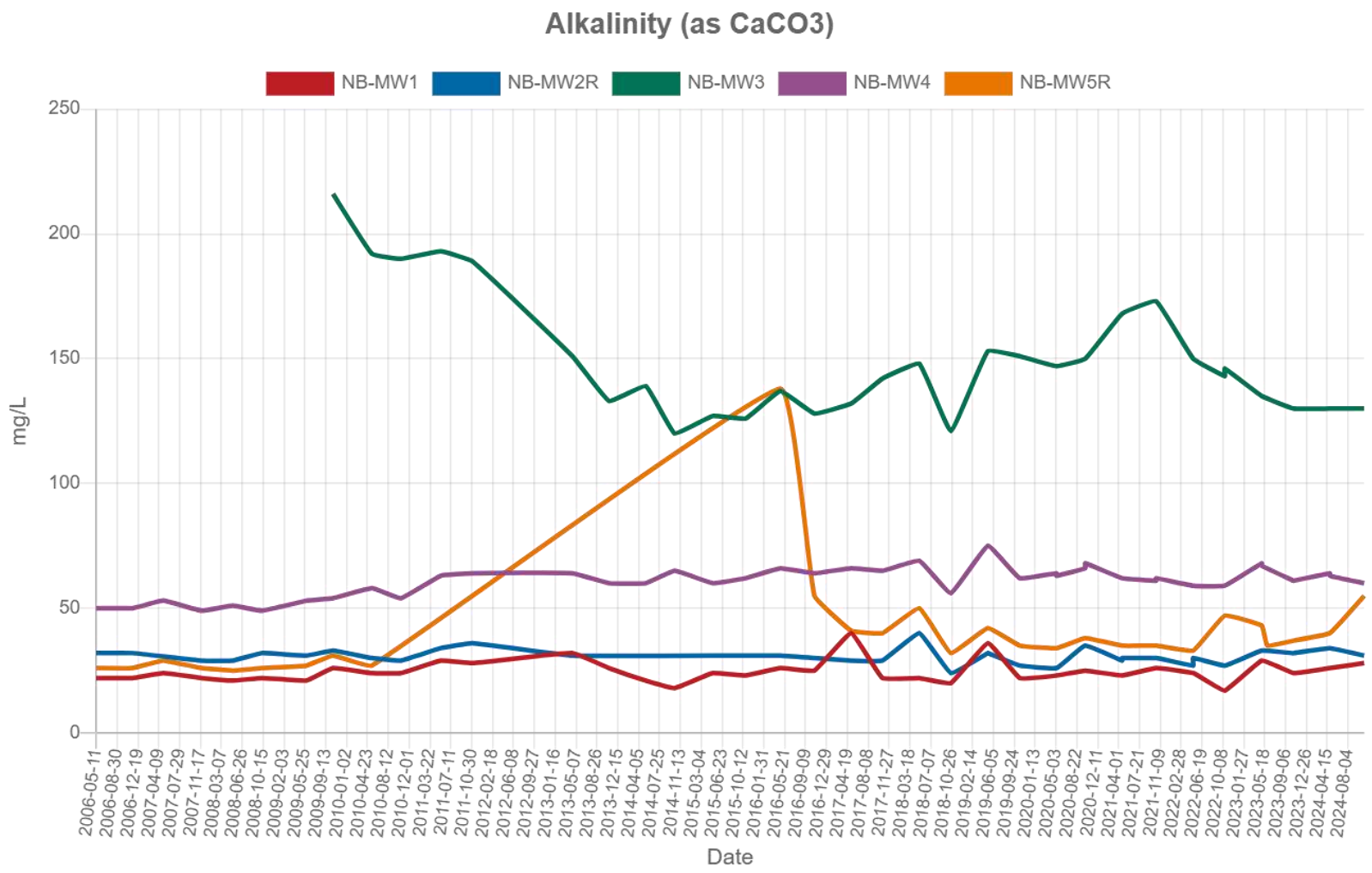
Photo 45: MCG-E monitoring location – October 29, 2024

Photo 46: MCG-F monitoring location – October 29, 2024

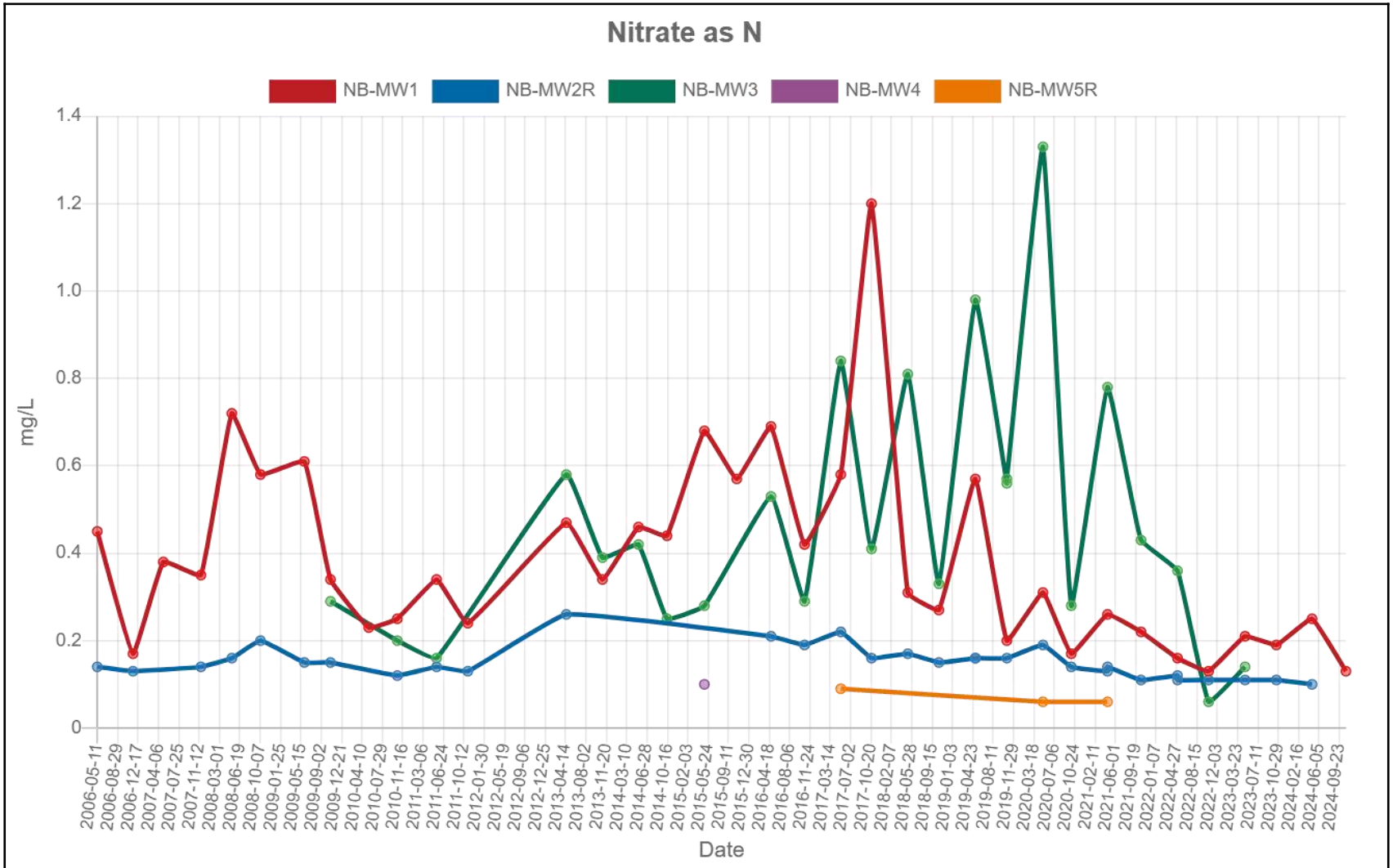
Photo 47: MCG-G monitoring location – October 29, 2024

Photo 48: MCG-H monitoring location – October 29, 2024

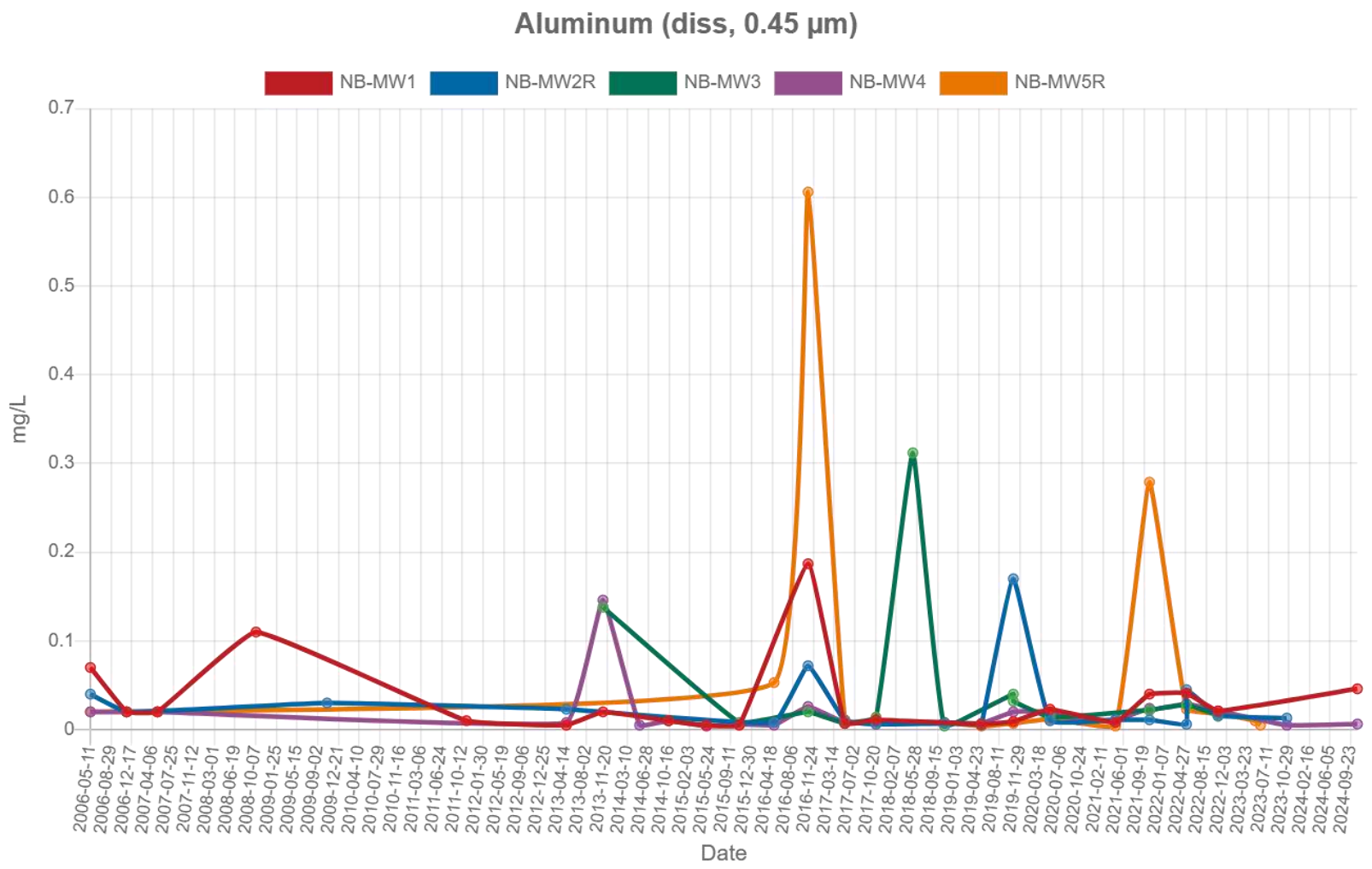
Chemistry Trend Graphs



North Baptiste WTS **Municipality of Hasting's Highlands**	**Graph 1** **Alkalinity in Groundwater**
BluMetric Project No: 240205-07 **Date: February 14, 2025**	**Created by: Lauren Hamilton** **Checked by: Emily Fletcher**



North Baptiste WTS **Municipality of Hasting's Highlands**	**Graph 2** **Nitrate in Groundwater**
BluMetric Project No: 240205-07 **Date: February 14, 2025**	**Created by: Lauren Hamilton** **Checked by: Emily Fletcher**

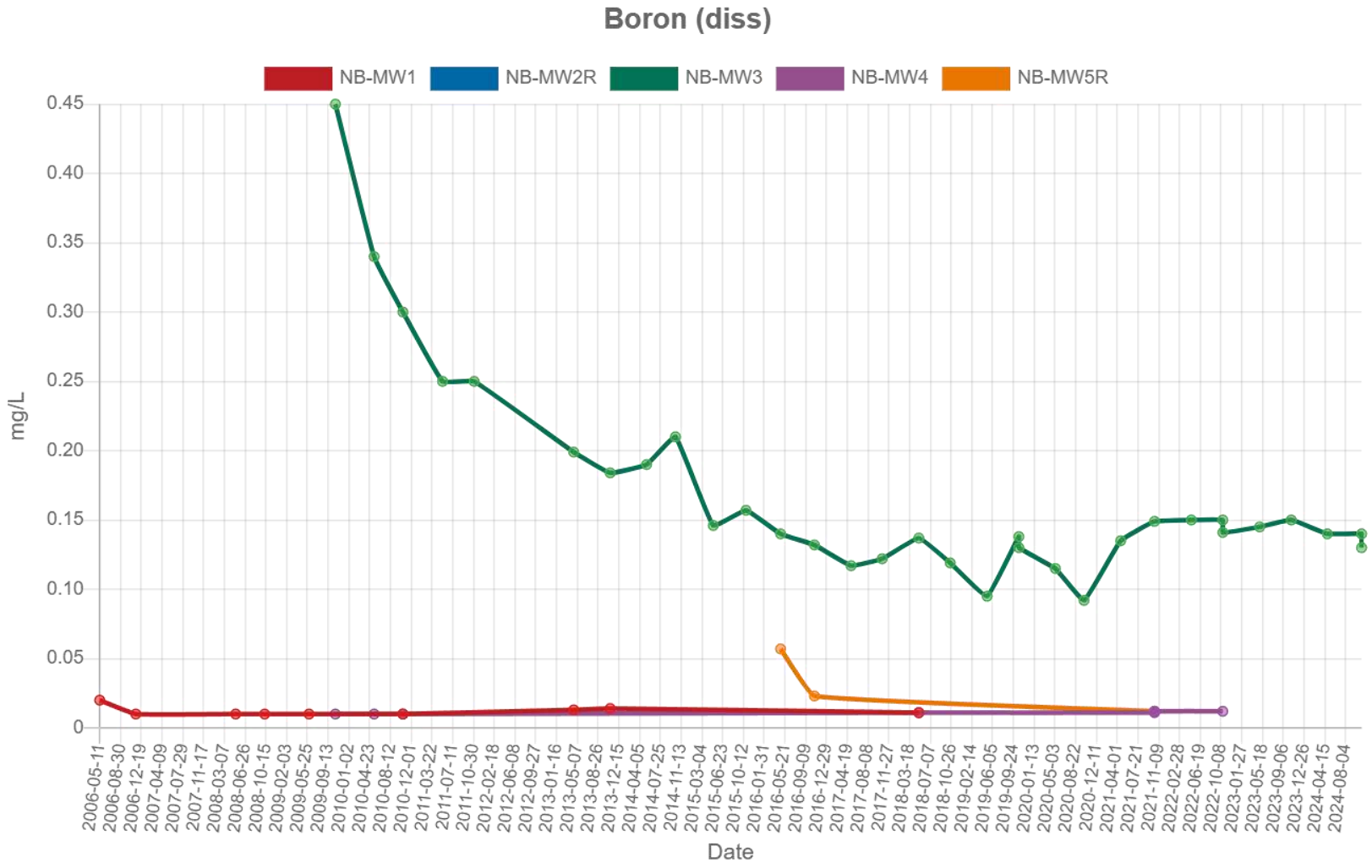


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 3
Aluminum in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher

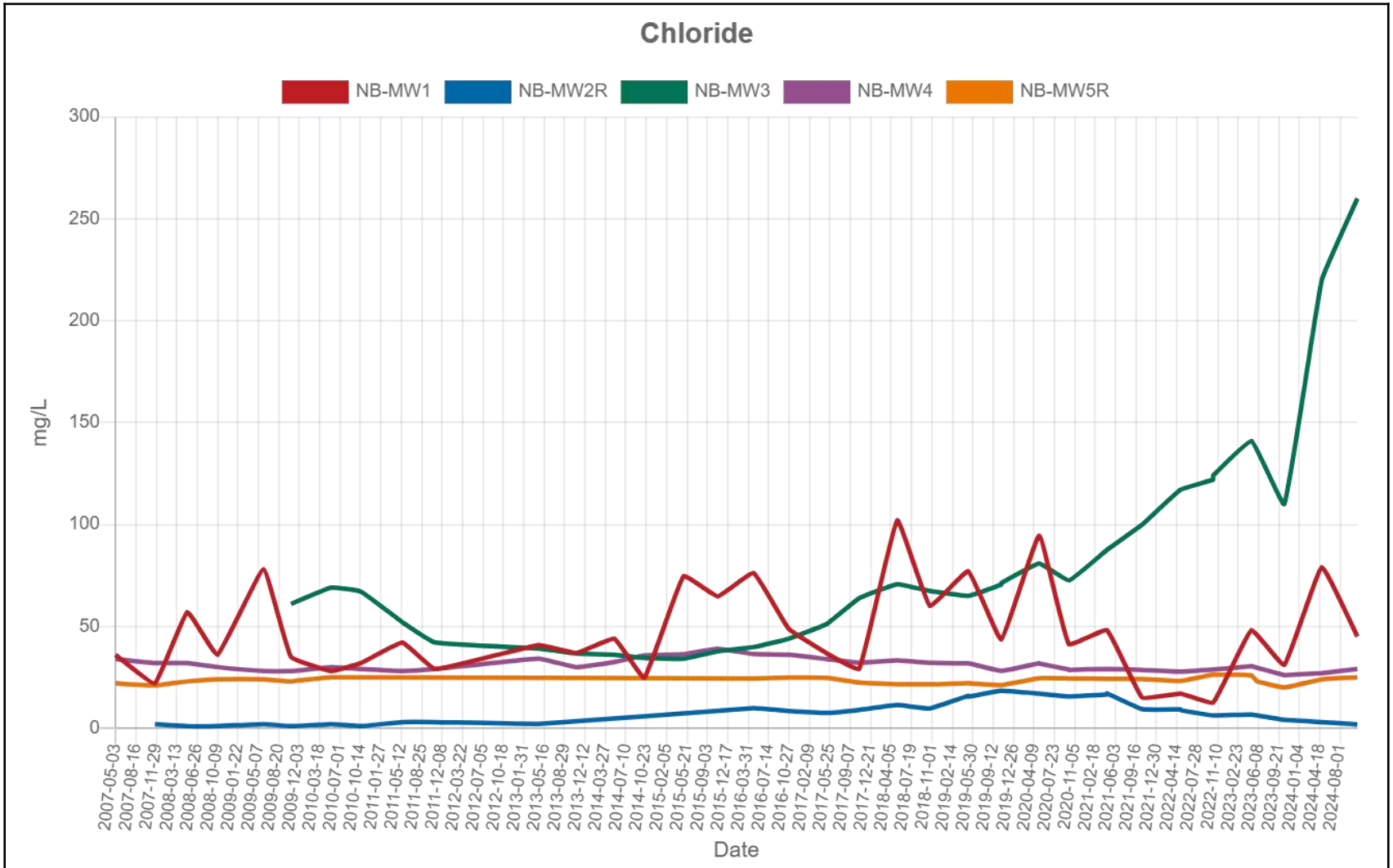


North Baptiste WTS
Municipality of Hasting's Highlands

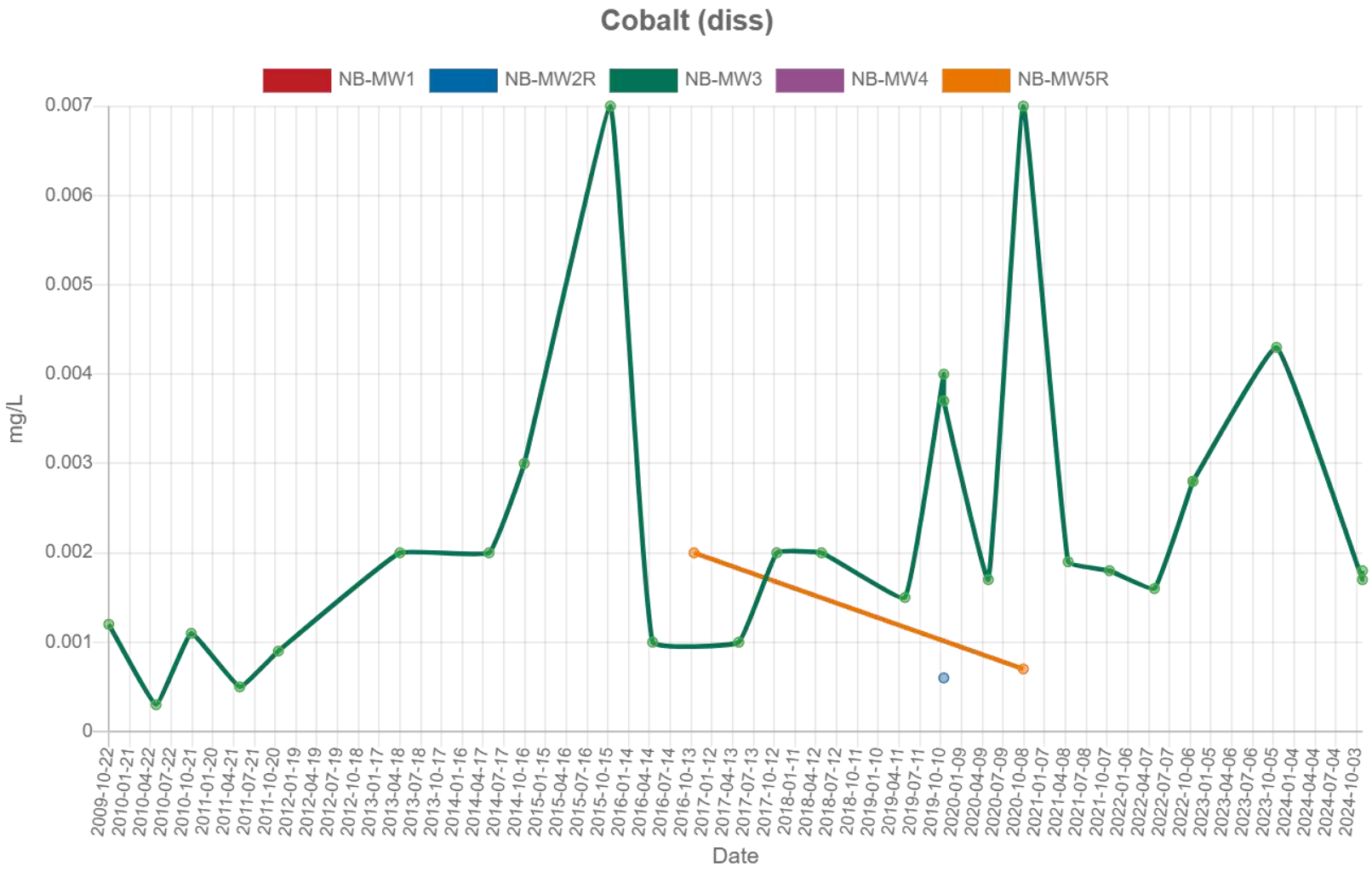
BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 4
Dissolved Boron in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher



North Baptiste WTS **Municipality of Hasting's Highlands**	**Graph 5** **Chloride in Groundwater**
BluMetric Project No: 240205-07 **Date: February 14, 2025**	**Created by: Lauren Hamilton** **Checked by: Emily Fletcher**

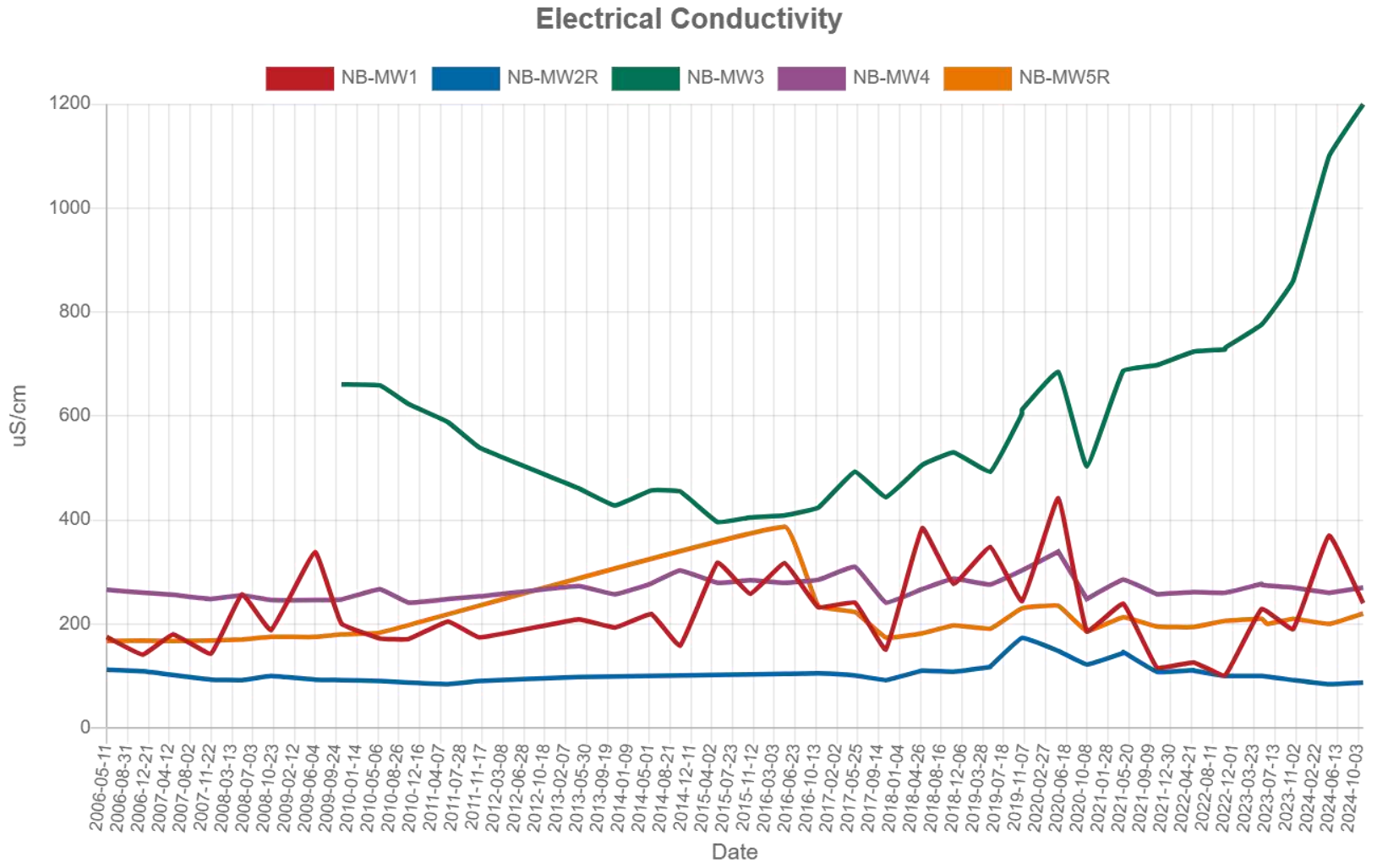


North Baptiste WTS
Municipality of Hasting's Highlands

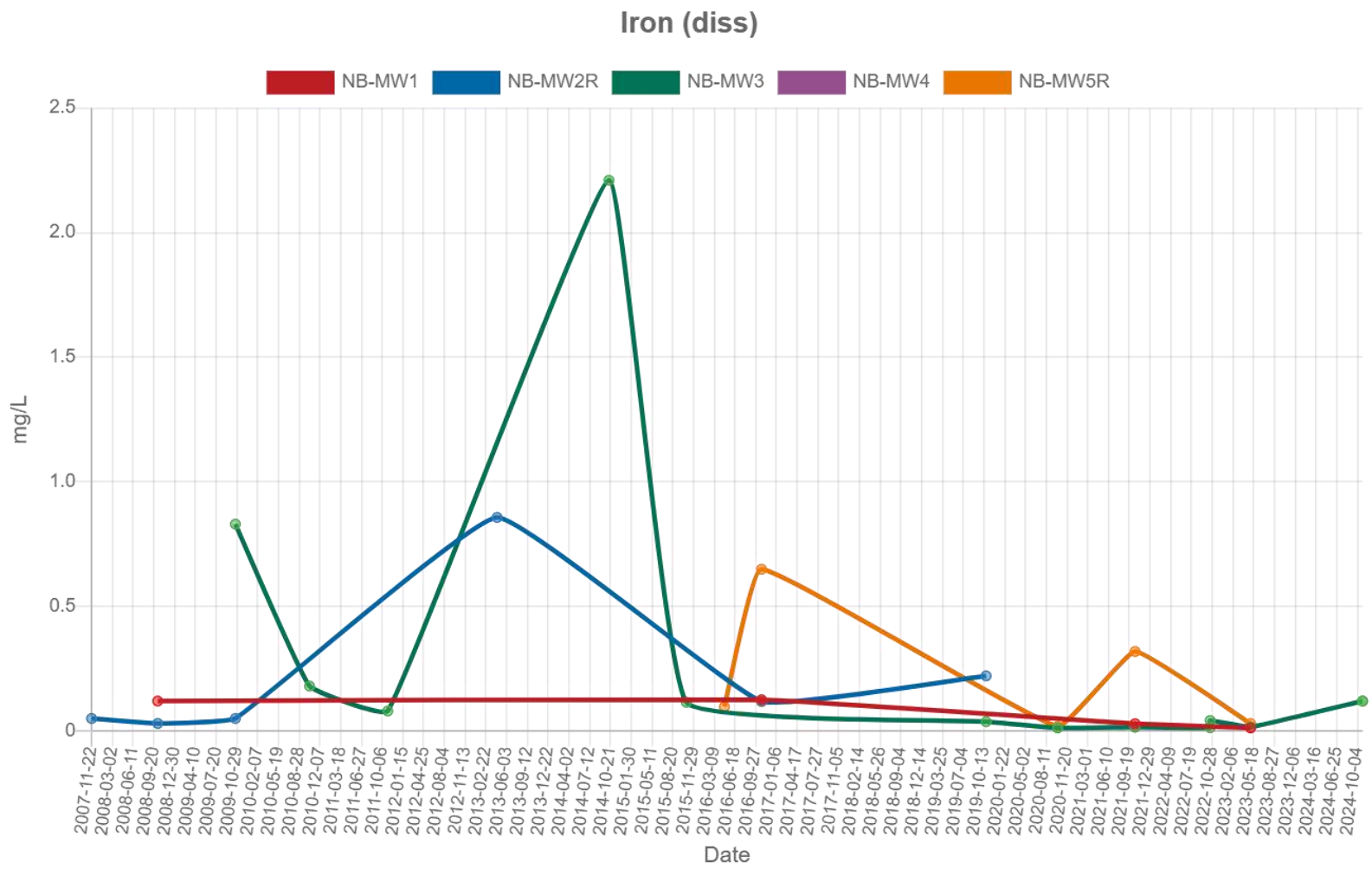
BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 6
Dissolved Cobalt in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher



North Baptiste WTS **Municipality of Hasting's Highlands**	**Graph 7** **Electrical Conductivity in Groundwater**
BluMetric Project No: 240205-07 **Date: February 14, 2025**	**Created by: Lauren Hamilton** **Checked by: Emily Fletcher**

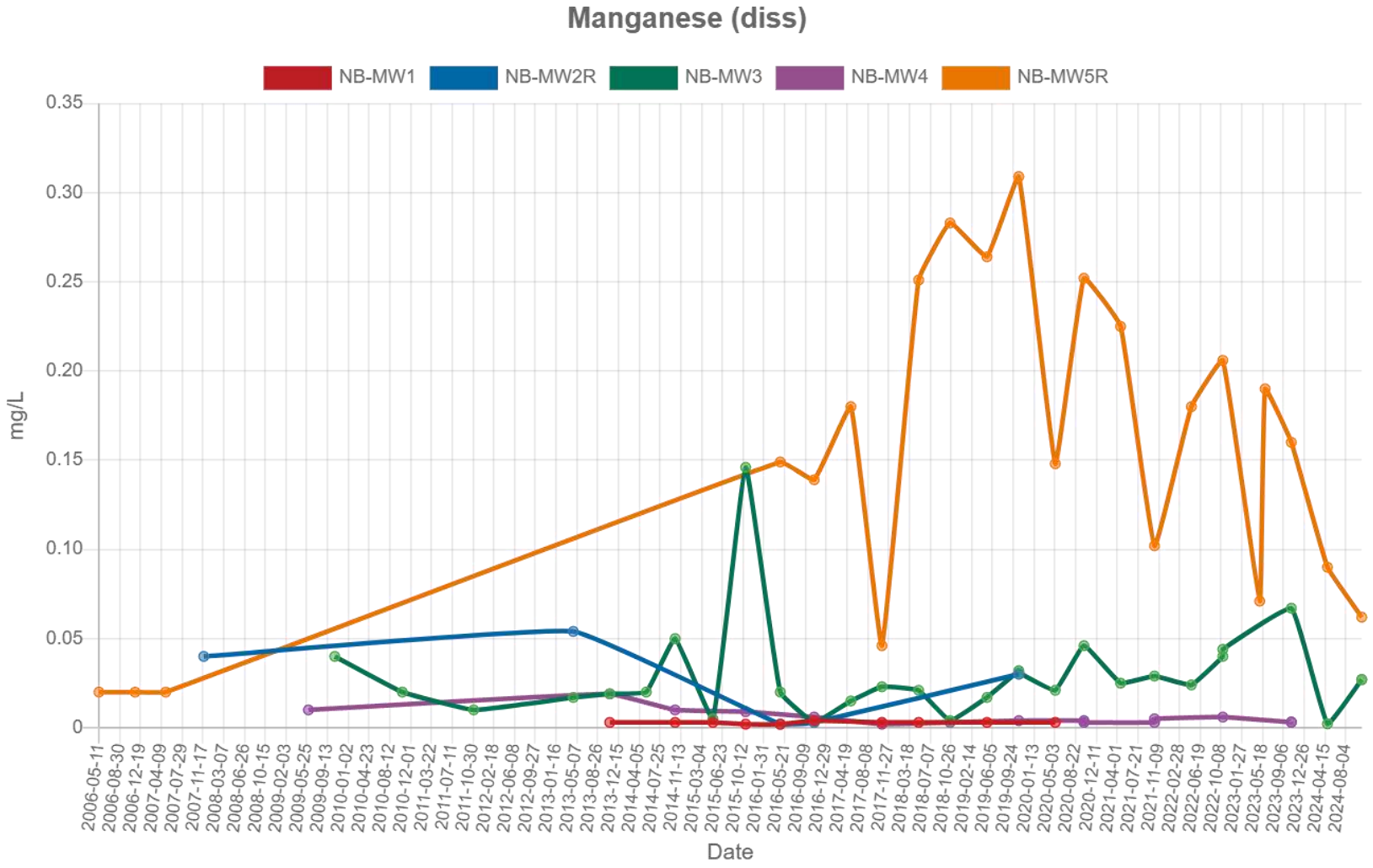


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 8
Dissolved Iron in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher

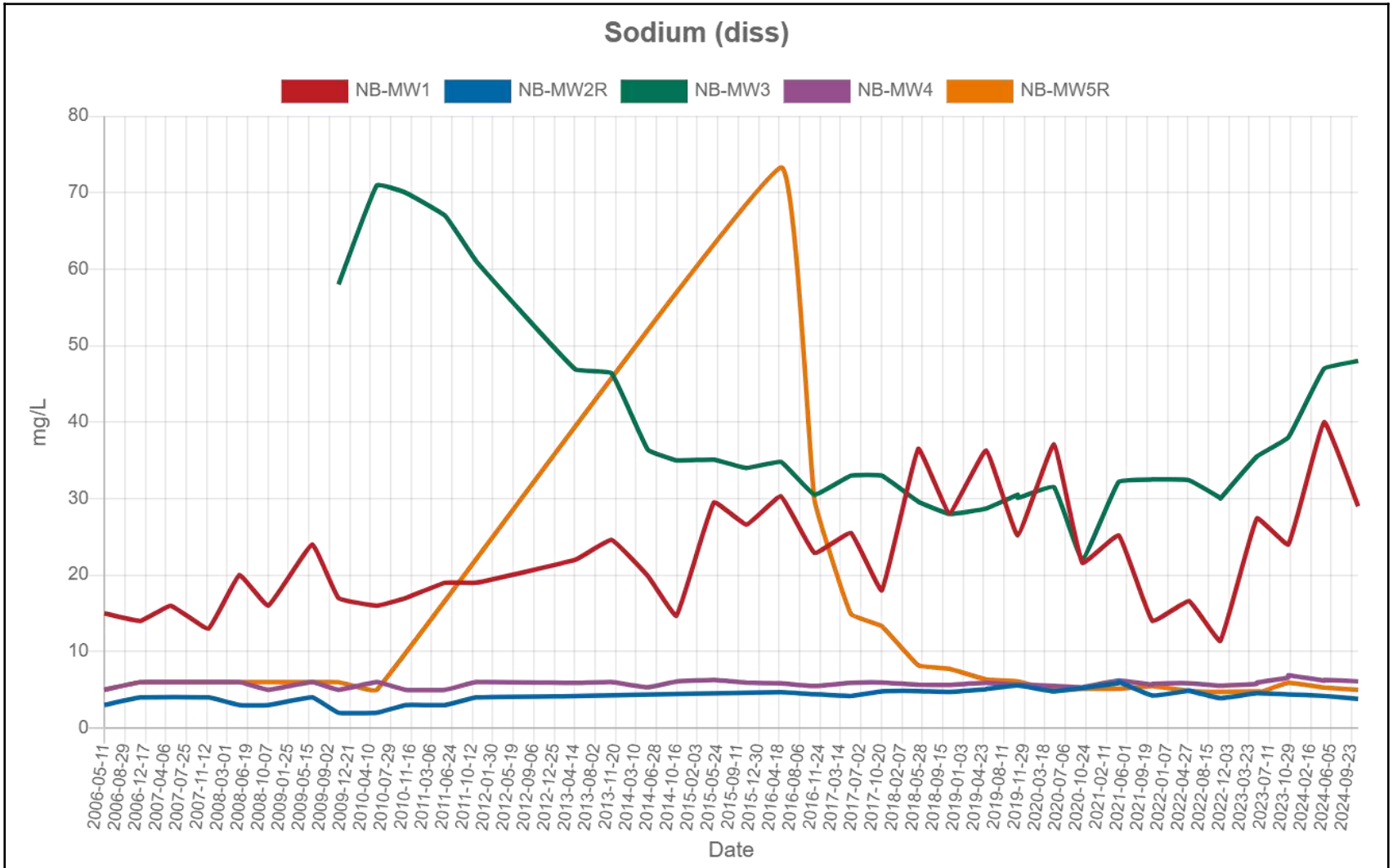


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 9
Dissolved Manganese in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher

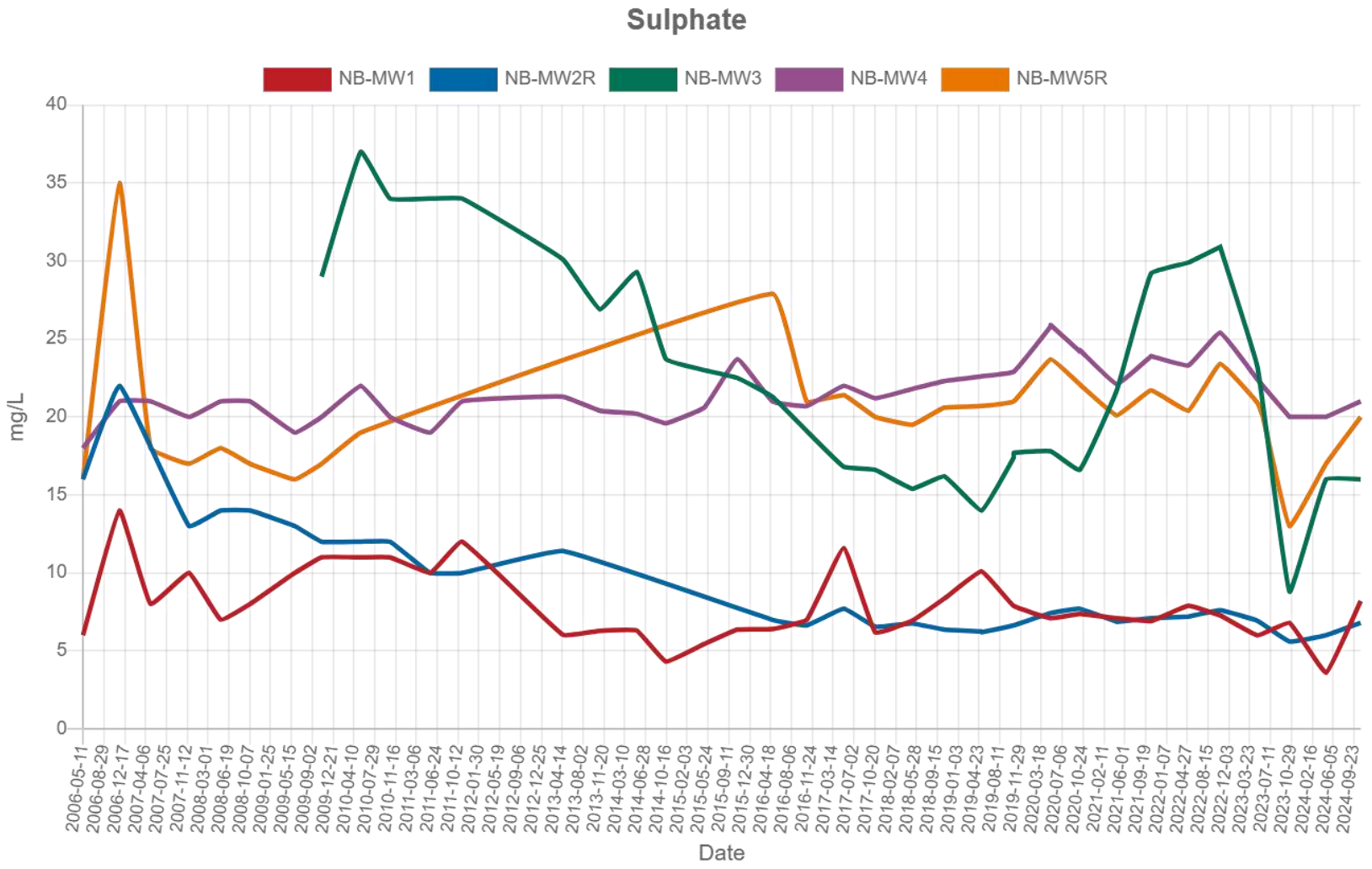


North Baptiste WTS
Municipality of Hasting's Highlands

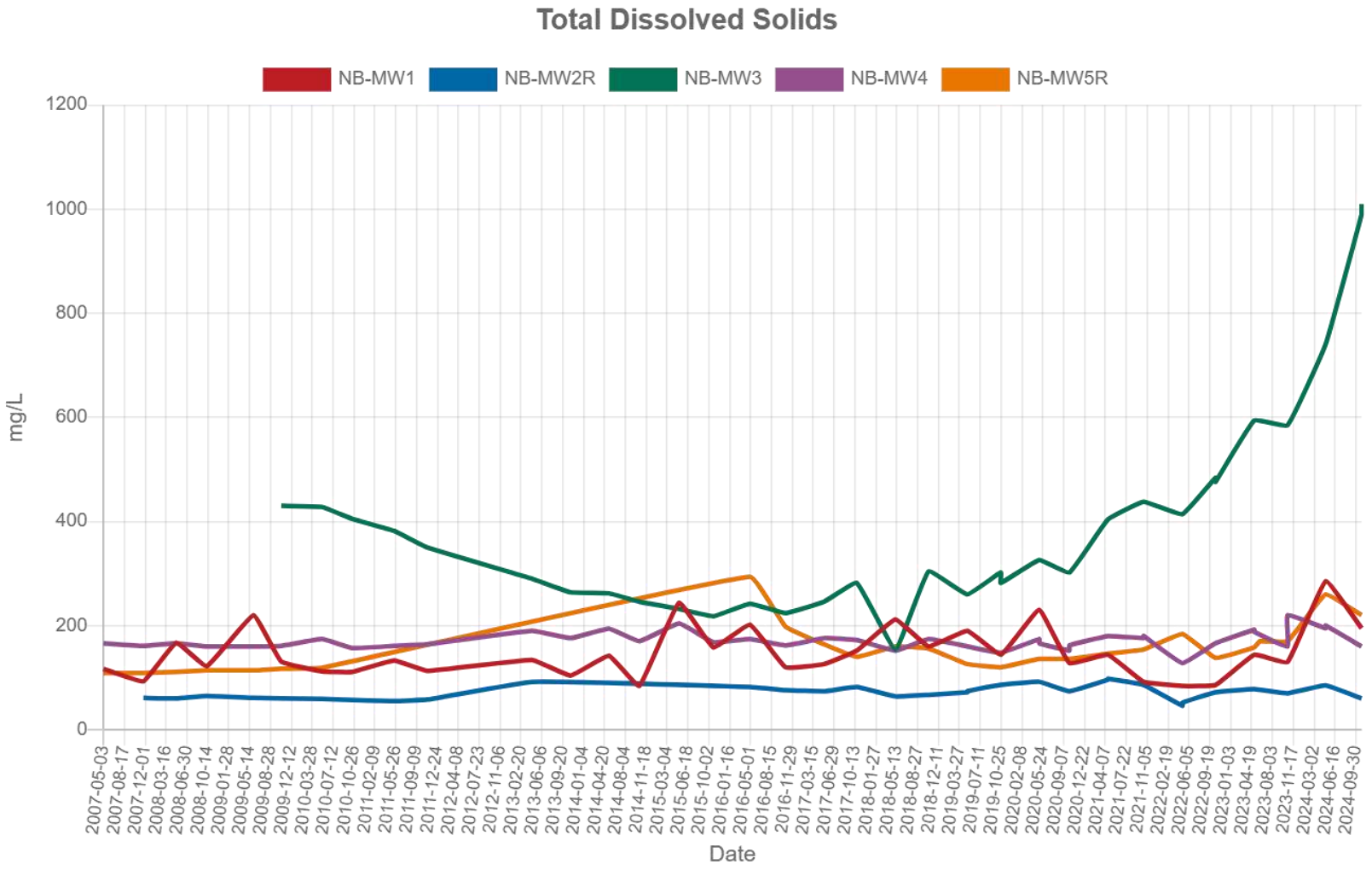
BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 10
Dissolved Sodium in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher



North Baptiste WTS **Municipality of Hasting's Highlands**	**Graph 11** **Sulphate in Groundwater**
BluMetric Project No: 240205-07 **Date: February 14, 2025**	**Created by: Lauren Hamilton** **Checked by: Emily Fletcher**

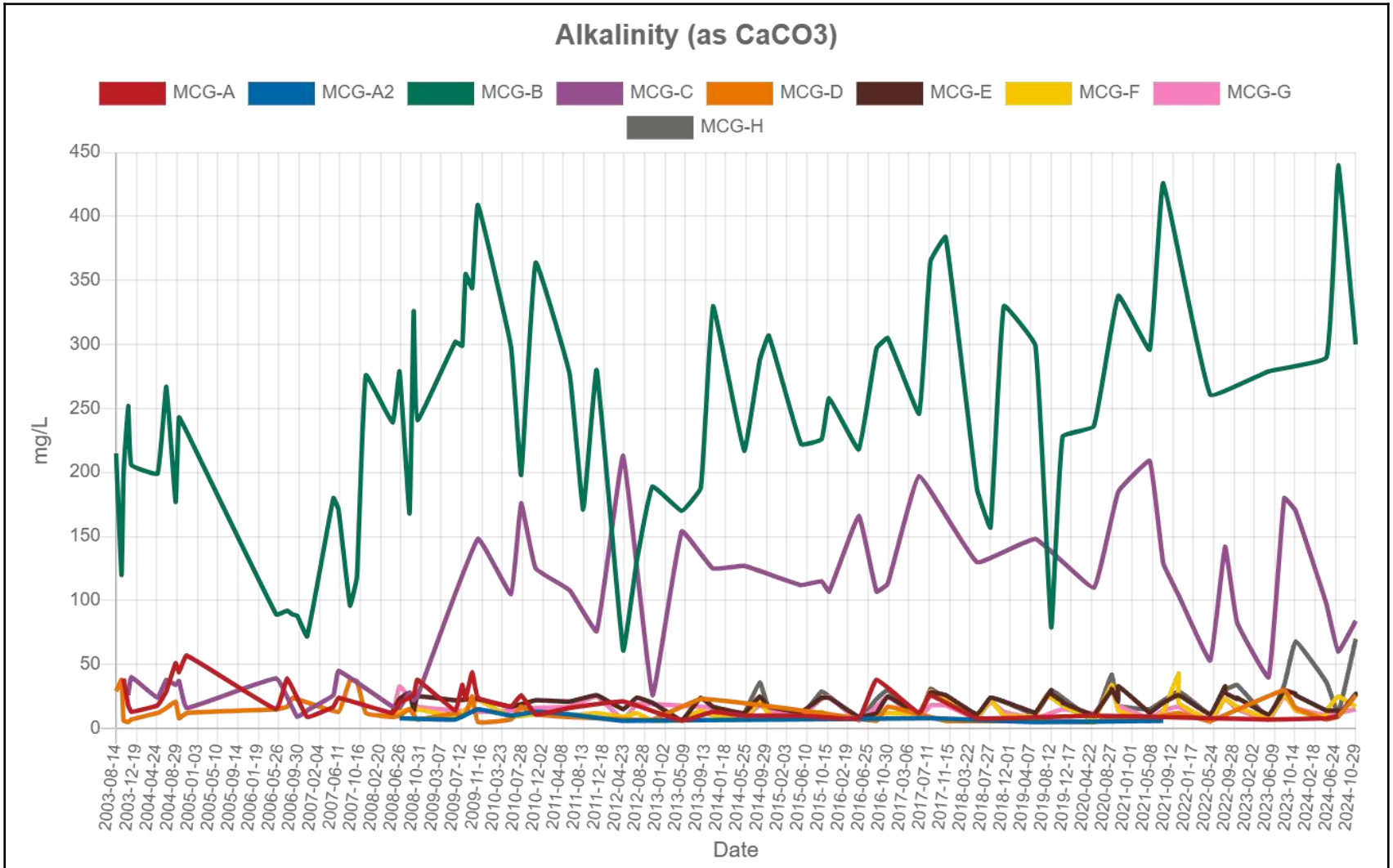


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 12
Total Dissolved Solids in Groundwater

Created by: Lauren Hamilton
Checked by: Emily Fletcher

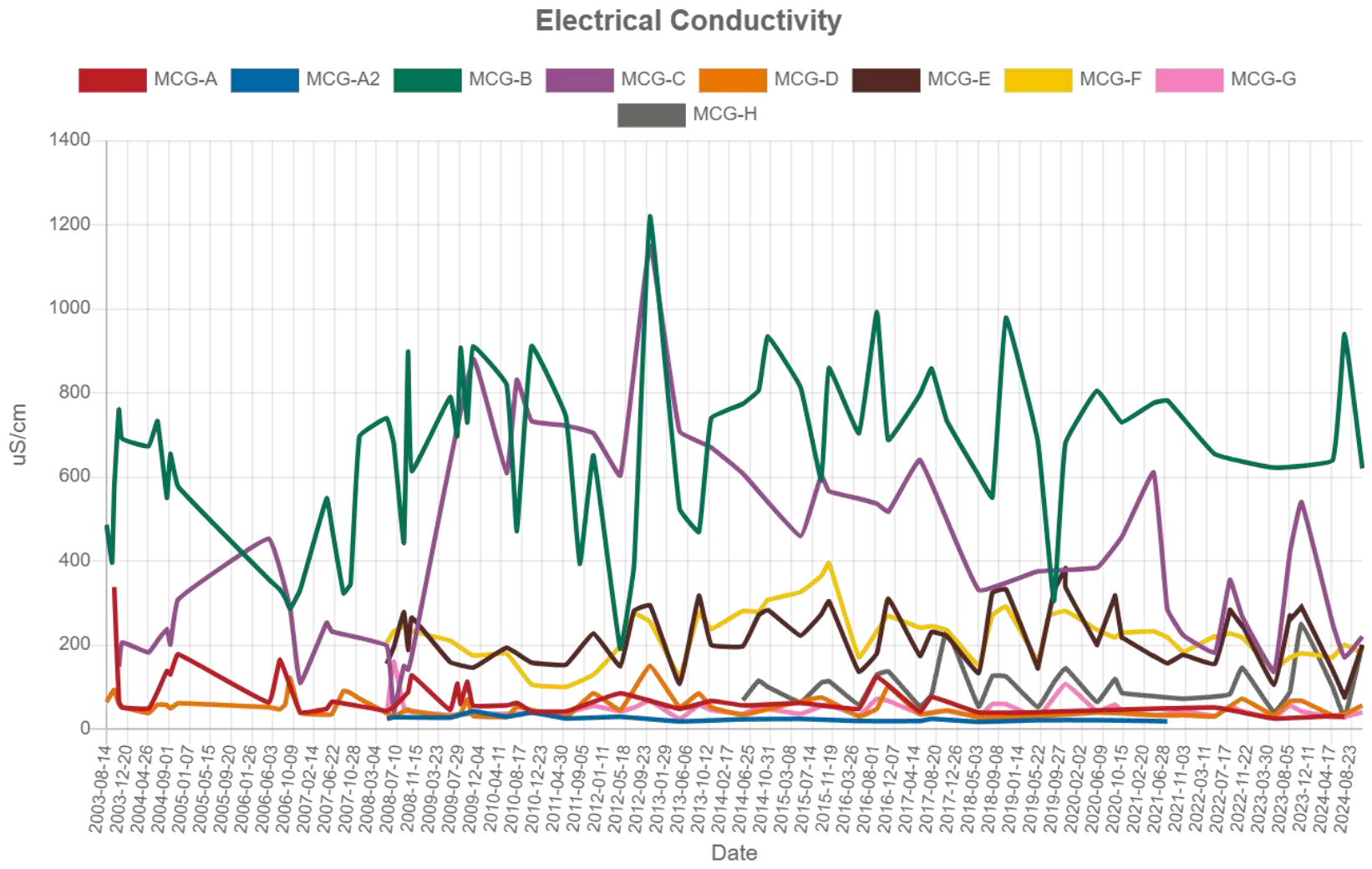


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 13
Alkalinity in Surface Water

Created by: Lauren Hamilton
Checked by: Emily Fletcher

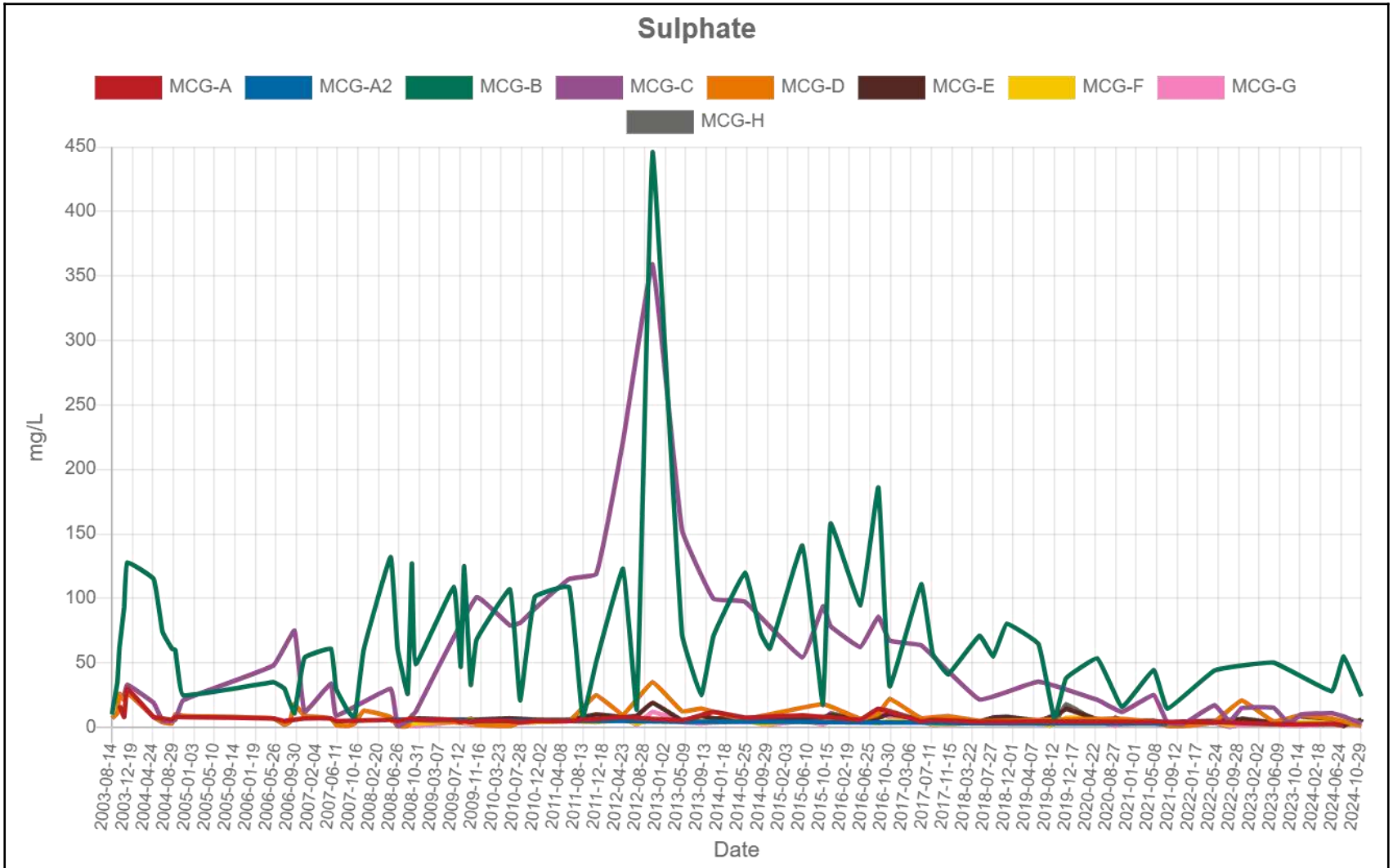


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 14
Electrical Conductivity in Surface Water

Created by: Lauren Hamilton
Checked by: Emily Fletcher

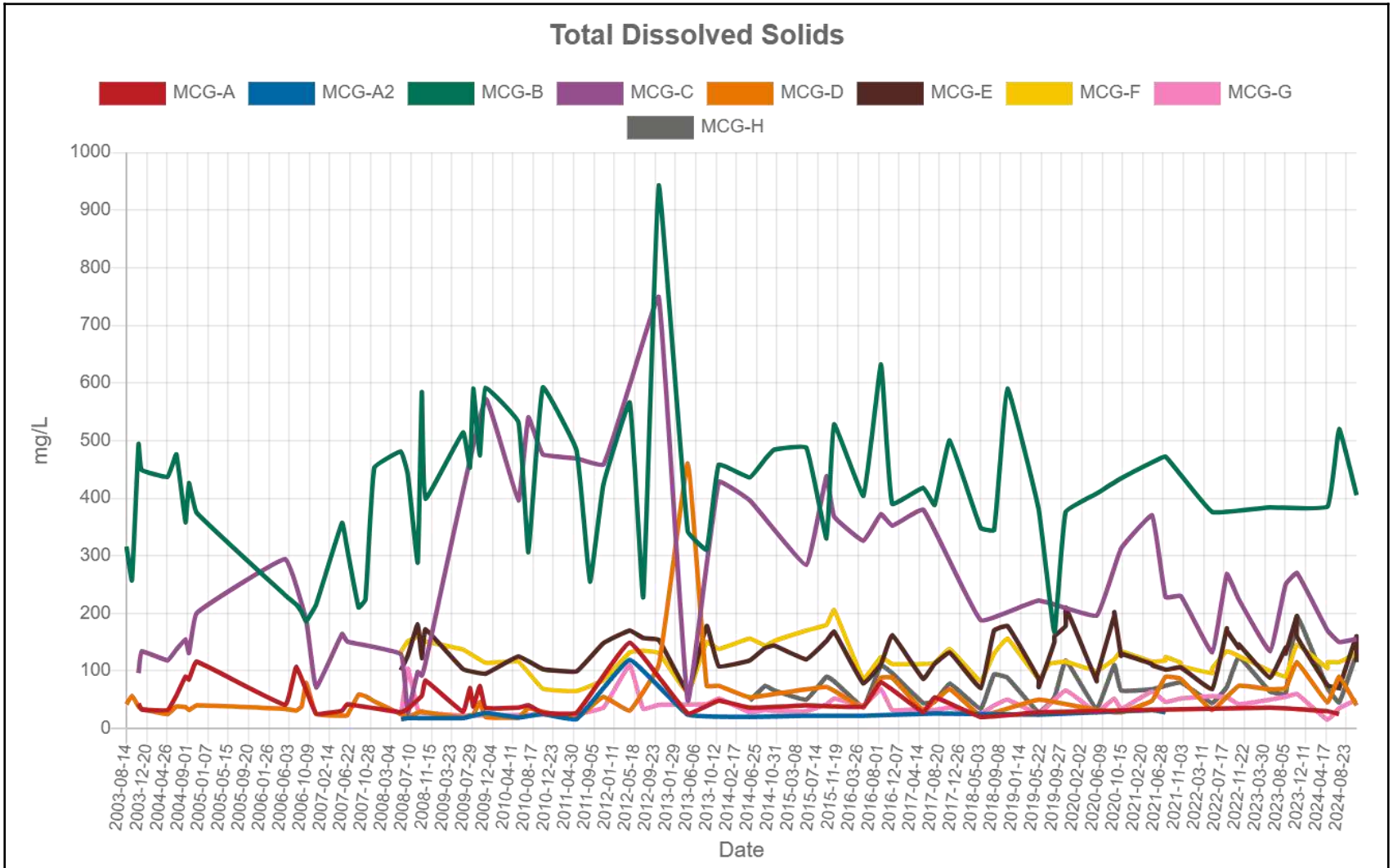


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 15
Sulphate in Surface Water

Created by: Lauren Hamilton
Checked by: Emily Fletcher

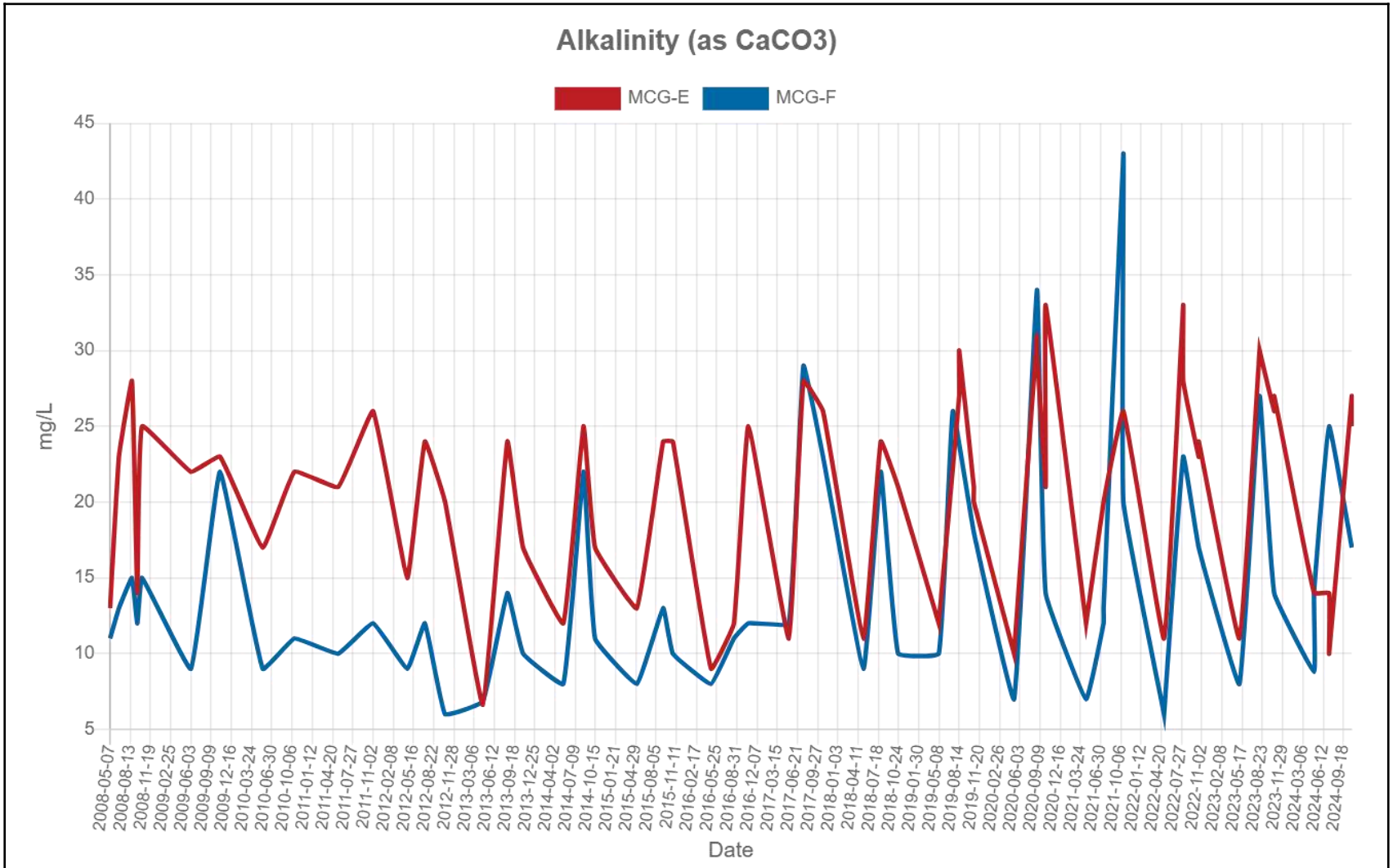


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 16
Total Dissolved Solids in Surface Water

Created by: Lauren Hamilton
Checked by: Emily Fletcher

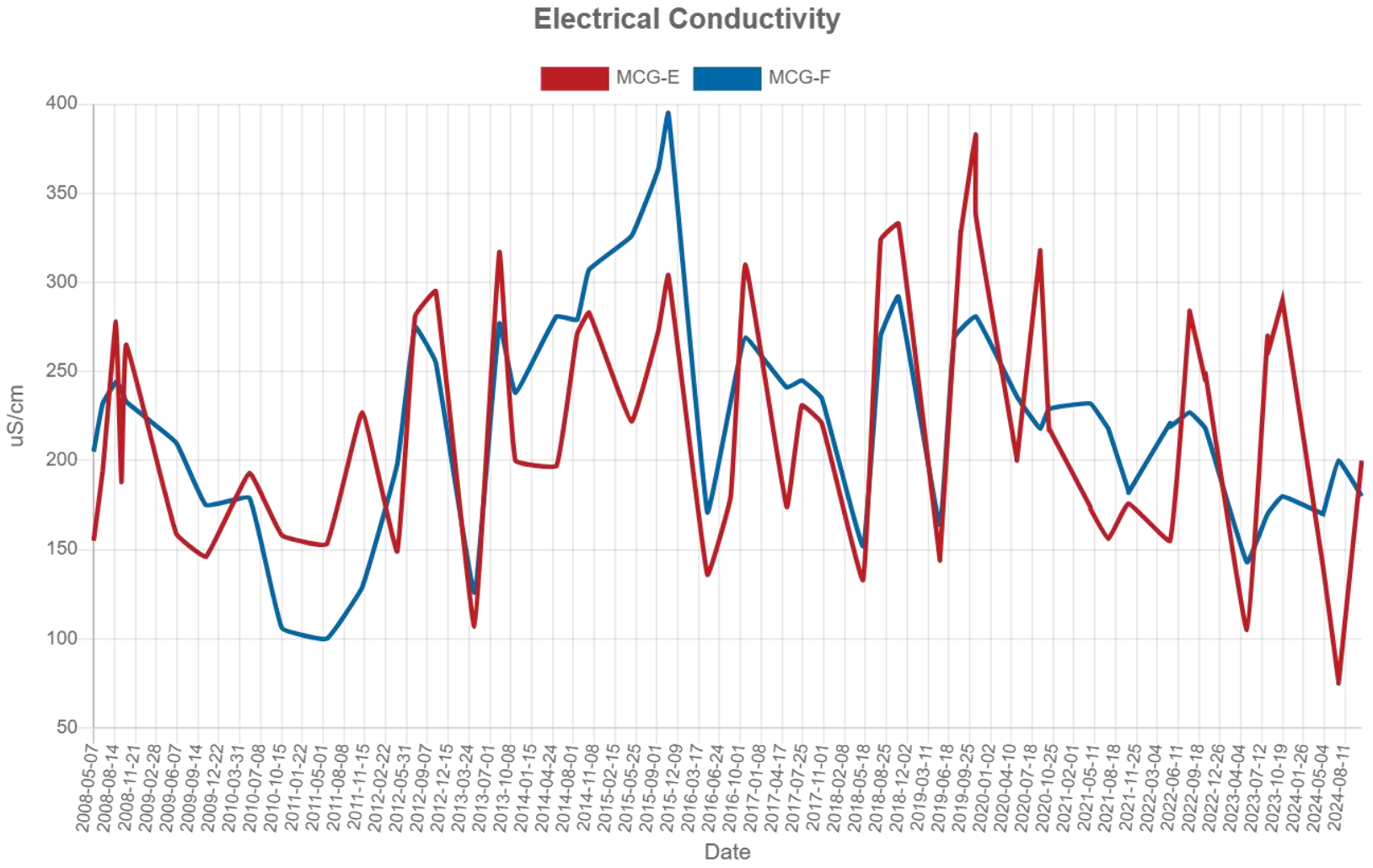


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 17
Selby Creek Alkalinity

Created by: Lauren Hamilton
Checked by: Emily Fletcher

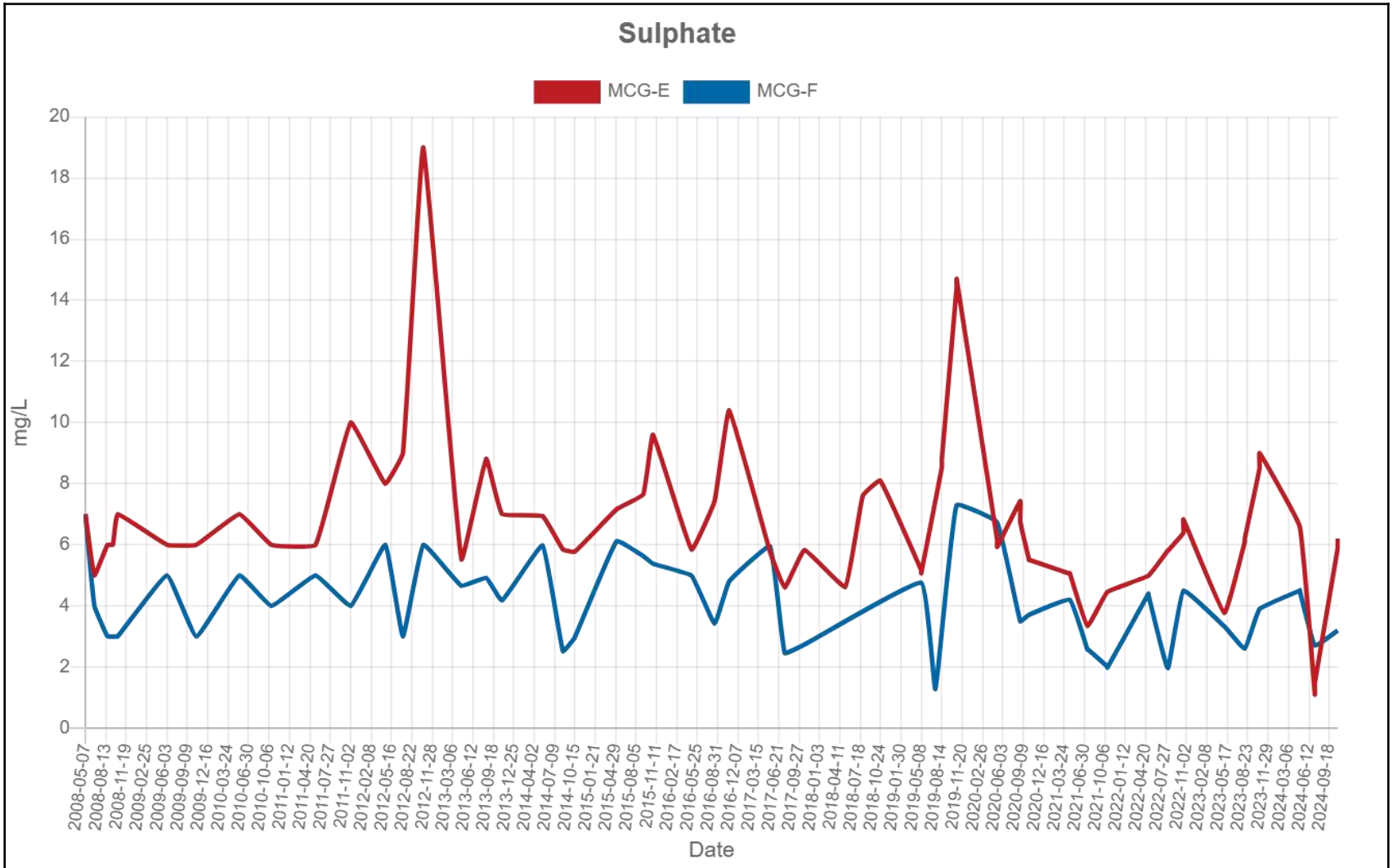


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 18
Selby Creek Electrical Conductivity

Created by: Lauren Hamilton
Checked by: Emily Fletcher

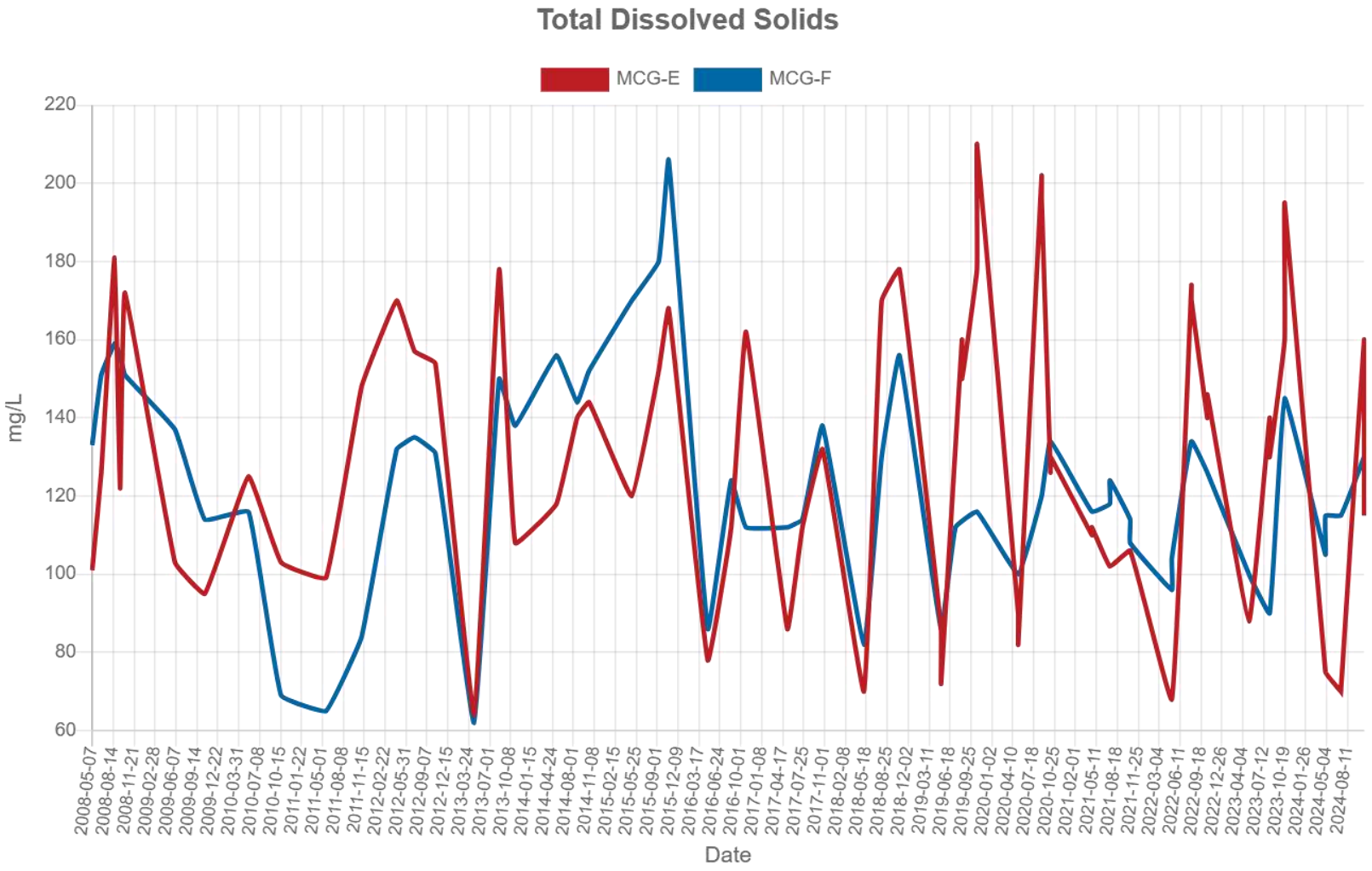


North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 19
Selby Creek Sulphate

Created by: Lauren Hamilton
Checked by: Emily Fletcher



North Baptiste WTS
Municipality of Hasting's Highlands

BluMetric Project No: 240205-07
Date: February 14, 2025

Graph 20
Selby Creek Total Dissolved Solids

Created by: Lauren Hamilton
Checked by: Emily Fletcher

Appendix A

Environmental Compliance Approval

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A361603
Issue Date: January 30, 2020

The Corporation of the Municipality of Hastings Highlands
33011 Highway 62 N
Post Office Box, No. 130
Maynooth, Ontario
K0L 2S0

Site Location: North Baptiste Waste Transfer Site (formerly North Baptiste Waste Disposal Site)
353 North Baptiste Rd (Lot 3, Concession 10, former Herschel Township)
Hastings Highlands Municipality, County of Hastings

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:

for the use and operation of a waste transfer station on a 0.69 hectare closed landfill within a 3.207 hectare total Site area.

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

Definitions

(a) "**Buffer**" means those lands between the limit of fill and the boundaries of the property owned by the *Owner,* that shall in no instance be less than 30 metres;

(b) "**Director**" means the one or more persons who from time to time are so designated for the purpose of Part V of the Environmental Protection Act, R.S.O. 1990, as amended from time to time;

(c) "**District Manager**" means the Manager of the Belleville District Office, Ministry of the Environment, Conservation and Parks;

(d) "**ECA**" means this Environmental Compliance Approval No. A361603 as amended from time to time and all Schedules attached to and forming part of this *ECA;*

(e) "**EPA**" means the Environmental Protection Act, R.S.O. 1990, as amended;

(f) "**Limit of Fill**" means the area in which waste is approved for final disposal according to this *ECA;*

(g) "**Ministry**" or "**MECP**" means the Ontario Ministry of the Environment, Conservation and Parks;

(h) "**ODWS**" means the Ontario Drinking Water Standards, as amended from time to time;

(i) "**Ontario Regulation 189**" means Ontario Regulation 189/94, Refrigerants, or as amended, made under the *EPA;* and

(j) "**Ontario Regulation 347**" means Ontario Regulation 347 of Revised Regulations of Ontario, 1990 (General - Waste Management), made under the *EPA,* as amended.

(k) "**Owner**" means The Corporation of the Municipality of Hastings Highlands, the party having charge, management or control of the *Site,* rather than the ownership of the *Site;*

(l) "**OWRA**" means the Ontario Water Resources Act, R.S.O. 1990, c.0.40, as amended;

(m) "**PWQO**" means the 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;

(n) "**Regional Director**" means the Director, Eastern Region, Ministry of the Environment, Conservation and Parks;

(o) "**RUP**" means the Reasonable Use Policy (Guideline B-7) of the Ministry of the Environment, Conservation and Parks;

(p) "**Site**" means the property known as North Baptiste Waste Transfer Site (formerly North Baptiste Waste Disposal Site), 353 North Baptiste Rd (Lot 3, Concession 10, former Herschel Township) Hastings Highlands Municipality, County of Hastings, and described in this *ECA.*

(q) "**white goods which contain refrigerants**" means white goods which contain, or may contain refrigerants, and which include, but is not restricted to, refrigerators, freezers and air-conditioning systems; and

(r) "**Regulation 232**" means Ontario Regulation 232/98 (New Landfill Standards) made under the *EPA,* as amended from time to time.

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

TERMS AND CONDITIONS

General

1. This *ECA* supersedes and replaces Provisional Certificate Number A361603 issued on January 18, 2001;

and as amended.

2. Except as otherwise provided by these Conditions, the *Site* shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and or installed in accordance with the Application for a Certificate of Approval for a Waste Disposal Site dated October 27, 1996, and supporting documentation, and plans and specifications listed in Schedule "A".

3. The requirements specified in this *ECA* are requirements under the *Act.* Issuance of this *ECA* in no way abrogates the *Owner's* legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

4. The requirements of this *ECA* are severable. If any requirements of this *ECA,* or the application of any requirement of this *ECA* to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this *ECA* shall not be affected in any way.

5. The *Owner* must ensure compliance with all terms and conditions of this *ECA.* Any non-compliance constitutes a violation of the *Act* and is grounds for enforcement.

6. (a) The *Owner* shall, forthwith upon request of the *Director, District Manager,* or Provincial Officer (as defined in the *Act*), furnish any information requested by such persons with respect to compliance with this *ECA,* including but not limited to, any records required to be kept under this *ECA;* and

   (b) In the event the *Owner* provides the *Ministry* with information, records, documentation or notification in accordance with this *ECA* (for the purposes of this condition referred to as "Information"),
   (i) the receipt of Information by the *Ministry;*
   (ii) the acceptance by the *Ministry* of the Information's completeness or accuracy; or
   (iii) the failure of the *Ministry* to prosecute the *Owner,* or to require the *Owner* to take any action, under this *ECA* or any statute or regulation in relation to the Information;

   shall not be construed as an approval, excuse or justification by the *Ministry* of any act of omission of the *Owner* relating to the Information, amounting to non-compliance with this *ECA* or any statute or regulation.

7. The *Owner* shall allow *Ministry* personnel, or a *Ministry* authorized representative(s), upon presentation of credentials, to:
   (a) carry out any and all inspections authorized by Section 156, 157 or 158 of the Act, Section 15, 16 or 17 of the **Ontario Water Resources Act**, R.S.O. 1990, or Section 19 or 20 of the **Pesticides Act**, R.S.O. 1990, as amended from time to time, of any place to which this *ECA* relates; and,
   (b) without restricting the generality of the foregoing, to:
   (i) enter upon the premises where records required by the conditions of this *ECA* are kept;
   (ii) have access to and copy, at reasonable times, any records required by the conditions of this *ECA;*
   (iii) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of this *ECA;* and

(iv) sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of this *ECA.*

8. Where there is a conflict between a provision of any document referred to in Schedule "A", and the conditions of this *ECA,* the conditions in this *ECA* shall take precedence. Where there is a conflict between the documents listed in Schedule "A", the document bearing the most recent date shall prevail.

9. Any information relating to this *ECA* 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* , R.S.O. 1990, C. F-31.

10. All records and monitoring data required by the conditions of this *ECA* must be kept on the *Owner's* premises for a minimum period of five (5) years from the date of their creation.

Certificate of Prohibition / Registration on Title

11. The *Owner* shall, if not previously completed:
    (a) within sixty (60) calendar days issuance of this *ECA,* submit to the *Director* for the *Director's* signature, two (2) copies of a completed Certificate of Prohibition containing a registerable description of the *Site,* in accordance with Form 1 of O. Reg. 14/92 (Document General - Form 4 - *Land Registration Reform Act*); and

    (b) within ten (10) calendar days of receiving the Certificate of Prohibition signed by the *Director,* register the Certificate of Prohibition in the appropriate Land Registry Office on title to the *Site* and submit to the *Director* immediately following registration the duplicate registered copy.

Transferral or Encumbrance of Site

12. Pursuant to Section 197 of the *EPA* , 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 *ECA* to each person acquiring an interest in the *Site* as a result of the dealing.

13. 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 in writing and is satisfied with the arrangements made to ensure that all terms and conditions of this *ECA* will be carried out and sufficient financial assurance (*EPA* , Part XII) is deposited with the *Ministry,* if requested by the *Director,* to ensure that these terms and conditions will be carried out.

Notification

14. The *Owner* shall ensure that all communications/correspondence made pursuant to this *ECA* No. A361603.

15. The *Owner* shall notify the *District Manager* in writing within thirty (30) days of becoming aware of any of the following changes:

(i) change of *Owner* /Operator of the *Site* or both: and
(ii) address of the new *Owner* or change of address.

Service Area and Landfill Waste

16. Wastes generated only from within the geographic boundaries of the Municipality of Hastings Highlands may be received for disposal at this Site. No waste shall be received for disposal at this *Site* from outside the approved service area.

17. The final approved volumetric capacity of the landfill at the *Site,* excluding final cover, is 12,040 cubic metres.

18. (a) No waste may be placed in the landfill at the *Site* and the landfill shall be closed as described in Condition 43; and
(b) The *Site* shall be designed and operated as a waste transfer station with recycling operations as described in Conditions 19 and 20.

Recycling Operation

19. The operation of the *Site* for acceptance and storage of recyclable waste and subsequent transfer of such wastes by approved carriers for processing elsewhere shall be in accordance with the following:
(a) The *Owner* shall notify the *District Manager,* in writing, of any change in the operation or its termination within 30 days of the change occurring;
(b) The *Site* shall only accept recyclable material as identified in Table 3 of the Waste Transfer Station Design and Operations Plan, Item 19 of Schedule "A";
(c) Source separated waste materials shall be stored in covered containers and stored in a manner to prevent off-site impacts and which minimizes the impacts on the environment and the public;
(d) The *Operator* shall ensure that recycling operation is managed in a manner which minimizes the impacts of vermin, vectors, dust, odour, noise and traffic on the environment and the public;
(e) Except as otherwise specified by the *District Manager* in writing or in Table 3 of the Waste Transfer Station Design and Operations Plan, Item 19 of Schedule "A", wastes shall not be stored on *Site* for more than 8 weeks from the day of collection; and
(f) No wastes other than those listed in Condition 19 (b) and Condition 20 shall be collected and stored at the *Site* without an amendment to this *ECA.*

Waste Transfer Station

20. The *Owner* may accept, store and subsequently transfer waste at the *Site* in accordance with the following:
(a) The design, development, operation, and maintenance of the Waste Transfer Station at the *Site* shall be in accordance with the Waste Transfer Station Design and Operations Plan, as outlined in Item 19 of Schedule "A";
(b) The *Site* shall only accept, store and subsequently transfer waste as identified in Table 3 of the Waste Transfer Station Design and Operations Plan;
(c) The amount of waste that may be received at the *Site* shall not exceed the amounts identified in Table 3 of the Waste Transfer Station Design and Operations Plan, with a maximum of 6.0 metric

tonnes per week and a total maximum of 200 metric tonnes of waste/recyclables per year; and

(d) The *Owner* shall ensure that all waste is accepted, handled, and maintained in a manner which minimizes the impacts of vermin, vectors, dust, odour, noise and traffic on the environment and the public.

Operating Hours

21. The *Owner* shall set operational hours which provides an adequate level of service.
    (a) The hours of operation shall be any day of the week, during daylight hours. The *Owner* shall clearly post the hours of operation at the landfill gate.

    (b) The hours of operation may be changed with the approval of the *District Manager,* and provided that the hours are correctly posted at the landfill gate and that suitable public notice is given of any change. The *Director* shall be notified of the change with thirty days of such change.

22. No waste shall be received for disposal at the *Site* except during the hours of operation and under the supervision of an attendant.

23. The *Owner* shall ensure that during non-operating hours, the *Site* entrance and exit gates are locked or otherwise secured against access by unauthorized persons.

24. During non-operating hours, the *Owner* may conduct equipment maintenance, administrative functions and on-site activity other than waste disposal as required.

Signage and Security

25. A sign shall be posted at the entrance gate of the *Site* with the following information:
    (a) Name of the *Site* and *Owner;*
    (b) *ECA* Number for the *Site;*
    (c) Days and hours of operation;
    (d) Allowable and prohibited waste types;
    (e) Contact telephone number(s); and
    (f) Warning against unauthorized access and against dumping outside the *Site.*

26. The *Owner* shall ensure that:
    (a) access to the *Site* is restricted by fencing and/or natural features;
    (b) fencing and lockable gate are kept in good repair; and
    (c) the *Site* is screened from public view on all sides.

Burning At the Site

27. The *Owner* shall ensure that:
    (a) no waste other than segregated brush, lumber and clean wood is burned at this Site;
    (b) burning is conducted in accordance with the Ministry of Environment *"Guidance Manual for Landfill Sites Receiving Municipal Waste",* dated 1993;

(c) access to the burning area by the public and other unauthorized personnel is prohibited when burning is carried out; and
(d) no burning is to occur without the supervision of the attendant.

Nuisance Control

28. If at any time problems such as odours, dust, litter, noise, vectors, vermin, rodents, bears or other nuisances are found at the *Site,* the *Owner* shall take appropriate, immediate remedial action to eliminate the problem.

29. The *Owner* shall implement a litter control plan which shall include:
(a) taking all practical steps to prevent the escape of litter from the *Site;*
(b) litter pick-up at the *Site* during each operating day; and
(c) monthly litter pick-up along the access road in the vicinity of the *Site.*

Inspections

30. The *Owner* shall conduct regular inspections of the *Site* to ensure the landfill cap, all waste transfer operations, monitoring wells, and all aspects of the *Site* are maintained in a manner which minimizes the impacts on the environment and the public.

Staff Training

31. The *Owner* shall develop and maintain a training plan for current and new *Site* operations employees and shall ensure that all *Site* operations employees have been adequately trained and receive on-going training with respect to the following:
(a) terms, conditions and operating requirements of this *ECA;*
(b) the operation, inspection, and maintenance of the *Site* with respect to the approved design and operations documents;
(c) record keeping requirements;
(d) relevant waste management legislation and regulations;
(e) environmental concerns related to waste management at the *Site;*
(f) occupational health and safety concerns related to waste management at the *Site;* and
(g) emergency procedures and contingency plans in cases of fire, spills, off-site impacts and any other emergency situations.

Complaints

32. 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 each complaint on a formal complaint form entered in a log book. The information recorded shall included the nature of the complaint, the name, address and telephone number of the complainant and the time and date of the complaint;
(b) The *Owner,* upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the compliant, 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 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 reoccurrence of similar incidents.

Record Keeping

33. The *Owner* shall record the following information with respect to all wastes received at the Site:
    (a) date of record;
    (b) number of deliveries and types of materials received;
    (c) quantities and destinations of waste shipped from the *Site;*
    (d) results of the inspection required under Condition 30; and
    (e) any accidents, injuries, spills, leaks, other upsets or complaints received.

Spill Reporting

34. The *Owner* shall promptly take all necessary steps to contain and clean up any spills which result from the operation of the *Site.* All spills and upsets shall be immediately reported to the *Ministry* 's Spills Action Centre at (416) 325-3000 or 1-800-268-6060 and shall be recorded in a written log or an electronic file format, referred to in Condition 35 of this *ECA,* as to the nature of the spill or upset, and the action taken for clean-up, correction and prevention of future occurrences.

35. Within three (3) days of any spill or incident that occurs at the *Site,* the *Owner* shall submit to the *District Manager* a written report outlining the nature of the incident, remedial measures taken and measures taken to prevent potential future occurrences.

Monitoring Plan

36. The *Owner* shall retain qualified professionals to conduct groundwater and surface water monitoring as per Schedule "B" , and as modified by the *District Manager.*

37. (a) All monitoring wells which form part of any monitoring program shall be protected from damage.
    (b) Any groundwater monitoring wells that are damaged shall be repaired, replaced forthwith or properly abandoned.

Trigger Mechanisms and Contingency Plans

38. The *Owner* shall review all surface water and groundwater quality monitoring results to the trigger parameter concentrations outlined in the Trigger Mechanisms and Contingency Plan, identified as Item 20 in Schedule "A". If these trigger parameter concentrations are reached then the outlined contingencies within the Trigger Mechanisms and Contingency Plan shall be implemented.

Annual Report

39. No later than March 31 of each year, the *Owner* shall submit to the *District Manager* an Annual Report on

the development, operation and monitoring of the *Site* for the preceding calendar year.

40. The Annual Report shall, as a minimum, include the following elements:
    (a) Executive Summary
    (b) Site Operations
        i) A report on the types and volumes of waste that are received and transferred from the *Site;*
        ii) A summary of complaints regarding *Site* operations and the *Owner's* response;
        iii) An assessment as to whether or not the *Owner* is operating the *Site* in compliance with the Conditions of this *ECA;*
    (c) Environmental Quality Monitoring
        i) An analysis and interpretation of surface water and groundwater monitoring data;
        ii) An assessment of surface water quality at the Site boundaries with respect to PWQO, and groundwater quality with respect to RUP; and
        iii) An assessment of the adequacy of the natural attenuation of leachate generated by the *Site.*
    (d) Recommendations
        i) Recommendations on any proposed changes to surface water or groundwater monitoring programs or any repairs required to the monitoring well network.
        ii) Recommendations on any proposed changes to the waste transfer operation.
        iii) Recommendations on the requirement for any remedial works or contingency actions based on the monitoring results or *Site* operations.

41. The monitoring program may be altered by obtaining the written consent of the *District Manager* prior to these changes being made.

42. In the event that the results of the monitoring program are such that an off-site exceedance of the RUP, ODWS or PWQO can reasonably be predicted to occur, the *Owner* shall include in the annual report:
    a) the details of any such predicted off-site exceedance, including the assumptions upon which the prediction is based;
    b) a discussion of the modifications, if any, to intended operations which would be necessary to prevent the predicted off-site exceedance;
    c) a discussion of the modifications, if any, which should be made to the monitoring program; and
    d) a discussion of other mitigation measures or contingency actions, if any, which may be necessary to prevent off-site impacts.

Site Closure

43. The landfill shall be closed in accordance with the Closure Plan Report and New Proposed Implementation Schedule of Items 17 and 18 of Schedule "A", respectively.

44. The *Owner* must submit, for approval by the *Director* , a written Closure Plan for the *Site* one (1) year prior to the closure of the waste transfer station at the *Site* . This plan must include, as a minimum, a description of the work that will be done to facilitate closure of the *Site* , monitoring and long term maintenance of the *Site.*

45. Within thirty (30) days after closure of the *Site* , the *Owner* must notify the *District Manager* , in writing,

that the *Site* has been closed in accordance with the approved Closure Plan.

Schedule "A"

This Schedule "A" forms part of Provisional Certificate of Approval No. A361603:

1. Application and supporting information for Approval of a Waste Disposal Site to amend a Certificate of Approval for a Waste Disposal Site, dated October 27, 1996 and signed by Mrs. E. Dafoe, Clerk-Treasurer, the Corporation of the Township of Herschel.

2. Letter from Mrs. Erma Dafoe, Clerk-Treasurer, Municipality of Herschel to MOE, dated October 27, 1996, Re: Township of Herschel, McGarry (North) Waste Disposal Site, Provisional Certificate of Approval No. A361603.

3. Document titled "The Corporation of the Township of Herschel, McGarry (North) Waste Disposal Site, Provisional Certificate of Approval No. A361603, Site Development Plan, Capacity and Operations Report", dated September 1996 and prepared by the Greer Galloway Group Inc. Engineers and Planners.

4. Memo from Myron Zurawsky MOE to Jim Mulder, MOE, dated January 29, 1997, Re: Baptiste Lake North Road Waste Disposal Site (a.k.a. "McGarry (North) Waste Disposal site"), Amendment to Provisional C/A #A361603, Herschel Twp., Lot 3, Concession 10.

5. Memo from Ross Cholmondeley, MOE to Jim Mulder, MOE, January 17, 1997, Re: McGarry (North) Waste Disposal Site, Site Development Plan, Capacity and Operations Report, Provisional Certificate of Approval No. A361603.

6. Fax Cover Sheet and its attachment from Jim Mulder, MOE to. J. S. Rybak, the Greer Galloway Group Inc ., dated September 18, 1997, Client/Matter: Twp. of Herschel, Baptiste and McGarry Landfill Site application.

7. Facsimile and its attachment from Mohsen Keyvani, MOE to Steve Clark, Greer Galloway Group Inc., dated February 7, 2000.

8. Facsimile and its attachment from Mohsen Keyvani, MOE to Erma Dafoe, Clerk-Treasurer, Municipality of Herschel, dated March 16, 2000.

9. Letter from Erma Dafoe, Clerk-Treasurer, Municipality of Herschel to Mohsen Keyvani, MOE, dated April 5, 2000, Re: Baptiste and McGarry Waste Disposal Site, Township of Herschel .

10. Letter from Steve Clark, Greer Galloway Group Inc. to Mohsen Keyvani, MOE, dated April 12, 2000, Re: Baptiste and McGarry Waste Disposal Sites, GGG Project No. 00-1-5313.

11. Letter from Mohsen Keyvani, MOE to Erma Dafoe, Clerk-Treasurer, Municipality of Herschel, dated May 3, 2000, Re: Amendment to Provisional Certificate of Approval, No. A361602, Baptiste Lake

South Road Landfill Site, Located at Lot 28, Concession 4, and No. A361603, McGarry Landfill Site, Located at Part of Lot 3, Concession 10, Township of Herschel, County of Hastings.

12. Letter and its attachment from Steve Clarke, Greer Galloway Group Inc. to Mohsen Keyvani, MOE, dated May 31, 2000, Re: Amendment to the Provisional Certificate of Approvals: No. A361602, Baptiste Lake South Road Landfill Site, Located at Lot 28, Concession 4, and No. A361603, McGarry Landfill Site, Located at Part of Lot 3, Concession 10; Township of Herschel, County of Hastings.

13. Memo from Dana Cruikshank, MOE to Mohsen Keyvani, MOE, dated July 26, 2000, Re: McGarry Waste Disposal Sites, Interim Review Surface Water Sampling, Provisional Certificate of Approval No. A361603.

14. Letter from Steve Clark, the Greer Galloway Group Inc. to Mohsen Keyvani, MOE, dated October 17, 2000, Re: Response to Draft Certificate of Approvals: No. A361602, Baptiste Lake South Road Landfill Site; No. A361603, McGarry Landfill Site; GG Project 00-1- 5313.

15. Letter from Steve Clark, Greer Galloway Group Inc. to Mohsen Keyvani, MOE, dated December 21, 2000, Re: No. 361602, Baptiste Lake South Road Landfill site; No. A361603, McGarry Landfill Site; GGG Project No. 00- 1-5313.

16. Facsimile copy of letter from Mrs. Erma Dafoe, Deputy Clerk-Treasurer for Hastings Highlands to Mohsen Keyvani, MOE, dated January 8, 2001, re: amalgamation of the Township of Herschel.

17. Report titled "North Baptiste Road Waste Disposal Site Closure Plan" prepared by BluMetric Environmental Inc. Signed and sealed on October 3, 2016.

18. Letter from Iris O'Connor, BluMetric Environmental Inc. to Ministry of the Environment and Climate Change. Subject: ECA Amendment A361603 - North Baptiste Waste Disposal Site, MOECC Reference Number 2473-AETQAK, and dated October 20, 2016.

19. Report titled "North Baptiste Lake Waste Transfer Station Design and Operations Plan" prepared by BluMetric Environmental Inc. Signed and sealed on October 3, 2016.

20. Trigger Mechanisms and Contingency Plan prepared by BluMetric Environmental Inc. January 28, 2020.

21. Closure Report for North Baptiste Waste Disposal Site (WDS), prepared by BluMetric Environmental Inc. December 11, 2018.

Schedule "B"

This Schedule "B" forms part of Provisional Certificate of Approval No. A361603:

Groundwater Monitoring:

Locations: NB-MW1, NB-MW2R, NB-MW3, NB-MW4, and NB-MW5R

Monitoring: Groundwater sampling and field measurements for groundwater elevation, pH, temperature, and conductivity.

Parameters: Alkalinity, Chloride, Nitrite, Nitrate, Sulphate, Phosphorous (total), Total Kjeldahl Nitrogen (TKN), Ammonia (N)-Total, Dissolved Organic Carbon (DOC), Calcium, Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Silicon, Silver, Strontium, Thallium, Titanium, Vanadium, Sodium, Zinc, Lead, Chemical Oxygen Demand (COD), Phenols, pH, Conductivity, Total Dissolved Solids (TDS), TSS, Hardness, Turbidity, Selenium.

Frequency: Groundwater monitoring shall be conducted on a semi-annual basis.

Surface Water Monitoring:

Locations: MCG-A2, MCG-B, MCG-C, MCG-D, MCG-E, MCG-F, MCG-G, and MCG-H

Monitoring: Surface water sampling and field measurements for surface water flow measurements, temperature, pH, conductivity, and dissolved oxygen measurements.

Parameters: Alkalinity, Chloride, Nitrite, Nitrate, Sulphate, Phosphorous (total), Total Kjeldahl Nitrogen (TKN), Ammonia (N)-Total, Un-Ionized Ammonia, Hardness, Calcium, Aluminum, Arsenic, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Magnesium, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Zinc, Lead, Phenols, Biochemical Oxygen Demand (BOD5), pH, Conductivity, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Colour, Turbidity.

Frequency: Sampling events shall be conducted each spring, summer, and fall.

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

1. The reason for Condition 1 is to clarify that all previous Certificates of Approval are null and void and that the Owner is obligated by the Terms and Conditions of this Certificate only.

2. The reason for Condition 2 is to ensure that this Waste Disposal Site is operated in accordance with the application submitted by the Owner, and not in a manner which the Director has not been asked to consider.

3. The reason for Conditions 3, 4, 5, 8, 9, 10, 13, 14 and 15 is to clarify the legal responsibilities and obligations imposed by this Provisional Certificate of Approval.

4. The reason for Conditions 11 and 12 is to protect future occupants of the site and the environment from any hazards which might occur as a result of waste being disposed of on the site. This prohibition and potential hazard should be drawn to the attention of future owners and occupants by the Certificate being registered on title.

5. The reason for Conditions 6 and 7 is to ensure that appropriate Ministry staff have ready access to the system in order to confirm that the system is being operated according to this Provisional Certificate of Approval. The condition is supplementary to the powers afforded a Provincial Officer pursuant to the Environmental Protection Act, the Ontario Water Resources Act, and the Pesticides Act, as amended.

6. The reason for Conditions 16 is to specify the approved areas from which waste may be accepted at the site.

7 Condition 17 is to state the approved maximum landfill capacity.

8. The reason for Conditions 18, 43, 44, and 45 are to state that the landfill is closed and the manner in which it shall be closed as well to ensure that the waste transfer portion of the Site is closed in accordance with MOE standards and to protect the health and safety of the environment.

9. The reason for Condition 19 is to ensure the Site's recycling depot is operated in a manner which promotes efficient separation of recyclable wastes.

10. The reason for Condition 20 is to specify which waste and amounts that may be accepted at the waste transfer site, based on the application and the supporting documentation.

11. The reason for Conditions 21 through 26 are to minimize the risk of unauthorized entry and to ensure the Site is only operated in the presence of trained personnel and to ensure proper management of waste.

12. Conditions 27, 28, 29, and 30 are included to ensure that efficient and environmentally sound procedures are employed during the operation of the landfill site.

13. Condition 31 is included to ensure that the Owner properly trained the staff operating the site to ensure that the operations are undertaken in accordance with the requirements of this Certificate.

14. The reason for Condition 32 is to ensure that complaints are properly and quickly resolved and that complaints and follow-up actions have been documented.

15. Condition 33 is included to ensure that the Owner accurately estimates the amount of waste brought to the Site so that compliance with this Certificate can be verified.

16. The reason for Conditions 34, and 35 is to ensure that staff are properly trained in the operation of the equipment used at the Site and emergency response procedures. This will minimize the possibility of spills occurring and will enable staff to deal promptly and effectively with any spills that do occur.

17. Conditions 36, 37, and 38 are included to require the Owner to undertake the monitoring activities in accordance with the methods acceptable to the Ministry, in order to demonstrate that the Site impacts on the natural environment are acceptable.

18. Conditions 39 through 42 are included to ensure that regular review of Site development, operations and monitoring is documented and any possible improvements to site design, operations or monitoring programs are identified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A361603 issued on January 18, 2001

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

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

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

The Notice should also include:

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

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

This Notice must be served upon:

The Secretary*

The Director appointed for the purposes of Part II.1 of

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

AND

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 30th day of January, 2020

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

CM/
c: Area Manager, MECP Belleville
c: District Manager, MECP Kingston - District
Iris O'Connor, BluMetric Environmental Inc.

Appendix B

Monitoring and Screening Checklist (MECP/MOE)

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	North Baptiste
Location (e.g. street address, lot, concession)	Part of Lot 3, Concession 10
GPS Location (taken within the property boundary at front gate/ front entry)	Zone 18, 269934 E, 5006428 N
Municipality	Municipality of Hasting Highlands (formerly Twp. of Herschel)
Client and/or Site Owner	The Corporation of Hasting Highlands
Monitoring Period (Year)	2024
This Monitoring Report is being submitted under the following:	
Environmental Compliance Approval Number:	A361603
Director's Order No.:	
Provincial Officer's Order No.:	
Other:	

Report Submission Frequency	◉ **Annual** ○ **Other**	Submitted to the MECP by March 31st.	
The site is: **(Operation Status)**	○ **Open** ○ **Inactive** ◉ **Closed**		
Does your Site have a Total Approved Capacity?	◉ **Yes** ○ **No**		
If yes, please specify Total Approved Capacity	12,040	*Units*	Cubic Metres
Does your Site have a Maximum Approved Fill Rate?	○ **Yes** ◉ **No**		
If yes, please specify Maximum Approved Fill Rate		*Units*	
Total Waste Received within Monitoring Period (Year)	169.4	*Units*	Tonnes
Total Waste Received within Monitoring Period (Year) *Methodology*	Estimation		
Estimated Remaining Capacity	0	*Units*	Cubic Metres
Estimated Remaining Capacity *Methodology*			
Estimated Remaining Capacity *Date Last Determined*			
Non-Hazardous Approved Waste Types	☒ Domestic ☒ Industrial, Commercial & Institutional (IC&I) ☒ Source Separated Organics (Green Bin) ☒ Tires	☒ Contaminated Soil ☒ Wood Waste ☒ Blue Box Material ☐ Processed Organics ☐ Leaf and Yard Waste	☐ Food Processing/Preparation Operations Waste ☐ Hauled Sewage Other:
Subject Waste Approved Waste Classes: Hazardous & Liquid Industrial *(separate waste classes by comma)*			
Year Site Opened *(enter the Calendar Year only)*	1968	**Current ECA Issue Date**	30-Jan-2020
Is your Site required to submit Financial Assurance?		○ **Yes** ◉ **No**	
Describe how your Landfill is designed.		◉ Natural Attenuation only ○ Fully engineered Facility ○ Partially engineered Facility	
Does your Site have an approved Contaminant Attenuation Zone?		○ **Yes** ◉ **No**	

If closed, specify C of A, control or authorizing document closure date:	11-Dec-2018

Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**
If yes, provide details:	
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**

3) a) Is landfill gas being monitored or controlled at the site?	◉ **Yes** ○ **No**	
If yes to 3(a), please answer the next two questions below.		
b) Have any measurements been taken since the last reporting period that indicate landfill gas is present in the subsurface at levels exceeding criteria established for the site?	○ **Yes** ◉ **No**	
c) Has 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**

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**	

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**	Final Trigger Mechanisms and Contingency Plan put in place in 2020.	
6) The site meets compliance and assessment criteria.	( ) **Yes** (●) **No**	NB-MW3 and NB-MW5R exceeded the RUV for manganese in 2024, however, both wells are not located at the property boundary.	
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**	Groundwater results at the Site have generally either remained consistent or have decreased, with the exception of an increasing trend of chloride, conductivity, and TDS at NB-MW3.	
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**	The Contingency Plan was not triggered in 2024.	

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:

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:**	The SW technical reviewer suggested that parameters could be removed from the analyses list. We have suggested that a select number of metals be removed as identified in this and previous reports. Waiting for confirmation from MECP. The SW Technical reviewer suggested that a leachate indicator well be installed. We have suggested that NB-MW3 continue to be used as the leachate well for the east and NB-MW5R be used as the leachate well for the south. Discussions to be held with the MECP.
○ **No Changes to site design and operation are recommended**	
◉ **The following change(s) to the site design and operation is/ are recommended:**	On-going maintenance of final cover and monitoring.

Name:	Jaclyn Kalesnikoff, P.Geo.		
Seal:			
Signature:		**Date:**	28-Mar-2025
CEP Contact Information:			
Company:	BluMetric Environmental Inc.		
Address:	1682 Woodward Dr. Ottawa, ON K2C 3R8		
Telephone No.:	(877) 487-8436 ext. 339	Fax No. :	
E-mail Address:	jkalesnikoff@blumetric.ca		
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)	Wetland, Selby Creek, O'Shaughnessy Lake
Distance(s)	Eastern property boundary, 500 m, 2 km

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
All locations	Surface water samples were not collected after a 10 mm storm event in the preceding 24 hours for the summer sampling event. 5.6 mm of rain (spring) and 2.5 m fall) preceded the sampling event.	29/04/24 and 29/10/24
MCG-A	Dry in the fall	29-Oct-2024

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**

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**	Not applicable

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
See attached document		.
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**	

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**	Parameter concentrations are generally within historical ranges.
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	All monitoring wells exceed the PWQO for total phosphorus and total cobalt also exceeded at NB-MW3 for the fall event. NB-MW3, 4, and 5R should be closely monitored for increasing trends of leachate parameters.
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ◉ **No** ○ **Not Applicable**	The Contingency Plan was not triggered in 2024.

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:

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:**	The SW Technical reviewer suggested that a leachate indicator well be installed. We have suggested that NB-MW3 continue to be used as the leachate well for the east and NB-MW5R be used as the leachate well for the south. Discussions to be held with the MECP.
◉ **No changes to the site design and operation are recommended**	
○ **The following change(s) to the site design and operation is/are recommended:**	On-going maintenance and monitoring.

CEP Signature	
Relevant Discipline	Senior Hydrogeologist P.Geo.
Date:	28-Mar-2025
CEP Contact Information:	
Company:	BluMetric Environmental Inc.
Address:	1682 Woodward Drive Ottawa, ON K2C 3R8
Telephone No.:	877-487-8436 x339
Fax No. :	
E-mail Address:	jkalesnikoff@blumetric.ca

Save As		**Print Form**

Appendix B-2 North Baptiste Surface Water Exceedances 2024

Surface Water Monitoring Location	Parameter	Compliance Criteria	Percentage above/below criteria (%)
MCG-A	Aluminum (dissolved) (0.21 mg/L)	PWQO = 0.075 mg/L	180.00
	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Copper (0.0014 mg/L)	PWQO = 0.001 mg/L	40.00
MCG-B	Phenols (0.0019 mg/L)	PWQO = 0.001 mg/L	90.00
	Total Phosphorus (0.32 mg/L)	PWQO = 0.03 mg/L	966.67
	Boron (0.35 mg/L)	PWQO = 0.2 mg/L	75.00
	Cadmium (0.00083 mg/L)	PWQO = 0.0005 mg/L	66.00
		Table A = 0.00021 mg/L	295.24
		Table B = 0.000017 mg/L	4782.35
	Copper (0.0091 mg/L)	PWQO = 0.005 mg/L	82.00
		Table A = 0.0069 mg/L	31.88
	Iron (47 mg/L)	PWQO = 0.3 mg/L	15566.67
		Table A = 1 mg/L	4600.00
	Lead (0.0035 mg/L)	Table A = 0.002 mg/L	75.00
	Zinc (0.31 mg/L)	PWQO = 0.02 mg/L	1450.00
		Table A = 0.089 mg/L	248.31
		Table B = 0.03 mg/L	933.33
MCG-C	Total Phosphorus (0.047 mg/L)	PWQO = 0.03 mg/L	56.67
	Aluminum (dissolved) (0.12 mg/L)	PWQO = 0.075 mg/L	60.00
	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Iron (0.88 mg/L)	PWQO = 0.3 mg/L	193.33
MCG-D	pH (below criteria) (6.38)	PWQO = 6.5 - 8.5	-1.85
	Total Phosphorus (0.099 mg/L)	PWQO = 0.03 mg/L	230.00
	Aluminum (dissolved) (0.23 mg/L)	PWQO = 0.075 mg/L	206.67
	Cadmium (0.00013 mg/L)	PWQO = 0.0001 mg/L	30.00
		Table B = 0.000017 mg/L	664.71
	Cobalt (0.0055 mg/L)	PWQO = 0.0009 mg/L	511.11
	Copper (0.0024 mg/L)	PWQO = 0.001 mg/L	140.00
	Iron (3.9 mg/L)	PWQO = 0.3 mg/L	1200.00
		Table A = 1 mg/L	290.00
	Lead (0.0015 mg/L)	PWQO = 0.001 mg/L	50.00
MCG-E	Total Phosphorus (0.046 mg/L)	PWQO = 0.03 mg/L	53.33
	Aluminum (dissolved) (0.17 mg/L)	PWQO = 0.075 mg/L	12.67
	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Copper (0.0013 mg/L)	PWQO = 0.001 mg/L	30.00
	Iron (1.3 mg/L)	PWQO = 0.3 mg/L	333.33
		Table A = 1 mg/L	30.00
MCG-F	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Iron (1.5 mg/L)	PWQO = 0.3 mg/L	400.00
		Table A = 1 mg/L	50.00
MCG-G	Total Phosphorus (0.034 mg/L)	PWQO = 0.03 mg/L	13.33
	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Iron (2.1 mg/L)	PWQO = 0.3 mg/L	600.00
		Table A = 1 mg/L	110.00
MCG-H	Aluminum (dissolved) (0.17 mg/L)	PWQO = 0.075 mg/L	126.67
	Cadmium* (<0.0001 mg/L)	PWQO = 0.0001 mg/L	Equal to criteria
	Copper (0.0011 mg/L)	PWQO = 0.001 mg/L	10.00

*The detection limit for cadmium exceeds the PWQO criteria.

Appendix C

Monitoring Well Logs

Well Log: Lithology & Construction

Well Ident	NB
MW-1	

Name

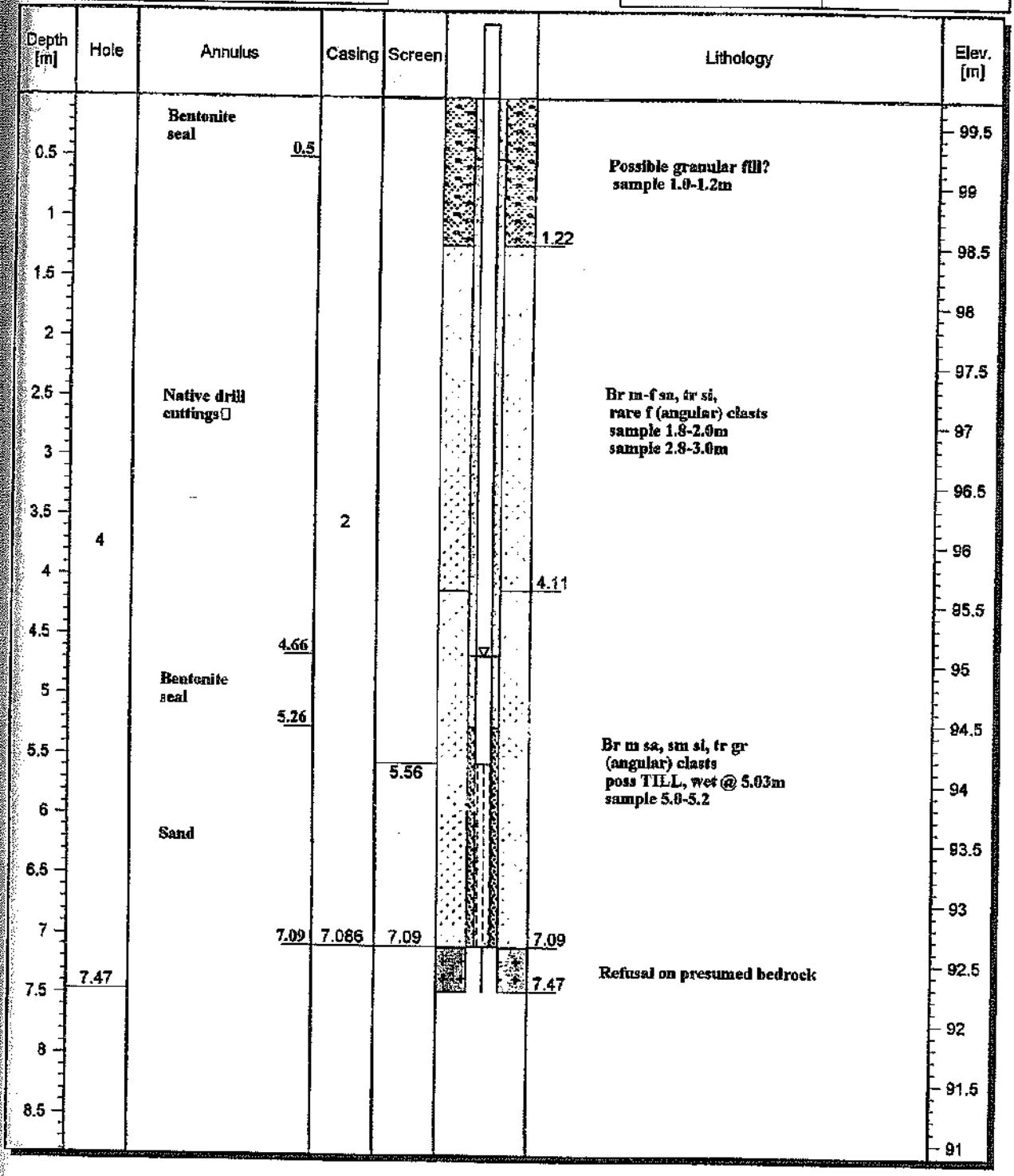
Drill. Method	auger	Drill. Dates	Feb 2, 1996

X	1014	Y	1011	Z	99.72	Meas. Pt. Elev.	100.34

All measurements are in meters. Hole and casing diameters in inches.

Scales (1: xxx)

Water Level (m AMSL)	Vertical	Horizontal
95.06	50.0	



Well Log: Lithology & Construction

Well Ident	Name
NB MW-2	

Drill. Method	Drill. Dates
auger	February 2, 1996

X	Y	Z	Meas. Pt. Elev.
1104	1043	92.52	93.44

All measurements are in meters. Hole and casing diameters in inches.

Scales (1: xxx)

Water Level (m AMSL)	Vertical	Horizontal
92.38	60.0	

Depth [m]	Hole	Annulus	Casing	Screen	Lithology	Elev. [m]
		Bentonite seal 0.5				92
1		Native drill cuttings 1.38			Muck, peat, organics, wet @ 0.6m	91
		Bentonite seal 1.98	2		1.83	
2				2.01		90
3		Sand			Grey-grn f-m sa, sm si, rare (angular) gravel clast sample 2.4-2.8m	
			3.506	3.51		89
		3.81				
4	4				4.42	88
					Br si, tr m sa sample 4.5-4.75m 4.88	
5						87
6					Br m-f sa, tr si poorly sorted occ. pebble sample 6.5-7.0m	
		Native drill cuttings				86
7					7.62	
						85
8					Br m sa, sm si tr (angular) gravel dense, poss TILL, sample 8.4-8.5m	
	8.84	8.84			8.84	84
9					Refusal on presumed bedrock 9.5	
						83
0						

Project No: 160238-08

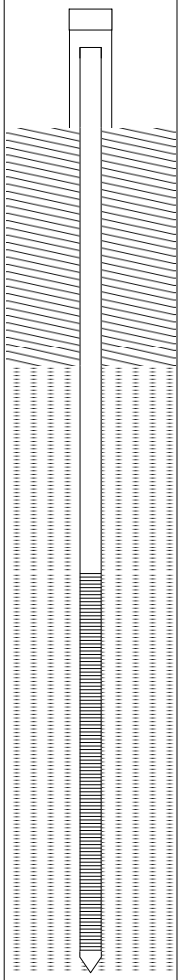
Project: North Baptiste WDS

Client: Municipality of Hastings Highlands

Site Coordinates: Zone 18 T North 5006481 , East 270044

Log of Borehole: NB-MW2 R

Field Personnel: B. M.

SUBSURFACE PROFILE				SAMPLE				WELL INSTALLATION	
Depth	Elevation	Symbol	Description	Number	Type	SPT N-Value	Recovery	Well Construction	Comments
ft / m									
-1	394.32		Ground Surface						Steel locking protective cover and casing
			Black organic PEAT						PVC S/U - 0.75m
1									Bentonite Holeplug
3									51mm (2") I.D. Sch. 40 PVC pipe
5	392.79		Brown, medium grain SAND with trace gravel. Wet to Saturated						#3 Silica sand pack
2									
7									10' Slot 10 PVC screen (2")
9			MOE Well Tag A163243						
	391.09								
11			End of Borehole						

Drill Method: 8" Hollow Stem Auger

Ground Elevation: 394.316

Checked by:

Sheet: 1 of 1

Hole Size: 8" (205mm)

T.O.P.: 395.1 masl

Drill Date: January 6, 2016

Static WL:

Well Log: Lithology & Construction

Well Ident	Name
NB MW-3	

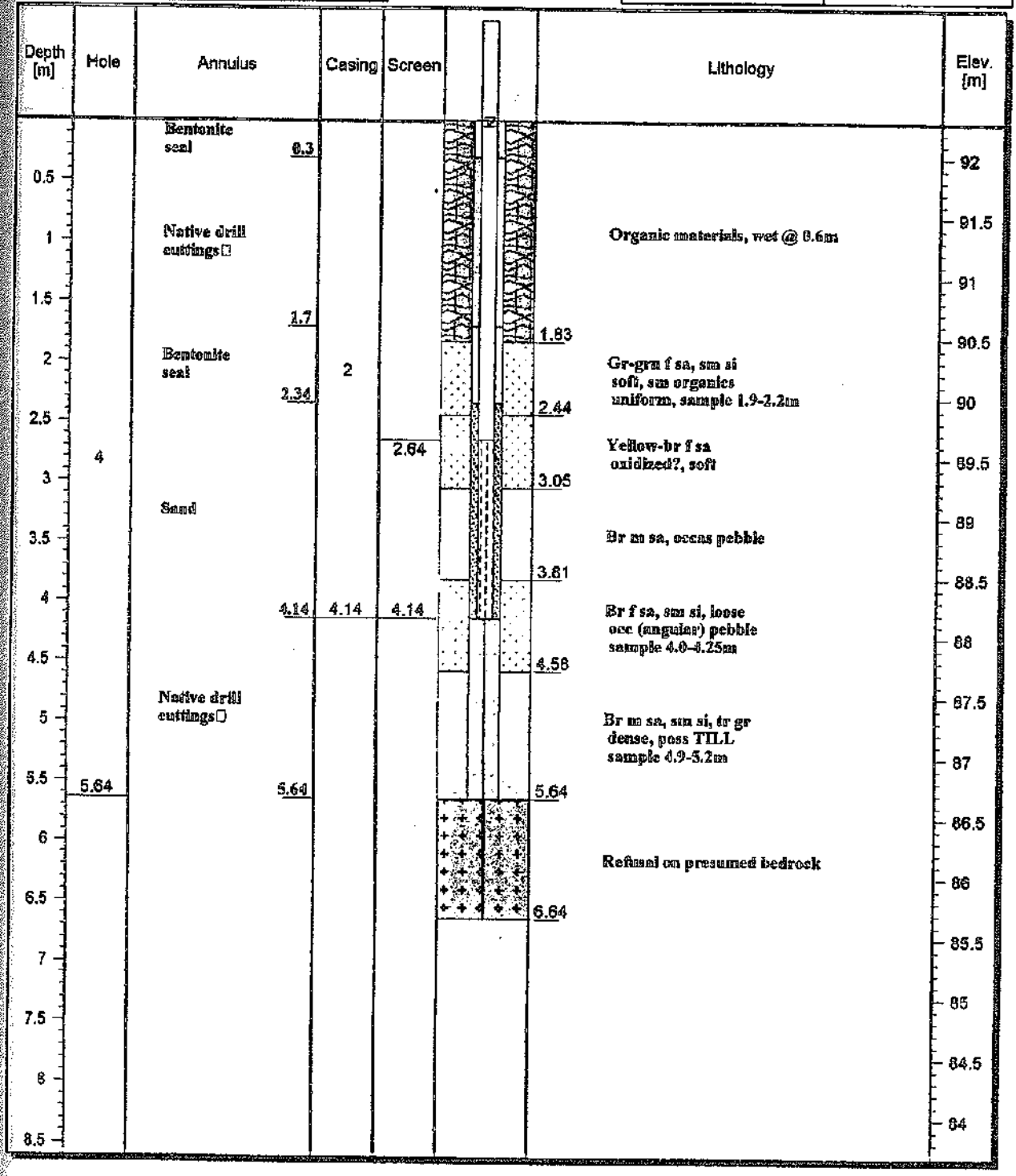
Drill. Method	Drill. Dates
auger	February 2, 1996

X	Y	Z	Meas. Pt. Elev.
1117	980	92.29	93.12

All measurements are in meters. Hole and casing diameters in inches.

Scales (1: xxx)

Water Level (m AMSL)	Vertical	Horizontal
92.23	50.0	



Well Log: Lithology & Construction

Well Ident	Name
NB MW-4	

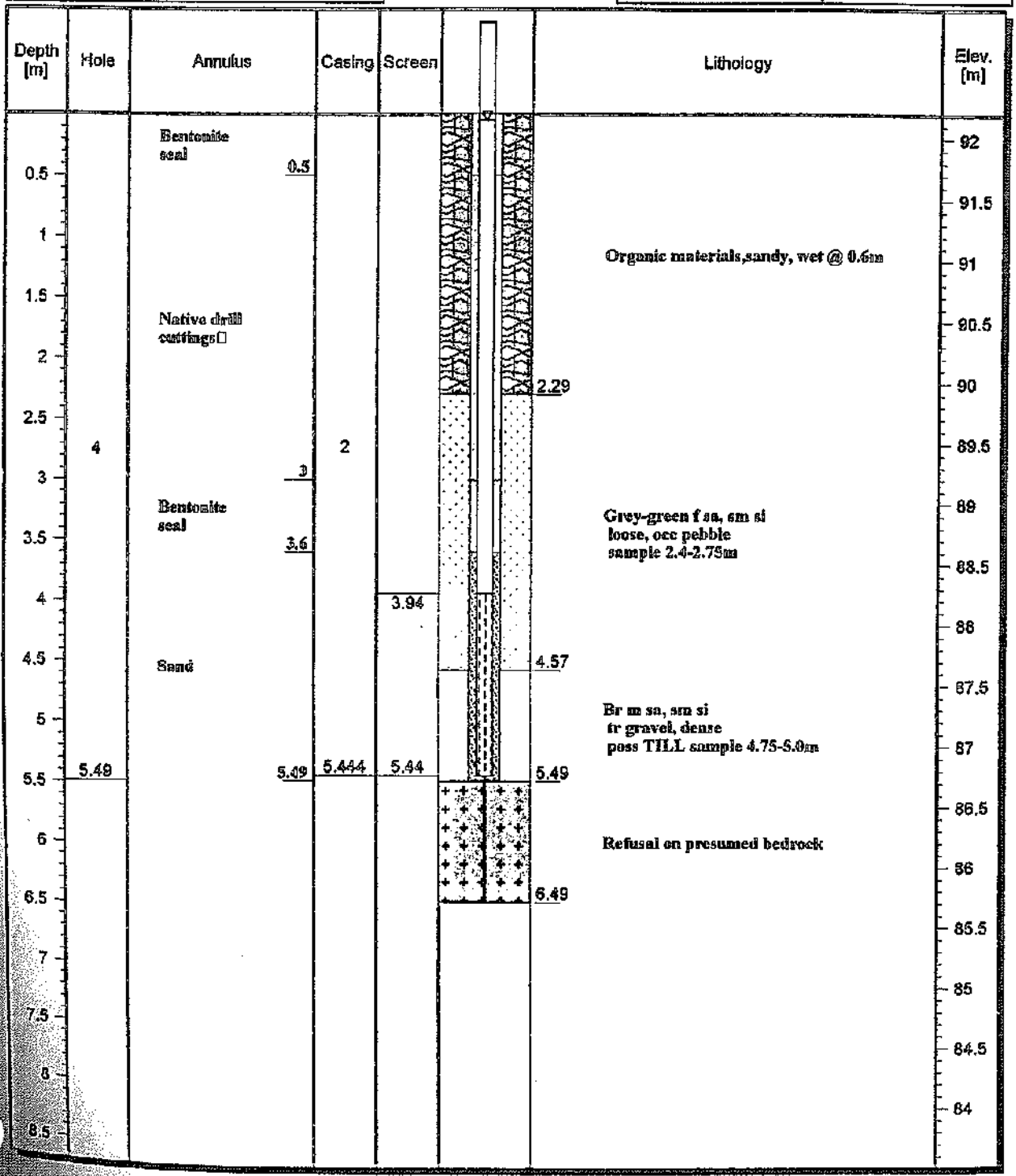
Drill. Method	auger	Drill. Dates	February 2, 1996

X	1114	Y	943	Z	92.20	Meas. Pt. Elev.	92.95

All measurements are in meters. Hole and casing diameters in inches.

Scales (1: xxx)

Water Level (m AMSL)	Vertical	Horizontal
92.15	50.0	



Well Log: Lithology & Construction

Well Ident	Name
NB MW-5	

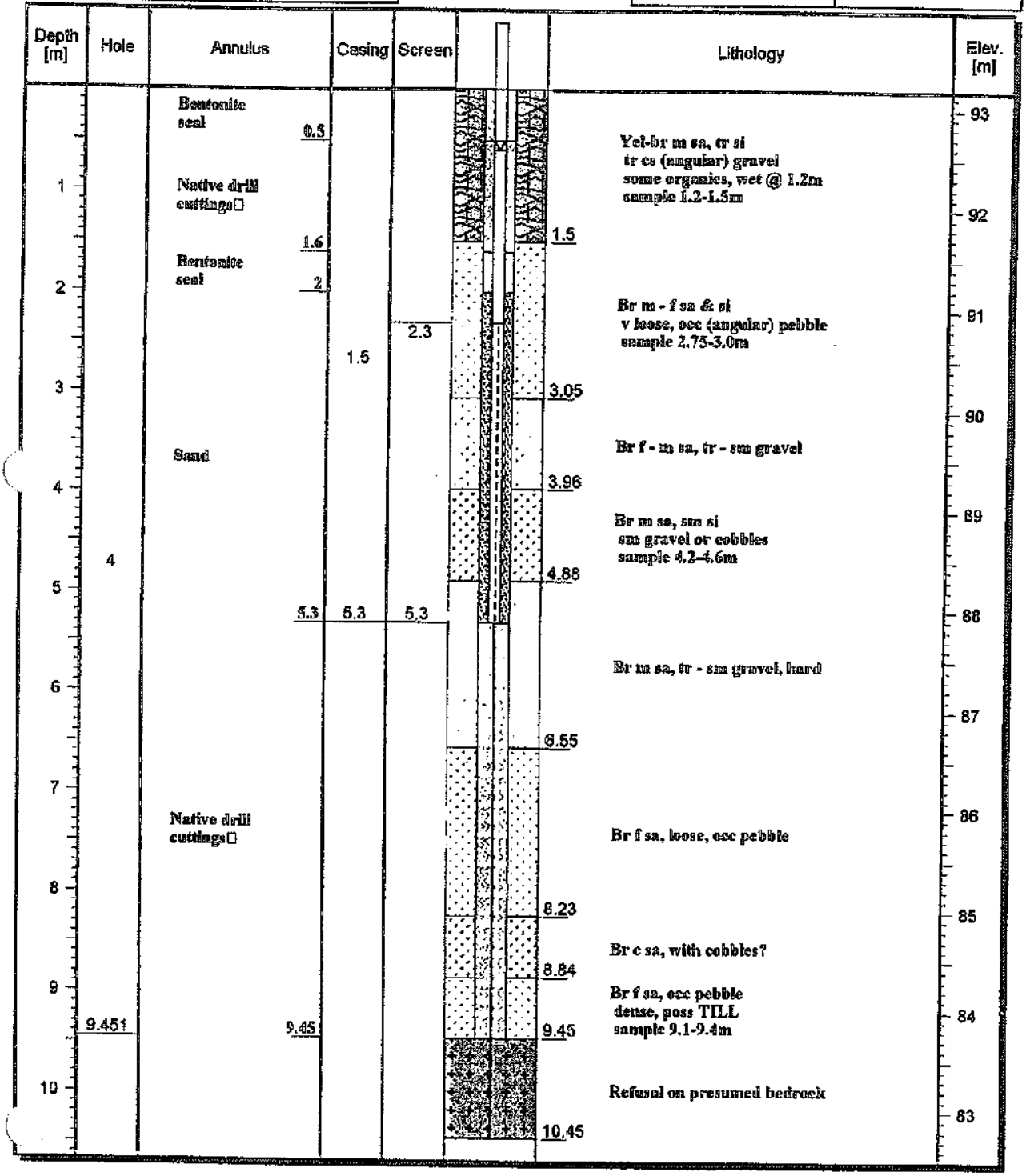
Drill. Method	Drill. Dates
auger	February 2, 1996

X	Y	Z	Meas. Pt. Elev.
1078	907	93.17	93.83

All measurements are in meters. Hole and casing diameters in inches.

Scales (1: xxx)

Water Level (m AMSL)	Vertical	Horizontal
92.58	60.0	



Project No: 160238-08

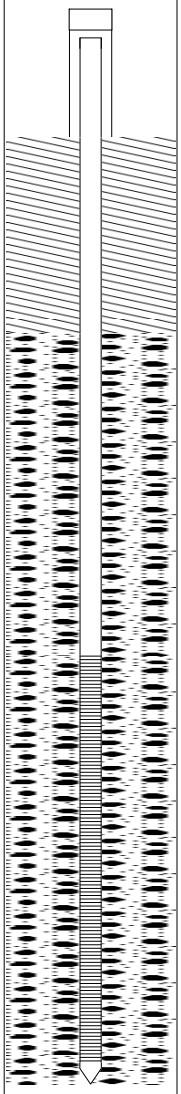
Project: North Baptiste WDS

Client: Municipality of Hastings Highlands

Site Coordinates: Zone 18 T North 5006346 , East 270011

Log of Borehole: NB-MW5 R

Field Personnel: B. M.

SUBSURFACE PROFILE				SAMPLE				WELL INSTALLATION	
Depth (ft / m)	Elevation	Symbol	Description	Number	Type	SPT N-Value	Recovery	Well Construction	Comments
-3 / -1	394.46		Ground Surface						Steel locking protective cover and casing PVC S/U - 0.56m
1			NB-MW5 damaged by bears.						
3			Replacement Monitor Drilling Detail:						Bentonite Holeplug
5			Top section of PVC pipe removed.						
7 / 2			Centred augers over existing hole and overdrilled to depth.						51mm (2") I.D. Sch. 40 PVC pipe
9			Replacement Monitor installed as detailed.						
11			Flowing sands and silts encountered which caved around sceen zone. Some silica sand added.						
13 / 4									
15			MOE Well Tag A163242						Flowing Silt and Sand with #3 Silica
17									10' Slot 10 PVC screen (2")
19 / 6									
21	387.73								
23			End of Borehole						

Drill Method: 8" Hollow Stem Auger

Hole Size: 8" (205mm)

Drill Date: January 5-6, 2016

Ground Elevation: 394.464

T.O.P.: 395.331 masl

Static WL:

Checked by:

Sheet: 1 of 1

Appendix D

Field Data Forms, Laboratory Reports, and Chain of Custody Records

Appendix D

D-1 Operations & Inspection Forms

SMALL LANDFILL
OPERATION AND INSPECTION FORM

BluMetric Environmental

Site Name: North Baptiste WTS, MHHs	Date: April 29, 2024	Weather: Overcast 8°c
Project #: 240205 68	BluMetric Staff: BM / MD	

Photographs of each item below should be collected during site visits.

OVERALL INSPECTION AND OPERATION REVIEW

❑	Signage in good condition	Yes ✓	No _
❑	ECA and emergency numbers on signage	Yes ✓	No _
❑	Hour of operation observed	Yes ✓	No _
❑	Site open under normal operating hours	Yes _	No ✓
❑	Perimeter fencing and gate in good condition	Yes ✓	No _
❑	Gate locked if closed	Yes ✓	No _

DESIGNATED WASTE AREA

❑	Working active/trench area (moderate size, daily cover, compacted)	Yes _	No _	NA ✓ Transfer ONLY
❑	Designated waste areas are properly signed and easily accessed by public	Yes _	No _	

RECYCLING OPERATION (if applicable)

❑	Proper signage and bins present	Yes ✓	No _
❑	Clearly signed	Yes ✓	No _
❑	Overall neat in appearance	Yes ✓	No _

SEGREGATED SCRAP PILES (metal, tires, brush, etc.)

❑	Metals neat and appropriate size	Yes ✓	No _	
❑	Tires neat and appropriate size	Yes ✓	No _	
❑	Bulky Items neat and appropriate size	Yes ✓	No _	
❑	Brush pile neat and appropriate size	Yes _	No _	NA ✓
❑	Construction Debris neat and appropriate size	Yes _	No _	NA ✓

MONITORING WELL CONDITION

❑	Casing conditions (frost heave, lock, cap)	Yes ✓	No _
❑	Monitor condition (capped, vented)	Yes ✓	No _
❑	Wells clearly labeled (re-label as required)	Yes ✓	No _
❑	Well clearly visible (clear brush if necessary)	Yes ✓	No _

LANDFILL GAS MONITORING

❑	Conducted at structures	Yes ✓	No _	Attendant Building 0ppm
❑	Conducted at monitoring wells	Yes ✓	No _	

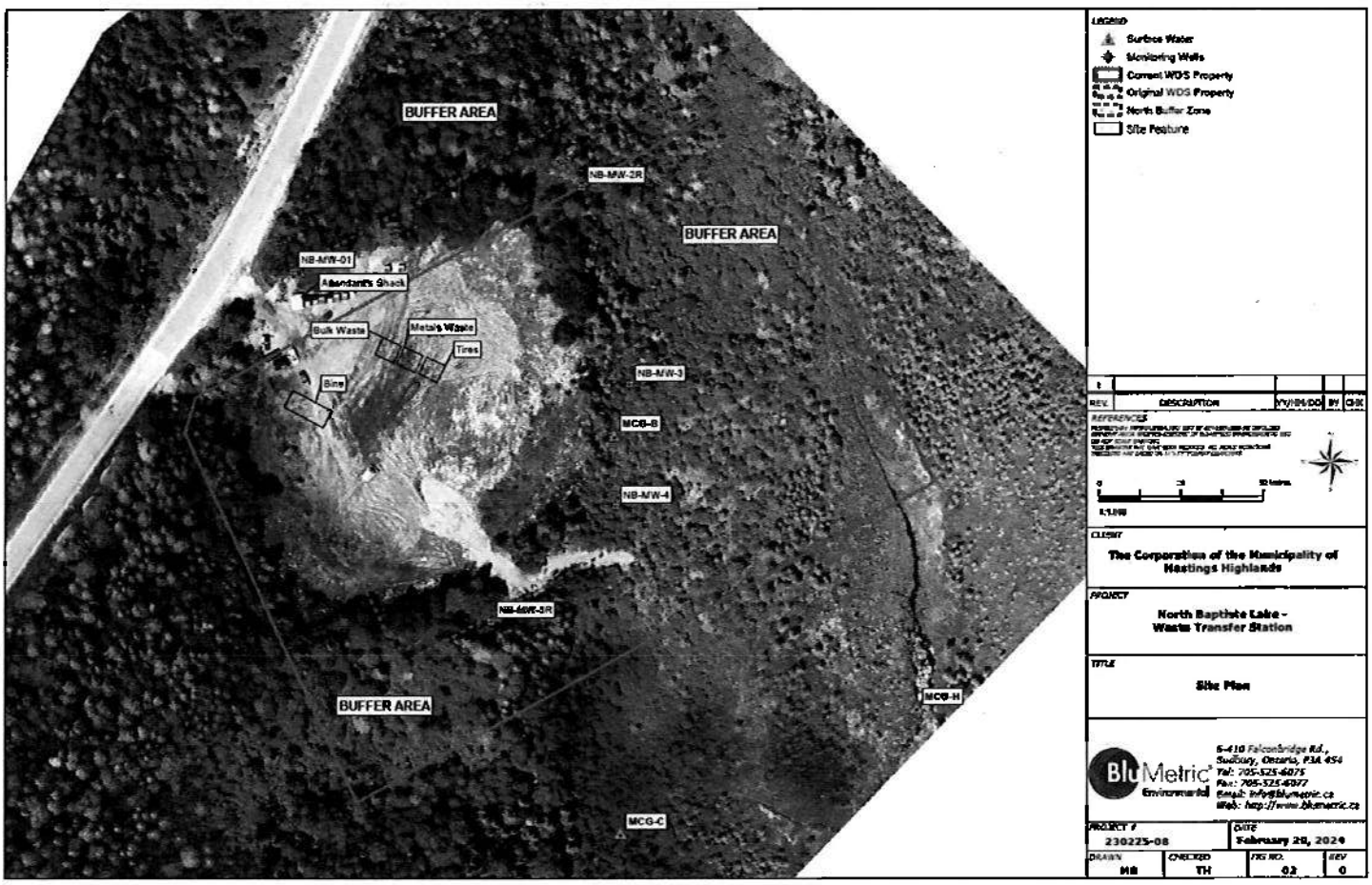
REPAIRS: Provide details of repairs made or materials required for repairs upon next site visit:

OBSERVATIONS OF PHYSICAL ENVIRONMENT: Please comment on any changes to the local environment (e.g. settling or slumping of waste/cover, new or altered drainage, presence of seeps, changes in vegetation cover, etc.)

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

MOUND SURFACE CONDITIONS

❑ Any Signs of Erosion	Yes _	No ✓	
❑ Vegetation Established Well	Yes ✓	No _	
❑ Any Signs of Surface Cracking due to Gas	Yes _	No ✓	
❑ Any Signs of Standing/Ponded Water	Yes _	No ✓	Beaver activity backing up SW
❑ Any Signs of Surface Water blockages	Yes ✓	No _	
❑ Any Signs of Seeps	Yes ✓	No _	MCG-B Sample is a seep location



Identify any remedial actions required:

Identify any changes to site layout on drawing and/or comment:

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

SMALL LANDFILL
OPERATION AND INSPECTION FORM

BluMetric Environmental

Site Name: North Baptiste WTS, MHHs	**Date:** July 11, 2024	**Weather:** Overcast, 25°c
Project #: 240205-08	**BluMetric Staff:** BM / NW	

Photographs of each item below should be collected during site visits.

OVERALL INSPECTION AND OPERATION REVIEW

❑ Signage in good condition	Yes ✓	No _	Vegetation in front of site sign should be cut down so sign is fully visible.
❑ ECA and emergency numbers on signage	Yes ✓	No _	
❑ Hour of operation observed	Yes ✓	No _	
❑ Site open under normal operating hours	Yes _	No ✓	
❑ Perimeter fencing and gate in good condition	Yes ✓	No _	
❑ Gate locked if closed	Yes ✓	No _	

DESIGNATED WASTE AREA

❑ Working active/trench area (moderate size, daily cover, compacted)	Yes _	No _	NA ✓ Closed Site
❑ Designated waste areas are properly signed and easily accessed by public	Yes ✓	No _	

RECYCLING OPERATION (if applicable)

❑ Proper signage and bins present	Yes ✓	No _	
❑ Clearly signed	Yes ✓	No _	
❑ Overall neat in appearance	Yes ✓	No _	

SEGREGATED SCRAP PILES (metal, tires, brush, etc.)

❑ Metals neat and appropriate size	Yes _	No _	Metals + Bulk items flowing outside their space should be picked up.
❑ Tires neat and appropriate size	Yes ✓	No _	
❑ Bulky Items neat and appropriate size	Yes _	No _	
❑ Brush pile neat and appropriate size	Yes _	No _	NA ✓
❑ Construction Debris neat and appropriate size	Yes _	No _	NA ✓

MONITORING WELL CONDITION

❑ Casing conditions (frost heave, lock, cap)	Yes _	No _	Not inspected this event
❑ Monitor condition (capped, vented)	Yes _	No _	
❑ Wells clearly labeled (re-label as required)	Yes _	No _	
❑ Well clearly visible (clear brush if necessary)	Yes _	No _	

LANDFILL GAS MONITORING

❑ Conducted at structures	Yes _	No _	Not conducted this event
❑ Conducted at monitoring wells	Yes _	No _	

REPAIRS: Provide details of repairs made or materials required for repairs upon next site visit:

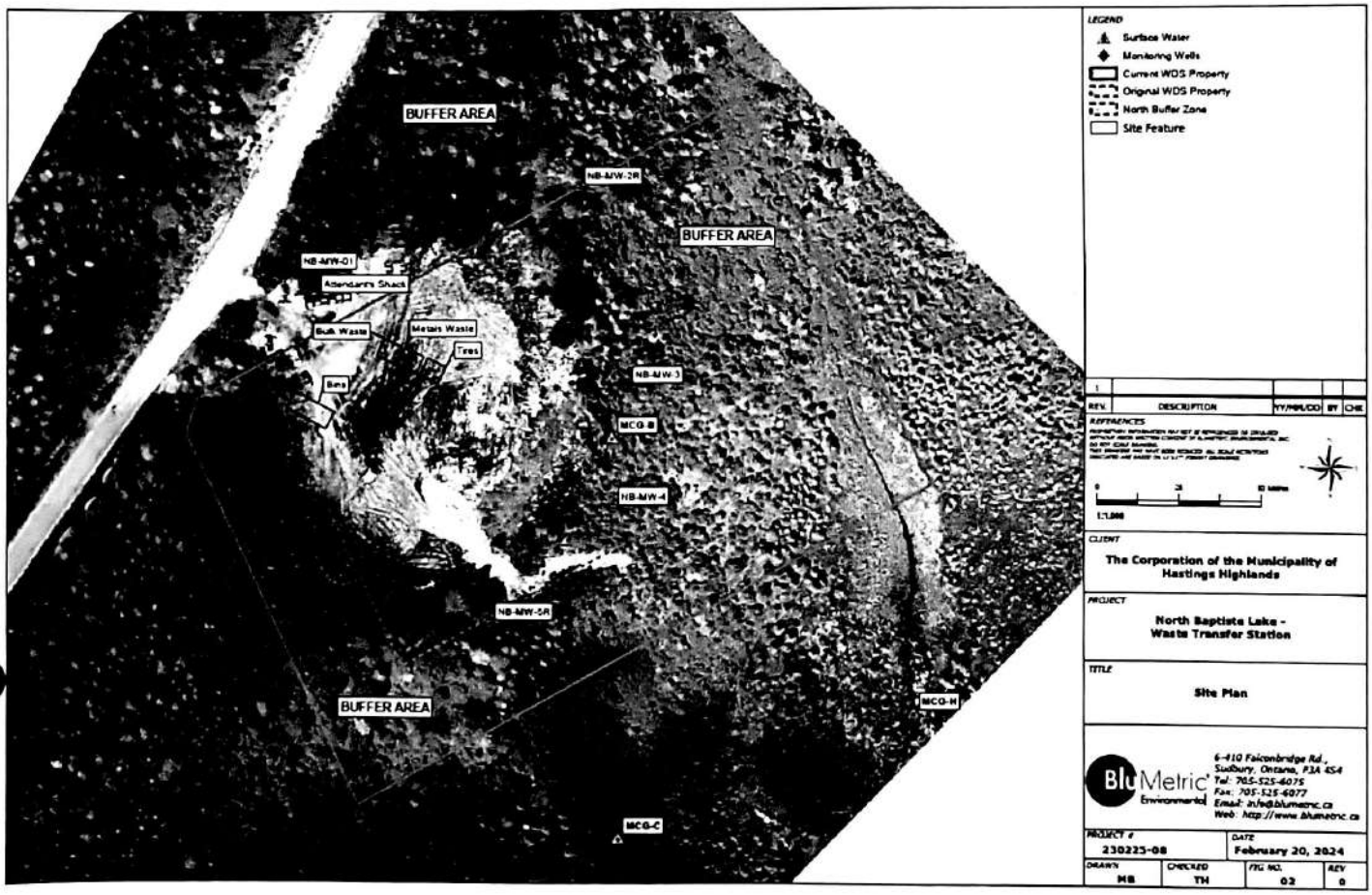
OBSERVATIONS OF PHYSICAL ENVIRONMENT: Please comment on any changes to the local environment (e.g. settling or slumping of waste/cover, new or altered drainage, presence of seeps, changes in vegetation cover, etc.)

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

CamScanner

MOUND SURFACE CONDITIONS

❑ Any Signs of Erosion	Yes _	No ✓	Wetland surrounding WDS water very high
❑ Vegetation Established Well	Yes ✓	No _	
❑ Any Signs of Surface Cracking due to Gas	Yes _	No ✓	
❑ Any Signs of Standing/Ponded Water	Yes _	No ✓	
❑ Any Signs of Surface Water blockages	Yes _	No ✓	
❑ Any Signs of Seeps	Yes ✓	No _	@ MCG-B - Red staining seep



Identify any remedial actions required:

Identify any changes to site layout on drawing and/or comment:

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

CamScanner

SMALL LANDFILL
OPERATION AND INSPECTION FORM

Site Name: North Baptiste WTS, MHHs	Date: Oct 29, 2024	Weather: Overcast -2°C → 8°C
Project #: 240205-08	BluMetric Staff: BM / NW	

Photographs of each item below should be collected during site visits.

OVERALL INSPECTION AND OPERATION REVIEW

❑ Signage in good condition	Yes ✓	No _	Consider moving sign higer and into better public view at main entrance
❑ ECA and emergency numbers on signage	Yes ✓	No _	
❑ Hour of operation observed	Yes ✓	No _	
❑ Site open under normal operating hours	Yes ✓	No _	
❑ Perimeter fencing and gate in good condition	Yes ✓	No _	
❑ Gate locked if closed	Yes ✓	No _	

DESIGNATED WASTE AREA

❑ Working active/trench area (moderate size, daily cover, compacted)	~~Yes _~~	No _	Transfer Site
❑ Designated waste areas are properly signed and easily accessed by public	Yes _	~~No~~ _	

RECYCLING OPERATION (if applicable)

❑ Proper signage and bins present	Yes ✓	No _	
❑ Clearly signed	Yes ✓	No _	
❑ Overall neat in appearance	Yes ✓	No _	

SEGREGATED SCRAP PILES (metal, tires, brush, etc.)

❑ Metals neat and appropriate size	Yes ✓	No _	
❑ Tires neat and appropriate size	Yes ✓	No _	
❑ Bulky Items neat and appropriate size	Yes ✓	No _	NA ✓
❑ Brush pile neat and appropriate size	Yes _	No _	
❑ Construction Debris neat and appropriate size	Yes _	No _	NA ✓

No brush or C&D waste at this site

MONITORING WELL CONDITION

❑ Casing conditions (frost heave, lock, cap)	Yes ✓	No _	
❑ Monitor condition (capped, vented)	Yes ✓	No _	
❑ Wells clearly labeled (re-label as required)	Yes ✓	No _	
❑ Well clearly visible (clear brush if necessary)	Yes ✓	No _	

LANDFILL GAS MONITORING

❑ Conducted at structures	Yes ✓	No _	Attendant building = 0ppm
❑ Conducted at monitoring wells	Yes ✓	No _	

REPAIRS: Provide details of repairs made or materials required for repairs upon next site visit:

Some bulk items have fallen behind the containment area. These should be moved back into the bulk pile

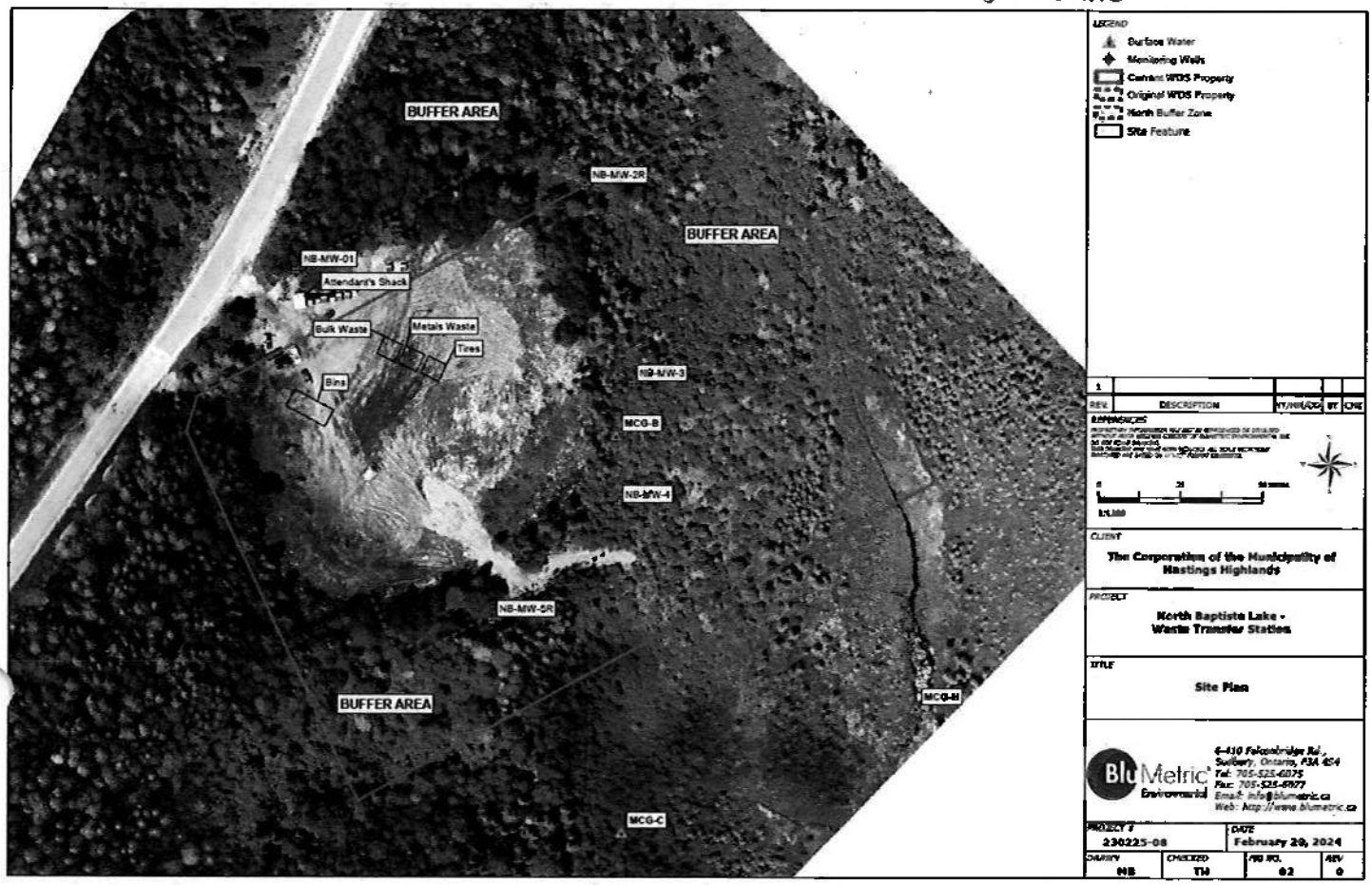
OBSERVATIONS OF PHYSICAL ENVIRONMENT: Please comment on any changes to the local environment (e.g. settling or slumping of waste/cover, new or altered drainage, presence of seeps, changes in vegetation cover, etc.)

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

MOUND SURFACE CONDITIONS

❑ Any Signs of Erosion	Yes _	No ✓
❑ Vegetation Established Well	Yes ✓	No _
❑ Any Signs of Surface Cracking due to Gas	Yes _	No ✓
❑ Any Signs of Standing/Ponded Water	Yes _	No ✓
❑ Any Signs of Surface Water blockages	Yes ✓	No _
❑ Any Signs of Seeps	Yes _	No ✓

Wetland is flooded most likely due to beavers down stream somewhere



Identify any remedial actions required:

Identify any changes to site layout on drawing and/or comment:

This form is intended as a general reminder of information that should recorded during monitoring activities. The above information is a minimum guide. Any information deemed important should be recorded in the field notes for each site.

Appendix D

D-2 Groundwater Laboratory Reports

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 880150

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/05/08
Report #: R8140107
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C9655
Received: 2024/05/01, 09:10

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	6	N/A	2024/05/07	CAM SOP-00448	SM 24 2320 B m
Chloride by Automated Colourimetry	6	N/A	2024/05/03	CAM SOP-00463	SM 24 4500-Cl E m
Chemical Oxygen Demand	6	N/A	2024/05/07	CAM SOP-00416	SM 24 5220 D m
Conductivity	6	N/A	2024/05/07	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	6	N/A	2024/05/02	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3)	6	N/A	2024/05/03	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Mercury in Water by CVAA	6	2024/05/06	2024/05/07	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	6	N/A	2024/05/02	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	6	N/A	2024/05/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2024/05/03	CAM SOP-00440	SM 24 4500-NO3I/NO2B
pH (3)	6	2024/05/02	2024/05/07	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	6	N/A	2024/05/03	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Turbidimetry	6	N/A	2024/05/03	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	6	2024/05/03	2024/05/04	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	6	2024/05/03	2024/05/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	6	2024/05/03	2024/05/07	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	5	2024/05/02	2024/05/04	CAM SOP-00428	SM 24 2540D m
Total Suspended Solids	1	2024/05/02	2024/05/06	CAM SOP-00428	SM 24 2540D m
Turbidity	6	N/A	2024/05/02	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 880150

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/05/08
Report #: R8140107
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C9655

Received: 2024/05/01, 09:10

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAY134			ZAY134			ZAY135		
Sampling Date		2024/04/29 17:55			2024/04/29 17:55			2024/04/29 17:20		
COC Number		880150			880150			880150		
	UNITS	NB MW1	RDL	QC Batch	NB MW1 Lab-Dup	RDL	QC Batch	NB MW2R	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	70	1.0	9367443				30	1.0	9367443
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9372022				ND	0.050	9372022
Total Chemical Oxygen Demand (COD)	mg/L	ND	4.0	9370228				ND	4.0	9370228
Conductivity	umho/cm	370	1.0	9370043				84	1.0	9370043
Total Dissolved Solids	mg/L	285	10	9372175				85	10	9372175
Total Kjeldahl Nitrogen (TKN)	mg/L	ND	0.10	9372980				ND	0.10	9372980
Dissolved Organic Carbon	mg/L	1.2	0.4	9370292	1.1	0.4	9370292	1.1	0.4	9370292
pH	pH	7.14		9370055				7.79		9370055
Phenols-4AAP	mg/L	ND	0.0010	9372578				ND	0.0010	9372578
Total Phosphorus	mg/L	1.8	0.020	9372970				0.81	0.020	9373149
Total Suspended Solids	mg/L	1100	33	9369691				840	10	9369531
Dissolved Sulphate (SO4)	mg/L	3.6	1.0	9370673				6.0	1.0	9370673
Turbidity	NTU	67	0.1	9370025				24	0.1	9370025
Alkalinity (Total as CaCO3)	mg/L	26	1.0	9370036				34	1.0	9370036
Dissolved Chloride (Cl-)	mg/L	79	1.0	9370670				3.0	1.0	9370670
Nitrite (N)	mg/L	ND	0.010	9370211				ND	0.010	9371000
Nitrate (N)	mg/L	0.25	0.10	9370211				0.10	0.10	9371000
Nitrate + Nitrite (N)	mg/L	0.25	0.10	9370211				0.10	0.10	9371000

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAY136			ZAY137			ZAY138		
Sampling Date		2024/04/29 17:10			2024/04/29 16:55			2024/04/29 16:45		
COC Number		880150			880150			880150		
	UNITS	NB MW3	RDL	QC Batch	NB MW4	RDL	QC Batch	NB MW5R	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	390	1.0	9367443	110	1.0	9367443	82	1.0	9367443
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9372022	ND	0.050	9372022	ND	0.050	9372022
Total Chemical Oxygen Demand (COD)	mg/L	ND	4.0	9370228	ND	4.0	9370228	ND	4.0	9370228
Conductivity	umho/cm	1100	1.0	9370043	260	1.0	9370043	200	1.0	9370043
Total Dissolved Solids	mg/L	740	10	9372175	195	10	9372175	260	10	9372175
Total Kjeldahl Nitrogen (TKN)	mg/L	0.12	0.10	9372980	ND	0.10	9372980	ND	0.10	9372980
Dissolved Organic Carbon	mg/L	2.0	0.4	9370292	0.8	0.4	9370292	1.3	0.4	9370292
pH	pH	7.52		9370055	8.13		9370055	7.78		9370055
Phenols-4AAP	mg/L	ND	0.0010	9372578	ND	0.0010	9372578	ND	0.0010	9372578
Total Phosphorus	mg/L	0.091	0.020	9373149	1.9	0.020	9373149	3.3	0.020	9373149
Total Suspended Solids	mg/L	110	10	9369531	2200	10	9369531	3800	50	9369531
Dissolved Sulphate (SO4)	mg/L	16	1.0	9370673	20	1.0	9370673	17	1.0	9370673
Turbidity	NTU	2.6	0.1	9370025	15	0.1	9370025	280	0.1	9370025
Alkalinity (Total as CaCO3)	mg/L	130	1.0	9370036	64	1.0	9370036	40	1.0	9370036
Dissolved Chloride (Cl-)	mg/L	220	2.0	9370670	27	1.0	9370670	24	1.0	9370670
Nitrite (N)	mg/L	ND	0.010	9370211	ND	0.010	9371000	ND	0.010	9370211
Nitrate (N)	mg/L	ND	0.10	9370211	ND	0.10	9371000	ND	0.10	9370211
Nitrate + Nitrite (N)	mg/L	ND	0.10	9370211	ND	0.10	9371000	ND	0.10	9370211

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAY139		
Sampling Date		2024/04/29 16:55		
COC Number		880150		
	UNITS	NB-QAQC-GW1	RDL	QC Batch
Calculated Parameters				
Hardness (CaCO3)	mg/L	110	1.0	9367443
Inorganics				
Total Ammonia-N	mg/L	ND	0.050	9372022
Total Chemical Oxygen Demand (COD)	mg/L	ND	4.0	9370228
Conductivity	umho/cm	260	1.0	9370043
Total Dissolved Solids	mg/L	200	10	9372175
Total Kjeldahl Nitrogen (TKN)	mg/L	ND	0.10	9372980
Dissolved Organic Carbon	mg/L	0.8	0.4	9370292
pH	pH	8.15		9370055
Phenols-4AAP	mg/L	ND	0.0010	9372578
Total Phosphorus	mg/L	1.9	0.020	9373149
Total Suspended Solids	mg/L	2300	10	9369531
Dissolved Sulphate (SO4)	mg/L	20	1.0	9370673
Turbidity	NTU	17	0.1	9370025
Alkalinity (Total as CaCO3)	mg/L	63	1.0	9370036
Dissolved Chloride (Cl-)	mg/L	27	1.0	9370670
Nitrite (N)	mg/L	ND	0.010	9371000
Nitrate (N)	mg/L	ND	0.10	9371000
Nitrate + Nitrite (N)	mg/L	ND	0.10	9371000

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZAY134	ZAY135	ZAY136	ZAY137	ZAY138	ZAY139		
Sampling Date		2024/04/29 17:55	2024/04/29 17:20	2024/04/29 17:10	2024/04/29 16:55	2024/04/29 16:45	2024/04/29 16:55		
COC Number		880150	880150	880150	880150	880150	880150		
	UNITS	NB MW1	NB MW2R	NB MW3	NB MW4	NB MW5R	NB-QAQC-GW1	RDL	QC Batch
Metals									
Dissolved Mercury (Hg)	ug/L	ND	ND	ND	ND	ND	ND	0.10	9375776
Dissolved Aluminum (Al)	ug/L	ND	ND	ND	ND	ND	ND	4.9	9369345
Dissolved Arsenic (As)	ug/L	ND	ND	ND	ND	ND	ND	1.0	9369345
Dissolved Barium (Ba)	ug/L	27	2.7	100	12	16	12	2.0	9369345
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	ND	ND	ND	0.40	9369345
Dissolved Boron (B)	ug/L	ND	ND	140	ND	ND	ND	10	9369345
Dissolved Cadmium (Cd)	ug/L	ND	ND	ND	ND	ND	ND	0.090	9369345
Dissolved Calcium (Ca)	ug/L	21000	7100	96000	33000	22000	33000	200	9369345
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	ND	ND	ND	5.0	9369345
Dissolved Cobalt (Co)	ug/L	ND	ND	ND	ND	ND	ND	0.50	9369345
Dissolved Copper (Cu)	ug/L	ND	ND	ND	ND	ND	ND	0.90	9369345
Dissolved Iron (Fe)	ug/L	ND	ND	ND	ND	ND	ND	100	9369345
Dissolved Lead (Pb)	ug/L	ND	ND	ND	ND	ND	ND	0.50	9369345
Dissolved Magnesium (Mg)	ug/L	4000	3100	38000	6800	6700	6700	50	9369345
Dissolved Manganese (Mn)	ug/L	ND	ND	2.2	ND	90	ND	2.0	9369345
Dissolved Molybdenum (Mo)	ug/L	ND	ND	ND	2.1	2.0	2.0	0.50	9369345
Dissolved Nickel (Ni)	ug/L	ND	ND	5.9	ND	ND	ND	1.0	9369345
Dissolved Potassium (K)	ug/L	2500	1500	6400	3100	2500	3100	200	9369345
Dissolved Selenium (Se)	ug/L	ND	ND	ND	ND	ND	ND	2.0	9369345
Dissolved Silicon (Si)	ug/L	8700	11000	16000	9300	9000	9200	50	9369345
Dissolved Silver (Ag)	ug/L	ND	ND	ND	ND	ND	ND	0.090	9369345
Dissolved Sodium (Na)	ug/L	40000	4200	47000	6200	5300	6300	100	9369345
Dissolved Strontium (Sr)	ug/L	250	44	860	100	110	100	1.0	9369345
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	ND	ND	ND	0.050	9369345
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	ND	ND	ND	5.0	9369345
Dissolved Vanadium (V)	ug/L	ND	3.7	0.66	ND	ND	ND	0.50	9369345
Dissolved Zinc (Zn)	ug/L	14	ND	ND	ND	ND	ND	5.0	9369345

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAY134
Sample ID: NB MW1
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9370211	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369691	2024/05/02	2024/05/06	Razieh Tabesh
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

Bureau Veritas ID: ZAY134 Dup
Sample ID: NB MW1
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz

Bureau Veritas ID: ZAY135
Sample ID: NB MW2R
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9371000	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAY135
Sample ID: NB MW2R
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9373149	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

Bureau Veritas ID: ZAY136
Sample ID: NB MW3
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9370211	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9373149	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

Bureau Veritas ID: ZAY137
Sample ID: NB MW4
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAY137
Sample ID: NB MW4
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	9371000	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9373149	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

Bureau Veritas ID: ZAY138
Sample ID: NB MW5R
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9370211	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9373149	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

Bureau Veritas ID: ZAY139
Sample ID: NB-QAQC-GW1
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9370036	N/A	2024/05/07	Surinder Rai
Chloride by Automated Colourimetry	SKAL	9370670	N/A	2024/05/03	Massarat Jan
Chemical Oxygen Demand	SPEC	9370228	N/A	2024/05/07	Neil Dassanayake
Conductivity	AT	9370043	N/A	2024/05/07	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9370292	N/A	2024/05/02	Gyulshen Idriz

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAY139
Sample ID: NB-QAQC-GW1
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/03	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	9369345	N/A	2024/05/02	Thuy Linh Nguyen
Total Ammonia-N	LACH/NH4	9372022	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9371000	N/A	2024/05/03	Jinal Chavda
pH	AT	9370055	2024/05/02	2024/05/07	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9372578	N/A	2024/05/03	Chandra Nandlal
Sulphate by Automated Turbidimetry	SKAL	9370673	N/A	2024/05/03	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9372980	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9373149	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9370025	N/A	2024/05/02	Taslima Aktar

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.7°C

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9369345	Dissolved Aluminum (Al)	2024/05/02	107	80 - 120	103	80 - 120	ND, RDL=4.9	ug/L				
9369345	Dissolved Arsenic (As)	2024/05/02	103	80 - 120	101	80 - 120	ND, RDL=1.0	ug/L				
9369345	Dissolved Barium (Ba)	2024/05/02	103	80 - 120	103	80 - 120	ND, RDL=2.0	ug/L				
9369345	Dissolved Beryllium (Be)	2024/05/02	107	80 - 120	106	80 - 120	ND, RDL=0.40	ug/L				
9369345	Dissolved Boron (B)	2024/05/02	108	80 - 120	106	80 - 120	ND, RDL=10	ug/L	5.8	20		
9369345	Dissolved Cadmium (Cd)	2024/05/02	104	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L				
9369345	Dissolved Calcium (Ca)	2024/05/02	NC	80 - 120	104	80 - 120	ND, RDL=200	ug/L	0.35	20		
9369345	Dissolved Chromium (Cr)	2024/05/02	107	80 - 120	103	80 - 120	ND, RDL=5.0	ug/L				
9369345	Dissolved Cobalt (Co)	2024/05/02	105	80 - 120	102	80 - 120	ND, RDL=0.50	ug/L				
9369345	Dissolved Copper (Cu)	2024/05/02	107	80 - 120	103	80 - 120	ND, RDL=0.90	ug/L				
9369345	Dissolved Iron (Fe)	2024/05/02	107	80 - 120	104	80 - 120	ND, RDL=100	ug/L	2.5	20		
9369345	Dissolved Lead (Pb)	2024/05/02	98	80 - 120	97	80 - 120	ND, RDL=0.50	ug/L				
9369345	Dissolved Magnesium (Mg)	2024/05/02	105	80 - 120	103	80 - 120	ND, RDL=50	ug/L	2.4	20		
9369345	Dissolved Manganese (Mn)	2024/05/02	104	80 - 120	101	80 - 120	ND, RDL=2.0	ug/L	2.1	20		
9369345	Dissolved Molybdenum (Mo)	2024/05/02	110	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L				
9369345	Dissolved Nickel (Ni)	2024/05/02	101	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L				
9369345	Dissolved Potassium (K)	2024/05/02	111	80 - 120	108	80 - 120	ND, RDL=200	ug/L				
9369345	Dissolved Selenium (Se)	2024/05/02	101	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L				
9369345	Dissolved Silicon (Si)	2024/05/02	108	80 - 120	106	80 - 120	ND, RDL=50	ug/L				
9369345	Dissolved Silver (Ag)	2024/05/02	79 (1)	80 - 120	101	80 - 120	ND, RDL=0.090	ug/L				
9369345	Dissolved Sodium (Na)	2024/05/02	108	80 - 120	105	80 - 120	ND, RDL=100	ug/L	0.89	20		
9369345	Dissolved Strontium (Sr)	2024/05/02	102	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L				
9369345	Dissolved Thallium (Tl)	2024/05/02	100	80 - 120	99	80 - 120	ND, RDL=0.050	ug/L				
9369345	Dissolved Titanium (Ti)	2024/05/02	109	80 - 120	103	80 - 120	ND, RDL=5.0	ug/L				
9369345	Dissolved Vanadium (V)	2024/05/02	105	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L				
9369345	Dissolved Zinc (Zn)	2024/05/02	103	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L				
9369531	Total Suspended Solids	2024/05/04			95	80 - 120	ND, RDL=10	mg/L	NC	20		
9369691	Total Suspended Solids	2024/05/06			95	80 - 120	ND, RDL=10	mg/L	17	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9370025	Turbidity	2024/05/02			99	80 - 120	ND, RDL=0.1	NTU	0.41	20		
9370036	Alkalinity (Total as CaCO3)	2024/05/06			102	85 - 115	ND, RDL=1.0	mg/L	1.4	20		
9370043	Conductivity	2024/05/06			101	85 - 115	ND, RDL=1.0	umho/cm	0.29	10		
9370055	pH	2024/05/06			102	98 - 103			0.51	N/A		
9370211	Nitrate (N)	2024/05/03	89	80 - 120	90	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9370211	Nitrite (N)	2024/05/03	95	80 - 120	91	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9370228	Total Chemical Oxygen Demand (COD)	2024/05/07	80	80 - 120	100	80 - 120	ND, RDL=4.0	mg/L	1.8	20		
9370292	Dissolved Organic Carbon	2024/05/02	95	80 - 120	98	80 - 120	ND, RDL=0.4	mg/L	9.6	20		
9370670	Dissolved Chloride (Cl-)	2024/05/03	NC	80 - 120	95	80 - 120	ND, RDL=1.0	mg/L	0.63	20		
9370673	Dissolved Sulphate (SO4)	2024/05/03	99	75 - 125	96	80 - 120	ND, RDL=1.0	mg/L	0.024	20		
9371000	Nitrate (N)	2024/05/03	93	80 - 120	94	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9371000	Nitrite (N)	2024/05/03	97	80 - 120	96	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9372022	Total Ammonia-N	2024/05/07	92	75 - 125	97	80 - 120	ND, RDL=0.050	mg/L	0.49	20		
9372175	Total Dissolved Solids	2024/05/04			95	80 - 120	ND, RDL=10	mg/L	0.98	20		
9372578	Phenols-4AAP	2024/05/03	101	80 - 120	100	80 - 120	ND, RDL=0.0010	mg/L	NC	20		
9372970	Total Phosphorus	2024/05/07	106	80 - 120	96	80 - 120	ND, RDL=0.020	mg/L	0.93	20	97	80 - 120
9372980	Total Kjeldahl Nitrogen (TKN)	2024/05/07	NC	80 - 120	99	80 - 120	ND, RDL=0.10	mg/L	16	20	100	80 - 120
9373149	Total Phosphorus	2024/05/07	98	80 - 120	93	80 - 120	ND, RDL=0.020	mg/L	4.0	20	99	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9375776	Dissolved Mercury (Hg)	2024/05/07	92	75 - 125	92	80 - 120	ND, RDL=0.10	ug/L	NC	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9655
Report Date: 2024/05/08

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Custody Tracking Form

T880150

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: NB MW1
Last Sample: NB-QAQC-GW1
Sample Count: 6

Relinquished By				Received By			
Print: Brad M'Callum	Sign: Brad M'Call	Date	2024/04/30	Print: SATTAR BADOLA	Sign:	Date	2024/05/01
		Time (24 HR)	07:30			Time (24 HR)	09:20
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print): Brad M'Callum / Matthew DeGeer

# of Coolers/Pkgs: 1

Rush ☐ Immediate Test ☐ Food Residue ☐

Micro ☐ Food Chemistry ☐

*** LABORATORY USE ONLY ***

Received At

Labeled By

Verified By

Lab Comments:

01-May-24 09:10
Christine Gripton
C4C9655
AK0 env-1307

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	Y	Y	8	7	5
Drinking Water Metals Preservation Check Done (Circle)				YES	NO

COR FCD-00383/4

Page 1 of 1

Your Project #: 240205-08
Site Location: North Baptiste GW
Your C.O.C. #: 971316

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2025/01/07
Report #: R8466982
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4Y2451
Received: 2024/10/31, 09:25

Sample Matrix: Ground Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	6	N/A	2024/11/06	CAM SOP-00448	SM 24 2320 B m
Chloride by Automated Colourimetry	6	N/A	2024/11/06	CAM SOP-00463	SM 24 4500-Cl E m
Chemical Oxygen Demand	6	N/A	2024/11/07	CAM SOP-00416	SM 24 5220 D m
Conductivity	6	N/A	2024/11/06	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	6	N/A	2024/11/06	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3)	6	N/A	2024/11/05	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Mercury in Water by CVAA	6	2024/11/05	2024/11/06	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	6	N/A	2024/11/04	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	6	N/A	2024/11/05	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2024/11/05	CAM SOP-00440	SM 24 4500-NO3I/NO2B
pH (3)	6	2024/11/02	2024/11/06	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	6	N/A	2024/11/05	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Turbidimetry	6	N/A	2024/11/06	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	3	2024/11/02	2024/11/05	CAM SOP-00428	SM 24 2540C m
Total Dissolved Solids	3	2024/11/04	2024/11/06	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	6	2024/11/05	2024/11/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2024/11/05	2024/11/06	CAM SOP-00407	SM 24 4500-P I
Total Phosphorus (Colourimetric)	1	2024/11/05	2024/11/07	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	6	2024/11/04	2024/11/06	CAM SOP-00428	SM 24 2540D m
Turbidity	6	N/A	2024/11/02	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Your Project #: 240205-08
Site Location: North Baptiste GW
Your C.O.C. #: 971316

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2025/01/07
Report #: R8466982
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4Y2451
Received: 2024/10/31, 09:25

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700
==========
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Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHMF86			AHMF87			AHMF88		
Sampling Date		2024/10/29 12:25			2024/10/29 12:15			2024/10/29 12:01		
COC Number		971316			971316			971316		
	UNITS	NB MW1	RDL	QC Batch	NB MW2R	RDL	QC Batch	NB MW3	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	34	1.0	9736228	29	1.0	9736228	420	1.0	9736228
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9741259	ND	0.050	9741259	ND	0.050	9741259
Total Chemical Oxygen Demand (COD)	mg/L	ND	4.0	9745808	ND	4.0	9745808	30	4.0	9745808
Conductivity	umho/cm	240	1.0	9742129	87	1.0	9742129	1200	1.0	9742129
Total Dissolved Solids	mg/L	195	10	9743425	60	10	9743425	990	10	9741730
Total Kjeldahl Nitrogen (TKN)	mg/L	ND	0.10	9745956	ND	0.10	9745956	0.14	0.10	9746592
Dissolved Organic Carbon	mg/L	1.3	0.4	9745945	0.8	0.4	9745945	2.2	0.4	9745945
pH	pH	7.14		9742128	7.57		9742128	7.43		9742128
Phenols-4AAP	mg/L	ND	0.0010	9746815	ND	0.0010	9746815	ND	0.0010	9746815
Total Phosphorus	mg/L	0.76	0.020	9746556	1.2	0.020	9746556	0.17	0.020	9746556
Total Suspended Solids	mg/L	610	33	9742902	810	10	9742902	180	10	9742902
Dissolved Sulphate (SO4)	mg/L	8.2	1.0	9742139	6.8	1.0	9742139	16	1.0	9742139
Turbidity	NTU	120	0.1	9742147	12	0.1	9742147	1.7	0.1	9742147
Alkalinity (Total as CaCO3)	mg/L	28	1.0	9742124	31	1.0	9742124	130	1.0	9742124
Dissolved Chloride (Cl-)	mg/L	45	1.0	9742136	1.8	1.0	9742136	260	2.0	9742136
Nitrite (N)	mg/L	ND	0.010	9742132	ND	0.010	9742130	ND	0.010	9742130
Nitrate (N)	mg/L	0.13	0.10	9742132	ND	0.10	9742130	ND	0.10	9742130
Nitrate + Nitrite (N)	mg/L	0.13	0.10	9742132	ND	0.10	9742130	ND	0.10	9742130

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHMF89			AHMF90			AHMF90		
Sampling Date		2024/10/29 11:29			2024/10/29 11:38			2024/10/29 11:38		
COC Number		971316			971316			971316		
	UNITS	NB MW4	RDL	QC Batch	NB MW5R	RDL	QC Batch	NB MW5R Lab-Dup	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	100	1.0	9736228	78	1.0	9736228			
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9741259	ND	0.050	9741259	ND	0.050	9741259
Total Chemical Oxygen Demand (COD)	mg/L	5.7	4.0	9745808	ND	4.0	9745825			
Conductivity	umho/cm	270	1.0	9742129	220	1.0	9742129			
Total Dissolved Solids	mg/L	160	10	9743425	220	10	9741730			
Total Kjeldahl Nitrogen (TKN)	mg/L	ND	0.10	9746592	ND	0.10	9746878			
Dissolved Organic Carbon	mg/L	0.9	0.4	9745945	0.9	0.4	9745945			
pH	pH	7.77		9742128	7.55		9742128			
Phenols-4AAP	mg/L	ND	0.0010	9746815	ND	0.0010	9746815			
Total Phosphorus	mg/L	0.44	0.020	9746556	2.6	0.020	9746585			
Total Suspended Solids	mg/L	330	10	9742902	2600	100	9742902			
Dissolved Sulphate (SO4)	mg/L	21	1.0	9742139	20	1.0	9742139			
Turbidity	NTU	11	0.1	9742147	170	0.1	9742147			
Alkalinity (Total as CaCO3)	mg/L	60	1.0	9742124	55	1.0	9742124			
Dissolved Chloride (Cl-)	mg/L	29	1.0	9742136	25	1.0	9742136			
Nitrite (N)	mg/L	ND	0.010	9742132	ND	0.010	9742132			
Nitrate (N)	mg/L	ND	0.10	9742132	ND	1.0	9742132			
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132	ND	0.10	9742132			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHMF91		
Sampling Date		2024/10/29 12:01		
COC Number		971316		
	UNITS	NB-QAQC-GW1	RDL	QC Batch
Calculated Parameters				
Hardness (CaCO3)	mg/L	420	1.0	9736228
Inorganics				
Total Ammonia-N	mg/L	ND	0.050	9741259
Total Chemical Oxygen Demand (COD)	mg/L	4.4	4.0	9745808
Conductivity	umho/cm	1200	1.0	9742129
Total Dissolved Solids	mg/L	1010	10	9741730
Total Kjeldahl Nitrogen (TKN)	mg/L	0.12	0.10	9745956
Dissolved Organic Carbon	mg/L	1.7	0.4	9745945
pH	pH	7.51		9742128
Phenols-4AAP	mg/L	ND	0.0010	9746815
Total Phosphorus	mg/L	0.19	0.020	9746556
Total Suspended Solids	mg/L	160	10	9742902
Dissolved Sulphate (SO4)	mg/L	16	1.0	9742139
Turbidity	NTU	2.4	0.1	9742147
Alkalinity (Total as CaCO3)	mg/L	130	1.0	9742124
Dissolved Chloride (Cl-)	mg/L	260	2.0	9742136
Nitrite (N)	mg/L	ND	0.010	9742132
Nitrate (N)	mg/L	ND	0.10	9742132
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

Bureau Veritas ID		AHMF86	AHMF87	AHMF88	AHMF89	AHMF90	AHMF91		
Sampling Date		2024/10/29 12:25	2024/10/29 12:15	2024/10/29 12:01	2024/10/29 11:29	2024/10/29 11:38	2024/10/29 12:01		
COC Number		971316	971316	971316	971316	971316	971316		
	UNITS	NB MW1	NB MW2R	NB MW3	NB MW4	NB MW5R	NB-QAQC-GW1	RDL	QC Batch
Metals									
Dissolved Mercury (Hg)	ug/L	ND	ND	ND	ND	ND	ND	0.10	9746538
Dissolved Aluminum (Al)	ug/L	46	ND	ND	6.3	ND	ND	4.9	9740612
Dissolved Arsenic (As)	ug/L	ND	ND	ND	ND	ND	ND	1.0	9740612
Dissolved Barium (Ba)	ug/L	14	2.7	120	13	17	120	2.0	9740612
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	ND	ND	ND	0.40	9740612
Dissolved Boron (B)	ug/L	ND	ND	140	ND	ND	130	10	9740612
Dissolved Cadmium (Cd)	ug/L	ND	ND	ND	ND	ND	ND	0.090	9740612
Dissolved Calcium (Ca)	ug/L	11000	6800	100000	31000	21000	100000	200	9740612
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	ND	ND	ND	5.0	9740612
Dissolved Cobalt (Co)	ug/L	ND	ND	1.7	ND	ND	1.8	0.50	9740612
Dissolved Copper (Cu)	ug/L	1.6	ND	1.1	ND	ND	ND	0.90	9740612
Dissolved Iron (Fe)	ug/L	ND	ND	120	ND	ND	120	100	9740612
Dissolved Lead (Pb)	ug/L	ND	ND	ND	ND	ND	ND	0.50	9740612
Dissolved Magnesium (Mg)	ug/L	1900	2800	39000	6400	6200	39000	50	9740612
Dissolved Manganese (Mn)	ug/L	ND	ND	27	ND	62	27	2.0	9740612
Dissolved Molybdenum (Mo)	ug/L	ND	ND	ND	2.3	2.0	ND	0.50	9740612
Dissolved Nickel (Ni)	ug/L	ND	ND	5.7	ND	ND	5.8	1.0	9740612
Dissolved Potassium (K)	ug/L	1800	1500	6600	3100	2400	6600	200	9740612
Dissolved Selenium (Se)	ug/L	ND	ND	ND	ND	ND	ND	2.0	9740612
Dissolved Silicon (Si)	ug/L	8900	12000	15000	8600	8000	15000	50	9740612
Dissolved Silver (Ag)	ug/L	ND	ND	ND	ND	ND	ND	0.090	9740612
Dissolved Sodium (Na)	ug/L	29000	3800	48000	6100	5000	48000	100	9740612
Dissolved Strontium (Sr)	ug/L	120	42	940	100	110	940	1.0	9740612
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	ND	ND	ND	0.050	9740612
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	ND	ND	ND	5.0	9740612
Dissolved Vanadium (V)	ug/L	0.72	4.2	0.65	ND	ND	0.65	0.50	9740612
Dissolved Zinc (Zn)	ug/L	ND	ND	ND	7.1	ND	ND	5.0	9740612

RDL = Reportable Detection Limit
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF86
Sample ID: NB MW1
Matrix: Ground Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745808	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Total Kjeldahl Nitrogen in Water	SKAL	9745956	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746556	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

Bureau Veritas ID: AHMF87
Sample ID: NB MW2R
Matrix: Ground Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745808	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742130	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Total Kjeldahl Nitrogen in Water	SKAL	9745956	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746556	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF88
Sample ID: NB MW3
Matrix: Ground Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745808	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742130	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9746592	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746556	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

Bureau Veritas ID: AHMF89
Sample ID: NB MW4
Matrix: Ground Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745808	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Total Kjeldahl Nitrogen in Water	SKAL	9746592	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746556	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

TEST SUMMARY

Bureau Veritas ID: AHMF90 **Collected:** 2024/10/29
Sample ID: NB MW5R **Shipped:**
Matrix: Ground Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745825	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746585	2024/11/05	2024/11/07	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

Bureau Veritas ID: AHMF90 Dup **Collected:** 2024/10/29
Sample ID: NB MW5R **Shipped:**
Matrix: Ground Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda

Bureau Veritas ID: AHMF91 **Collected:** 2024/10/29
Sample ID: NB-QAQC-GW1 **Shipped:**
Matrix: Ground Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Chemical Oxygen Demand	SPEC	9745808	N/A	2024/11/07	Shivani Shivani
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9745945	N/A	2024/11/06	Gyulshen Idriz
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9746538	2024/11/05	2024/11/06	Maitri PATIL
Dissolved Metals by ICPMS	ICP/MS	9740612	N/A	2024/11/04	Nan Raykha
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF91
Sample ID: NB-QAQC-GW1
Matrix: Ground Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9745956	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746556	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Turbidity	AT	9742147	N/A	2024/11/02	Kien Tran

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C

Revised Report [2025/01/06]: Nitrate/Nitrite, DOC and TKN included in report.

Tubidity is analyzed past hold time.

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9740612	Dissolved Aluminum (Al)	2024/11/04	99	80 - 120	99	80 - 120	ND, RDL=4.9	ug/L				
9740612	Dissolved Arsenic (As)	2024/11/04	99	80 - 120	100	80 - 120	ND, RDL=1.0	ug/L				
9740612	Dissolved Barium (Ba)	2024/11/04	100	80 - 120	101	80 - 120	ND, RDL=2.0	ug/L				
9740612	Dissolved Beryllium (Be)	2024/11/04	98	80 - 120	100	80 - 120	ND, RDL=0.40	ug/L				
9740612	Dissolved Boron (B)	2024/11/04	97	80 - 120	95	80 - 120	ND, RDL=10	ug/L				
9740612	Dissolved Cadmium (Cd)	2024/11/04	99	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L				
9740612	Dissolved Calcium (Ca)	2024/11/04	NC	80 - 120	97	80 - 120	ND, RDL=200	ug/L				
9740612	Dissolved Chromium (Cr)	2024/11/04	97	80 - 120	98	80 - 120	ND, RDL=5.0	ug/L				
9740612	Dissolved Cobalt (Co)	2024/11/04	97	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L				
9740612	Dissolved Copper (Cu)	2024/11/04	96	80 - 120	99	80 - 120	ND, RDL=0.90	ug/L				
9740612	Dissolved Iron (Fe)	2024/11/04	97	80 - 120	99	80 - 120	ND, RDL=100	ug/L				
9740612	Dissolved Lead (Pb)	2024/11/04	96	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L				
9740612	Dissolved Magnesium (Mg)	2024/11/04	NC	80 - 120	98	80 - 120	ND, RDL=50	ug/L				
9740612	Dissolved Manganese (Mn)	2024/11/04	NC	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L	1.4	20		
9740612	Dissolved Molybdenum (Mo)	2024/11/04	101	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L				
9740612	Dissolved Nickel (Ni)	2024/11/04	93	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L				
9740612	Dissolved Potassium (K)	2024/11/04	98	80 - 120	101	80 - 120	ND, RDL=200	ug/L				
9740612	Dissolved Selenium (Se)	2024/11/04	98	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L				
9740612	Dissolved Silicon (Si)	2024/11/04	93	80 - 120	96	80 - 120	ND, RDL=50	ug/L				
9740612	Dissolved Silver (Ag)	2024/11/04	95	80 - 120	96	80 - 120	ND, RDL=0.090	ug/L				
9740612	Dissolved Sodium (Na)	2024/11/04	NC	80 - 120	98	80 - 120	ND, RDL=100	ug/L				
9740612	Dissolved Strontium (Sr)	2024/11/04	96	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L				
9740612	Dissolved Thallium (Tl)	2024/11/04	98	80 - 120	100	80 - 120	ND, RDL=0.050	ug/L				
9740612	Dissolved Titanium (Ti)	2024/11/04	93	80 - 120	96	80 - 120	ND, RDL=5.0	ug/L				
9740612	Dissolved Vanadium (V)	2024/11/04	98	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L				
9740612	Dissolved Zinc (Zn)	2024/11/04	95	80 - 120	97	80 - 120	ND, RDL=5.0	ug/L				
9741259	Total Ammonia-N	2024/11/05	95	75 - 125	95	80 - 120	ND, RDL=0.050	mg/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9741730	Total Dissolved Solids	2024/11/05			95	80 - 120	ND, RDL=10	mg/L	0	20		
9742124	Alkalinity (Total as CaCO3)	2024/11/06			97	85 - 115	ND, RDL=1.0	mg/L	11	20		
9742128	pH	2024/11/06			102	98 - 103			0.43	N/A		
9742129	Conductivity	2024/11/06			102	85 - 115	ND, RDL=1.0	umho/cm	1.2	10		
9742130	Nitrate (N)	2024/11/05	91	80 - 120	100	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9742130	Nitrite (N)	2024/11/05	96	80 - 120	103	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9742132	Nitrate (N)	2024/11/05	91	80 - 120	98	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9742132	Nitrite (N)	2024/11/05	98	80 - 120	103	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9742136	Dissolved Chloride (Cl-)	2024/11/06	NC	80 - 120	99	80 - 120	ND, RDL=1.0	mg/L	0.94	20		
9742139	Dissolved Sulphate (SO4)	2024/11/06	98	75 - 125	97	80 - 120	ND, RDL=1.0	mg/L	0.72	20		
9742147	Turbidity	2024/11/02			99	80 - 120	ND, RDL=0.1	NTU	0.97	20		
9742902	Total Suspended Solids	2024/11/06			99	80 - 120	ND, RDL=10	mg/L	NC	20		
9743425	Total Dissolved Solids	2024/11/06			98	80 - 120	ND, RDL=10	mg/L	1.8	20		
9745808	Total Chemical Oxygen Demand (COD)	2024/11/07	99	80 - 120	101	80 - 120	ND, RDL=4.0	mg/L	4.7	20		
9745825	Total Chemical Oxygen Demand (COD)	2024/11/07	104	80 - 120	96	80 - 120	ND, RDL=4.0	mg/L	NC	20		
9745945	Dissolved Organic Carbon	2024/11/05	92	80 - 120	95	80 - 120	ND, RDL=0.4	mg/L	4.3	20		
9745956	Total Kjeldahl Nitrogen (TKN)	2024/11/06	NC	80 - 120	96	80 - 120	ND, RDL=0.10	mg/L	0.51	20	98	80 - 120
9746538	Dissolved Mercury (Hg)	2024/11/06	91	75 - 125	92	80 - 120	ND, RDL=0.10	ug/L				
9746556	Total Phosphorus	2024/11/07	100	80 - 120	107	80 - 120	ND, RDL=0.020	mg/L	NC	20	102	80 - 120
9746585	Total Phosphorus	2024/11/07	98	80 - 120	98	80 - 120	ND, RDL=0.020	mg/L	2.7	20	97	80 - 120
9746592	Total Kjeldahl Nitrogen (TKN)	2024/11/06	106	80 - 120	105	80 - 120	ND, RDL=0.10	mg/L	9.8	20	106	80 - 120
9746815	Phenols-4AAP	2024/11/05	96	80 - 120	97	80 - 120	ND, RDL=0.0010	mg/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9746878	Total Kjeldahl Nitrogen (TKN)	2024/11/06	111	80 - 120	99	80 - 120	ND, RDL=0.10	mg/L	15	20	101	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2451
Report Date: 2025/01/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste GW
Sampler Initials: BM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

IMMEDIATE

Custody Tracking Form

T971316

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: NB MW1
Last Sample: NB-QAQC-GW1
Sample Count: 6

Relinquished By				Received By			
Brad McCallum	Brad McCal	Date	2024/10/30	Ashita Sukhdeva	Ashita Sukhdeva	Date	2024/10/31
		Time (24 HR)	08:00			Time (24 HR)	09:25
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print): BM / NW

# of Coolers/Pkgs: 1

Rush ☐ Immediate Test ☐ Food Residue ☐

Micro ☐ Food Chemistry ☐

*** LABORATORY USE ONLY ***

Received At

Labeled By

Verified By

Lab Comments:

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	Y	Y	5	6	1

Drinking Water Metals Preservation Check Done (Circle) YES NO

31-Oct-24 09:25
Elora Di Bratto
C4Y2451
KKS ENV 1580

North BAP GW

COR FCD-00383/4

Page 1 of 1

Appendix D

D-3 Surface Water Laboratory Reports

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 880148

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/05/10
Report #: R8143367
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C9091
Received: 2024/05/01, 09:19

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Dissolved Aluminum (0.2 u, clay free)	9	N/A	2024/05/03	CAM SOP-00447	EPA 6020B m
Alkalinity	9	N/A	2024/05/05	CAM SOP-00448	SM 24 2320 B m
Biochemical Oxygen Demand (BOD)	9	2024/05/02	2024/05/07	CAM SOP-00427	SM 24 5210B m
Chloride by Automated Colourimetry	8	N/A	2024/05/02	CAM SOP-00463	SM 24 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2024/05/07	CAM SOP-00463	SM 24 4500-Cl E m
Colour	9	N/A	2024/05/02	CAM SOP-00412	SM 24 2120C m
Conductivity	9	N/A	2024/05/05	CAM SOP-00414	SM 24 2510 m
Hardness (calculated as CaCO3)	5	N/A	2024/05/06	CAM SOP 00102/00408/00447	SM 2340 B
Hardness (calculated as CaCO3)	4	N/A	2024/05/07	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Mercury in Water by CVAA	9	2024/05/06	2024/05/07	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2024/05/06	2024/05/06	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	8	2024/05/06	2024/05/07	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	9	N/A	2024/05/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	9	N/A	2024/05/03	CAM SOP-00440	SM 24 4500-NO3I/NO2B
pH (3)	9	2024/05/01	2024/05/05	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	9	N/A	2024/05/02	CAM SOP-00444	OMOE E3179 m
Field Measured pH (4)	9	N/A	2024/05/01		Field pH Meter
Sulphate by Automated Turbidimetry	8	N/A	2024/05/02	CAM SOP-00464	SM 24 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2024/05/07	CAM SOP-00464	SM 24 4500-SO42- E m
48-h Daphnia Magna Single Concentration (1)	2	N/A	N/A		
96-h Rainbow Trout Single Concentration (1)	2	N/A	N/A		
Total Dissolved Solids	5	2024/05/02	2024/05/03	CAM SOP-00428	SM 24 2540C m
Total Dissolved Solids	4	2024/05/03	2024/05/04	CAM SOP-00428	SM 24 2540C m
Field Temperature (4)	9	N/A	2024/05/01		Field Thermometer
Total Kjeldahl Nitrogen in Water	9	2024/05/03	2024/05/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	9	2024/05/03	2024/05/07	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	8	2024/05/02	2024/05/03	CAM SOP-00428	SM 24 2540D m
Total Suspended Solids	1	2024/05/02	2024/05/04	CAM SOP-00428	SM 24 2540D m

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 880148

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/05/10
Report #: R8143367
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C9091
Received: 2024/05/01, 09:19

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Turbidity	9	N/A	2024/05/02	CAM SOP-00417	SM 24 2130 B
Un-ionized Ammonia (5)	9	2024/05/01	2024/05/08	Auto Calc.	PWQO

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Nautilus Environmental Company Inc, 11 Nicholas Beaver Rd Unit B, Puslinch, ON, N0B 2C0
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

(4) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(5) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 880148

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/05/10
Report #: R8143367
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C9091
Received: 2024/05/01, 09:19

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAU772			ZAU772			ZAU773		
Sampling Date		2024/04/29 15:20			2024/04/29 15:20			2024/04/29 17:45		
COC Number		880148			880148			880148		
	UNITS	MCG-A	RDL	QC Batch	MCG-A Lab-Dup	RDL	QC Batch	MCG-B	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	9.5	1.0	9367443				310	1.0	9367443
Total Un-ionized Ammonia	mg/L	ND	0.00061	9366990				ND	0.00061	9366990
Field Measurements										
Field Temperature	Celsius	7.4	N/A	ONSITE				9.2	N/A	ONSITE
Field Measured pH	pH	6.09		ONSITE				6.74		ONSITE
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9372034				0.18	0.050	9372034
Total BOD	mg/L	ND	2	9368665				ND	2	9368665
Colour	TCU	7	2	9370535				11	2	9370535
Conductivity	umho/cm	31	1.0	9368322	31	1.0	9368322	640	1.0	9368322
Total Dissolved Solids	mg/L	30	10	9372175				385	10	9372175
Total Kjeldahl Nitrogen (TKN)	mg/L	0.11	0.10	9373120	0.11	0.10	9373120	0.65	0.10	9373120
pH	pH	6.96		9368323	6.92		9368323	7.50		9368323
Phenols-4AAP	mg/L	ND	0.0010	9370595	ND	0.0010	9370595	0.0013	0.0010	9370595
Total Phosphorus	mg/L	ND	0.020	9372970				0.077	0.020	9372970
Total Suspended Solids	mg/L	ND	10	9368602				34	10	9369531
Dissolved Sulphate (SO4)	mg/L	2.6	1.0	9368231				28	1.0	9368231
Turbidity	NTU	0.2	0.1	9368718				11	0.1	9368718
Alkalinity (Total as CaCO3)	mg/L	7.9	1.0	9368320	7.1	1.0	9368320	290	1.0	9368320
Dissolved Chloride (Cl-)	mg/L	1.5	1.0	9368230				12	1.0	9368230
Nitrite (N)	mg/L	ND	0.010	9368296	ND	0.010	9368296	ND	0.010	9368296
Nitrate (N)	mg/L	ND	0.10	9368296	ND	0.10	9368296	ND	0.10	9368296
Nitrate + Nitrite (N)	mg/L	ND	0.10	9368296	ND	0.10	9368296	ND	0.10	9368296

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAU774			ZAU775		ZAU776		
Sampling Date		2024/04/29 16:20			2024/04/29 16:35		2024/04/29 14:50		
COC Number		880148			880148		880148		
	UNITS	MCG-C	RDL	QC Batch	MCG-D	QC Batch	MCG-E	RDL	QC Batch
Calculated Parameters									
Hardness (CaCO3)	mg/L	110	1.0	9367443	12	9367443	22	1.0	9367443
Total Un-ionized Ammonia	mg/L	ND	0.00061	9366990	ND	9366990	ND	0.00061	9366990
Field Measurements									
Field Temperature	Celsius	9.1	N/A	ONSITE	8.1	ONSITE	8.1	N/A	ONSITE
Field Measured pH	pH	6.61		ONSITE	5.73	ONSITE	7		ONSITE
Inorganics									
Total Ammonia-N	mg/L	ND	0.050	9372034	ND	9372034	ND	0.050	9372034
Total BOD	mg/L	2	2	9368665	ND	9368665	ND	2	9368665
Colour	TCU	140	4	9370535	97	9370535	30	2	9370535
Conductivity	umho/cm	250	1.0	9368322	32	9368322	140	1.0	9368322
Total Dissolved Solids	mg/L	170	10	9372175	45	9370150	75	10	9370150
Total Kjeldahl Nitrogen (TKN)	mg/L	0.63	0.10	9373120	0.44	9373120	0.23	0.10	9373120
pH	pH	7.71		9368323	6.53	9368323	7.25		9368323
Phenols-4AAP	mg/L	ND	0.0010	9370595	ND	9370595	ND	0.0010	9370595
Total Phosphorus	mg/L	ND	0.020	9372970	ND	9372970	ND	0.020	9372970
Total Suspended Solids	mg/L	10	10	9368602	ND	9368602	ND	10	9368602
Dissolved Sulphate (SO4)	mg/L	11	1.0	9368231	6.7	9368231	6.6	1.0	9370631
Turbidity	NTU	0.7	0.1	9368718	0.5	9368718	0.5	0.1	9368718
Alkalinity (Total as CaCO3)	mg/L	97	1.0	9368320	7.0	9368320	14	1.0	9368320
Dissolved Chloride (Cl-)	mg/L	13	1.0	9368230	ND	9368230	27	1.0	9370617
Nitrite (N)	mg/L	ND	0.010	9368296	ND	9368296	ND	0.010	9368296
Nitrate (N)	mg/L	ND	0.10	9368296	ND	9368296	ND	0.10	9368296
Nitrate + Nitrite (N)	mg/L	ND	0.10	9368296	ND	9368296	ND	0.10	9368296

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N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAU776			ZAU777	ZAU778		ZAU779		
Sampling Date		2024/04/29 14:50			2024/04/29 15:10	2024/04/29 15:35		2024/04/29 17:35		
COC Number		880148			880148	880148		880148		
	UNITS	MCG-E Lab-Dup	RDL	QC Batch	MCG-F	MCG-G	QC Batch	MCG-H	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L				17	12	9367443	37	1.0	9367443
Total Un-ionized Ammonia	mg/L				ND	ND	9366990	ND	0.00061	9366990
Field Measurements										
Field Temperature	Celsius				9.7	9.7	ONSITE	9.1	N/A	ONSITE
Field Measured pH	pH				6.38	6.24	ONSITE	6.13		ONSITE
Inorganics										
Total Ammonia-N	mg/L				ND	ND	9372034	ND	0.050	9372034
Total BOD	mg/L				ND	ND	9368665	ND	2	9368665
Colour	TCU				28	33	9370535	48	2	9370535
Conductivity	umho/cm				170	28	9368322	99	1.0	9368322
Total Dissolved Solids	mg/L				105	15	9370150	70	10	9372175
Total Kjeldahl Nitrogen (TKN)	mg/L				0.24	0.26	9373120	0.30	0.10	9373120
pH	pH				6.93	7.03	9368323	7.46		9368323
Phenols-4AAP	mg/L				ND	ND	9370595	ND	0.0010	9370595
Total Phosphorus	mg/L				ND	ND	9372970	ND	0.020	9372970
Total Suspended Solids	mg/L				ND	ND	9368602	ND	10	9368602
Dissolved Sulphate (SO4)	mg/L	6.6	1.0	9370631	4.5	2.7	9368231	4.5	1.0	9368231
Turbidity	NTU				0.5	0.8	9368718	0.3	0.1	9368718
Alkalinity (Total as CaCO3)	mg/L				8.8	10	9368320	36	1.0	9368320
Dissolved Chloride (Cl-)	mg/L	27	1.0	9370617	39	ND	9368230	7.1	1.0	9368230
Nitrite (N)	mg/L				ND	ND	9368296	ND	0.010	9368296
Nitrate (N)	mg/L				ND	ND	9368296	ND	0.10	9368296
Nitrate + Nitrite (N)	mg/L				ND	ND	9368296	ND	0.10	9368296

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAU780			ZAU780		
Sampling Date		2024/04/29 15:10			2024/04/29 15:10		
COC Number		880148			880148		
	UNITS	NB-QAQC-SW	RDL	QC Batch	NB-QAQC-SW Lab-Dup	RDL	QC Batch
Calculated Parameters							
Hardness (CaCO3)	mg/L	17	1.0	9367443			
Total Un-ionized Ammonia	mg/L	ND	0.00061	9366990			
Field Measurements							
Field Temperature	Celsius	9.7	N/A	ONSITE			
Field Measured pH	pH	6.38		ONSITE			
Inorganics							
Total Ammonia-N	mg/L	ND	0.050	9372034			
Total BOD	mg/L	ND	2	9368665			
Colour	TCU	28	2	9370535			
Conductivity	umho/cm	170	1.0	9368322			
Total Dissolved Solids	mg/L	115	10	9370150			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.31	0.10	9373120			
pH	pH	7.25		9368323			
Phenols-4AAP	mg/L	ND	0.0010	9370595			
Total Phosphorus	mg/L	ND	0.020	9372970			
Total Suspended Solids	mg/L	ND	10	9368602			
Dissolved Sulphate (SO4)	mg/L	4.5	1.0	9368231			
Turbidity	NTU	0.6	0.1	9368718	0.5	0.1	9368718
Alkalinity (Total as CaCO3)	mg/L	14	1.0	9368320			
Dissolved Chloride (Cl-)	mg/L	39	1.0	9368230			
Nitrite (N)	mg/L	ND	0.010	9368296			
Nitrate (N)	mg/L	ND	0.10	9368296			
Nitrate + Nitrite (N)	mg/L	ND	0.10	9368296			

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZAU772	ZAU773	ZAU774		ZAU775		ZAU776		
Sampling Date		2024/04/29 15:20	2024/04/29 17:45	2024/04/29 16:20		2024/04/29 16:35		2024/04/29 14:50		
COC Number		880148	880148	880148		880148		880148		
	UNITS	MCG-A	MCG-B	MCG-C	QC Batch	MCG-D	QC Batch	MCG-E	RDL	QC Batch
Metals										
Dissolved (0.2u) Aluminum (Al)	ug/L	70	ND	18	9369762	230	9369762	45	5	9369762
Dissolved Mercury (Hg)	ug/L	ND	ND	ND	9375775	ND	9375776	ND	0.10	9375776
Total Aluminum (Al)	ug/L	67	12	34	9375517	260	9374877	75	4.9	9375517
Total Arsenic (As)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	1.0	9375517
Total Boron (B)	ug/L	ND	180	100	9375517	ND	9374877	ND	10	9375517
Total Cadmium (Cd)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	0.090	9375517
Total Calcium (Ca)	ug/L	2900	94000	20000	9375517	3300	9374877	6000	200	9375517
Total Chromium (Cr)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	5.0	9375517
Total Cobalt (Co)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	0.50	9375517
Total Copper (Cu)	ug/L	1.0	ND	ND	9375517	1.7	9374877	ND	0.90	9375517
Total Iron (Fe)	ug/L	ND	14000	410	9375517	430	9374877	250	100	9375517
Total Lead (Pb)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	0.50	9375517
Total Magnesium (Mg)	ug/L	310	14000	5700	9375517	990	9374877	1100	50	9375517
Total Manganese (Mn)	ug/L	4.2	920	25	9375517	76	9374877	15	2.0	9375517
Total Nickel (Ni)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	1.0	9375517
Total Potassium (K)	ug/L	340	19000	3600	9375517	440	9374877	670	200	9375517
Total Selenium (Se)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	2.0	9375517
Total Silver (Ag)	ug/L	ND	ND	ND	9375517	ND	9374877	ND	0.090	9375517
Total Sodium (Na)	ug/L	2300	19000	9900	9375517	1900	9374877	19000	100	9375517
Total Zinc (Zn)	ug/L	ND	7.0	ND	9375517	7.0	9374877	ND	5.0	9375517

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZAU777	ZAU778			ZAU778			ZAU779		
Sampling Date		2024/04/29 15:10	2024/04/29 15:35			2024/04/29 15:35			2024/04/29 17:35		
COC Number		880148	880148			880148			880148		
	UNITS	MCG-F	MCG-G	RDL	QC Batch	MCG-G Lab-Dup	RDL	QC Batch	MCG-H	RDL	QC Batch
Metals											
Dissolved (0.2u) Aluminum (Al)	ug/L	45	46	5	9369762				22	5	9369762
Dissolved Mercury (Hg)	ug/L	ND	ND	0.10	9375775				ND	0.10	9375776
Total Aluminum (Al)	ug/L	57	84	4.9	9375517	84	4.9	9375517	26	4.9	9375517
Total Arsenic (As)	ug/L	ND	ND	1.0	9375517	ND	1.0	9375517	ND	1.0	9375517
Total Boron (B)	ug/L	ND	ND	10	9375517	ND	10	9375517	14	10	9375517
Total Cadmium (Cd)	ug/L	ND	ND	0.090	9375517	ND	0.090	9375517	ND	0.090	9375517
Total Calcium (Ca)	ug/L	4700	3400	200	9375517	3300	200	9375517	9500	200	9375517
Total Chromium (Cr)	ug/L	ND	ND	5.0	9375517	ND	5.0	9375517	ND	5.0	9375517
Total Cobalt (Co)	ug/L	ND	ND	0.50	9375517	ND	0.50	9375517	ND	0.50	9375517
Total Copper (Cu)	ug/L	ND	ND	0.90	9375517	ND	0.90	9375517	ND	0.90	9375517
Total Iron (Fe)	ug/L	220	390	100	9375517	390	100	9375517	ND	100	9375517
Total Lead (Pb)	ug/L	ND	ND	0.50	9375517	ND	0.50	9375517	ND	0.50	9375517
Total Magnesium (Mg)	ug/L	860	750	50	9375517	740	50	9375517	2500	50	9375517
Total Manganese (Mn)	ug/L	20	28	2.0	9375517	27	2.0	9375517	3.2	2.0	9375517
Total Nickel (Ni)	ug/L	ND	ND	1.0	9375517	ND	1.0	9375517	ND	1.0	9375517
Total Potassium (K)	ug/L	920	480	200	9375517	450	200	9375517	2100	200	9375517
Total Selenium (Se)	ug/L	ND	ND	2.0	9375517	ND	2.0	9375517	ND	2.0	9375517
Total Silver (Ag)	ug/L	ND	ND	0.090	9375517	ND	0.090	9375517	ND	0.090	9375517
Total Sodium (Na)	ug/L	26000	1200	100	9375517	1200	100	9375517	5700	100	9375517
Total Zinc (Zn)	ug/L	ND	ND	5.0	9375517	ND	5.0	9375517	ND	5.0	9375517

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZAU780		
Sampling Date		2024/04/29 15:10		
COC Number		880148		
	UNITS	NB-QAQC-SW	RDL	QC Batch
Metals				
Dissolved (0.2u) Aluminum (Al)	ug/L	44	5	9369762
Dissolved Mercury (Hg)	ug/L	ND	0.10	9375775
Total Aluminum (Al)	ug/L	58	4.9	9375517
Total Arsenic (As)	ug/L	ND	1.0	9375517
Total Boron (B)	ug/L	ND	10	9375517
Total Cadmium (Cd)	ug/L	ND	0.090	9375517
Total Calcium (Ca)	ug/L	4800	200	9375517
Total Chromium (Cr)	ug/L	ND	5.0	9375517
Total Cobalt (Co)	ug/L	ND	0.50	9375517
Total Copper (Cu)	ug/L	ND	0.90	9375517
Total Iron (Fe)	ug/L	230	100	9375517
Total Lead (Pb)	ug/L	ND	0.50	9375517
Total Magnesium (Mg)	ug/L	900	50	9375517
Total Manganese (Mn)	ug/L	20	2.0	9375517
Total Nickel (Ni)	ug/L	ND	1.0	9375517
Total Potassium (K)	ug/L	950	200	9375517
Total Selenium (Se)	ug/L	ND	2.0	9375517
Total Silver (Ag)	ug/L	ND	0.090	9375517
Total Sodium (Na)	ug/L	27000	100	9375517
Total Zinc (Zn)	ug/L	ND	5.0	9375517

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU772
Sample ID: MCG-A
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/07	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU772 Dup
Sample ID: MCG-A
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi

Bureau Veritas ID: ZAU773
Sample ID: MCG-B
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU773
Sample ID: MCG-B
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/07	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9369531	2024/05/02	2024/05/04	Darshan Patel
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU774
Sample ID: MCG-C
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/07	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
48-h Daphnia Magna Single Concentration		9385613	N/A		Christine Gripton
96-h Rainbow Trout Single Concentration		9385614	N/A		Christine Gripton
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU774
Sample ID: MCG-C
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU775
Sample ID: MCG-D
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/06	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9374877	2024/05/06	2024/05/06	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9370150	2024/05/02	2024/05/03	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU776
Sample ID: MCG-E
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9370617	N/A	2024/05/07	Alina Dobreanu
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU776
Sample ID: MCG-E
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/07	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9370631	N/A	2024/05/07	Alina Dobreanu
Total Dissolved Solids	BAL	9370150	2024/05/02	2024/05/03	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU776 Dup
Sample ID: MCG-E
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	SKAL	9370617	N/A	2024/05/07	Alina Dobreanu
Sulphate by Automated Turbidimetry	SKAL	9370631	N/A	2024/05/07	Alina Dobreanu

Bureau Veritas ID: ZAU777
Sample ID: MCG-F
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/06	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU777
Sample ID: MCG-F
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9370150	2024/05/02	2024/05/03	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU778
Sample ID: MCG-G
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/06	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9370150	2024/05/02	2024/05/03	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU778 Dup
Sample ID: MCG-G
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU779
Sample ID: MCG-H
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/06	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375776	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
48-h Daphnia Magna Single Concentration		9385613	N/A		Christine Gripton
96-h Rainbow Trout Single Concentration		9385614	N/A		Christine Gripton
Total Dissolved Solids	BAL	9372175	2024/05/03	2024/05/04	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU780
Sample ID: NB-QAQC-SW
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9369762	N/A	2024/05/03	Prempal Bhatti
Alkalinity	AT	9368320	N/A	2024/05/05	Surinder Rai
Biochemical Oxygen Demand (BOD)	DO	9368665	2024/05/02	2024/05/07	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9368230	N/A	2024/05/02	Massarat Jan
Colour	SPEC	9370535	N/A	2024/05/02	Gyulshen Idriz
Conductivity	AT	9368322	N/A	2024/05/05	Surinder Rai
Hardness (calculated as CaCO3)		9367443	N/A	2024/05/06	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9375775	2024/05/06	2024/05/07	Gagandeep Rai
Total Metals Analysis by ICPMS	ICP/MS	9375517	2024/05/06	2024/05/07	Indira HarryPaul
Total Ammonia-N	LACH/NH4	9372034	N/A	2024/05/07	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9368296	N/A	2024/05/03	Jinal Chavda
pH	AT	9368323	2024/05/01	2024/05/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	9370595	N/A	2024/05/02	Chandra Nandlal
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZAU780
Sample ID: NB-QAQC-SW
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate by Automated Turbidimetry	SKAL	9368231	N/A	2024/05/02	Massarat Jan
Total Dissolved Solids	BAL	9370150	2024/05/02	2024/05/03	Darshan Patel
Field Measured pH	PH	ONSITE	N/A	2024/05/01	Sattyajita Bastola
Total Kjeldahl Nitrogen in Water	SKAL	9373120	2024/05/03	2024/05/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9372970	2024/05/03	2024/05/07	Sachi Patel
Total Suspended Solids	BAL	9368602	2024/05/03	2024/05/03	Madhav Somani
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9366990	2024/05/08	2024/05/08	Automated Statchk

Bureau Veritas ID: ZAU780 Dup
Sample ID: NB-QAQC-SW
Matrix: Water

Collected: 2024/04/29
Shipped:
Received: 2024/05/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Turbidity	AT	9368718	N/A	2024/05/02	Gurparteek KAUR

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
Package 2	7.7°C
Package 3	15.0°C
Package 4	15.0°C

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4C9091
Report Date: 2024/05/10

QUALITY ASSURANCE REPORT

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9368230	Dissolved Chloride (Cl-)	2024/05/02	97	80 - 120	95	80 - 120	ND, RDL=1.0	mg/L	NC	20		
9368231	Dissolved Sulphate (SO4)	2024/05/02	98	75 - 125	98	80 - 120	ND, RDL=1.0	mg/L	NC	20		
9368296	Nitrate (N)	2024/05/03	91	80 - 120	97	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9368296	Nitrite (N)	2024/05/03	95	80 - 120	94	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9368320	Alkalinity (Total as CaCO3)	2024/05/05			100	85 - 115	ND, RDL=1.0	mg/L	11	20		
9368322	Conductivity	2024/05/05			101	85 - 115	ND, RDL=1.0	umho/cm	0.33	10		
9368323	pH	2024/05/05			102	98 - 103			0.68	N/A		
9368602	Total Suspended Solids	2024/05/03			100	80 - 120	ND, RDL=10	mg/L	9.5	20		
9368665	Total BOD	2024/05/07					ND,RDL=2	mg/L	24	30	97	80 - 120
9368718	Turbidity	2024/05/02			99	80 - 120	ND, RDL=0.1	NTU	1.8	20		
9369531	Total Suspended Solids	2024/05/04			95	80 - 120	ND, RDL=10	mg/L	NC	20		
9369762	Dissolved (0.2u) Aluminum (Al)	2024/05/03	108	80 - 120	101	80 - 120	ND,RDL=5	ug/L	1.6	20		
9370150	Total Dissolved Solids	2024/05/03			100	80 - 120	ND, RDL=10	mg/L	0	20		
9370535	Colour	2024/05/02			98	80 - 120	ND,RDL=2	TCU	NC	25		
9370595	Phenols-4AAP	2024/05/02	98	80 - 120	99	80 - 120	ND, RDL=0.0010	mg/L	NC	20		
9370617	Dissolved Chloride (Cl-)	2024/05/07	NC	80 - 120	97	80 - 120	ND, RDL=1.0	mg/L	0.30	20		
9370631	Dissolved Sulphate (SO4)	2024/05/07	94	75 - 125	97	80 - 120	ND, RDL=1.0	mg/L	0.76	20		
9372034	Total Ammonia-N	2024/05/07	NC	75 - 125	98	80 - 120	ND, RDL=0.050	mg/L	1.0	20		
9372175	Total Dissolved Solids	2024/05/04			95	80 - 120	ND, RDL=10	mg/L	0.98	20		
9372970	Total Phosphorus	2024/05/07	106	80 - 120	96	80 - 120	ND, RDL=0.020	mg/L	0.93	20	97	80 - 120
9373120	Total Kjeldahl Nitrogen (TKN)	2024/05/06	101	80 - 120	101	80 - 120	ND, RDL=0.10	mg/L	0	20	103	80 - 120
9374877	Total Aluminum (Al)	2024/05/06	93	80 - 120	97	80 - 120	11, RDL=4.9	ug/L				
9374877	Total Arsenic (As)	2024/05/06	98	80 - 120	95	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9374877	Total Boron (B)	2024/05/06	93	80 - 120	94	80 - 120	ND, RDL=10	ug/L	8.1	20		
9374877	Total Cadmium (Cd)	2024/05/06	98	80 - 120	97	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9374877	Total Calcium (Ca)	2024/05/06	NC	80 - 120	100	80 - 120	ND, RDL=200	ug/L	4.1	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9374877	Total Chromium (Cr)	2024/05/06	98	80 - 120	96	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9374877	Total Cobalt (Co)	2024/05/06	97	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9374877	Total Copper (Cu)	2024/05/06	102	80 - 120	102	80 - 120	ND, RDL=0.90	ug/L	NC	20		
9374877	Total Iron (Fe)	2024/05/06	101	80 - 120	100	80 - 120	ND, RDL=100	ug/L	NC	20		
9374877	Total Lead (Pb)	2024/05/06	96	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9374877	Total Magnesium (Mg)	2024/05/06	NC	80 - 120	92	80 - 120	ND, RDL=50	ug/L	3.6	20		
9374877	Total Manganese (Mn)	2024/05/06	91	80 - 120	91	80 - 120	ND, RDL=2.0	ug/L	0.82	20		
9374877	Total Nickel (Ni)	2024/05/06	89	80 - 120	91	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9374877	Total Potassium (K)	2024/05/06	100	80 - 120	99	80 - 120	ND, RDL=200	ug/L	1.8	20		
9374877	Total Selenium (Se)	2024/05/06	101	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L	NC	20		
9374877	Total Silver (Ag)	2024/05/06	96	80 - 120	94	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9374877	Total Sodium (Na)	2024/05/06	104	80 - 120	102	80 - 120	ND, RDL=100	ug/L	1.2	20		
9374877	Total Zinc (Zn)	2024/05/06	96	80 - 120	96	80 - 120	ND, RDL=5.0	ug/L	2.5	20		
9375517	Total Aluminum (Al)	2024/05/07	98	80 - 120	93	80 - 120	ND, RDL=4.9	ug/L	0.72	20		
9375517	Total Arsenic (As)	2024/05/07	103	80 - 120	100	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9375517	Total Boron (B)	2024/05/07	102	80 - 120	98	80 - 120	ND, RDL=10	ug/L	NC	20		
9375517	Total Cadmium (Cd)	2024/05/07	99	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9375517	Total Calcium (Ca)	2024/05/07	99	80 - 120	96	80 - 120	ND, RDL=200	ug/L	1.0	20		
9375517	Total Chromium (Cr)	2024/05/07	102	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9375517	Total Cobalt (Co)	2024/05/07	101	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9375517	Total Copper (Cu)	2024/05/07	103	80 - 120	101	80 - 120	ND, RDL=0.90	ug/L	NC	20		
9375517	Total Iron (Fe)	2024/05/07	102	80 - 120	99	80 - 120	ND, RDL=100	ug/L	0.83	20		
9375517	Total Lead (Pb)	2024/05/07	99	80 - 120	99	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9375517	Total Magnesium (Mg)	2024/05/07	100	80 - 120	98	80 - 120	ND, RDL=50	ug/L	1.6	20		
9375517	Total Manganese (Mn)	2024/05/07	95	80 - 120	92	80 - 120	ND, RDL=2.0	ug/L	2.4	20		
9375517	Total Nickel (Ni)	2024/05/07	96	80 - 120	94	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9375517	Total Potassium (K)	2024/05/07	103	80 - 120	99	80 - 120	ND, RDL=200	ug/L	5.2	20		
9375517	Total Selenium (Se)	2024/05/07	104	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9375517	Total Silver (Ag)	2024/05/07	92	80 - 120	92	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9375517	Total Sodium (Na)	2024/05/07	103	80 - 120	101	80 - 120	ND, RDL=100	ug/L	4.0	20		
9375517	Total Zinc (Zn)	2024/05/07	104	80 - 120	100	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9375775	Dissolved Mercury (Hg)	2024/05/07	95	75 - 125	94	80 - 120	ND, RDL=0.10	ug/L	NC	20		
9375776	Dissolved Mercury (Hg)	2024/05/07	92	75 - 125	92	80 - 120	ND, RDL=0.10	ug/L	NC	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Christine Gripton, Senior Project Manager

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Custody Tracking Form

T880148

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: MCG-A
Last Sample: NB-QAQC-SW1
Sample Count: 9

Relinquished By				Received By			
Brad M'Callum	Brad M'Call	Date	2024/04/30	SATTA BASSOLA		Date	2024/05/01
		Time (24 HR)	07:30			Time (24 HR)	09:19
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print): Brad M'Callum / Matthew DeGeer

# of Coolers/Pkgs: 4

Rush ☐ Immediate Test ☐ Food Residue ☐

Micro ☐ Food Chemistry ☐

*** LABORATORY USE ONLY ***

Received At

Labeled By

Verified By

Lab Comments:

01-May-24 09:19
Christine Gripton
C4C9091
SBS ENV-1127

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	Y	Y	8	5	6
Y	Y	Y	7	7	9
Y	Y	Y	15	15	15
Drinking Water Metals Preservation Check Done (Circle)				YES	NO

Y Y Y 15 15 15

COR FCD-00383/4

ge 1 of 1

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 921023

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/07/22
Report #: R8245142
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4L3658
Received: 2024/07/12, 14:35

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Dissolved Aluminum (0.2 u, clay free)	9	N/A	2024/07/18	CAM SOP-00447	EPA 6020B m
Alkalinity	7	N/A	2024/07/14	CAM SOP-00448	SM 24 2320 B m
Alkalinity	2	N/A	2024/07/16	CAM SOP-00448	SM 24 2320 B m
Biochemical Oxygen Demand (BOD)	9	2024/07/13	2024/07/18	CAM SOP-00427	SM 24 5210B m
Chloride by Automated Colourimetry	4	N/A	2024/07/15	CAM SOP-00463	SM 24 4500-Cl E m
Chloride by Automated Colourimetry	2	N/A	2024/07/17	CAM SOP-00463	SM 24 4500-Cl E m
Chloride by Automated Colourimetry	3	N/A	2024/07/18	CAM SOP-00463	SM 24 4500-Cl E m
Colour	2	N/A	2024/07/15	CAM SOP-00412	SM 24 2120C m
Colour	7	N/A	2024/07/16	CAM SOP-00412	SM 24 2120C m
Conductivity	7	N/A	2024/07/14	CAM SOP-00414	SM 24 2510 m
Conductivity	2	N/A	2024/07/16	CAM SOP-00414	SM 24 2510 m
Hardness (calculated as CaCO3)	9	N/A	2024/07/19	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Mercury in Water by CVAA	9	2024/07/18	2024/07/18	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	9	2024/07/17	2024/07/17	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	2	N/A	2024/07/17	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	7	N/A	2024/07/18	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	4	N/A	2024/07/13	CAM SOP-00440	SM 24 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2024/07/16	CAM SOP-00440	SM 24 4500-NO3I/NO2B
pH (2)	7	2024/07/13	2024/07/14	CAM SOP-00413	SM 24th - 4500H+ B
pH (2)	2	2024/07/15	2024/07/16	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	9	N/A	2024/07/18	CAM SOP-00444	OMOE E3179 m
Field Measured pH (3)	9	N/A	2024/07/12		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2024/07/15	CAM SOP-00464	SM 24 4500-SO42- E m
Sulphate by Automated Turbidimetry	2	N/A	2024/07/17	CAM SOP-00464	SM 24 4500-SO42- E m
Sulphate by Automated Turbidimetry	3	N/A	2024/07/18	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	9	2024/07/17	2024/07/18	CAM SOP-00428	SM 24 2540C m
Field Temperature (3)	9	N/A	2024/07/12		Field Thermometer
Total Kjeldahl Nitrogen in Water	9	2024/07/17	2024/07/18	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	9	2024/07/17	2024/07/18	CAM SOP-00407	SM 24 4500-P I

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 921023

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/07/22
Report #: R8245142
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4L3658
Received: 2024/07/12, 14:35

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Suspended Solids	9	2024/07/17	2024/07/18	CAM SOP-00428	SM 24 2540D m
Turbidity	2	N/A	2024/07/15	CAM SOP-00417	SM 24 2130 B
Turbidity	2	N/A	2024/07/16	CAM SOP-00417	SM 24 2130 B
Turbidity	5	N/A	2024/07/22	CAM SOP-00417	SM 24 2130 B
Un-ionized Ammonia (4)	2	2024/07/12	2024/07/17	Auto Calc.	PWQO
Un-ionized Ammonia (4)	7	2024/07/12	2024/07/18	Auto Calc.	PWQO

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 240205-08
Site Location: North Baptiste
Your C.O.C. #: 921023

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/07/22
Report #: R8245142
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4L3658
Received: 2024/07/12, 14:35

(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(4) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZSE228			ZSE228			ZSE230		
Sampling Date		2024/07/11 09:00			2024/07/11 09:00			2024/07/11 10:45		
COC Number		921023			921023			921023		
	UNITS	MCG-A	RDL	QC Batch	MCG-A Lab-Dup	RDL	QC Batch	MCG-B	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	6.2	1.0	9511033				460	1.0	9511033
Total Un-ionized Ammonia	mg/L	ND	0.00061	9512701				ND	0.00061	9512701
Field Measurements										
Field Temperature	Celsius	14.8	N/A	ONSITE				14.1	N/A	ONSITE
Field Measured pH	pH	4.97		ONSITE				6.35		ONSITE
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9519585				ND	0.050	9519812
Total BOD	mg/L	3	2	9513077				ND	2	9513077
Colour	TCU	23	2	9517404				20	2	9517404
Conductivity	umho/cm	29	1.0	9513737				940	1.0	9513737
Total Dissolved Solids	mg/L	25	10	9519572				520	10	9519572
Total Kjeldahl Nitrogen (TKN)	mg/L	0.23	0.10	9520764				0.71	0.10	9520764
pH	pH	6.97		9513741				7.94		9513741
Phenols-4AAP	mg/L	ND	0.0010	9522519				0.0011	0.0010	9522519
Total Phosphorus	mg/L	0.021	0.020	9520811				0.12	0.020	9520811
Total Suspended Solids	mg/L	ND	10	9519476				23	10	9519476
Dissolved Sulphate (SO4)	mg/L	1.5	1.0	9513762				55	1.0	9513730
Turbidity	NTU	1.0	0.1	9528002	1.0	0.1	9528002	4.4	0.1	9528002
Alkalinity (Total as CaCO3)	mg/L	9.6	1.0	9513742				440	1.0	9513742
Dissolved Chloride (Cl-)	mg/L	ND	1.0	9513760				8.4	1.0	9513729
Nitrite (N)	mg/L	ND	0.010	9513660				ND	0.010	9513717
Nitrate (N)	mg/L	ND	0.10	9513660				ND	0.10	9513717
Nitrate + Nitrite (N)	mg/L	ND	0.10	9513660				ND	0.10	9513717

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZSE230			ZSE231			ZSE232		
Sampling Date		2024/07/11 10:45			2024/07/11 10:00			2024/07/11 10:20		
COC Number		921023			921023			921023		
	UNITS	MCG-B Lab-Dup	RDL	QC Batch	MCG-C	RDL	QC Batch	MCG-D	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L				59	1.0	9511033	14	1.0	9511033
Total Un-ionized Ammonia	mg/L				ND	0.00061	9512701	ND	0.00061	9512701
Field Measurements										
Field Temperature	Celsius				16.7	N/A	ONSITE	15.8	N/A	ONSITE
Field Measured pH	pH				6.27		ONSITE	5.51		ONSITE
Inorganics										
Total Ammonia-N	mg/L				ND	0.050	9519812	ND	0.050	9519597
Total BOD	mg/L				2	2	9513077	ND	2	9513077
Colour	TCU				130	4	9517404	220	10	9512704
Conductivity	umho/cm				170	1.0	9513737	35	1.0	9514906
Total Dissolved Solids	mg/L				150	10	9519572	90	10	9519572
Total Kjeldahl Nitrogen (TKN)	mg/L				0.76	0.10	9520764	0.85	0.10	9520764
pH	pH				7.46		9513741	6.38		9514957
Phenols-4AAP	mg/L				ND	0.0010	9522519	ND	0.0010	9522519
Total Phosphorus	mg/L	0.12	0.020	9520811	0.047	0.020	9520811	0.11	0.020	9520811
Total Suspended Solids	mg/L				ND	10	9519476	27	10	9519476
Dissolved Sulphate (SO4)	mg/L				8.4	1.0	9513762	ND	1.0	9515004
Turbidity	NTU				1.5	0.1	9517655	2.4	0.1	9514899
Alkalinity (Total as CaCO3)	mg/L				60	1.0	9513742	9.3	1.0	9514980
Dissolved Chloride (Cl-)	mg/L				9.0	1.0	9513760	1.0	1.0	9514999
Nitrite (N)	mg/L				ND	0.010	9513660	ND	0.010	9514888
Nitrate (N)	mg/L				0.20	0.10	9513660	ND	0.10	9514888
Nitrate + Nitrite (N)	mg/L				0.20	0.10	9513660	ND	0.10	9514888

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
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N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZSE233			ZSE233			ZSE234		
Sampling Date		2024/07/11 08:30			2024/07/11 08:30			2024/07/11 08:50		
COC Number		921023			921023			921023		
	UNITS	MCG-E	RDL	QC Batch	MCG-E Lab-Dup	RDL	QC Batch	MCG-F	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	12	1.0	9511033				19	1.0	9511033
Total Un-ionized Ammonia	mg/L	ND	0.00061	9512701				ND	0.00061	9512701
Field Measurements										
Field Temperature	Celsius	16.4	N/A	ONSITE				18.5	N/A	ONSITE
Field Measured pH	pH	5.48		ONSITE				5.65		ONSITE
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9519585				ND	0.050	9519597
Total BOD	mg/L	ND	2	9513077				ND	2	9513077
Colour	TCU	96	2	9512704				88	2	9517404
Conductivity	umho/cm	76	1.0	9514906				200	1.0	9513737
Total Dissolved Solids	mg/L	70	10	9519572				115	10	9519572
Total Kjeldahl Nitrogen (TKN)	mg/L	0.47	0.10	9520764				0.48	0.10	9520764
pH	pH	7.18		9514957				7.26		9513741
Phenols-4AAP	mg/L	ND	0.0010	9522519				ND	0.0010	9522519
Total Phosphorus	mg/L	0.046	0.020	9520811				0.026	0.020	9520811
Total Suspended Solids	mg/L	44	10	9519476				10	10	9519476
Dissolved Sulphate (SO4)	mg/L	1.1	1.0	9515004				2.7	1.0	9513730
Turbidity	NTU	4.2	0.1	9514899				0.6	0.1	9528002
Alkalinity (Total as CaCO3)	mg/L	14	1.0	9514980				25	1.0	9513742
Dissolved Chloride (Cl-)	mg/L	13	1.0	9514999				45	1.0	9513729
Nitrite (N)	mg/L	ND	0.010	9515288	ND	0.010	9515288	ND	0.010	9513717
Nitrate (N)	mg/L	ND	0.10	9515288	ND	0.10	9515288	ND	0.10	9513717
Nitrate + Nitrite (N)	mg/L	ND	0.10	9515288	ND	0.10	9515288	ND	0.10	9513717

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZSE235		ZSE236		ZSE237		
Sampling Date		2024/07/11 09:20		2024/07/11 10:40		2024/07/11 20:30		
COC Number		921023		921023		921023		
	UNITS	MCG-G	QC Batch	MCG-H	QC Batch	NB-QAQC-SW1	RDL	QC Batch
Calculated Parameters								
Hardness (CaCO3)	mg/L	13	9511033	9.1	9511033	12	1.0	9511033
Total Un-ionized Ammonia	mg/L	ND	9512701	ND	9512701	ND	0.00061	9512701
Field Measurements								
Field Temperature	Celsius	18.9	ONSITE	15.8	ONSITE	16.4	N/A	ONSITE
Field Measured pH	pH	5.84	ONSITE	5.56	ONSITE	5.48		ONSITE
Inorganics								
Total Ammonia-N	mg/L	ND	9519585	ND	9519803	ND	0.050	9519803
Total BOD	mg/L	ND	9513077	ND	9513077	ND	2	9513077
Colour	TCU	75	9517404	56	9517404	96	2	9517404
Conductivity	umho/cm	29	9513737	28	9513725	75	1.0	9513737
Total Dissolved Solids	mg/L	35	9519572	45	9519572	70	10	9519572
Total Kjeldahl Nitrogen (TKN)	mg/L	0.35	9520764	0.28	9520764	0.48	0.10	9520764
pH	pH	6.98	9513741	6.95	9513726	6.85		9513741
Phenols-4AAP	mg/L	ND	9522519	ND	9522519	ND	0.0010	9522519
Total Phosphorus	mg/L	0.034	9520811	ND	9520811	0.046	0.020	9520811
Total Suspended Solids	mg/L	17	9519476	ND	9519476	48	10	9519476
Dissolved Sulphate (SO4)	mg/L	ND	9513762	3.1	9513730	1.5	1.0	9513762
Turbidity	NTU	1.6	9528002	1.3	9517655	2.6	0.1	9528002
Alkalinity (Total as CaCO3)	mg/L	12	9513742	12	9513727	10	1.0	9513742
Dissolved Chloride (Cl-)	mg/L	ND	9513760	ND	9513729	13	1.0	9513760
Nitrite (N)	mg/L	ND	9513660	ND	9513717	ND	0.010	9513660
Nitrate (N)	mg/L	ND	9513660	ND	9513717	ND	0.10	9513660
Nitrate + Nitrite (N)	mg/L	ND	9513660	ND	9513717	ND	0.10	9513660

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZSE228		ZSE230			ZSE230		
Sampling Date		2024/07/11 09:00		2024/07/11 10:45			2024/07/11 10:45		
COC Number		921023		921023			921023		
	UNITS	MCG-A	QC Batch	MCG-B	RDL	QC Batch	MCG-B Lab-Dup	RDL	QC Batch
Metals									
Dissolved (0.2u) Aluminum (Al)	ug/L	210	9521642	5	5	9521642			
Dissolved Mercury (Hg)	ug/L	ND	9522440	ND	0.10	9522440	ND	0.10	9522440
Total Aluminum (Al)	ug/L	250	9519817	56	4.9	9519595			
Total Arsenic (As)	ug/L	ND	9519817	ND	1.0	9519595			
Total Boron (B)	ug/L	ND	9519817	350	10	9519595			
Total Cadmium (Cd)	ug/L	ND	9519817	0.15	0.090	9519595			
Total Calcium (Ca)	ug/L	1900	9519817	130000	200	9519595			
Total Chromium (Cr)	ug/L	ND	9519817	ND	5.0	9519595			
Total Cobalt (Co)	ug/L	ND	9519817	ND	0.50	9519595			
Total Copper (Cu)	ug/L	1.4	9519817	4.1	0.90	9519595			
Total Iron (Fe)	ug/L	130	9519817	4200	100	9519595			
Total Lead (Pb)	ug/L	ND	9519817	ND	0.50	9519595			
Total Magnesium (Mg)	ug/L	260	9519817	25000	50	9519595			
Total Manganese (Mn)	ug/L	13	9519817	400	2.0	9519595			
Total Nickel (Ni)	ug/L	ND	9519817	3.0	1.0	9519595			
Total Potassium (K)	ug/L	290	9519817	18000	200	9519595			
Total Selenium (Se)	ug/L	ND	9519817	ND	2.0	9519595			
Total Silver (Ag)	ug/L	ND	9519817	ND	0.090	9519595			
Total Sodium (Na)	ug/L	1100	9519817	21000	100	9519595			
Total Zinc (Zn)	ug/L	7.9	9519817	130	5.0	9519595			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZSE231		ZSE232		ZSE233	ZSE234	ZSE235		
Sampling Date		2024/07/11 10:00		2024/07/11 10:20		2024/07/11 08:30	2024/07/11 08:50	2024/07/11 09:20		
COC Number		921023		921023		921023	921023	921023		
	UNITS	MCG-C	QC Batch	MCG-D	QC Batch	MCG-E	MCG-F	MCG-G	RDL	QC Batch
Metals										
Dissolved (0.2u) Aluminum (Al)	ug/L	120	9521642	370	9521660	150	62	50	5	9521660
Dissolved Mercury (Hg)	ug/L	ND	9522440	ND	9522440	ND	ND	ND	0.10	9522440
Total Aluminum (Al)	ug/L	170	9519595	600	9519817	460	140	170	4.9	9519595
Total Arsenic (As)	ug/L	ND	9519595	ND	9519817	ND	ND	ND	1.0	9519595
Total Boron (B)	ug/L	180	9519595	11	9519817	ND	ND	ND	10	9519595
Total Cadmium (Cd)	ug/L	ND	9519595	0.13	9519817	ND	ND	ND	0.090	9519595
Total Calcium (Ca)	ug/L	16000	9519595	3800	9519817	3800	5800	3700	200	9519595
Total Chromium (Cr)	ug/L	ND	9519595	ND	9519817	ND	ND	ND	5.0	9519595
Total Cobalt (Co)	ug/L	ND	9519595	1.6	9519817	0.64	ND	ND	0.50	9519595
Total Copper (Cu)	ug/L	1.4	9519595	2.4	9519817	1.3	ND	ND	0.90	9519595
Total Iron (Fe)	ug/L	350	9519595	2000	9519817	1300	830	2100	100	9519595
Total Lead (Pb)	ug/L	ND	9519595	1.5	9519817	0.54	ND	ND	0.50	9519595
Total Magnesium (Mg)	ug/L	4000	9519595	1000	9519817	710	1000	750	50	9519595
Total Manganese (Mn)	ug/L	120	9519595	400	9519817	110	78	110	2.0	9519595
Total Nickel (Ni)	ug/L	1.0	9519595	1.1	9519817	ND	ND	ND	1.0	9519595
Total Potassium (K)	ug/L	5000	9519595	560	9519817	650	1100	220	200	9519595
Total Selenium (Se)	ug/L	ND	9519595	ND	9519817	ND	ND	ND	2.0	9519595
Total Silver (Ag)	ug/L	ND	9519595	ND	9519817	ND	ND	ND	0.090	9519595
Total Sodium (Na)	ug/L	11000	9519595	1400	9519817	9700	29000	980	100	9519595
Total Zinc (Zn)	ug/L	ND	9519595	13	9519817	5.5	ND	ND	5.0	9519595

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZSE236		ZSE237		
Sampling Date		2024/07/11 10:40		2024/07/11 20:30		
COC Number		921023		921023		
	UNITS	MCG-H	QC Batch	NB-QAQC-SW1	RDL	QC Batch
Metals						
Dissolved (0.2u) Aluminum (Al)	ug/L	170	9521660	170	5	9521642
Dissolved Mercury (Hg)	ug/L	ND	9522440	ND	0.10	9522440
Total Aluminum (Al)	ug/L	210	9519595	450	4.9	9519595
Total Arsenic (As)	ug/L	ND	9519595	ND	1.0	9519595
Total Boron (B)	ug/L	ND	9519595	ND	10	9519595
Total Cadmium (Cd)	ug/L	ND	9519595	ND	0.090	9519595
Total Calcium (Ca)	ug/L	2700	9519595	3700	200	9519595
Total Chromium (Cr)	ug/L	ND	9519595	ND	5.0	9519595
Total Cobalt (Co)	ug/L	ND	9519595	0.60	0.50	9519595
Total Copper (Cu)	ug/L	1.1	9519595	1.3	0.90	9519595
Total Iron (Fe)	ug/L	190	9519595	1300	100	9519595
Total Lead (Pb)	ug/L	ND	9519595	0.51	0.50	9519595
Total Magnesium (Mg)	ug/L	520	9519595	670	50	9519595
Total Manganese (Mn)	ug/L	10	9519595	110	2.0	9519595
Total Nickel (Ni)	ug/L	ND	9519595	ND	1.0	9519595
Total Potassium (K)	ug/L	390	9519595	620	200	9519595
Total Selenium (Se)	ug/L	ND	9519595	ND	2.0	9519595
Total Silver (Ag)	ug/L	ND	9519595	ND	0.090	9519595
Total Sodium (Na)	ug/L	1900	9519595	9300	100	9519595
Total Zinc (Zn)	ug/L	ND	9519595	5.5	5.0	9519595

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZSE228
Sample ID: MCG-A
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521642	N/A	2024/07/18	Indira HarryPaul
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513760	N/A	2024/07/15	Massarat Jan
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519817	2024/07/17	2024/07/17	Azita Fazaeli
Total Ammonia-N	SKAL/NH4	9519585	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513660	N/A	2024/07/13	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513762	N/A	2024/07/15	Massarat Jan
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE228 Dup
Sample ID: MCG-A
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR

Bureau Veritas ID: ZSE230
Sample ID: MCG-B
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521642	N/A	2024/07/18	Indira HarryPaul
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513729	N/A	2024/07/18	Alina Dobreanu
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZSE230
Sample ID: MCG-B
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	SKAL/NH4	9519812	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513717	N/A	2024/07/16	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513730	N/A	2024/07/18	Alina Dobreanu
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE230 Dup
Sample ID: MCG-B
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel

Bureau Veritas ID: ZSE231
Sample ID: MCG-C
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521642	N/A	2024/07/18	Indira HarryPaul
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513760	N/A	2024/07/15	Massarat Jan
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519812	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513660	N/A	2024/07/13	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513762	N/A	2024/07/15	Massarat Jan
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

TEST SUMMARY

Bureau Veritas ID: ZSE231
Sample ID: MCG-C
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9517655	N/A	2024/07/16	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE232
Sample ID: MCG-D
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521660	N/A	2024/07/18	Nan Raykha
Alkalinity	AT	9514980	N/A	2024/07/16	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9514999	N/A	2024/07/17	Alina Dobreanu
Colour	SPEC	9512704	N/A	2024/07/15	Gyulshen Idriz
Conductivity	AT	9514906	N/A	2024/07/16	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519817	2024/07/17	2024/07/17	Azita Fazaeli
Total Ammonia-N	SKAL/NH4	9519597	N/A	2024/07/17	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9514888	N/A	2024/07/16	Jinal Chavda
pH	AT	9514957	2024/07/15	2024/07/16	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9515004	N/A	2024/07/17	Alina Dobreanu
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9514899	N/A	2024/07/15	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/17	2024/07/17	Automated Statchk

Bureau Veritas ID: ZSE233
Sample ID: MCG-E
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521660	N/A	2024/07/18	Nan Raykha
Alkalinity	AT	9514980	N/A	2024/07/16	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9514999	N/A	2024/07/17	Alina Dobreanu
Colour	SPEC	9512704	N/A	2024/07/15	Gyulshen Idriz

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZSE233
Sample ID: MCG-E
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	9514906	N/A	2024/07/16	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519585	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9515288	N/A	2024/07/16	Jinal Chavda
pH	AT	9514957	2024/07/15	2024/07/16	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9515004	N/A	2024/07/17	Alina Dobreanu
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9514899	N/A	2024/07/15	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE233 Dup
Sample ID: MCG-E
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	9515288	N/A	2024/07/16	Jinal Chavda

Bureau Veritas ID: ZSE234
Sample ID: MCG-F
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521660	N/A	2024/07/18	Nan Raykha
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513729	N/A	2024/07/18	Alina Dobreanu
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519597	N/A	2024/07/17	Yogesh Patel
Nitrate & Nitrite as Nitrogen in Water	LACH	9513717	N/A	2024/07/16	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

TEST SUMMARY

Bureau Veritas ID: ZSE234
Sample ID: MCG-F
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate by Automated Turbidimetry	SKAL	9513730	N/A	2024/07/18	Alina Dobreanu
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/17	2024/07/17	Automated Statchk

Bureau Veritas ID: ZSE235
Sample ID: MCG-G
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521660	N/A	2024/07/18	Nan Raykha
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513760	N/A	2024/07/15	Massarat Jan
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519585	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513660	N/A	2024/07/13	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513762	N/A	2024/07/15	Massarat Jan
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE236
Sample ID: MCG-H
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521660	N/A	2024/07/18	Nan Raykha
Alkalinity	AT	9513727	N/A	2024/07/14	Nachiketa Gohil

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZSE236
Sample ID: MCG-H
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513729	N/A	2024/07/18	Alina Dobreanu
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513725	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519803	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513717	N/A	2024/07/16	Jinal Chavda
pH	AT	9513726	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513730	N/A	2024/07/18	Alina Dobreanu
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9517655	N/A	2024/07/16	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

Bureau Veritas ID: ZSE237
Sample ID: NB-QAQC-SW1
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9521642	N/A	2024/07/18	Indira HarryPaul
Alkalinity	AT	9513742	N/A	2024/07/14	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9513077	2024/07/13	2024/07/18	Nusrat Naz
Chloride by Automated Colourimetry	SKAL	9513760	N/A	2024/07/15	Massarat Jan
Colour	SPEC	9517404	N/A	2024/07/16	Viorica Rotaru
Conductivity	AT	9513737	N/A	2024/07/14	Nachiketa Gohil
Hardness (calculated as CaCO3)		9511033	N/A	2024/07/19	Automated Statchk
Dissolved Mercury in Water by CVAA	CV/AA	9522440	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519595	2024/07/17	2024/07/17	Indira HarryPaul
Total Ammonia-N	SKAL/NH4	9519803	N/A	2024/07/18	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9513660	N/A	2024/07/13	Jinal Chavda
pH	AT	9513741	2024/07/13	2024/07/14	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9522519	N/A	2024/07/18	Chloe Pollock
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Sulphate by Automated Turbidimetry	SKAL	9513762	N/A	2024/07/15	Massarat Jan
Total Dissolved Solids	BAL	9519572	2024/07/17	2024/07/18	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/07/12	Bhargav Mishra
Total Kjeldahl Nitrogen in Water	SKAL	9520764	2024/07/17	2024/07/18	Rajni Tyagi

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: ZSE237
Sample ID: NB-QAQC-SW1
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus (Colourimetric)	SKAL/P	9520811	2024/07/17	2024/07/18	Sachi Patel
Total Suspended Solids	BAL	9519476	2024/07/17	2024/07/18	Madhav Somani
Turbidity	AT	9528002	N/A	2024/07/22	Gurparteek KAUR
Un-ionized Ammonia	CALC/NH3	9512701	2024/07/18	2024/07/18	Automated Statchk

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
Package 2	3.3°C

Turbidity analyzed past Hold Time.

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9512704	Colour	2024/07/15			99	80 - 120	ND,RDL=2	TCU	NC	25		
9513077	Total BOD	2024/07/18					ND,RDL=2	mg/L	7.6	30	93	80 - 120
9513660	Nitrate (N)	2024/07/13	103	80 - 120	102	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9513660	Nitrite (N)	2024/07/13	104	80 - 120	102	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9513717	Nitrate (N)	2024/07/16	94	80 - 120	92	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9513717	Nitrite (N)	2024/07/16	102	80 - 120	101	80 - 120	ND, RDL=0.010	mg/L	3.0	20		
9513725	Conductivity	2024/07/14			103	85 - 115	ND, RDL=1.0	umho/cm	0.85	10		
9513726	pH	2024/07/14			101	98 - 103			0.95	N/A		
9513727	Alkalinity (Total as CaCO3)	2024/07/14			98	85 - 115	ND, RDL=1.0	mg/L	3.7	20		
9513729	Dissolved Chloride (Cl-)	2024/07/18	NC	80 - 120	101	80 - 120	ND, RDL=1.0	mg/L	0.12	20		
9513730	Dissolved Sulphate (SO4)	2024/07/18	100	75 - 125	101	80 - 120	ND, RDL=1.0	mg/L	2.6	20		
9513737	Conductivity	2024/07/14			102	85 - 115	ND, RDL=1.0	umho/cm	0	10		
9513741	pH	2024/07/14			101	98 - 103			1.6	N/A		
9513742	Alkalinity (Total as CaCO3)	2024/07/14			96	85 - 115	ND, RDL=1.0	mg/L	0.77	20		
9513760	Dissolved Chloride (Cl-)	2024/07/15	NC	80 - 120	97	80 - 120	ND, RDL=1.0	mg/L	0.16	20		
9513762	Dissolved Sulphate (SO4)	2024/07/15	NC	75 - 125	100	80 - 120	ND, RDL=1.0	mg/L	1.1	20		
9514888	Nitrate (N)	2024/07/16	93	80 - 120	96	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9514888	Nitrite (N)	2024/07/16	102	80 - 120	103	80 - 120	ND, RDL=0.010	mg/L	3.7	20		
9514899	Turbidity	2024/07/15			99	80 - 120	ND, RDL=0.1	NTU	3.1	20		
9514906	Conductivity	2024/07/16			100	85 - 115	ND, RDL=1.0	umho/cm	0	10		
9514957	pH	2024/07/16			101	98 - 103			1.4	N/A		
9514980	Alkalinity (Total as CaCO3)	2024/07/16			97	85 - 115	ND, RDL=1.0	mg/L	0.16	20		
9514999	Dissolved Chloride (Cl-)	2024/07/17	96	80 - 120	100	80 - 120	ND, RDL=1.0	mg/L	11	20		
9515004	Dissolved Sulphate (SO4)	2024/07/17	92	75 - 125	103	80 - 120	ND, RDL=1.0	mg/L	0.72	20		
9515288	Nitrate (N)	2024/07/16	91	80 - 120	95	80 - 120	ND, RDL=0.10	mg/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9515288	Nitrite (N)	2024/07/16	101	80 - 120	102	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9517404	Colour	2024/07/16			100	80 - 120	ND,RDL=2	TCU	NC	25		
9517655	Turbidity	2024/07/16			95	80 - 120	ND, RDL=0.1	NTU	3.3	20		
9519476	Total Suspended Solids	2024/07/18			100	80 - 120	ND, RDL=10	mg/L	4.9	20		
9519572	Total Dissolved Solids	2024/07/18			95	80 - 120	ND, RDL=10	mg/L	0.98	20		
9519585	Total Ammonia-N	2024/07/18	95	75 - 125	95	80 - 120	ND, RDL=0.050	mg/L	5.2	20		
9519595	Total Aluminum (Al)	2024/07/17	96	80 - 120	96	80 - 120	ND, RDL=4.9	ug/L	10	20		
9519595	Total Arsenic (As)	2024/07/17	97	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L				
9519595	Total Boron (B)	2024/07/17	92	80 - 120	95	80 - 120	ND, RDL=10	ug/L				
9519595	Total Cadmium (Cd)	2024/07/17	99	80 - 120	102	80 - 120	ND, RDL=0.090	ug/L				
9519595	Total Calcium (Ca)	2024/07/17	98	80 - 120	100	80 - 120	ND, RDL=200	ug/L				
9519595	Total Chromium (Cr)	2024/07/17	91	80 - 120	92	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9519595	Total Cobalt (Co)	2024/07/17	96	80 - 120	101	80 - 120	ND, RDL=0.50	ug/L				
9519595	Total Copper (Cu)	2024/07/17	96	80 - 120	98	80 - 120	ND, RDL=0.90	ug/L	5.3	20		
9519595	Total Iron (Fe)	2024/07/17	97	80 - 120	99	80 - 120	ND, RDL=100	ug/L				
9519595	Total Lead (Pb)	2024/07/17	93	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	2.5	20		
9519595	Total Magnesium (Mg)	2024/07/17	98	80 - 120	101	80 - 120	ND, RDL=50	ug/L				
9519595	Total Manganese (Mn)	2024/07/17	96	80 - 120	96	80 - 120	ND, RDL=2.0	ug/L				
9519595	Total Nickel (Ni)	2024/07/17	93	80 - 120	94	80 - 120	ND, RDL=1.0	ug/L				
9519595	Total Potassium (K)	2024/07/17	101	80 - 120	102	80 - 120	ND, RDL=200	ug/L				
9519595	Total Selenium (Se)	2024/07/17	97	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L				
9519595	Total Silver (Ag)	2024/07/17	93	80 - 120	98	80 - 120	ND, RDL=0.090	ug/L				
9519595	Total Sodium (Na)	2024/07/17	94	80 - 120	96	80 - 120	ND, RDL=100	ug/L				
9519595	Total Zinc (Zn)	2024/07/17	96	80 - 120	98	80 - 120	ND, RDL=5.0	ug/L	2.5	20		
9519597	Total Ammonia-N	2024/07/17	98	75 - 125	100	80 - 120	ND, RDL=0.050	mg/L	NC	20		
9519803	Total Ammonia-N	2024/07/18	94	75 - 125	95	80 - 120	ND, RDL=0.050	mg/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9519812	Total Ammonia-N	2024/07/18	97	75 - 125	97	80 - 120	ND, RDL=0.050	mg/L	1.2	20		
9519817	Total Aluminum (Al)	2024/07/17	97	80 - 120	101	80 - 120	ND, RDL=4.9	ug/L	4.1	20		
9519817	Total Arsenic (As)	2024/07/17	98	80 - 120	101	80 - 120	ND, RDL=1.0	ug/L	16	20		
9519817	Total Boron (B)	2024/07/17	94	80 - 120	99	80 - 120	ND, RDL=10	ug/L	1.9	20		
9519817	Total Cadmium (Cd)	2024/07/17	98	80 - 120	101	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9519817	Total Calcium (Ca)	2024/07/17	NC	80 - 120	104	80 - 120	ND, RDL=200	ug/L	3.2	20		
9519817	Total Chromium (Cr)	2024/07/17	95	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9519817	Total Cobalt (Co)	2024/07/17	94	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9519817	Total Copper (Cu)	2024/07/17	95	80 - 120	98	80 - 120	ND, RDL=0.90	ug/L	7.2	20		
9519817	Total Iron (Fe)	2024/07/17	95	80 - 120	100	80 - 120	ND, RDL=100	ug/L				
9519817	Total Lead (Pb)	2024/07/17	94	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	2.2	20		
9519817	Total Magnesium (Mg)	2024/07/17	94	80 - 120	98	80 - 120	ND, RDL=50	ug/L	2.1	20		
9519817	Total Manganese (Mn)	2024/07/17	93	80 - 120	97	80 - 120	ND, RDL=2.0	ug/L	2.8	20		
9519817	Total Nickel (Ni)	2024/07/17	92	80 - 120	98	80 - 120	ND, RDL=1.0	ug/L	9.0	20		
9519817	Total Potassium (K)	2024/07/17	96	80 - 120	100	80 - 120	ND, RDL=200	ug/L	0.98	20		
9519817	Total Selenium (Se)	2024/07/17	103	80 - 120	109	80 - 120	ND, RDL=2.0	ug/L	NC	20		
9519817	Total Silver (Ag)	2024/07/17	95	80 - 120	97	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9519817	Total Sodium (Na)	2024/07/17	NC	80 - 120	103	80 - 120	ND, RDL=100	ug/L	1.5	20		
9519817	Total Zinc (Zn)	2024/07/17	98	80 - 120	104	80 - 120	ND, RDL=5.0	ug/L	3.0	20		
9520764	Total Kjeldahl Nitrogen (TKN)	2024/07/18	105	80 - 120	95	80 - 120	ND, RDL=0.10	mg/L	0	20	96	80 - 120
9520811	Total Phosphorus	2024/07/18	109	80 - 120	104	80 - 120	ND, RDL=0.020	mg/L	2.3	20	106	80 - 120
9521642	Dissolved (0.2u) Aluminum (Al)	2024/07/18	93	80 - 120	102	80 - 120	ND,RDL=5	ug/L	5.0	20		
9521660	Dissolved (0.2u) Aluminum (Al)	2024/07/18	98	80 - 120	98	80 - 120	ND,RDL=5	ug/L	3.8	20		
9522440	Dissolved Mercury (Hg)	2024/07/18	95	75 - 125	92	80 - 120	ND, RDL=0.10	ug/L	NC	20		
9522519	Phenols-4AAP	2024/07/18	102	80 - 120	101	80 - 120	ND, RDL=0.0010	mg/L	NC	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9528002	Turbidity	2024/07/22			97	80 - 120	ND, RDL=0.1	NTU	2.0	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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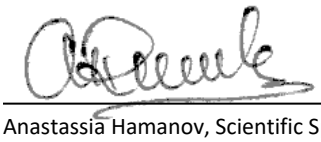
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L3658
Report Date: 2024/07/22

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste
Sampler Initials: BM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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IMMEDIATE Custody Tracking Form

T921023

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: MCG-A
Last Sample: NB-QAQC-SW1
Sample Count: 9

Relinquished By				Received By			
Brad M'Callum	Brad M'Callum	Date	2024/07/14	MRCO		Date	2024/07/12
		Time (24 HR)	14:30			Time (24 HR)	14:35
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print): Brad M'Callum

# of Coolers/Pkgs: 2

Rush ☐ Immediate Test ☐ Food Residue ☐

Micro ☐ Food Chemistry ☐

*** LABORATORY USE ONLY ***

Received At: Mississauga

Labeled By: BM 2

Verified By:

Lab Co: 12-Jul-24 14:35
Elora Di Bratto
C4L3658
BM2 ENV-760

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	Y	Y	7	6	6
Y	Y	Y	4	4	2

Drinking Water Metals Preservation Check Done (Circle) YES NO

COR FCD-00383/4

Page 1 of 1

Your Project #: 240205-08
Site Location: North Baptiste SW
Your C.O.C. #: 971462

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/11/07
Report #: R8395611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y2441
Received: 2024/10/31, 09:00

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Dissolved Aluminum (0.2 u, clay free)	8	N/A	2024/11/04	CAM SOP-00447	EPA 6020B m
Alkalinity	7	N/A	2024/11/06	CAM SOP-00448	SM 24 2320 B m
Alkalinity	1	N/A	2024/11/07	CAM SOP-00448	SM 24 2320 B m
Biochemical Oxygen Demand (BOD)	8	2024/11/01	2024/11/06	CAM SOP-00427	SM 24 5210B m
Chloride by Automated Colourimetry	8	N/A	2024/11/06	CAM SOP-00463	SM 24 4500-Cl E m
Colour	8	N/A	2024/11/06	CAM SOP-00412	SM 24 2120C m
Conductivity	7	N/A	2024/11/06	CAM SOP-00414	SM 24 2510 m
Conductivity	1	N/A	2024/11/07	CAM SOP-00414	SM 24 2510 m
Hardness (calculated as CaCO3)	8	N/A	2024/11/05	CAM SOP 00102/00408/00447	SM 2340 B
Total Metals Analysis by ICPMS	8	2024/11/04	2024/11/06	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	2	N/A	2024/11/05	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	6	N/A	2024/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	8	N/A	2024/11/05	CAM SOP-00440	SM 24 4500-NO3I/NO2B
pH (2)	7	2024/11/02	2024/11/06	CAM SOP-00413	SM 24th - 4500H+ B
pH (2)	1	2024/11/02	2024/11/07	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	8	N/A	2024/11/05	CAM SOP-00444	OMOE E3179 m
Field Measured pH (3)	8	N/A	2024/10/31		Field pH Meter
Sulphate by Automated Turbidimetry	8	N/A	2024/11/06	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	3	2024/11/02	2024/11/05	CAM SOP-00428	SM 24 2540C m
Total Dissolved Solids	5	2024/11/04	2024/11/06	CAM SOP-00428	SM 24 2540C m
Field Temperature (3)	8	N/A	2024/10/31		Field Thermometer
Total Kjeldahl Nitrogen in Water	8	2024/11/05	2024/11/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	8	2024/11/05	2024/11/06	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	1	2024/11/02	2024/11/05	CAM SOP-00428	SM 24 2540D m
Total Suspended Solids	7	2024/11/04	2024/11/06	CAM SOP-00428	SM 24 2540D m
Un-ionized Ammonia (4)	1	2024/10/31	2024/11/05	Auto Calc.	PWQO
Un-ionized Ammonia (4)	7	2024/10/31	2024/11/06	Auto Calc.	PWQO

Remarks:

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 240205-08
Site Location: North Baptiste SW
Your C.O.C. #: 971462

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/11/07
Report #: R8395611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y2441
Received: 2024/10/31, 09:00

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(4) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Your Project #: 240205-08
Site Location: North Baptiste SW
Your C.O.C. #: 971462

Attention: MHH Distribution

BluMetric Environmental Inc
The Tower - The Woolen Mill
4 Cataraqui St
Kingston, ON
CANADA K7K 1Z7

Report Date: 2024/11/07
Report #: R8395611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y2441
Received: 2024/10/31, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AHMF04			AHMF05			AHMF05		
Sampling Date		2024/10/29 10:14			2024/10/29 10:35			2024/10/29 10:35		
COC Number		971462			971462			971462		
	UNITS	MCG-B	RDL	QC Batch	MCG-C	RDL	QC Batch	MCG-C Lab-Dup	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	290	1.0	9736228	97	1.0	9736228			
Total Un-ionized Ammonia	mg/L	ND	0.00061	9736782	ND	0.00061	9736782			
Field Measurements										
Field Temperature	Celsius	3.5	N/A	ONSITE	4.4	N/A	ONSITE			
Field Measured pH	pH	6.65		ONSITE	6.43		ONSITE			
Inorganics										
Total Ammonia-N	mg/L	0.55	0.050	9741372	ND	0.050	9741372			
Total BOD	mg/L	29	2	9739401	ND	2	9739401			
Colour	TCU	23	2	9742158	98	2	9742150			
Conductivity	umho/cm	620	1.0	9742129	220	1.0	9742129			
Total Dissolved Solids	mg/L	405	10	9741730	155	10	9743425			
Total Kjeldahl Nitrogen (TKN)	mg/L	1.2	0.10	9746878	0.57	0.10	9746878			
pH	pH	7.58		9742128	7.49		9742128			
Phenols-4AAP	mg/L	0.0019	0.0010	9746815	ND	0.0010	9746815			
Total Phosphorus	mg/L	0.32	0.10	9746836	0.020	0.020	9746836	ND	0.020	9746836
Total Suspended Solids	mg/L	320	50	9742902	ND	10	9742902			
Dissolved Sulphate (SO4)	mg/L	24	1.0	9742139	3.1	1.0	9742139			
Alkalinity (Total as CaCO3)	mg/L	300	1.0	9742124	84	1.0	9742124			
Dissolved Chloride (Cl-)	mg/L	13	1.0	9742136	17	1.0	9742136			
Nitrite (N)	mg/L	ND	0.010	9742132	ND	0.010	9742132			
Nitrate (N)	mg/L	ND	0.10	9742132	ND	0.10	9742132			
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132	ND	0.10	9742132			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AHMF06			AHMF07			AHMF07		
Sampling Date		2024/10/29 10:57			2024/10/29 08:40			2024/10/29 08:40		
COC Number		971462			971462			971462		
	UNITS	MCG-D	RDL	QC Batch	MCG-E	RDL	QC Batch	MCG-E Lab-Dup	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	22	1.0	9736228	33	1.0	9736228			
Total Un-ionized Ammonia	mg/L	ND	0.00061	9736782	ND	0.00052	9736782			
Field Measurements										
Field Temperature	Celsius	3.1	N/A	ONSITE	2.8	N/A	ONSITE			
Field Measured pH	pH	6.60		ONSITE	7.92		ONSITE			
Inorganics										
Total Ammonia-N	mg/L	0.056	0.050	9741259	ND	0.050	9741372			
Total BOD	mg/L	3	2	9739401	ND	2	9739401			
Colour	TCU	100	4	9742158	25	2	9742158			
Conductivity	umho/cm	56	1.0	9742129	200	1.0	9742129			
Total Dissolved Solids	mg/L	40	10	9743425	160	10	9741730			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.68	0.10	9746878	0.15	0.10	9746878			
pH	pH	6.84		9742128	7.26		9742128			
Phenols-4AAP	mg/L	ND	0.0010	9746815	ND	0.0010	9746815			
Total Phosphorus	mg/L	0.099	0.020	9746836	ND	0.020	9746836			
Total Suspended Solids	mg/L	ND	10	9742902	ND	10	9742902	ND	10	9742902
Dissolved Sulphate (SO4)	mg/L	1.2	1.0	9742139	5.9	1.0	9742139			
Alkalinity (Total as CaCO3)	mg/L	26	1.0	9742124	27	1.0	9742124			
Dissolved Chloride (Cl-)	mg/L	ND	1.0	9742136	38	1.0	9742136			
Nitrite (N)	mg/L	ND	0.010	9742132	ND	0.010	9742132			
Nitrate (N)	mg/L	ND	0.10	9742132	ND	0.10	9742132			
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132	ND	0.10	9742132			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AHMF08		AHMF09			AHMF09		
Sampling Date		2024/10/29 08:55		2024/10/29 09:20			2024/10/29 09:20		
COC Number		971462		971462			971462		
	UNITS	MCG-F	QC Batch	MCG-G	RDL	QC Batch	MCG-G Lab-Dup	RDL	QC Batch
Calculated Parameters									
Hardness (CaCO3)	mg/L	21	9736228	17	1.0	9736228			
Total Un-ionized Ammonia	mg/L	ND	9736782	ND	0.00061	9736782			
Field Measurements									
Field Temperature	Celsius	4.1	ONSITE	4.5	N/A	ONSITE			
Field Measured pH	pH	7.14	ONSITE	6.86		ONSITE			
Inorganics									
Total Ammonia-N	mg/L	ND	9741372	ND	0.050	9741372	ND	0.050	9741372
Total BOD	mg/L	ND	9739401	ND	2	9739401			
Colour	TCU	36	9742158	25	2	9742158			
Conductivity	umho/cm	180	9742129	40	1.0	9742129			
Total Dissolved Solids	mg/L	130	9743425	50	10	9741730			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.27	9746878	0.16	0.10	9746878			
pH	pH	7.04	9742128	7.22		9742128			
Phenols-4AAP	mg/L	ND	9746815	ND	0.0010	9746815			
Total Phosphorus	mg/L	ND	9746836	ND	0.020	9746836			
Total Suspended Solids	mg/L	21	9742902	ND	10	9742131			
Dissolved Sulphate (SO4)	mg/L	3.2	9742139	2.2	1.0	9742139			
Alkalinity (Total as CaCO3)	mg/L	17	9742124	15	1.0	9742124			
Dissolved Chloride (Cl-)	mg/L	38	9742136	ND	1.0	9742136			
Nitrite (N)	mg/L	ND	9742132	ND	0.010	9742132			
Nitrate (N)	mg/L	ND	9742132	0.14	0.10	9742132			
Nitrate + Nitrite (N)	mg/L	ND	9742132	0.14	0.10	9742132			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AHMF10			AHMF10			AHMF11		
Sampling Date		2024/10/29 10:00			2024/10/29 10:00			2024/10/29 10:35		
COC Number		971462			971462			971462		
	UNITS	MCG-H	RDL	QC Batch	MCG-H Lab-Dup	RDL	QC Batch	NB-QAQC-SW1	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	77	1.0	9736228				33	1.0	9736228
Total Un-ionized Ammonia	mg/L	ND	0.00061	9736782				ND	0.00061	9736782
Field Measurements										
Field Temperature	Celsius	4.2	N/A	ONSITE				8.2	N/A	ONSITE
Field Measured pH	pH	6.52		ONSITE				6.42		ONSITE
Inorganics										
Total Ammonia-N	mg/L	ND	0.050	9741372				ND	0.050	9741319
Total BOD	mg/L	ND	2	9739401				ND	2	9739401
Colour	TCU	37	2	9742150				25	2	9742150
Conductivity	umho/cm	200	1.0	9742129				200	1.0	9742239
Total Dissolved Solids	mg/L	130	10	9743425				115	10	9743425
Total Kjeldahl Nitrogen (TKN)	mg/L	0.24	0.10	9746878				0.14	0.10	9746878
pH	pH	7.43		9742128				7.44		9742240
Phenols-4AAP	mg/L	ND	0.0010	9746815	ND	0.0010	9746815	ND	0.0010	9746815
Total Phosphorus	mg/L	ND	0.020	9746836				ND	0.020	9746836
Total Suspended Solids	mg/L	ND	10	9742902				ND	10	9742902
Dissolved Sulphate (SO4)	mg/L	2.6	1.0	9742139				6.2	1.0	9742139
Alkalinity (Total as CaCO3)	mg/L	70	1.0	9742124				25	1.0	9742238
Dissolved Chloride (Cl-)	mg/L	15	1.0	9742136				38	1.0	9742136
Nitrite (N)	mg/L	ND	0.010	9742132				ND	0.010	9742132
Nitrate (N)	mg/L	ND	0.10	9742132				ND	0.10	9742132
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132				ND	0.10	9742132

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AHMF11		
Sampling Date		2024/10/29 10:35		
COC Number		971462		
	UNITS	NB-QAQC-SW1 Lab-Dup	RDL	QC Batch
Inorganics				
Colour	TCU	25	2	9742150
Conductivity	umho/cm	200	1.0	9742239
pH	pH	7.53		9742240
Dissolved Sulphate (SO4)	mg/L	6.1	1.0	9742139
Alkalinity (Total as CaCO3)	mg/L	26	1.0	9742238
Dissolved Chloride (Cl-)	mg/L	38	1.0	9742136
Nitrite (N)	mg/L	ND	0.010	9742132
Nitrate (N)	mg/L	ND	0.10	9742132
Nitrate + Nitrite (N)	mg/L	ND	0.10	9742132

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		AHMF04	AHMF05	AHMF06			AHMF06		
Sampling Date		2024/10/29 10:14	2024/10/29 10:35	2024/10/29 10:57			2024/10/29 10:57		
COC Number		971462	971462	971462			971462		
	UNITS	MCG-B	MCG-C	MCG-D	RDL	QC Batch	MCG-D Lab-Dup	RDL	QC Batch
Metals									
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	16	100	5	9741747			
Total Aluminum (Al)	ug/L	800	29	140	4.9	9743369	140	4.9	9743369
Total Arsenic (As)	ug/L	ND	ND	ND	1.0	9743369	ND	1.0	9743369
Total Boron (B)	ug/L	160	60	ND	10	9743369	ND	10	9743369
Total Cadmium (Cd)	ug/L	0.83	ND	ND	0.090	9743369	ND	0.090	9743369
Total Calcium (Ca)	ug/L	88000	24000	5000	200	9743369	5200	200	9743369
Total Chromium (Cr)	ug/L	ND	ND	ND	5.0	9743369	ND	5.0	9743369
Total Cobalt (Co)	ug/L	0.85	ND	5.5	0.50	9743369	5.4	0.50	9743369
Total Copper (Cu)	ug/L	9.1	ND	ND	0.90	9743369	ND	0.90	9743369
Total Iron (Fe)	ug/L	47000	880	3900	100	9743369	3800	100	9743369
Total Lead (Pb)	ug/L	3.5	ND	ND	0.50	9743369	ND	0.50	9743369
Total Magnesium (Mg)	ug/L	13000	6300	1600	50	9743369	1500	50	9743369
Total Manganese (Mn)	ug/L	960	310	2700	2.0	9743369	2700	2.0	9743369
Total Nickel (Ni)	ug/L	4.0	ND	ND	1.0	9743369	ND	1.0	9743369
Total Potassium (K)	ug/L	17000	4200	720	200	9743369	690	200	9743369
Total Selenium (Se)	ug/L	ND	ND	ND	2.0	9743369	ND	2.0	9743369
Total Silver (Ag)	ug/L	ND	ND	ND	0.090	9743369	ND	0.090	9743369
Total Sodium (Na)	ug/L	18000	9400	2000	100	9743369	1900	100	9743369
Total Zinc (Zn)	ug/L	310	ND	ND	5.0	9743369	ND	5.0	9743369

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Lab-Dup = Laboratory Initiated Duplicate
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		AHMF07	AHMF08	AHMF09	AHMF10	AHMF11		
Sampling Date		2024/10/29 08:40	2024/10/29 08:55	2024/10/29 09:20	2024/10/29 10:00	2024/10/29 10:35		
COC Number		971462	971462	971462	971462	971462		
	UNITS	MCG-E	MCG-F	MCG-G	MCG-H	NB-QAQC-SW1	RDL	QC Batch
Metals								
Dissolved (0.2u) Aluminum (Al)	ug/L	20	43	31	12	20	5	9741747
Total Aluminum (Al)	ug/L	27	170	51	15	26	4.9	9743369
Total Arsenic (As)	ug/L	ND	ND	ND	ND	ND	1.0	9743369
Total Boron (B)	ug/L	ND	ND	ND	12	ND	10	9743369
Total Cadmium (Cd)	ug/L	ND	ND	ND	ND	ND	0.090	9743369
Total Calcium (Ca)	ug/L	9000	5700	4100	20000	8700	200	9743369
Total Chromium (Cr)	ug/L	ND	ND	ND	ND	ND	5.0	9743369
Total Cobalt (Co)	ug/L	ND	0.50	ND	ND	ND	0.50	9743369
Total Copper (Cu)	ug/L	ND	ND	ND	ND	ND	0.90	9743369
Total Iron (Fe)	ug/L	300	1500	480	160	310	100	9743369
Total Lead (Pb)	ug/L	ND	ND	ND	ND	ND	0.50	9743369
Total Magnesium (Mg)	ug/L	1600	1100	950	4800	1600	50	9743369
Total Manganese (Mn)	ug/L	7.4	130	48	24	8.2	2.0	9743369
Total Nickel (Ni)	ug/L	ND	ND	ND	ND	ND	1.0	9743369
Total Potassium (K)	ug/L	940	1300	430	4800	950	200	9743369
Total Selenium (Se)	ug/L	ND	ND	ND	ND	ND	2.0	9743369
Total Silver (Ag)	ug/L	ND	ND	ND	ND	ND	0.090	9743369
Total Sodium (Na)	ug/L	24000	23000	1500	8400	24000	100	9743369
Total Zinc (Zn)	ug/L	ND	ND	ND	ND	ND	5.0	9743369

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF04
Sample ID: MCG-B
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742158	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF05
Sample ID: MCG-C
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742150	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF05 **Collected:** 2024/10/29
Sample ID: MCG-C **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF05 Dup **Collected:** 2024/10/29
Sample ID: MCG-C **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri

Bureau Veritas ID: AHMF06 **Collected:** 2024/10/29
Sample ID: MCG-D **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742158	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741259	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/05	2024/11/05	Automated Statchk

Bureau Veritas ID: AHMF06 Dup **Collected:** 2024/10/29
Sample ID: MCG-D **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

TEST SUMMARY

Bureau Veritas ID: AHMF07 **Collected:** 2024/10/29
Sample ID: MCG-E **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742158	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF07 Dup **Collected:** 2024/10/29
Sample ID: MCG-E **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh

Bureau Veritas ID: AHMF08 **Collected:** 2024/10/29
Sample ID: MCG-F **Shipped:**
Matrix: Water **Received:** 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742158	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF08
Sample ID: MCG-F
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF09
Sample ID: MCG-G
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742158	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9741730	2024/11/02	2024/11/05	Razieh Tabesh
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742131	2024/11/02	2024/11/05	Madhav Somani
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF09 Dup
Sample ID: MCG-G
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF10
Sample ID: MCG-H
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742124	N/A	2024/11/06	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742150	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742129	N/A	2024/11/06	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741372	N/A	2024/11/06	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742128	2024/11/02	2024/11/06	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF10 Dup
Sample ID: MCG-H
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel

Bureau Veritas ID: AHMF11
Sample ID: NB-QAQC-SW1
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	9741747	N/A	2024/11/04	Indira HarryPaul
Alkalinity	AT	9742238	N/A	2024/11/07	Nachiketa Gohil
Biochemical Oxygen Demand (BOD)	DO	9739401	2024/11/01	2024/11/06	Amrutha Anilkumar
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742150	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742239	N/A	2024/11/07	Nachiketa Gohil
Hardness (calculated as CaCO3)		9736228	N/A	2024/11/05	Automated Statchk
Total Metals Analysis by ICPMS	ICP/MS	9743369	2024/11/04	2024/11/06	Prempal Bhatti
Total Ammonia-N	SKAL/NH4	9741319	N/A	2024/11/05	Jinal Chavda
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742240	2024/11/02	2024/11/07	Nachiketa Gohil

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

TEST SUMMARY

Bureau Veritas ID: AHMF11
Sample ID: NB-QAQC-SW1
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	9746815	N/A	2024/11/05	Sachi Patel
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu
Total Dissolved Solids	BAL	9743425	2024/11/04	2024/11/06	Madhav Somani
Field Measured pH	PH	ONSITE	N/A	2024/10/31	Kamalpreet Kaur
Total Kjeldahl Nitrogen in Water	SKAL	9746878	2024/11/05	2024/11/06	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9746836	2024/11/05	2024/11/06	Vidhi Khatri
Total Suspended Solids	BAL	9742902	2024/11/04	2024/11/06	Razieh Tabesh
Un-ionized Ammonia	CALC/NH3	9736782	2024/11/06	2024/11/06	Automated Statchk

Bureau Veritas ID: AHMF11 Dup
Sample ID: NB-QAQC-SW1
Matrix: Water

Collected: 2024/10/29
Shipped:
Received: 2024/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9742238	N/A	2024/11/07	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9742136	N/A	2024/11/06	Alina Dobreanu
Colour	SPEC	9742150	N/A	2024/11/06	Viorica Rotaru
Conductivity	AT	9742239	N/A	2024/11/07	Nachiketa Gohil
Nitrate & Nitrite as Nitrogen in Water	LACH	9742132	N/A	2024/11/05	Chandra Nandlal
pH	AT	9742240	2024/11/02	2024/11/07	Nachiketa Gohil
Sulphate by Automated Turbidimetry	SKAL	9742139	N/A	2024/11/06	Alina Dobreanu

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C
Package 2	3.3°C

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4Y2441
Report Date: 2024/11/07

QUALITY ASSURANCE REPORT

BluMetric Environmental Inc
Client Project #: 240205-08
Site Location: North Baptiste SW
Sampler Initials: BM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9739401	Total BOD	2024/11/06					ND,RDL=2	mg/L	0.14	30	99	80 - 120
9741259	Total Ammonia-N	2024/11/05	95	75 - 125	95	80 - 120	ND, RDL=0.050	mg/L	NC	20		
9741319	Total Ammonia-N	2024/11/05	96	75 - 125	97	80 - 120	ND, RDL=0.050	mg/L	NC	20		
9741372	Total Ammonia-N	2024/11/06	91	75 - 125	100	80 - 120	ND, RDL=0.050	mg/L	NC	20		
9741730	Total Dissolved Solids	2024/11/05			95	80 - 120	ND, RDL=10	mg/L	0	20		
9741747	Dissolved (0.2u) Aluminum (Al)	2024/11/04	NC	80 - 120	99	80 - 120	ND,RDL=5	ug/L	9.0	20		
9742124	Alkalinity (Total as CaCO3)	2024/11/06			97	85 - 115	ND, RDL=1.0	mg/L	11	20		
9742128	pH	2024/11/06			102	98 - 103			0.43	N/A		
9742129	Conductivity	2024/11/06			102	85 - 115	ND, RDL=1.0	umho/cm	1.2	10		
9742131	Total Suspended Solids	2024/11/05			100	80 - 120	ND, RDL=10	mg/L	NC	20		
9742132	Nitrate (N)	2024/11/05	91	80 - 120	98	80 - 120	ND, RDL=0.10	mg/L	NC	20		
9742132	Nitrite (N)	2024/11/05	98	80 - 120	103	80 - 120	ND, RDL=0.010	mg/L	NC	20		
9742136	Dissolved Chloride (Cl-)	2024/11/06	NC	80 - 120	99	80 - 120	ND, RDL=1.0	mg/L	0.94	20		
9742139	Dissolved Sulphate (SO4)	2024/11/06	98	75 - 125	97	80 - 120	ND, RDL=1.0	mg/L	0.72	20		
9742150	Colour	2024/11/06			98	80 - 120	ND,RDL=2	TCU	0	25		
9742158	Colour	2024/11/06			102	80 - 120	ND,RDL=2	TCU	0.40	25		
9742238	Alkalinity (Total as CaCO3)	2024/11/07			96	85 - 115	ND, RDL=1.0	mg/L	2.1	20		
9742239	Conductivity	2024/11/07			100	85 - 115	ND, RDL=1.0	umho/cm	0.49	10		
9742240	pH	2024/11/07			102	98 - 103			1.2	N/A		
9742902	Total Suspended Solids	2024/11/06			99	80 - 120	ND, RDL=10	mg/L	NC	20		
9743369	Total Aluminum (Al)	2024/11/06	103	80 - 120	101	80 - 120	ND, RDL=4.9	ug/L	2.6	20		
9743369	Total Arsenic (As)	2024/11/06	102	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9743369	Total Boron (B)	2024/11/06	104	80 - 120	101	80 - 120	ND, RDL=10	ug/L	NC	20		
9743369	Total Cadmium (Cd)	2024/11/06	100	80 - 120	98	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9743369	Total Calcium (Ca)	2024/11/06	103	80 - 120	101	80 - 120	ND, RDL=200	ug/L	4.3	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9743369	Total Chromium (Cr)	2024/11/06	100	80 - 120	100	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9743369	Total Cobalt (Co)	2024/11/06	100	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	2.9	20		
9743369	Total Copper (Cu)	2024/11/06	102	80 - 120	101	80 - 120	ND, RDL=0.90	ug/L	NC	20		
9743369	Total Iron (Fe)	2024/11/06	103	80 - 120	99	80 - 120	ND, RDL=100	ug/L	3.0	20		
9743369	Total Lead (Pb)	2024/11/06	97	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	NC	20		
9743369	Total Magnesium (Mg)	2024/11/06	97	80 - 120	95	80 - 120	ND, RDL=50	ug/L	5.8	20		
9743369	Total Manganese (Mn)	2024/11/06	NC	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L	1.3	20		
9743369	Total Nickel (Ni)	2024/11/06	100	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	NC	20		
9743369	Total Potassium (K)	2024/11/06	101	80 - 120	99	80 - 120	ND, RDL=200	ug/L	3.3	20		
9743369	Total Selenium (Se)	2024/11/06	108	80 - 120	107	80 - 120	ND, RDL=2.0	ug/L	NC	20		
9743369	Total Silver (Ag)	2024/11/06	100	80 - 120	97	80 - 120	ND, RDL=0.090	ug/L	NC	20		
9743369	Total Sodium (Na)	2024/11/06	97	80 - 120	96	80 - 120	ND, RDL=100	ug/L	5.9	20		
9743369	Total Zinc (Zn)	2024/11/06	103	80 - 120	98	80 - 120	ND, RDL=5.0	ug/L	NC	20		
9743425	Total Dissolved Solids	2024/11/06			98	80 - 120	ND, RDL=10	mg/L	1.8	20		
9746815	Phenols-4AAP	2024/11/05	96	80 - 120	97	80 - 120	ND, RDL=0.0010	mg/L	NC	20		
9746836	Total Phosphorus	2024/11/06	96	80 - 120	106	80 - 120	ND, RDL=0.020	mg/L	2.0	20	105	80 - 120
9746878	Total Kjeldahl Nitrogen (TKN)	2024/11/06	111	80 - 120	99	80 - 120	ND, RDL=0.10	mg/L	15	20	101	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

IMMEDIATE

Custody Tracking Form

T971462

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form has a barcode or a Bureau Veritas eCOC confirmation number in the top right hand side. This number links your electronic submission to your samples. This form should be placed in the cooler with your samples.

First Sample: MCG-A
Last Sample: NB-QAQC-SW1
Sample Count: 9

Relinquished By				Received By			
Brad McCallum	Brad McCallum	Date	2024/10/30	Ashlie Sukkau	Ashlie Sukkau	Date	2024/10/31
		Time (24 HR)	08:00			Time (24 HR)	09:00
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM
Print	Sign	Date	YYYY/MM/DD	Print	Sign	Date	YYYY/MM/DD
		Time (24 HR)	HH:MM			Time (24 HR)	HH:MM

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print): BM / NW

# of Coolers/Pkgs: 2

Rush ☐ Micro ☐ Immediate Test ☐ Food Residue ☐ Food Chemistry ☐

*** LABORATORY USE ONLY ***

Received At

Labeled By

Verified By

Lab Comments:

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y	Y	Y	0	1	1
Y	Y	Y	3	2	5

Drinking Water Metals Preservation Check Done (Circle) **YES** **NO**

31-Oct-24 09:00
Elora Di Bratto
C4Y2441

NorthBAP SW

COR FCD-00383/4

Page 1 of 1

Appendix D

D-4 Toxicity Sampling Laboratory Reports

NAUTILUS ENVIRONMENTAL
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna
EPS 1/RM/14

Work Order : 254643
Sample Number : 82225

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-04-29
Job Number :	C4C9091	Sampling Time :	16:20
Substance :	MCG-C	Date Received :	2024-05-01
Sampling Method :	Grab	Time Received :	14:00
Sampled By :	B. McCallum	Temperature at Receipt :	15 °C
Sample Description :	Clear, light brown	Date Tested :	2024-05-02

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* . Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	3.3 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :	*Daphnia magna*	Time to First Brood :	9.2 days
Organism Batch :	Dm24-07	Average Brood Size :	30.2
Culture Mortality :	0% (previous 7 days)		

TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Organisms per Replicate :	10
Pre-aeration Rate :	~30 mL/min/L	Organisms per Test Level :	30
Duration of Pre-Aeration :	30 minutes	Organism Loading Rate :	15.0 mL/organism
Test Aeration :	None	Impaired Control Organisms :	0.0%
Hardness Adjustment :	None	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Sodium Chloride		
Date Tested :	2024-04-23	LC50 :	6.1 g/L
Organism Batch :	Dm24-07	95% Confidence Limits :	5.8 - 6.3 g/L
Analyst(s) :	SV, FM	Historical Mean LC50 :	6.3 g/L
Statistical Method :	Spearman-Kärber	Warning Limits (± 2SD) :	5.9 - 6.8 g/L

COMMENTS

- All test validity criteria as specified in the test method were satisfied.

Approved By : _____
Project Manager

Work Order : 254643
Sample Number : 82225

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)*	Hardness (as $CaCO_3$)
Initial Chemistry (100%) :	7.5	9.0	243	20	106	100 mg/L

0 HOURS

Date & Time : 2024-05-02 11:25
Analyst(s) : AA (SV)/PG

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation*	Hardness
100	A	0	0	7.6	8.9	244	20	102	100
100	B	0	0	7.6	8.9	244	20	102	100
100	C	0	0	7.6	8.9	244	20	102	100
Control	A	0	0	8.2	8.7	442	21	100	140
Control	B	0	0	8.2	8.7	442	21	100	140
Control	C	0	0	8.2	8.7	442	21	100	140

Notes:

24 HOURS

Date & Time : 2024-05-03 11:35
Analyst(s) : GR (SV)

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	–	0	–	–	–	21
100	B	–	0	–	–	–	21
100	C	–	0	–	–	–	21
Control	A	–	0	–	–	–	21
Control	B	–	0	–	–	–	21
Control	C	–	0	–	–	–	21

Notes:

48 HOURS

Date & Time : 2024-05-04 11:40
Analyst(s) : JW

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	0	0	8.1	8.0	248	21
100	B	1	0	8.1	8.0	248	21
100	C	0	0	8.2	8.0	251	21
Control	A	0	0	8.3	8.1	450	21
Control	B	0	0	8.3	8.1	451	21
Control	C	0	0	8.2	8.2	447	21

Notes:

Number immobile does not include number dead.

"–" = not measured/not required
* adjusted for temperature and barometric pressure

Test Data Reviewed By : EM
Date : 2024-05-08

NAUTILUS ENVIRONMENTAL
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

TOXICITY TEST REPORT
Rainbow Trout
EPS 1/RM/13

Work Order : 254643
Sample Number : 82225

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-04-29
Job Number :	C4C9091	Sampling Time :	16:20
Substance :	MCG-C	Date Received :	2024-05-01
Sampling Method :	Grab	Time Received :	14:00
Sampled By :	B. McCallum	Temperature at Receipt :	15 °C
Sample Description :	Clear, light brown	Date Tested :	2024-05-02

Test Method(s) : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007, February 2016, and December 2023 amendments).

96-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Impairment	0.0 %
	Mean Mortality	0.0 %
100%	Mean Impairment	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism :	*Oncorhynchus mykiss*	Mean Fork Length :	38.8 mm
Organism Batch :	T24-08	Range of Fork Lengths :	34 - 44 mm
Control Sample Size :	10	Mean Wet Weight :	0.5 g
Cumulative stock mortality rate :	0.2% (previous 7 days)	Organism Loading Rate :	0.3 g/L
Control organisms showing stress :	0 (at test completion)		

TEST CONDITIONS

Test Type :	Single concentration	Number of Replicates :	1
Sample pH Adjustment :	None	Organisms Per Replicate :	10
Sample Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Organisms Per Test Level :	10
Duration of Sample Pre-Aeration :	30 minutes	Volume of Sample :	16 L
Control Pre-aeration/Aeration Rate :	6.5 ± 1 mL/L/min	Volume of Control :	17 L
Duration of Control Pre-aeration:	30 minutes	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Potassium Chloride		
Organism Batch :	T24-08	LC50 :	3661 mg/L
Date Tested :	2024-05-01	95% Confidence Limits :	3264 - 4089 mg/L
Analyst(s) :	AJS, FM, PC	Historical Mean LC50 :	4334 mg/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	3413 - 5504 mg/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : _____
Project Manager

Work Order : 254643
Sample Number : 82225

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)[3]
Initial Water Chemistry (100%) :	7.4	8.5	234	15	88
After 30 min pre-aeration :	7.5	8.8	235	15	92

0 HOURS

Date & Time 2024-05-02 10:00
Analyst(s) : PG/FM (AJS)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation[3]
100%	0	0	7.5	8.8	235	15	92
Control	0	0	8.3	9.7	783	15	100

Notes:

24 HOURS

Date & Time 2024-05-03 8:35
Analyst(s) : FM (SF)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

48 HOURS

Date & Time 2024-05-04 9:45
Analyst(s) : PC

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

72 HOURS

Date & Time 2024-05-05 9:40
Analyst(s) : JW

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

96 HOURS

Date & Time 2024-05-06 9:15
Analyst(s) : FM (PG)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	8.1	9.1	238	14
Control	0	0	8.3	8.9	702	14

Notes:

"–" = not measured/not required

Number impaired does not include number dead.

[3] adjusted for temperature and barometric pressure

Test Data Reviewed By : EM

Date : 2024-05-07

NAUTILUS ENVIRONMENTAL
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna
EPS 1/RM/14

Work Order : 254643
Sample Number : 82226

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-04-29
Job Number :	C4C9091	Sampling Time :	17:35
Substance :	MCG-H	Date Received :	2024-05-01
Sampling Method :	Grab	Time Received :	14:00
Sampled By :	B. McCallum	Temperature at Receipt :	15 °C
Sample Description :	Clear, light brown	Date Tested :	2024-05-02

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* . Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :	*Daphnia magna*	Time to First Brood :	9.2 days
Organism Batch :	Dm24-07	Average Brood Size :	30.2
Culture Mortality :	0% (previous 7 days)		

TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Organisms per Replicate :	10
Pre-aeration Rate :	~30 mL/min/L	Organisms per Test Level :	30
Duration of Pre-Aeration :	30 minutes	Organism Loading Rate :	15.0 mL/organism
Test Aeration :	None	Impaired Control Organisms :	0.0%
Hardness Adjustment :	None	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Sodium Chloride		
Date Tested :	2024-04-23	LC50 :	6.1 g/L
Organism Batch :	Dm24-07	95% Confidence Limits :	5.8 - 6.3 g/L
Analyst(s) :	SV, FM	Historical Mean LC50 :	6.3 g/L
Statistical Method :	Spearman-Kärber	Warning Limits (± 2SD) :	5.9 - 6.8 g/L

COMMENTS

- All test validity criteria as specified in the test method were satisfied.

Approved By : _____
Project Manager

Work Order : 254643
Sample Number : 82226

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)*	Hardness (as $CaCO_3$)
Initial Chemistry (100%) :	7.1	9.9	93	20	113	34 mg/L

0 HOURS

Date & Time : 2024-05-02 11:30
Analyst(s) : AA (SV)/SV

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation*	Hardness
100	A	0	0	7.1	9.5	94	21	112	34
100	B	0	0	7.1	9.5	94	21	112	34
100	C	0	0	7.1	9.5	94	21	112	34
Control	A	0	0	8.2	8.7	442	21	100	140
Control	B	0	0	8.2	8.7	442	21	100	140
Control	C	0	0	8.2	8.7	442	21	100	140

Notes:

24 HOURS

Date & Time : 2024-05-03 11:45
Analyst(s) : GR (SV)

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	–	0	–	–	–	21
100	B	–	0	–	–	–	21
100	C	–	0	–	–	–	21
Control	A	–	0	–	–	–	21
Control	B	–	0	–	–	–	21
Control	C	–	0	–	–	–	21

Notes:

48 HOURS

Date & Time : 2024-05-04 11:45
Analyst(s) : JW

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	0	0	7.7	8.0	105	21
100	B	0	0	7.8	8.0	105	21
100	C	0	0	7.8	8.1	118	21
Control	A	0	0	8.2	8.1	452	21
Control	B	0	0	8.2	8.2	452	21
Control	C	0	0	8.2	8.2	450	21

Notes:

Number immobile does not include number dead.

"–" = not measured/not required
* adjusted for temperature and barometric pressure

Test Data Reviewed By : EM
Date : 2024-05-08

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TOXICITY TEST REPORT
Rainbow Trout
EPS 1/RM/13

Work Order : 254643
Sample Number : 82226

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-04-29
Job Number :	C4C9091	Sampling Time :	17:35
Substance :	MCG-H	Date Received :	2024-05-01
Sampling Method :	Grab	Time Received :	14:00
Sampled By :	B. McCallum	Temperature at Receipt :	15 °C
Sample Description :	Clear, light brown	Date Tested :	2024-05-02

Test Method(s) : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007, February 2016, and December 2023 amendments).

96-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Impairment	0.0 %
	Mean Mortality	0.0 %
100%	Mean Impairment	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism :	*Oncorhynchus mykiss*	Mean Fork Length :	38.8 mm
Organism Batch :	T24-08	Range of Fork Lengths :	34 - 44 mm
Control Sample Size :	10	Mean Wet Weight :	0.5 g
Cumulative stock mortality rate :	0.2% (previous 7 days)	Organism Loading Rate :	0.3 g/L
Control organisms showing stress :	0 (at test completion)		

TEST CONDITIONS

Test Type :	Single concentration	Number of Replicates :	1
Sample pH Adjustment :	None	Organisms Per Replicate :	10
Sample Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Organisms Per Test Level :	10
Duration of Sample Pre-Aeration :	30 minutes	Volume of Sample :	16 L
Control Pre-aeration/Aeration Rate :	6.5 ± 1 mL/L/min	Volume of Control :	17 L
Duration of Control Pre-aeration:	30 minutes	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Potassium Chloride		
Organism Batch :	T24-08	LC50 :	3661 mg/L
Date Tested :	2024-05-01	95% Confidence Limits :	3264 - 4089 mg/L
Analyst(s) :	AJS, FM, PC	Historical Mean LC50 :	4334 mg/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	3413 - 5504 mg/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : _____
Project Manager

Work Order : 254643
Sample Number : 82226

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)[3]
Initial Water Chemistry (100%) :	7.2	9.2	85	15	96
After 30 min pre-aeration :	7.3	9.2	83	15	97

0 HOURS

Date & Time 2024-05-02 10:00
Analyst(s) : PG/FM (AJS)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation[3]
100%	0	0	7.3	9.2	83	15	97
Control	0	0	8.3	9.7	783	15	100

Notes:

24 HOURS

Date & Time 2024-05-03 8:40
Analyst(s) : FM (SF)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

48 HOURS

Date & Time 2024-05-04 9:45
Analyst(s) : PC

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

72 HOURS

Date & Time 2024-05-05 9:40
Analyst(s) : JW

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	14
Control	0	0	–	–	–	14

Notes:

96 HOURS

Date & Time 2024-05-06 9:20
Analyst(s) : FM (PG)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	7.8	9.2	88	14
Control	0	0	8.3	8.9	702	14

Notes:

"–" = not measured/not required
Number impaired does not include number dead.
[3] adjusted for temperature and barometric pressure

Test Data Reviewed By : EM
Date : 2024-05-07

CHAIN OF CUSTODY RECORD

NAUTILUS ENVIRONMENTAL

Nautilus Work Order No: 254643

Shipping Address: Nautilus Environmental Guelph.
B-11 Nicholas Beaver Road
Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412 **Fax:** (519) 763-4419

P.O. Number:	C4C9091
Field Sampler Name (print):	Blumetric - Brad McCallum
Signature:	
Affiliation:	
Sample Storage (prior to shipping):	
Custody Relinquished by:	
Date/Time Shipped:	

Client:	Bureau Veritas 6740 Campobello Rd, Mississauga, ON
Phone:	(905) 817-5700
Fax:	
Contact:	Christine Gripton christine.gripton@bureauveritas.com

Sample Identification					Analyses Requested										Sample Method and Volume		
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	Nautilus Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	*Daphnia magna* Single Concentration	*Daphnia magna* LC50	Fathead Minnow Survival & Growth	*Ceriodaphnia dubia* Survival & Reproduction	*Lemna minor* Growth	*Pseudokirchneriella subcapitata* Growth	RISS Data Entry	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2024-04-29	16:20	MCG-C	82225	15°C	✔		✔										1 x 20L
2024-04-29	17:35	MCG-H	82226	15°C	✔		✔										1 x 20L

For Lab Use Only	
Received By:	NM
Date:	2024-05-01
Time:	14:00
Storage Location:	
Storage Temp.(°C)	

Please list any special requests or instructions:

NAUTILUS ENVIRONMENTAL
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TOXICITY TEST REPORT

Daphnia magna
EPS 1/RM/14

Work Order : 256313
Sample Number : 84741

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-10-29
Job Number :	C4Y2219	Sampling Time :	10:35
Substance :	MCG-C	Date Received :	2024-10-31
Sampling Method :	Not provided	Time Received :	14:15
Sampled By :	Not provided	Temperature at Receipt :	16 °C
Sample Description :	Clear, brown.	Date Tested :	2024-11-02

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* . Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :	*Daphnia magna*	Time to First Brood :	7.6 days
Organism Batch :	Dm24-21	Average Brood Size :	40.8
Culture Mortality :	0.7% (previous 7 days)		

TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Organisms per Replicate :	10
Pre-aeration Rate :	~30 mL/min/L	Organisms per Test Level :	30
Duration of Pre-Aeration :	30 minutes	Organism Loading Rate :	15.0 mL/organism
Test Aeration :	None	Impaired Control Organisms :	0.0%
Hardness Adjustment :	None	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Sodium Chloride		
Date Tested :	2024-11-05	LC50 :	6.3 g/L
Organism Batch :	Dm24-21	95% Confidence Limits :	5.9 - 6.6 g/L
Analyst(s) :	JJ, MK, JGR	Historical Mean LC50 :	6.4 g/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	5.7 - 7.2 g/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : Conrad Neufeld
I am approving this document
Nautilus
2024-11-19 12:28-05:00

Project Manager

Work Order : 256313
Sample Number : 84741

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)*	Hardness (as $CaCO_3$)
Initial Chemistry (100%) :	6.9	9.0	226	21	105	120 mg/L

0 HOURS

Date & Time : 2024-11-02 12:15
Analyst(s) : MK(SSF)

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation*	Hardness
100	A	0	0	6.8	8.6	227	20	98	120
100	B	0	0	6.8	8.6	227	20	98	120
100	C	0	0	6.8	8.6	227	20	98	120
Control	A	0	0	8.2	8.6	466	20	99	150
Control	B	0	0	8.2	8.6	466	20	99	150
Control	C	0	0	8.2	8.6	466	20	99	150

Notes:

24 HOURS

Date & Time : 2024-11-03 13:15
Analyst(s) : MK(SSF)

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	–	0	–	–	–	20
100	B	–	0	–	–	–	20
100	C	–	0	–	–	–	20
Control	A	–	0	–	–	–	20
Control	B	–	0	–	–	–	20
Control	C	–	0	–	–	–	20

Notes:

48 HOURS

Date & Time : 2024-11-04 12:30
Analyst(s) : KP

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	0	0	8.2	8.4	230	20
100	B	0	0	8.2	8.4	229	20
100	C	0	0	8.2	8.5	233	20
Control	A	0	0	8.3	8.6	473	20
Control	B	0	0	8.3	8.6	472	20
Control	C	0	0	8.3	8.6	472	20

Notes:

Number immobile does not include number dead.

"–" = not measured/not required
* adjusted for temperature and barometric pressure

Test Data Reviewed By : JL
Date : 2024-11-14

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TOXICITY TEST REPORT
Rainbow Trout
EPS 1/RM/13

Work Order : 256313
Sample Number : 84741

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-10-29
Job Number :	C4Y2219	Sampling Time :	10:35
Substance :	MCG-C	Date Received :	2024-10-31
Sampling Method :	Not provided	Time Received :	14:15
Sampled By :	Not provided	Temperature at Receipt :	16 °C
Sample Description :	Clear, brown.	Date Tested :	2024-11-03

Test Method(s) : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007, February 2016, and December 2023 amendments).

96-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Impairment	0.0 %
	Mean Mortality	0.0 %
100%	Mean Impairment	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism :	*Oncorhynchus mykiss*	Mean Fork Length :	38.0 mm
Organism Batch :	T24-22	Range of Fork Lengths :	35 - 41 mm
Control Sample Size :	10	Mean Wet Weight :	0.5 g
Cumulative stock mortality rate :	0% (previous 7 days)	Organism Loading Rate :	0.3 g/L
Control organisms showing stress :	0 (at test completion)		

TEST CONDITIONS

Test Type :	Single concentration	Number of Replicates :	1
Sample pH Adjustment :	None	Organisms Per Replicate :	10
Sample Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Organisms Per Test Level :	10
Duration of Sample Pre-Aeration :	30 minutes	Volume of Sample :	18 L
Control Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Volume of Control :	19 L
Duration of Control Pre-aeration:	30 minutes	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Potassium Chloride		
Organism Batch :	T24-22	LC50 :	4561 mg/L
Date Tested :	2024-11-03	95% Confidence Limits :	4151 - 5011 mg/L
Analyst(s) :	GR, JGR, NWP	Historical Mean LC50 :	3487 mg/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	2536 - 4793 mg/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : Conrad Neufeld
I am approving this document
Nautilus
2024-11-19 12:28-05:00

Project Manager

Work Order : 256313
Sample Number : 84741

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)[3]
Initial Water Chemistry (100%) :	6.7	7.0	239	15	72
After 30 min pre-aeration :	6.7	7.0	235	14	75

0 HOURS

Date & Time 2024-11-03 11:45
Analyst(s) : GR (SV)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation[3]
100%	0	0	6.7	7.0	235	14	75
Control	0	0	8.2	9.8	742	14	100

Notes:

24 HOURS

Date & Time 2024-11-04 12:50
Analyst(s) : JGR

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

48 HOURS

Date & Time 2024-11-05 10:00
Analyst(s) : NWP

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

72 HOURS

Date & Time 2024-11-06 12:45
Analyst(s) : NWP

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

96 HOURS

Date & Time 2024-11-07 12:05
Analyst(s) : GR (AJS)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	8.2	9.4	236	15
Control	0	0	8.5	9.4	686	15

Notes:

"–" = not measured/not required
Number impaired does not include number dead.
[3] adjusted for temperature and barometric pressure

Test Data Reviewed By : JJ
Date : 2024-11-06

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TOXICITY TEST REPORT

Daphnia magna
EPS 1/RM/14

Work Order : 256313
Sample Number : 84742

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-10-29
Job Number :	C4Y2219	Sampling Time :	10:35
Substance :	MCG-H	Date Received :	2024-10-31
Sampling Method :	Grab	Time Received :	14:15
Sampled By :	NW, BM	Temperature at Receipt :	16 °C
Sample Description :	Clear, yellow.	Date Tested :	2024-11-03

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* . Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :	*Daphnia magna*	Time to First Brood :	7.6 days
Organism Batch :	Dm24-21	Average Brood Size :	40.6
Culture Mortality :	0.7% (previous 7 days)		

TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Organisms per Replicate :	10
Pre-aeration Rate :	~30 mL/min/L	Organisms per Test Level :	30
Duration of Pre-Aeration :	30 minutes	Organism Loading Rate :	15.0 mL/organism
Test Aeration :	None	Impaired Control Organisms :	0.0%
Hardness Adjustment :	None	Test Method Deviation(s) :	Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant :	Sodium Chloride		
Date Tested :	2024-11-05	LC50 :	6.3 g/L
Organism Batch :	Dm24-21	95% Confidence Limits :	5.9 - 6.6 g/L
Analyst(s) :	JJ, MK, JGR	Historical Mean LC50 :	6.4 g/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	5.7 - 7.2 g/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Noted Deviation(s): •Due to technical error, the hardness of the Control water was not measured at the start of the test, as required by the test method. The hardness of the Control water at 24 hours (2024-11-04) was 150 mg/L as $CaCO_3$.

•The 100% sample was previously aerated for 30 minutes, priro to initial parameter measurements and test initiation.

Approved By : Conrad Neufeld
I am approving this document
Nautilus
2024-11-19 12:28-05:00

Project Manager

Work Order : 256313
Sample Number : 84742

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)*	Hardness (as $CaCO_3$)
Initial Chemistry (100%) :	8.0	9.4	178	21	110	80 mg/L

0 HOURS

Date & Time : 2024-11-03 15:00
Analyst(s) : MK

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation*	Hardness
100	A	0	0	8.0	8.5	179	21	98	80
100	B	0	0	8.0	8.5	179	21	98	80
100	C	0	0	8.0	8.5	179	21	98	80
Control	A	0	0	8.2	8.6	450	20	99	150
Control	B	0	0	8.2	8.6	450	20	99	150
Control	C	0	0	8.2	8.6	450	20	99	150

Notes:

24 HOURS

Date & Time : 2024-11-04 14:40
Analyst(s) : SF

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	–	0	–	–	–	20
100	B	–	0	–	–	–	20
100	C	–	0	–	–	–	20
Control	A	–	0	–	–	–	20
Control	B	–	0	–	–	–	20
Control	C	–	0	–	–	–	20

Notes:

48 HOURS

Date & Time : 2024-11-05 15:00
Analyst(s) : PG

Concentration (%)	Replicate	Dead	Immobile	pH	Dissolved O_2	Conductivity	Temperature
100	A	0	0	8.0	8.3	183	20
100	B	0	0	8.1	8.3	185	20
100	C	0	0	8.1	8.3	187	20
Control	A	0	0	8.2	8.4	450	20
Control	B	0	0	8.2	8.4	451	20
Control	C	0	0	8.2	8.5	454	20

Notes:

Number immobile does not include number dead.

"–" = not measured/not required
* adjusted for temperature and barometric pressure

Test Data Reviewed By : JL
Date : 2024-11-06

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TOXICITY TEST REPORT
Rainbow Trout
EPS 1/RM/13

Work Order : 256313
Sample Number : 84742

SAMPLE IDENTIFICATION

Company :	Bureau Veritas Laboratories		
Location :	Mississauga ON	Sampling Date :	2024-10-29
Job Number :	C4Y2219	Sampling Time :	10:35
Substance :	MCG-H	Date Received :	2024-10-31
Sampling Method :	Grab	Time Received :	14:15
Sampled By :	NW, BM	Temperature at Receipt :	16 °C
Sample Description :	Clear, yellow.	Date Tested :	2024-11-03

Test Method(s) : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007, February 2016, and December 2023 amendments).

96-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Impairment	0.0 %
	Mean Mortality	0.0 %
100%	Mean Impairment	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism :	*Oncorhynchus mykiss*	Mean Fork Length :	38.0 mm
Organism Batch :	T24-22	Range of Fork Lengths :	35 - 41 mm
Control Sample Size :	10	Mean Wet Weight :	0.5 g
Cumulative stock mortality rate :	0% (previous 7 days)	Organism Loading Rate :	0.3 g/L
Control organisms showing stress :	0 (at test completion)		

TEST CONDITIONS

Test Type :	Single concentration	Number of Replicates :	1
Sample pH Adjustment :	None	Organisms Per Replicate :	10
Sample Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Organisms Per Test Level :	10
Duration of Sample Pre-Aeration :	30 minutes	Volume of Sample :	17 L
Control Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Volume of Control :	19 L
Duration of Control Pre-aeration:	30 minutes	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :	Potassium Chloride		
Organism Batch :	T24-22	LC50 :	4561 mg/L
Date Tested :	2024-11-03	95% Confidence Limits :	4151 - 5011 mg/L
Analyst(s) :	GR, JGR, NWP	Historical Mean LC50 :	3487 mg/L
Statistical Method :	Linear Regression (MLE)	Warning Limits (± 2SD) :	2536 - 4793 mg/L

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : Conrad Neufeld
I am approving this document
Nautilus
2024-11-19 12:28-05:00

Project Manager

Work Order : 256313
Sample Number : 84742

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)[3]
Initial Water Chemistry (100%) :	6.7	9.5	187	14	95
After 30 min pre-aeration :	6.8	9.8	185	14	100

0 HOURS

Date & Time 2024-11-03 11:45
Analyst(s) : GR (SV)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation[3]
100%	0	0	6.8	9.8	185	14	100
Control	0	0	8.2	9.8	742	14	100

Notes:

24 HOURS

Date & Time 2024-11-04 12:50
Analyst(s) : JGR

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

48 HOURS

Date & Time 2024-11-05 10:00
Analyst(s) : NWP

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

72 HOURS

Date & Time 2024-11-06 12:45
Analyst(s) : NWP

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	–	–	–	15
Control	0	0	–	–	–	15

Notes:

96 HOURS

Date & Time 2024-11-07 12:10
Analyst(s) : GR (AJS)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature
100%	0	0	8.1	9.5	187	15
Control	0	0	8.5	9.4	686	15

Notes:

"–" = not measured/not required
Number impaired does not include number dead.
[3] adjusted for temperature and barometric pressure

Test Data Reviewed By : JJ
Date : 2024-11-13

CHAIN OF CUSTODY RECORD

NAUTILUS ENVIRONMENTAL

Nautilus Work Order No: 256313

Shipping Address: Nautilus Environmental Guelph.
B-11 Nicholas Beaver Road
Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412 **Fax:** (519) 763-4419

P.O. Number: 240205-08

Field Sampler Name (print):

Signature:

Affiliation:

Sample Storage (prior to shipping):

Custody Relinquished by:

Date/Time Shipped:

Client: Bureau Veritas
6740 Campobello Rd.
Mississauga, ON
L5N 2L8

Phone:

Fax:

Contact: Elora.di-bratto@bureauveritas.com

Sample Identification					Analyses Requested										Sample Method and Volume		
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	Nautilus Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	*Daphnia magna* Single Concentration	*Daphnia magna* LC50	Fathead Minnow Survival & Growth	*Ceriodaphnia dubia* Survival & Reproduction	*Lemna minor* Growth	*Pseudokirchneriella subcapitata* Growth	RISS Data Entry	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2024-10-29	10:35	MCG-C	~~24741~~	16°C	✓		✓										1 x20L
2024-10-29	10:35 *	MCG-H	~~24742~~	16°C	✓		✓								√**		1 x20L

For Lab Use Only

Received By: KP/XD

Date: 2024-10-31

Time: 14:15

Storage Location:

Storage Temp.(°C)

CN

Please list any special requests or instructions:

Reg TAT

* 10:00 on pail label (KP)

** Grab selected on pail label (KP)

*** BV Job # C4Y2219 as per client email. CN 2024-11-01

Appendix D

D-5 Quality Assurance/Quality Control (QA/QC)

2024 Surface Water Sampling Quality Assurance and Quality Control (Spring)

Sample Description		RDL	MCG-F	NB-QAQC-SW (MCG-F)	Relative Percent Difference
Date Sampled			29-Apr-24	29-Apr-24	
Parameter	Unit				
pH	pH Units	0.01	6.93	7.25	5%
Alkalinity (as CaCO3)	mg/L	5	8.8	14	NA
Electrical Conductivity	uS/cm	2	170	170	0%
Hardness (as CaCO3) (Calculated)	mg/L	0.5	17	17	0%
Total Dissolved Solids	mg/L	10	105	115	9%
Total Suspended Solids	mg/L	10	<10	<10	NA
Chloride	mg/L	0.10	39	39	0%
Nitrate as N	mg/L	0.05	<0.1	<0.1	NA
Nitrite as N	mg/L	0.05	<0.01	<0.01	NA
Sulphate	mg/L	0.10	4.5	4.5	0%
Ammonia as N	mg/L	0.02	<0.05	<0.05	NA
Biochemical Oxygen Demand	mg/L	2	<2	<2	NA
Total Kjeldahl Nitrogen	mg/L	0.10	0.24	0.31	NA
Total Phosphorus	mg/L	0.02	<0.02	<0.02	NA
Phenols	mg/L	0.001	<0.001	<0.001	NA
True Colour	TCU	5.00	28	28	0%
Turbidity	NTU	0.5	0.5	0.6	NA
Total Calcium	mg/L	0.32	4.7	4.8	2%
Total Magnesium	mg/L	0.34	0.86	0.9	NA
Total Potassium	mg/L	1.15	0.92	0.95	NA
Total Sodium	mg/L	0.45	26	27	4%
Aluminum-dissolved	mg/L	0.004	0.045	0.044	2%
Total Arsenic	mg/L	0.003	<0.001	<0.001	NA
Total Boron	mg/L	0.010	<0.01	<0.01	NA
Total Cadmium	mg/L	0.0001	<0.00009	<0.00009	NA
Total Chromium	mg/L	0.003	<0.005	<0.005	NA
Total Cobalt	mg/L	0.0005	<0.0005	<0.0005	NA
Total Copper	mg/L	0.002	<0.0009	<0.0009	NA
Total Iron	mg/L	0.010	0.22	0.23	4%
Total Lead	mg/L	0.001	<0.0005	<0.0005	NA
Total Manganese	mg/L	0.002	0.02	0.02	0%
Dissolved Mercury	mg/L	0.0001	<0.0001	<0.0001	NA
Total Nickel	mg/L	0.003	<0.001	<0.001	NA
Total Selenium	mg/L	0.002	<0.002	<0.002	NA
Total Silver	mg/L	0.0001	<0.00009	<0.00009	NA
Total Zinc	mg/L	0.020	<0.005	<0.005	NA

Yellow shading indicates RPD value is above the percentage for a high level of reproducibility:
10% for electrical conductivity
20% for metals and inorganics
30% for BTEX and PHC.
NA: RPD is not calculated because the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are not greater than 5X the laboaratory readable detection limit (RDL)

2024 Surface Water Sampling Quality Assurance and Quality Control (Summer)

Sample Description		RDL	MCG-E	NB-QAQC-SW1 (MCG-E)	Relative Percent Difference
Date Sampled			11-Jul-24	11-Jul-24	
Parameter	Unit				
pH	pH Units	0.01	7.18	6.85	5%
Alkalinity (as CaCO3)	mg/L	1	14	10.00	33%
Electrical Conductivity	uS/cm	2	76.00	75.00	1%
Hardness (as CaCO3) (Calculated)	mg/L	1.00	12.00	12.00	0%
Total Dissolved Solids	mg/L	10	70.00	70.00	0%
Total Suspended Solids	mg/L	10	44.00	48.00	NA
Chloride	mg/L	1	13.00	13	0%
Nitrate as N	mg/L	0.1	<0.1	<0.1	NA
Nitrite as N	mg/L	0.01	<0.01	<0.01	NA
Sulphate	mg/L	1	1.10	1.50	NA
Ammonia as N	mg/L	0.05	<0.05	<0.05	NA
Ammonia (un-ionized)	mg/L	0.00061			NA
Biochemical Oxygen Demand	mg/L	2	<2	<2	NA
Total Kjeldahl Nitrogen	mg/L	0.1	0.47	0.48	NA
Total Phosphorus	mg/L	0.02	0.05	0.05	NA
Phenols	mg/L	0.001	<0.001	<0.001	NA
True Colour	TCU	2	96.00	96.00	0%
Turbidity	NTU	0.1	4.20	2.60	47%
Total Calcium	mg/L	0.20	3.80	3.70	3%
Total Magnesium	mg/L	0.05	0.71	0.67	6%
Total Potassium	mg/L	0.20	0.65	0.62	NA
Total Sodium	mg/L	0.10	9.70	9.30	4%
Aluminum-dissolved	mg/L	0.01	0.15	0.17	13%
Total Aluminum	mg/L	0.00	0.46	0.45	2%
Total Arsenic	mg/L	0.00	<0.001	<0.001	NA
Total Boron	mg/L	0.01	<0.01	<0.01	NA
Total Cadmium	mg/L	0.00	<0.00009	<0.00009	NA
Total Chromium	mg/L	0.01	<0.005	<0.005	NA
Total Cobalt	mg/L	0.00	0.00	0.00	NA
Total Copper	mg/L	0.00	0.00	0.00	NA
Total Iron	mg/L	0.10	1.30	1.30	0%
Total Lead	mg/L	0.00	0.00	0.00	NA
Total Manganese	mg/L	0.00	0.11	0.11	0%
Dissolved Mercury	mg/L	0.00	<0.0001	<0.0001	NA
Total Nickel	mg/L	0.00	<0.001	<0.001	NA
Total Selenium	mg/L	0.00	<0.002	<0.002	NA
Total Silver	mg/L	0.00	<0.00009	<0.00009	NA
Total Zinc	mg/L	0.01	0.01	0.01	NA

Yellow shading indicates RPD value is above the percentage for a high level of reproducibility:
10% for electrical conductivity
20% for metals and inorganics
30% for BTEX and PHC.
NA: RPD is not calculated because the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are not greater than 5X the laboaratory readable detection limit (RDL)

2024 Surface Water Sampling Quality Assurance and Quality Control
(Fall)

Sample Description		RDL	MCG-E	NB-QAQC-SW1 (MCG-E)	Relative Percent Difference
Date Sampled			29-Oct-24	29-Oct-24	
Parameter	**Unit**				
pH	pH Units	0.01	7.26	7.44	2%
Alkalinity (as CaCO3)	mg/L	1.0	27	25	8%
Electrical Conductivity	uS/cm	2	200	200	0%
Hardness (as CaCO3) (Calculated)	mg/L	1.0	33	33	0%
Total Dissolved Solids	mg/L	10	160	115	33%
Total Suspended Solids	mg/L	10	<10	<10	NA
Chloride	mg/L	1.0	38.0	38.0	0%
Nitrate as N	mg/L	0.10	<0.1	<0.1	NA
Nitrite as N	mg/L	0.010	<0.01	<0.01	NA
Sulphate	mg/L	1.0	5.9	6.2	5%
Ammonia as N	mg/L	0.050	<0.05	<0.05	NA
Biochemical Oxygen Demand	mg/L	2	<2	<2	NA
Total Kjeldahl Nitrogen	mg/L	0.10	0.15	0.14	NA
Total Phosphorus	mg/L	0.02	<0.02	<0.02	NA
Phenols	mg/L	0.001	<0.001	<0.001	NA
True Colour	TCU	2	25.0	25.0	0%
Turbidity	NTU	0.1	-	-	NA
Total Calcium	mg/L	0.2	9	8.7	3%
Total Magnesium	mg/L	0.05	1.60	1.60	0%
Total Potassium	mg/L	0.2	0.94	0.95	NA
Total Sodium	mg/L	0.1	24	24	0%
Aluminum-dissolved	mg/L	0.005	0.0200	0.0200	NA
Total Aluminum	mg/L	0.0049	0.027	0.026	4%
Total Arsenic	mg/L	0.001	<0.001	<0.001	NA
Total Boron	mg/L	0.01	<0.01	<0.01	NA
Total Cadmium	mg/L	0.00009	<0.00009	<0.00009	NA
Total Chromium	mg/L	0.005	<0.005	<0.005	NA
Total Cobalt	mg/L	0.0005	<0.0005	<0.0005	NA
Total Copper	mg/L	0.0009	<0.0009	<0.0009	NA
Total Iron	mg/L	0.1	0.3	0.31	NA
Total Lead	mg/L	0.0005	<0.0005	<0.0005	NA
Total Manganese	mg/L	0.002	0.0074	0.0082	NA
Dissolved Mercury	mg/L	0.001	-	-	NA
Total Nickel	mg/L	0.002	<0.001	<0.001	NA
Total Selenium	mg/L	0.00009	<0.002	<0.002	NA
Total Silver	mg/L	0.005	<0.00009	<0.00009	NA
Total Zinc	mg/L	0.0001	<0.005	<0.005	NA

Yellow shading indicates RPD value is above the percentage for a high level of reproducibility:
10% for electrical conductivity
20% for metals and inorganics
30% for BTEX and PHC.
NA: RPD is not calculated because the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are not greater than 5X the laboaratory readable detection limit (RDL)

BluMetric

2024 Groundwater Sampling Quality Assurance and Quality Control (Spring)

Sample Description		RDL	NB MW4	NB-QAQC-GW1 (NB-MW4)	Relative Percent Difference
Date Sampled			29-Apr-24	29-Apr-24	
Parameter	Unit				
pH	pH Units	0.01	8.13	8.15	0%
Alkalinity (as CaCO3)	mg/L	5	64	63	2%
Electrical Conductivity	uS/cm	2	260	260	0%
Hardness (as CaCO3) (Calculated)	mg/L	0.5	110	110	0%
Total Dissolved Solids	mg/L	10	195	200	3%
Total Suspended Solids	mg/L	10	2200	2300	4%
Chloride	mg/L	0.1	27	27	0%
Nitrate as N	mg/L	0.05	<0.1	<0.1	NA
Nitrite as N	mg/L	0.05	<0.01	<0.01	NA
Sulphate	mg/L	0.1	20	20	0%
Ammonia as N	mg/L	0.02	<0.05	<0.05	NA
Total Kjeldahl Nitrogen	mg/L	0.1	<0.1	<0.1	NA
Total Phosphorus	mg/L	0.02	1.9	1.9	0%
Chemical Oxygen Demand	mg/L	5	<4	<4	NA
Dissolved Organic Carbon	mg/L	0.5	0.8	0.8	NA
Phenols	mg/L	0.001	<0.001	<0.001	NA
Turbidity	NTU	0.5	15	17	13%
Dissolved Calcium	mg/L	0.05	33	33	0%
Dissolved Magnesium	mg/L	0.05	6.8	6.7	1%
Dissolved Potassium	mg/L	0.5	3.1	3.1	0%
Dissolved Sodium	mg/L	0.05	6.2	6.3	2%
Dissolved Aluminum	mg/L	0.004	<0.0049	<0.0049	NA
Dissolved Arsenic	mg/L	0.003	<0.001	<0.001	NA
Dissolved Barium	mg/L	0.002	0.012	0.012	0%
Dissolved Beryllium	mg/L	0.001	<0.0004	<0.0004	NA
Dissolved Boron	mg/L	0.010	<0.01	<0.01	NA
Dissolved Cadmium	mg/L	0.0001	<0.00009	<0.00009	NA
Dissolved Chromium	mg/L	0.003	<0.005	<0.005	NA
Dissolved Cobalt	mg/L	0.0005	<0.0005	<0.0005	NA
Dissolved Copper	mg/L	0.002	<0.0009	<0.0009	NA
Dissolved Lead	mg/L	0.001	<0.1	<0.1	NA
Dissolved Iron	mg/L	0.010	<0.0005	<0.0005	NA
Dissolved Manganese	mg/L	0.002	<0.002	<0.002	NA
Dissolved Mercury	mg/L	0.0001	<0.0001	<0.0001	NA
Dissolved Molybdenum	mg/L	0.002	0.0021	0.002	NA
Dissolved Nickel	mg/L	0.001	<0.001	<0.001	NA
Dissolved Selenium	mg/L	0.004	<0.002	<0.002	NA
Dissolved Silicon	mg/L	0.05	9.3	9.2	1%
Dissolved Silver	mg/L	0.0001	<0.00009	<0.00009	NA
Dissolved Strontium	mg/L	0.005	0.1	0.1	0%
Dissolved Thallium	mg/L	0.0003	<0.00005	<0.00005	NA
Dissolved Titanium	mg/L	0.002	<0.005	<0.005	NA
Dissolved Vanadium	mg/L	0.002	<0.0005	<0.0005	NA
Dissolved Zinc	mg/L	0.005	<0.005	<0.005	NA

Yellow shading indicates RPD value is above the percentage for a high level of reproducibility:
10% for electrical conductivity
20% for metals and inorganics
30% for BTEX and PHC.
NA: RPD is not calculated because the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are not greater than 5X the laboaratory readable detection limit (RDL)

2024 Groundwater Sampling Quality Assurance and Quality Control
(Fall)

Sample Description		RDL	NB MW3	NB-QAQC-GW1 (NB-MW3)	Relative Percent Difference
Date Sampled			29-Oct-24	29-Oct-24	
Parameter	Unit				
pH	pH Units	0.01	7.43	7.51	1%
Alkalinity (as CaCO3)	mg/L	1.0	130	130	0%
Electrical Conductivity	uS/cm	2	1200	1200	0%
Hardness (as CaCO3) (Calculated)	mg/L	1.0	420	420	0%
Total Dissolved Solids	mg/L	10	990	1010	2%
Total Suspended Solids	mg/L	10	180	160	12%
Chloride	mg/L	1.0	260	260	0%
Nitrate as N	mg/L	0.10	<0.1	<0.1	NA
Nitrite as N	mg/L	0.010	<0.01	<0.01	NA
Sulphate	mg/L	0.10	16	16	0%
Ammonia as N	mg/L	0.050	<0.05	<0.05	NA
Total Kjeldahl Nitrogen	mg/L	0.10	0.14	0.12	NA
Total Phosphorus	mg/L	0.02	0.17	0.19	11%
Chemical Oxygen Demand	mg/L	4.0	30	4.4	NA
Dissolved Organic Carbon	mg/L	0.4	2.2	1.7	NA
Phenols	mg/L	0.001	<0.001	<0.001	NA
Turbidity	NTU	0.1	1.7	2.4	34%
Dissolved Calcium	mg/L	0.2	100	100	0%
Dissolved Magnesium	mg/L	0.05	39	39	0%
Dissolved Potassium	mg/L	0.2	6.6	6.6	0%
Dissolved Sodium	mg/L	0.1	48	48	0%
Dissolved Aluminum	mg/L	0.0049	<0.0049	<0.0049	NA
Dissolved Arsenic	mg/L	0.001	<0.001	<0.001	NA
Dissolved Barium	mg/L	0.002	0.12	0.12	0%
Dissolved Beryllium	mg/L	0.0004	<0.0004	<0.0004	NA
Dissolved Boron	mg/L	0.01	0.14	0.13	NA
Dissolved Cadmium	mg/L	0.00009	<0.00009	<0.00009	NA
Dissolved Chromium	mg/L	0.005	<0.005	<0.005	NA
Dissolved Cobalt	mg/L	0.0005	0.0017	0.0018	NA
Dissolved Copper	mg/L	0.0009	0.0011	<0.0009	NA
Dissolved Lead	mg/L	0.0005	0.12	0.12	NA
Dissolved Iron	mg/L	0.1	<0.0005	<0.0005	NA
Dissolved Manganese	mg/L	0.002	0.027	0.027	0%
Dissolved Mercury	mg/L	0.0001	<0.0001	<0.0001	NA
Dissolved Molybdenum	mg/L	0.0005	<0.0005	<0.0005	NA
Dissolved Nickel	mg/L	0.001	0.0057	0.0058	NA
Dissolved Selenium	mg/L	0.002	<0.002	<0.002	NA
Dissolved Silicon	mg/L	0.05	15	15	0%
Dissolved Silver	mg/L	0.00009	<0.00009	<0.00009	NA
Dissolved Strontium	mg/L	0.001	0.94	0.94	0%
Dissolved Thallium	mg/L	0.00005	<0.00005	<0.00005	NA
Dissolved Titanium	mg/L	0.005	<0.005	<0.005	NA
Dissolved Vanadium	mg/L	0.0005	0.00065	0.00065	NA
Dissolved Zinc	mg/L	0.005	<0.005	<0.005	NA

Yellow shading indicates RPD value is above the percentage for a high level of reproducibility:
10% for electrical conductivity
20% for metals and inorganics
30% for BTEX and PHC.
NA: RPD is not calculated because the average of the measured parameter concentrations of the original (S) and duplicate (D) samples are not greater than 5X the laboaratory readable detection limit (RDL)

Appendix E

Environment Canada Weather Data

Daily Data Report for April 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N	**Longitude**:	77°52'44.000" W
Elevation:	330.70 m	**Climate ID**:	616I001
WMO ID:	71294	**TC ID**:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	9.8	-4.2	2.8	15.2	0.0			0.0	0		
02	11.5	-6.0	2.7	15.3	0.0			0.0	0	8	45
03	5.2	0.3	2.7	15.3	0.0			23.4	0	12	40
04	0.5	-1.4	-0.4	18.4	0.0			7.8	5	9	33
05	4.0	-1.4	1.3	16.7	0.0			1.2	10	32	31
06	11.0	-2.1	4.4	13.6	0.0			0.0	3	36	37
07	16.1	-4.8	5.6	12.4	0.0			0.0	0		
08	17.0	-5.3	5.8	12.2	0.0			0.0	0		
09	23.0	-2.8	10.1	7.9	0.0			1.9	0		
10	17.8	1.1	9.5	8.5	0.0			0.0	0	31	31
11	13.8	0.2	7.0	11.0	0.0			20.5	0		
12	14.9	3.0	9.0	9.0	0.0			20.7	1	17	40
13	9.0	-0.2	4.4	13.6	0.0			1.9	0	33	49
14	8.8	-0.3	4.3	13.7	0.0			2.0	0		
15	14.7	-1.6	6.5	11.5	0.0			0.0	0	31	35
16	15.5	-3.9	5.8	12.2	0.0			0.0	0		
17	9.6	-1.9	3.9	14.1	0.0			4.8	0		
18	10.7	3.7	7.2	10.8	0.0			4.5	0		
19	11.6	1.6	6.6	11.4	0.0			4.4	0	25	32
20	7.1	-2.5	2.3	15.7	0.0			0.3	0	29	36
21	8.0	-2.7	2.7	15.3	0.0			1.8	0	30	47
22	12.3	-6.8	2.8	15.2	0.0			0.0	0	21	39
23	15.8	2.3	9.1	8.9	0.0			6.9	0	20	39
24	7.1	-6.5	0.3	17.7	0.0			0.0	0	2	40
25	10.2	-9.3	0.5	17.5	0.0			0.0	0		
26	14.6	-7.7	3.4	14.6	0.0			0.0	0		
27	12.2	-1.7	5.2	12.8	0.0			4.6	0		
28	21.9	7.9	14.9	3.1	0.0			1.0	1		
29	10.8	3.6	7.2	10.8	0.0			7.5	0		
30	11.4	6.1	8.7	9.3	0.0			14.1	0		
Sum				383.7	0.0			129.3			
Avg	11.9	-1.4	5.2								
Xtrm	23.0	-9.3				M	M	23.4		33^	49^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
- ^ = The value displayed is based on incomplete data
- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-10-01

Daily Data Report for July 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	24.9	6.5	15.7	2.3	0.0			0.0			
02	25.8	9.0	17.4	0.6	0.0			0.0			
03	M	M	M	M	M			M		M	M
04	M	M	M	M	M			M		M	M
05	29.1	15.5	22.3	0.0	4.3			0.0			
06	27.6	15.3	21.4	0.0	3.4			13.2		33	33
07	26.7	14.8	20.7	0.0	2.7			0.0			
08	28.0	13.6	20.8	0.0	2.8			0.0			
09	28.9	14.3	21.6	0.0	3.6			0.2			
10	19.1	14.7	16.9	1.1	0.0			31.5		6	35
11	25.7	14.0	19.9	0.0	1.9			25.0			
12	28.6	13.4	21.0	0.0	3.0			0.0			
13	28.0	14.3	21.1	0.0	3.1			0.0			
14	29.0	13.1	21.1	0.0	3.1			0.0			
15	28.4	16.2	22.3	0.0	4.3			47.2			
16	25.3	16.4	20.8	0.0	2.8			3.1			
17	26.4	14.2	20.3	0.0	2.3			0.0			
18	20.8	9.5	15.1	2.9	0.0			0.0			
19	24.5	8.1	16.3	1.7	0.0			0.0			
20	26.4	8.3	17.3	0.7	0.0			0.2		30	32
21	26.2	9.5	17.9	0.1	0.0			0.0			
22	26.9	7.0	16.9	1.1	0.0			0.0			
23	27.8	11.9	19.9	0.0	1.9			0.0			

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	25.5	16.0	20.8	0.0	2.8			24.3		32	31
25	22.2	10.6	16.4	1.6	0.0			0.0		30	38
26	25.8	8.0	16.9	1.1	0.0			0.0			
27	26.5	10.6	18.5	0.0	0.5			0.0			
28	28.3	10.3	19.3	0.0	1.3			0.0			
29	29.1	11.9	20.5	0.0	2.5			0.0			
30	29.7	13.9	21.8	0.0	3.8			1.5			
31	28.6	18.4	23.5	0.0	5.5			3.4			
Sum				13.2^	55.6^			149.6^			
Avg	26.5^	12.4^	19.5^								
Xtrm	29.7^	6.5^				M	M	47.2^		30^	38^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
- ^ = The value displayed is based on incomplete data
- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-10-01

Daily Data Report for October 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	20.2	5.7	12.9	5.1	0.0			6.1		32	35
02	16.7	2.6	9.6	8.4	0.0			2.8			
03	21.3	0.6	11.0	7.0	0.0			0.0			
04	19.2	3.0	11.1	6.9	0.0			0.0			
05	17.2	-0.1	8.6	9.4	0.0			0.0			
06	19.0	-0.9	9.1	8.9	0.0			9.7		19	43
07	13.2	-0.5	6.4	11.6	0.0			0.0		30	36
08	12.5	-1.9	5.3	12.7	0.0			0.0			
09	10.2	-1.8	4.2	13.8	0.0			0.4			
10	11.8	-1.9	5.0	13.0	0.0			0.0			
11	18.7	-2.1	8.3	9.7	0.0			0.0		35	44
12	13.6	3.3	8.5	9.5	0.0			0.0		34	41
13	11.5	2.6	7.0	11.0	0.0			0.0			
14	9.3	-2.1	3.6	14.4	0.0			0.0		34	37
15	6.9	-2.1	2.4	15.6	0.0			0.0		32	41
16	9.5	-4.4	2.6	15.4	0.0			0.1			
17	15.0	-5.4	4.8	13.2	0.0			0.0			
18	18.4	-4.4	7.0	11.0	0.0			0.0			
19	20.9	-4.1	8.4	9.6	0.0			0.0			
20	22.0	-2.2	9.9	8.1	0.0			0.0			
21	23.6	4.1	13.9	4.1	0.0			0.0			
22	24.5	3.1	13.8	4.2	0.0			0.0			
23	18.4	4.3	11.3	6.7	0.0			0.0		28	31

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	9.7	-4.2	2.7	15.3	0.0			0.0			
25	9.0	-5.9	1.6	16.4	0.0			0.3			
26	9.0	-4.7	2.1	15.9	0.0			0.0		32	35
27	9.4	-8.4	0.5	17.5	0.0			2.5			
28	7.0	-3.0	2.0	16.0	0.0			0.0			
29	11.0	-4.7	3.1	14.9	0.0			2.2			
30	21.9	9.2	15.6	2.4	0.0			0.0			
31	21.5	13.7	17.6	0.4	0.0			7.2		21	37
Sum				328.1	0.0			31.3			
Avg	15.2	-0.4	7.4								
Xtrm	24.5	-8.4				M	M	9.7		35^	44^

Summary, average and extreme values are based on the data above.

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- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
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Date modified:

2024-10-01

Government of Canada / Gouvernement du Canada

Daily Data Report for May 2023

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	7.9	3.2	5.5	12.5	0.0			14.1			
02	10.9	3.4	7.1	10.9	0.0			7.0			
03	8.6	3.6	6.1	11.9	0.0			11.2			
04	10.3	3.8	7.0	11.0	0.0			0.0			
05	15.4	1.1	8.2	9.8	0.0			0.0			
06	20.9	-1.0	9.9	8.1	0.0			0.0			
07	19.8	1.9	10.8	7.2	0.0			0.0			
08	17.0	0.1	8.6	9.4	0.0			0.0		4	31
09	M	M	M	M	M			M		M	M
10	M	M	M	M	M			M		M	M
11	26.0	3.5	14.8	3.2	0.0			0.0		32	52
12	27.2	7.6	17.4	0.6	0.0			0.0			
13	20.5	3.2	11.8	6.2	0.0			0.0		36	38
14	17.5	0.0	8.8	9.2	0.0			0.0		3	34
15	21.2	-1.9	9.6	8.4	0.0			0.0		30	39
16	18.9	0.4	9.7	8.3	0.0			0.0		2	40
17	9.5	-3.6	3.0	15.0	0.0			0.0		31	34
18	16.5	-5.7	5.4	12.6	0.0			0.0			
19	23.1	0.1	11.6	6.4	0.0			2.9		18	34
20	14.4	8.6	11.5	6.5	0.0			29.8			
21	21.4	4.0	12.7	5.3	0.0			1.0			
22	18.4	-0.2	9.1	8.9	0.0			0.0			
23	23.8	-0.2	11.8	6.2	0.0			0.0			

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	11.7	0.8	6.2	11.8	0.0			3.5		4	38
25	16.5	-0.4	8.1	9.9	0.0			0.0			
26	22.7	-1.7	10.5	7.5	0.0			0.0			
27	26.7	2.9	14.8	3.2	0.0			0.0			
28	29.7	3.6	16.6	1.4	0.0			0.0			
29	25.5	5.8	15.6	2.4	0.0			0.0			
30	28.9	2.7	15.8	2.2	0.0			0.0			
31	31.0	7.4	19.2	0.0	1.2			0.0			
Sum				216.0^	1.2^			69.5^			
Avg	19.4^	1.8^	10.6^								
Xtrm	31.0^	-5.7^				M	M	29.8^		32^	52^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
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- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
- ^ = The value displayed is based on incomplete data
- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-01-30

Government of Canada / Gouvernement du Canada

Daily Data Report for August 2023

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	22.2	6.1	14.1	3.9	0.0			0.0			
02	24.9	8.5	16.7	1.3	0.0			0.0			
03	26.6	14.6	20.6	0.0	2.6			8.6			
04	25.1	11.7	18.4	0.0	0.4			1.9			
05	24.2	7.9	16.1	1.9	0.0			0.0			
06	26.2	7.8	17.0	1.0	0.0			0.0			
07	20.3	15.9	18.1	0.0	0.1			5.5			
08	20.0	12.1	16.0	2.0	0.0			2.2			
09	26.5	10.5	18.5	0.0	0.5			0.0			
10	21.7	9.7	15.7	2.3	0.0			1.2			
11	24.0	8.9	16.4	1.6	0.0			0.0			
12	21.7	11.9	16.8	1.2	0.0			16.8			
13	22.7	11.3	17.0	1.0	0.0			0.0			
14	23.7	8.5	16.1	1.9	0.0			0.0			
15	24.2	11.9	18.0	0.0	0.0			0.0			
16	26.8	12.5	19.6	0.0	1.6			0.0			
17	24.4	11.2	17.8	0.2	0.0			1.5			
18	19.8	12.6	16.2	1.8	0.0			4.6		31	34
19	23.8	12.6	18.2	0.0	0.2			0.0		31	40
20	25.1	12.5	18.8	0.0	0.8			0.0			
21	20.8	7.9	14.3	3.7	0.0			0.0			
22	24.7	5.9	15.3	2.7	0.0			0.0			
23	24.2	10.1	17.2	0.8	0.0			0.0			

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	18.6	10.5	14.5	3.5	0.0			0.8			
25	22.7	15.2	19.0	0.0	1.0			0.0			
26	19.5	6.0	12.8	5.2	0.0			0.2			
27	22.2	5.2	13.7	4.3	0.0			0.0			
28	24.4	7.4	15.9	2.1	0.0			0.0			
29	25.1	6.2	15.7	2.3	0.0			0.0			
30	16.0	5.9	11.0	7.0	0.0			2.1		30	31
31	22.2	1.9	12.0	6.0	0.0			0.0			
Sum				57.7	7.2			45.4			
Avg	23.0	9.7	16.4								
Xtrm	26.8	1.9				M	M	16.8		31^	40^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
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- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-01-30

Government of Canada / Gouvernement du Canada

Daily Data Report for October 2023

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	25.0	7.5	16.3	1.7	0.0			0.0			
02	28.1	9.8	18.9	0.0	0.9			0.0			
03	30.3	10.7	20.5	0.0	2.5			0.0			
04	29.6	8.2	18.9	0.0	0.9			0.0			
05	26.4	11.5	18.9	0.0	0.9			4.9			
06	22.5	10.5	16.5	1.5	0.0			19.3			
07	14.6	2.5	8.5	9.5	0.0			0.8			
08	7.9	2.0	5.0	13.0	0.0			9.3			
09	7.4	3.0	5.2	12.8	0.0			16.9			
10	10.2	5.7	7.9	10.1	0.0			3.6			
11	13.0	5.6	9.3	8.7	0.0			2.6			
12	9.7	0.5	5.1	12.9	0.0			0.0			
13	13.2	-0.3	6.4	11.6	0.0			0.0			
14	13.1	-1.6	5.7	12.3	0.0			0.0			
15	8.6	6.0	7.3	10.7	0.0			1.1			
16	9.4	1.1	5.2	12.8	0.0			0.0		33	34
17	15.4	-0.8	7.3	10.7	0.0			0.0			
18	12.4	-1.5	5.5	12.5	0.0			0.0			
19	13.6	3.5	8.5	9.5	0.0			0.2		17	31
20	12.0	10.2	11.1	6.9	0.0			7.6			
21	10.7	3.9	7.3	10.7	0.0			0.0		30	35
22	5.9	-0.8	2.6	15.4	0.0			3.5		32	33
23	11.2	-4.6	3.3	14.7	0.0			0.0			

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	14.2	5.2	9.7	8.3	0.0			0.8			
25	20.3	12.9	16.6	1.4	0.0			0.0			
26	15.8	13.5	14.7	3.3	0.0			4.0			
27	17.6	14.0	15.8	2.2	0.0			4.2			
28	17.9	2.9	10.4	7.6	0.0			0.0		30	39
29	4.7	0.1	2.4	15.6	0.0			3.4			
30	4.1	-4.8	-0.3	18.3	0.0			3.5			
31	2.3	-7.4	-2.5	20.5	0.0			0.3			
Sum				275.2	5.2			86.0			
Avg	14.4	4.2	9.3								
Xtrm	30.3	-7.4				M	M	19.3		30^	39^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
- ^ = The value displayed is based on incomplete data
- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-01-30

Daily Data Report for April 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N	**Longitude**:	77°52'44.000" W
Elevation:	330.70 m	**Climate ID**:	616I001
WMO ID:	71294	**TC ID**:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	9.8	-4.2	2.8	15.2	0.0			0.0	0		
02	11.5	-6.0	2.7	15.3	0.0			0.0	0	8	45
03	5.2	0.3	2.7	15.3	0.0			23.4	0	12	40
04	0.5	-1.4	-0.4	18.4	0.0			7.8	5	9	33
05	4.0	-1.4	1.3	16.7	0.0			1.2	10	32	31
06	11.0	-2.1	4.4	13.6	0.0			0.0	3	36	37
07	16.1	-4.8	5.6	12.4	0.0			0.0	0		
08	17.0	-5.3	5.8	12.2	0.0			0.0	0		
09	23.0	-2.8	10.1	7.9	0.0			1.9	0		
10	17.8	1.1	9.5	8.5	0.0			0.0	0	31	31
11	13.8	0.2	7.0	11.0	0.0			20.5	0		
12	14.9	3.0	9.0	9.0	0.0			20.7	1	17	40
13	9.0	-0.2	4.4	13.6	0.0			1.9	0	33	49
14	8.8	-0.3	4.3	13.7	0.0			2.0	0		
15	14.7	-1.6	6.5	11.5	0.0			0.0	0	31	35
16	15.5	-3.9	5.8	12.2	0.0			0.0	0		
17	9.6	-1.9	3.9	14.1	0.0			4.8	0		
18	10.7	3.7	7.2	10.8	0.0			4.5	0		
19	11.6	1.6	6.6	11.4	0.0			4.4	0	25	32
20	7.1	-2.5	2.3	15.7	0.0			0.3	0	29	36
21	8.0	-2.7	2.7	15.3	0.0			1.8	0	30	47
22	12.3	-6.8	2.8	15.2	0.0			0.0	0	21	39
23	15.8	2.3	9.1	8.9	0.0			6.9	0	20	39
24	7.1	-6.5	0.3	17.7	0.0			0.0	0	2	40
25	10.2	-9.3	0.5	17.5	0.0			0.0	0		
26	14.6	-7.7	3.4	14.6	0.0			0.0	0		
27	12.2	-1.7	5.2	12.8	0.0			4.6	0		
28	21.9	7.9	14.9	3.1	0.0			1.0	1		
29	10.8	3.6	7.2	10.8	0.0			7.5	0		
30	11.4	6.1	8.7	9.3	0.0			14.1	0		
Sum				383.7	0.0			129.3			
Avg	11.9	-1.4	5.2								
Xtrm	23.0	-9.3				M	M	23.4		33^	49^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
- ^ = The value displayed is based on incomplete data
- † = Data that is not subject to review by the National Climate Archives

Date modified:

2024-10-01

Daily Data Report for July 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	24.9	6.5	15.7	2.3	0.0			0.0			
02	25.8	9.0	17.4	0.6	0.0			0.0			
03	M	M	M	M	M			M		M	M
04	M	M	M	M	M			M		M	M
05	29.1	15.5	22.3	0.0	4.3			0.0			
06	27.6	15.3	21.4	0.0	3.4			13.2		33	33
07	26.7	14.8	20.7	0.0	2.7			0.0			
08	28.0	13.6	20.8	0.0	2.8			0.0			
09	28.9	14.3	21.6	0.0	3.6			0.2			
10	19.1	14.7	16.9	1.1	0.0			31.5		6	35
11	25.7	14.0	19.9	0.0	1.9			25.0			
12	28.6	13.4	21.0	0.0	3.0			0.0			
13	28.0	14.3	21.1	0.0	3.1			0.0			
14	29.0	13.1	21.1	0.0	3.1			0.0			
15	28.4	16.2	22.3	0.0	4.3			47.2			
16	25.3	16.4	20.8	0.0	2.8			3.1			
17	26.4	14.2	20.3	0.0	2.3			0.0			
18	20.8	9.5	15.1	2.9	0.0			0.0			
19	24.5	8.1	16.3	1.7	0.0			0.0			
20	26.4	8.3	17.3	0.7	0.0			0.2		30	32
21	26.2	9.5	17.9	0.1	0.0			0.0			
22	26.9	7.0	16.9	1.1	0.0			0.0			
23	27.8	11.9	19.9	0.0	1.9			0.0			

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	25.5	16.0	20.8	0.0	2.8			24.3		32	31
25	22.2	10.6	16.4	1.6	0.0			0.0		30	38
26	25.8	8.0	16.9	1.1	0.0			0.0			
27	26.5	10.6	18.5	0.0	0.5			0.0			
28	28.3	10.3	19.3	0.0	1.3			0.0			
29	29.1	11.9	20.5	0.0	2.5			0.0			
30	29.7	13.9	21.8	0.0	3.8			1.5			
31	28.6	18.4	23.5	0.0	5.5			3.4			
Sum				13.2^	55.6^			149.6^			
Avg	26.5^	12.4^	19.5^								
Xtrm	29.7^	6.5^				M	M	47.2^		30^	38^

Summary, average and extreme values are based on the data above.

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- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
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Date modified:

2024-10-01

Daily Data Report for October 2024

BANCROFT AUTO
ONTARIO
Current Station Operator: ECCC - MSC

Latitude:	45°04'17.000" N
Longitude:	77°52'44.000" W
Elevation:	330.70 m
Climate ID:	616I001
WMO ID:	71294
TC ID:	WRK

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
01	20.2	5.7	12.9	5.1	0.0			6.1		32	35
02	16.7	2.6	9.6	8.4	0.0			2.8			
03	21.3	0.6	11.0	7.0	0.0			0.0			
04	19.2	3.0	11.1	6.9	0.0			0.0			
05	17.2	-0.1	8.6	9.4	0.0			0.0			
06	19.0	-0.9	9.1	8.9	0.0			9.7		19	43
07	13.2	-0.5	6.4	11.6	0.0			0.0		30	36
08	12.5	-1.9	5.3	12.7	0.0			0.0			
09	10.2	-1.8	4.2	13.8	0.0			0.4			
10	11.8	-1.9	5.0	13.0	0.0			0.0			
11	18.7	-2.1	8.3	9.7	0.0			0.0		35	44
12	13.6	3.3	8.5	9.5	0.0			0.0		34	41
13	11.5	2.6	7.0	11.0	0.0			0.0			
14	9.3	-2.1	3.6	14.4	0.0			0.0		34	37
15	6.9	-2.1	2.4	15.6	0.0			0.0		32	41
16	9.5	-4.4	2.6	15.4	0.0			0.1			
17	15.0	-5.4	4.8	13.2	0.0			0.0			
18	18.4	-4.4	7.0	11.0	0.0			0.0			
19	20.9	-4.1	8.4	9.6	0.0			0.0			
20	22.0	-2.2	9.9	8.1	0.0			0.0			
21	23.6	4.1	13.9	4.1	0.0			0.0			
22	24.5	3.1	13.8	4.2	0.0			0.0			
23	18.4	4.3	11.3	6.7	0.0			0.0		28	31

DAY	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days	Cool Deg Days	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's deg	Spd of Max Gust km/h
24	9.7	-4.2	2.7	15.3	0.0			0.0			
25	9.0	-5.9	1.6	16.4	0.0			0.3			
26	9.0	-4.7	2.1	15.9	0.0			0.0		32	35
27	9.4	-8.4	0.5	17.5	0.0			2.5			
28	7.0	-3.0	2.0	16.0	0.0			0.0			
29	11.0	-4.7	3.1	14.9	0.0			2.2			
30	21.9	9.2	15.6	2.4	0.0			0.0			
31	21.5	13.7	17.6	0.4	0.0			7.2		21	37
Sum				328.1	0.0			31.3			
Avg	15.2	-0.4	7.4								
Xtrm	24.5	-8.4				M	M	9.7		35^	44^

Summary, average and extreme values are based on the data above.

Legend

- A = Accumulated
- C = Precipitation occurred, amount uncertain
- E = Estimated
- F = Accumulated and estimated
- L = Precipitation may or may not have occurred
- M = Missing
- N = Temperature missing but known to be > 0
- S = More than one occurrence
- T = Trace
- Y = Temperature missing but known to be < 0
- [empty] = Indicates an unobserved value
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Date modified:

2024-10-01

Appendix F

Historical Water Chemistry

Appendix F

F-1 Historical Groundwater Chemistry

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2006-May-11	2006-Nov-20	2007-May-03	2007-Nov-22	2008-May-07	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2013-Apr-18	2013-Oct-30	2014-May-13
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	-	-	36	22	57	36	78	35	28	32	42	29	40.8	36.9	43.9
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.45	0.17	0.38	0.35	0.72	0.58	0.61	0.34	0.23	0.25	0.34	0.24	0.47	0.34	0.46
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	6	14	8	10	7	8	10	11	11	11	10	12	6.03	6.29	6.3
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	12	8	13	8	19	13	26	12	10	10	14	10	12.1	11.3	10.6
Magnesium (diss)	mg/L	-	-	-	-	0.05	3	2	3	2	4	3	5	3	2	2	3	2	2.47	2.15	2.23
Potassium (diss)	mg/L	-	-	-	-	0.05	2	2	2	2	3	2	3	2	2	2	2	2	2.01	2.51	1.88
Sodium (diss)	mg/L	110.9	200	-	-	0.05	15	14	16	13	20	16	24	17	16	17	19	19	22	24.6	19.9
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	22	22	24	22	21	22	21	26	24	24	29	28	32	26	21
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	0.04	-	0.05	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	-	-	-	-	-	-	5	-	-	-	8	12	-	7	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	-	-	1.5	1.4	1.2	1.1	1.4	1.5	1.1	1.1	1.1	1.4	1.1	0.7	1.1
Electrical Conductivity	uS/cm	-	-	-	-	1	175	141	180	143	257	188	338	201	172	171	205	174	209	193	219
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	42.3	28.2	44.8	28.2	63.9	44.8	85.5	42.3	33.2	33.2	47.3	33.2	40.4	37.1	35.7
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		6.74	6.55	6.33	6.74	6.64	6.85	6.56	6.79	7.04	6.92	6.01	6.15	7.14	7.2	7.33
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	-	-	117	93	167	122	220	131	112	111	133	113	134	104	142
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	-	-	-	-	0.12	0.12	-	-	-	-	0.27	-	0.18	0.96
Total Phosphorus	mg/L	-	-	0.03	-	0.02	-	-	-	-	**6.17**	**2.21**	0.02	**3.39**	**0.61**	**0.44**	**0.68**	**2.47**	**1.56**	**0.87**	-
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.07	0.02	0.02	-	-	0.11	-	-	-	-	-	0.01	0.005	0.02	-
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.01	-	0.01	0.01	0.02	0.02	0.03	0.01	0.01	0.01	0.02	0.01	0.014	0.014	0.014
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	0.02	0.01	-	-	0.01	0.01	0.01	-	-	0.01	-	-	0.013	0.014	-
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.001	-	-	-	-	-	-	-
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	0.001	-	0.003	0.001	0.002	-	-	-	-	-	-	-	-	-	-
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	0.003	-
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	0.0001	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	7.6	6.8	7.4	7	6	6.9	7.4	8.1	7.5	7.7	7.8	7.7	6.68	5.62	6.08
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.114	0.087	0.121	0.091	0.184	0.121	0.324	0.135	0.107	0.133	0.152	0.11	0.152	0.144	0.137
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (diss)	mg/L	-	5	-	0.02	0.005	-	-	0.01	-	-	-	-	-	-	-	-	-	-	0.06	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB-MW1	NB MW1	NB MW1	NB MW1	NB MW1
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2014-Oct-14	2015-May-04	2015-Oct-26	2016-Apr-28	2016-Oct-26	2017-May-10	2017-Oct-23	2018-May-07	2018-Oct-22	2019-May-07	2019-Oct-24	2020-May-06	2020-Oct-06	2021-Apr-20	2021-Oct-18
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	24.8	74.6	64.7	76.1	48.8	36.7	29.1	102	60	77	43.5	94.5	41.2	48.1	15
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.44	0.68	0.57	0.69	0.42	0.58	1.2	0.31	0.27	0.57	0.2	0.31	0.17	0.26	0.22
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	0.26
Sulphate	mg/L	-	500	-	-	0.1	4.31	5.44	6.37	6.4	6.99	11.6	6.18	6.94	8.35	10.1	7.88	7.1	7.36	7.09	6.91
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	8.53	20.7	15.7	18.7	11.3	11	8.46	23.3	13.7	17.9	9.8	17.9	8.43	10.2	4.63
Magnesium (diss)	mg/L	-	-	-	-	0.05	1.55	3.94	2.96	3.78	2.21	2.29	1.86	4.63	2.63	3.44	2.02	3.54	1.59	2.01	0.91
Potassium (diss)	mg/L	-	-	-	-	0.05	3.04	2.69	2.75	2.71	1.84	2.09	3.92	2.7	2.12	2.6	2.15	2.58	1.7	1.86	1.57
Sodium (diss)	mg/L	110.9	200	-	-	0.05	14.7	29.5	26.6	30.3	22.9	25.5	18	36.5	28.1	36.3	25.2	37.1	21.6	25.2	14
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	18	24	23	26	25	40	22	22	20	36	22	23	25	23	26
Ammonia as N	mg/L	-	-	-	-	0.02	0.25	-	-	-	-	-	0.12	0.05	-	-	0.06	0.03	<0.02	<0.02	0.23
Chemical Oxygen Demand	mg/L	-	-	-	-	4	8	-	-	-	-	-	11	-	-	-	-	<5	7	<5	<5
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	2.8	2.6	1.6	1.8	1.1	1.1	2.3	2.3	1.7	1.2	0.9	0.9	1.8	2.2	2.1
Electrical Conductivity	uS/cm	-	-	-	-	1	158	318	258	317	232	241	151	384	277	348	244	442	186	239	116
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	27.7	67.9	51.4	62.3	37.3	36.9	28.8	77.2	45	58.9	32.8	59.3	27.6	33.7	15.3
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		6.93	6.9	6.31	7.56	7.11	7.48	6.88	6.42	7.28	6.7	7.22	6.53	6.56	6.75	6.74
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	500	-	-	10	84	244	158	202	120	126	152	212	160	190	144	230	128	144	92
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.46	0.19	-	0.16	-	-	0.28	0.29	-	-	-	0.13	0.1	<0.1	0.47
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.4**	**1.12**	**0.45**	**2.24**	**1.21**	**0.68**	**1.56**	**1.74**	**0.91**	**0.83**	**1.47**	**1.59**	**0.91**	**0.61**	**0.51**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	-	1120	2510	996	1590	289	508
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	-	464	659	480	204	423	330
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.01	0.005	0.005	-	0.187	0.007	0.011	-	-	0.006	0.009	0.023	<0.004	0.008	0.04
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003
Barium (diss)	mg/L	-	1	-	-	0.002	0.013	0.026	0.019	0.025	0.02	0.016	0.016	0.034	0.017	0.031	0.016	0.028	0.012	0.013	0.007
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	-	-	-	-	-	-	-	0.011	-	-	-	<0.01	<0.01	<0.01	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (diss)	mg/L	-	0.05	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	-	-	-	-	-	-	-	-	-	-	-	0.002	<0.002	<0.002	<0.002
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	-	-	0.125	-	-	-	-	-	-	<0.01	<0.01	<0.01	0.029
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.003	0.003	0.002	0.002	0.004	-	0.003	0.003	-	0.003	-	0.003	<0.002	<0.002	<0.002
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004
Silicon (diss)	mg/L	-	-	-	-	0.05	6.64	6.85	7.12	7.56	9.04	7.01	7.79	7.76	8.41	6.39	8.29	6.95	8.29	7.08	8.68
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001
Strontium (diss)	mg/L	-	-	-	-	0.001	0.129	0.255	0.166	0.243	0.145	0.151	0.107	0.315	0.153	0.261	0.117	0.244	0.107	0.13	0.051
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	-	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	0.013	-	-	-	-	-	-	<0.002	0.002	<0.002	<0.002
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002
Zinc (diss)	mg/L	-	5	-	0.02	0.005	0.008	-	-	-	-	-	-	0.018	0.009	0.011	0.005	0.007	0.007	0.024	0.018

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB MW1	NB MW1	NB MW1	NB MW1	NB MW1	NB MW1	NB-MW2	NB-MW2	NB-MW2	NB-MW2	NB-MW2	NB-MW2	NB-MW2	NB-MW2	NB-MW2
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2022-May-03	2022-Oct-18	2023-May-03	2023-Oct-19	2024-Apr-29	2024-Oct-29	2006-May-11	2006-Nov-20	2007-Nov-22	2008-May-07	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	17	12.6	48.1	31	79	45	-	-	2	1	1	2	1	2	1
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.16	0.13	0.21	0.19	0.25	0.13	0.14	0.13	0.14	0.16	0.2	0.15	0.15	-	0.12
Nitrite as N	mg/L	-	1	-	-	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	7.89	7.27	5.99	6.8	3.6	8.2	16	22	13	14	14	13	12	12	12
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	4.56	3.51	11.6	9.5	21	11	11	10	8	8	9	9	6	7	7
Magnesium (diss)	mg/L	-	-	-	-	0.05	0.88	0.76	2.15	1.7	4	1.9	4	3	3	3	3	4	3	3	3
Potassium (diss)	mg/L	-	-	-	-	0.05	1.26	1.09	1.89	1.7	2.5	1.8	2	2	2	2	2	2	2	1	1
Sodium (diss)	mg/L	110.9	200	-	-	0.05	16.6	11.4	27.4	24	40	29	3	4	4	3	3	4	2	2	3
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	24	17	29	24	26	28	32	32	29	29	32	31	33	30	29
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	-	-	0.02	0.02	-	-	0.02	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	<5	<5	<5	6.2	<4	<4	-	-	-	-	5	5	-	-	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	2.1	1.9	1.4	1.2	1.2	1.3	-	-	2.3	0.8	2.3	1.5	1.2	1.2	1.1
Electrical Conductivity	uS/cm	-	-	-	-	1	126	101	229	190	370	240	112	109	93	92	100	93	92	90	87
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	15	11.9	37.8	31	70	34	43.9	37.3	32.3	32.3	34.8	38.9	27.3	29.8	29.8
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		6.59	6.7	7.05	7.21	7.14	7.14	7.21	7.05	7.53	7.52	7.54	7.56	7.64	7.61	7.56
Phenols	mg/L	-	-	0.001	-	0.001	0.001	**0.003**	0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	84	86	144	130	285	195	-	-	61	60	65	61	60	59	57
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	-	0.25	0.12	-	-	-	-
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.79**	**0.28**	**1.15**	**1.4**	**1.8**	**0.76**	-	-	-	**2.07**	**1.14**	**5.71**	**4.3**	**3.74**	**2.83**
Total Suspended Solids	mg/L	-	-	-	-	10	767	1860	414	860	1100	610	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	543	140	258	140	67	120	-	-	-	-	-	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.041	0.021	<0.004	<0.0049	<0.0049	0.046	0.04	0.02	-	-	-	-	0.03	-	-
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.007	0.005	0.014	0.011	0.027	0.014	-	-	-	-	-	-	-	-	-
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.001	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	<0.003	<0.002	<0.002	<0.005	<0.005	<0.005	0.001	0.002	0.001	0.003	0.001	0.002	0.001	-	0.001
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	<0.002	0.002	<0.001	0.0054	<0.0009	0.0016	-	-	-	-	-	-	-	-	-
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	<0.01	<0.01	0.012	<0.1	<0.1	<0.1	-	-	0.05	-	0.03	-	0.05	-	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	0.04	-	-	-	-	-	-
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	<0.002	<0.002	<0.002	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	<0.004	<0.001	<0.001	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	9.35	8.74	8.55	10	8.7	8.9	8.7	9.3	9.2	10.3	10.1	10.6	10	9.5	12
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.059	0.041	0.125	0.085	0.25	0.12	0.046	0.055	0.053	0.045	0.048	0.048	0.044	0.042	0.042
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	<0.0003	<0.0003	<0.0003	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-	-	-	-
Titanium (diss)	mg/L	-	-	-	-	0.002	<0.002	0.002	<0.002	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	<0.002	<0.002	<0.002	0.00054	<0.0005	0.00072	0.004	0.004	0.004	0.005	0.005	0.005	0.004	0.004	0.005
Zinc (diss)	mg/L	-	5	-	0.02	0.005	<0.005	0.011	0.019	0.03	0.014	<0.005	-	-	-	-	-	-	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW2	NB-MW2	NB-MW2	NB-MW2R	NB-MW2R	NB-MW2R	NB-MW2R	NB-MW2R	NB-MW2R	NB-MW2R	NB-MW2R-QAQC (NB-MW2R)	NB-MW2R	NB MW2R	NB MW2R	NB MW2R
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2011-May-18	2011-Nov-03	2013-Apr-18	2016-Apr-28	2016-Oct-26	2017-May-10	2017-Oct-23	2018-May-07	2018-Oct-22	2019-May-07	2019-May-07	2019-Oct-24	2020-May-06	2020-Oct-06	2021-Apr-20
Anions						**Detection Limit**															
Chloride	mg/L	-	250	-	-	0.1	3	3	2.12	9.81	8.41	7.5	8.98	11.3	9.69	15.9	15.4	18.3	16.9	15.6	16.6
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.14	0.13	0.26	0.21	0.19	0.22	0.16	0.17	0.15	0.16	0.16	0.16	0.19	0.14	0.13
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05
Sulphate	mg/L	-	500	-	-	0.1	10	10	11.4	6.99	6.64	7.7	6.55	6.76	6.37	6.25	6.2	6.64	7.43	7.7	6.86
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	7	7	8.6	7.93	7.48	7	8.41	8.79	8.17	9.68	9.6	10.5	8.48	9.01	9.77
Magnesium (diss)	mg/L	-	-	-	-	0.05	3	3	3.56	3.32	3.06	3	3.42	3.83	3.14	3.8	3.74	4.05	3.61	3.56	4.17
Potassium (diss)	mg/L	-	-	-	-	0.05	1	2	1.71	1.78	1.67	1.68	2.02	1.71	1.69	1.82	1.78	1.91	1.64	1.8	1.77
Sodium (diss)	mg/L	110.9	200	-	-	0.05	3	4	4.18	4.69	4.41	4.2	4.8	4.84	4.74	5.08	5.09	5.56	4.79	5.24	5.88
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	34	36	31	31	30	29	29	40	24	32	32	27	26	35	29
Ammonia as N	mg/L	-	-	-	-	0.02	0.03	-	0.26	-	0.03	-	0.03	0.12	-	-	-	0.05	<0.02	<0.02	<0.02
Chemical Oxygen Demand	mg/L	-	-	-	-	4	15	12	12	-	-	-	-	-	-	-	-	-	14	10	<5
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	1.2	0.9	1.4	0.9	1	0.9	1	0.9	0.8	1.3	0.8	1	0.8	0.7	2.3
Electrical Conductivity	uS/cm	-	-	-	-	1	84	90	98	104	105	101	92	110	108	117	118	173	148	122	144
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	29.8	29.8	36.1	33.5	31.3	29.8	35.1	37.7	33.3	39.8	39.4	42.9	36	37.2	41.6
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		**6.17**	**6.39**	7.24	7.75	7.45	7.66	7.27	6.72	7.45	6.96	7.03	7.59	7.16	6.73	7.32
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	500	-	-	10	55	58	92	82	76	74	82	64	67	72	74	86	92	74	96
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	0.31	0.63	0.26	-	-	-	0.36	-	-	-	-	0.1	0.1	<0.1
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**3.31**	**1.5**	**10.1**	**6.89**	**8.64**	**3.52**	**3.54**	**1.33**	**0.75**	**0.56**	**0.63**	**2.28**	**2.31**	**3.01**	**0.87**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	-	316	301	2900	2030	1770	948
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	-	119	126	316	375	357	177
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	-	-	0.023	0.008	0.072	0.01	0.006	-	0.007	0.006	0.005	0.17	0.01	<0.004	<0.004
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003
Barium (diss)	mg/L	-	1	-	-	0.002	-	-	0.006	0.01	0.009	0.005	0.006	0.005	0.005	0.006	0.005	0.011	0.005	0.005	0.005
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	0.0006	-	-	<0.001	<0.001	<0.001
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001
Chromium (diss)	mg/L	-	0.05	-	-	0.002	0.001	0.001	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	-	-	-	-	-	-	-	-	0.0006	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	-	-	-	-	-	-	-	-	-	-	-	0.002	<0.002	<0.002	<0.002
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	0.857	-	0.118	-	-	-	-	-	-	0.221	<0.01	<0.01	<0.01
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	-	-	0.054	0.002	0.003	-	-	-	-	-	-	0.03	<0.002	<0.002	<0.002
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004
Silicon (diss)	mg/L	-	-	-	-	0.05	9	11	11.4	11.8	12.6	11	11.1	11	11.8	9.46	9.36	11.6	13.062	6.85	10.1
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001
Strontium (diss)	mg/L	-	-	-	-	0.001	0.034	0.041	0.039	0.067	0.051	0.044	0.045	0.059	0.05	0.057	0.057	0.067	0.061	0.086	0.081
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003	<0.0003	<0.0003
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	0.004	-	-	-	-	-	-	0.009	<0.002	<0.002	<0.002
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	0.004	0.005	0.007	0.003	0.004	0.003	0.004	0.003	0.004	0.003	0.003	0.004	0.003	0.003	0.003
Zinc (diss)	mg/L	-	5	-	0.02	0.005	-	-	-	0.011	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-QAQC GW-S21 (NB-MW2R)	NB MW2R	NB MW2R	NB-QAQC GW-S22 (NB-MW2R)	NB MW2R	NB MW2R	NB MW2R	NB MW2R	NB MW2R	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2021-Apr-20	2021-Oct-18	2022-May-03	2022-May-03	2022-Oct-18	2023-May-03	2023-Oct-19	2024-Apr-29	2024-Oct-29	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2013-Apr-18
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	17.1	9.32	9.17	8.87	6.26	6.67	4.1	3	1.8	61	69	67	52	42	39.1
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.14	0.11	0.12	0.11	0.11	0.11	0.11	0.1	<0.1	0.29	-	0.2	0.16	-	0.58
Nitrite as N	mg/L	-	1	-	-	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	-	-	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	6.86	7.09	7.2	7.2	7.61	6.93	5.6	6	6.8	29	37	34	34	34	30.1
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	9.99	7.31	8.37	8.37	7.52	7.61	7.6	7.1	6.8	42	39	40	35	34	29.7
Magnesium (diss)	mg/L	-	-	-	-	0.05	4.21	3.24	3.53	3.51	3.16	3.31	3.1	3.1	2.8	17	16	15	13	14	11.9
Potassium (diss)	mg/L	-	-	-	-	0.05	1.79	1.72	1.7	1.65	1.61	1.74	1.6	1.5	1.5	5	5	4	4	5	4.05
Sodium (diss)	mg/L	110.9	200	-	-	0.05	6.04	4.25	4.89	4.89	3.92	4.55	4.4	4.2	3.8	58	71	70	67	61	46.9
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	30	30	27	30	27	33	32	34	31	216	192	190	193	189	151
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	0.11	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.1	-	-	0.02	0.06	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	<5	<5	<5	13	<5	<5	<4	<4	<4	8	10	8	40	112	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	2	1	0.7	0.7	0.9	0.7	1.2	1.1	0.8	3.4	3.5	3.4	3.4	3.2	1.9
Electrical Conductivity	uS/cm	-	-	-	-	1	146	108	111	110	100	100	92	84	87	661	659	623	588	539	461
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	42.3	31.6	35.4	35.4	31.8	32.6	32	30	29	174.9	163.3	161.7	140.9	142.6	123.2
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.36	7.11	6.87	6.98	7.29	7.34	7.61	7.79	7.57	7.44	7.58	7.45	6.75	6.86	7.78
Phenols	mg/L	-	-	0.001	-	0.001	<0.001	<0.001	**0.002**	<0.001	**0.003**	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	98	86	46	52	72	78	70	85	60	430	428	405	382	350	290
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	<0.1	<0.1	0.12	<0.1	-	<0.1	<0.1	<0.1	<0.1	0.32	-	-	-	0.48	-
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.68**	**0.63**	**0.21**	**0.28**	**0.45**	**0.31**	**2.3**	**0.81**	**1.2**	**0.42**	**0.59**	**1.27**	**1.2**	**2.9**	**0.69**
Total Suspended Solids	mg/L	-	-	-	-	10	1300	324	232	248	240	776	1000	840	810	-	-	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	232	107	65.6	79.7	71.8	77.1	27	24	12	-	-	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.011	0.011	0.006	0.045	0.016	<0.004	0.013	<0.0049	<0.0049	-	-	-	-	-	-
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.005	0.003	0.004	0.004	0.003	0.003	0.0032	0.0027	0.0027	0.05	0.05	0.05	0.04	0.04	0.031
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.45	0.34	0.3	0.25	0.25	0.199
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.005	<0.005	<0.005	0.002	-	0.002	0.002	0.002	-
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	0.0003	0.0011	0.0005	0.0009	0.002
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.0009	<0.0009	<0.0009	0.002	0.002	0.001	0.002	0.002	-
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.1	0.83	-	0.18	-	0.08	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.04	-	0.02	-	0.01	0.017
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	0.039	<0.004	<0.004	<0.004	<0.001	0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	10.4	11.7	12.2	11.7	12.5	11.6	13	11	12	14	13.6	15	15	14	15.4
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	**0.0002**	<0.0001	<0.0001	**0.0036**	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.102	0.048	0.061	0.061	0.058	0.044	0.047	0.044	0.042	0.428	0.372	0.378	0.317	0.306	0.268
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.00005	<0.00005	<0.00005	-	-	-	-	-	-
Titanium (diss)	mg/L	-	-	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	-	-	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.0037	0.0042	0.004	0.001	0.001	0.002	0.002	-
Zinc (diss)	mg/L	-	5	-	0.02	0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3	NB-MW3-QAQC (NB-MW3)	NB MW3
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2013-Oct-30	2014-May-13	2014-Oct-14	2015-May-04	2015-Oct-26	2016-Apr-28	2016-Oct-26	2017-May-10	2017-Oct-23	2018-May-07	2018-Oct-22	2019-May-07	2019-Oct-24	2019-Oct-24	2020-May-06
Anions						**Detection Limit**															
Chloride	mg/L	-	250	-	-	0.1	36.7	36.1	34.5	34.1	37.7	39.8	43.9	51.2	63.8	70.7	67.3	65	70.5	71.2	80.8
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.39	0.42	0.25	0.28	-	0.53	0.29	0.84	0.41	0.81	0.33	0.98	0.56	0.57	1.33
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Sulphate	mg/L	-	500	-	-	0.1	26.9	29.3	23.7	23	22.5	21.3	19.1	16.8	16.6	15.4	16.2	14	17.4	17.7	17.8
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	32.5	28.9	29.5	29.1	29.5	30.2	29.7	32.7	40.3	42.6	42.9	39.4	46.4	45.8	46.2
Magnesium (diss)	mg/L	-	-	-	-	0.05	12.2	11.5	11.8	11.9	11.1	12	11.4	13.6	15.9	16.9	16	14.8	17.4	17.2	18.2
Potassium (diss)	mg/L	-	-	-	-	0.05	4.97	3.81	3.95	3.97	4.12	4.34	3.88	4.37	4.4	4.35	4.25	4.16	4.46	4.34	4.58
Sodium (diss)	mg/L	110.9	200	-	-	0.05	46.4	36.4	35	35.1	34	34.8	30.5	33	33	29.6	28	28.7	30.5	30.1	31.5
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	133	139	120	127	126	137	128	132	142	148	121	153	151	151	147
Ammonia as N	mg/L	-	-	-	-	0.02	0.03	-	0.13	-	-	-	-	-	-	0.07	-	-	0.08	0.03	<0.02
Chemical Oxygen Demand	mg/L	-	-	-	-	4	-	-	7	-	-	-	47	-	8	-	-	-	-	-	<5
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	1.9	1.8	2	1.5	2	1.9	1.4	1.5	3.4	1.7	2.1	1.4	1.5	1.4	1.5
Electrical Conductivity	uS/cm	-	-	-	-	1	428	457	455	396	405	409	424	493	444	506	530	493	604	612	685
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	131.4	119.5	122.3	121.7	119.4	124.8	121.1	137.7	166.1	176	173	159	188	185	190
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.9	7.53	8.09	7.5	6.87	8.15	8.01	7.89	8.02	7.45	7.88	7.47	8.05	8.06	6.91
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	**0.003**	-	-	-	-	-	-	-	-	-	<0.001
Total Dissolved Solids	mg/L	-	500	-	-	10	264	262	246	232	218	242	224	246	282	154	304	260	302	282	326
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.15	1.59	0.46	0.14	-	2.92	0.18	0.11	-	0.51	0.15	-	-	-	0.16
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.31**	**0.62**	**0.19**	**0.11**	**0.46**	**0.45**	**0.81**	**1.39**	**0.17**	**0.7**	**0.14**	**0.25**	**0.31**	**0.32**	**0.43**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	153	151	141	202
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	91.4	28.7	30.9	95.1
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.138	-	-	-	0.008	-	0.02	0.007	0.014	0.312	0.004	-	0.04	0.032	0.014
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003
Barium (diss)	mg/L	-	1	-	-	0.002	0.039	0.034	0.04	0.033	0.039	0.035	0.038	0.037	0.048	0.051	0.047	0.046	0.066	0.062	0.057
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	0.184	0.19	0.21	0.146	0.157	0.14	0.132	0.117	0.122	0.137	0.119	0.095	0.138	0.13	0.115
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001
Chromium (diss)	mg/L	-	0.05	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	0.004	-	-	<0.003
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	0.002	0.003	-	0.007	0.001	-	0.001	0.002	0.002	-	0.0015	0.004	0.0037	0.0017
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	-	-	-	-	-	-	-	-	-	-	-	0.001	0.002	0.001	0.003
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	2.21	-	0.115	-	-	-	-	-	-	-	0.037	-	<0.01
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.019	0.02	0.05	0.005	0.146	0.02	0.003	0.015	0.023	0.021	0.004	0.017	0.032	0.031	0.021
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.004	0.003	0.003
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004
Silicon (diss)	mg/L	-	-	-	-	0.05	13.4	12	15	14.8	14.2	15.4	15.6	15	14.4	15.1	14.9	12.1	15.9	15.4	18.766
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001
Strontium (diss)	mg/L	-	-	-	-	0.001	0.307	0.29	0.341	0.257	0.288	0.28	0.292	0.308	0.354	0.402	0.391	0.362	0.499	0.473	0.438
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	0.003	0.003	<0.002
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
Zinc (diss)	mg/L	-	5	-	0.02	0.005	0.252	-	-	-	-	0.013	-	-	-	-	-	-	-	0.006	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB MW3	NB MW3	NB MW3	NB MW3	NB MW3	NB-QAQC GW1-F22 (NB-MW3)	NB MW3	NB MW3	NB MW3	NB MW3	NB-QAQC-GW1 (NB-MW3)	NB-MW4	NB-MW4	NB-MW4	NB-MW4
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2020-Oct-06	2021-Apr-20	2021-Oct-18	2022-May-03	2022-Oct-18	2022-Oct-18	2023-May-03	2023-Oct-19	2024-Apr-29	2024-Oct-29	2024-Oct-29	2006-May-11	2006-Nov-20	2007-May-03	2007-Nov-22
Anions						**Detection Limit**															
Chloride	mg/L	-	250	-	-	0.1	72.5	87.5	99.9	117	122	124	141	110	220	260	260	-	-	34	32
Nitrate as N	mg/L	2.8	10	-	-	0.05	0.28	0.78	0.43	0.36	0.06	<0.05	0.14	<0.1	<0.1	<0.1	<0.1	-	-	-	-
Nitrite as N	mg/L	-	1	-	-	0.01	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	16.6	21.7	29.2	29.9	30.9	30.9	23.2	8.8	16	16	16	18	21	21	20
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	36.2	55.7	63.8	63.7	63.4	60.1	72.3	76	96	100	100	30	28	30	27
Magnesium (diss)	mg/L	-	-	-	-	0.05	13.5	22.4	24.7	24.3	24.3	23.3	27.2	29	38	39	39	7	6	6	5
Potassium (diss)	mg/L	-	-	-	-	0.05	4.17	4.87	5.24	5.32	5.3	5.06	5.76	5.6	6.4	6.6	6.6	3	3	3	3
Sodium (diss)	mg/L	110.9	200	-	-	0.05	22	32.2	32.5	32.4	30.1	30	35.5	38	47	48	48	5	6	6	6
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	150	168	173	150	143	146	135	130	130	130	130	50	50	53	49
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	0.03	0.08	<0.02	0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	8	<5	<5	62	<5	14	<5	6.6	<4	30	4.4	-	-	-	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	2.6	2.9	2.2	1.8	2.1	2	1.7	1.7	2	2.2	1.7	-	-	0.7	0.8
Electrical Conductivity	uS/cm	-	-	-	-	1	503	687	698	724	728	731	776	860	1100	1200	1200	266	260	256	248
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	146	231	261	259	258	246	293	310	390	420	420	103.7	94.6	99.6	88
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.21	7.01	7.09	6.99	7.39	7.41	7.61	7.39	7.52	7.43	7.51	7.61	7.55	6.91	7.97
Phenols	mg/L	-	-	0.001	-	0.001	<0.001	**0.003**	**0.004**	**0.005**	**0.007**	**0.01**	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	302	404	438	414	484	476	594	585	740	990	1010	-	-	166	161
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.2	0.2	0.2	0.15	-	-	0.16	0.18	0.12	0.14	0.12	-	-	-	-
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.22**	**0.13**	**0.19**	**0.14**	**0.09**	**0.1**	**0.19**	**0.17**	**0.091**	**0.17**	**0.19**	-	-	-	-
Total Suspended Solids	mg/L	-	-	-	-	10	347	93	81	114	32	32	295	190	110	180	160	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	67.1	35.3	27.5	33.8	21.9	7.6	18.5	2.3	2.6	1.7	2.4	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	<0.004	<0.004	0.022	0.028	0.016	0.015	<0.004	<0.0049	<0.0049	<0.0049	<0.0049	0.02	-	0.02	-
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.037	0.062	0.072	0.072	0.064	0.065	0.067	0.084	0.1	0.12	0.12	0.01	0.01	0.01	0.01
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	0.092	0.135	0.149	0.15	0.15	0.141	0.145	0.15	0.14	0.14	0.13	-	-	-	-
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	<0.003	<0.003	<0.003	<0.003	<0.002	0.01	<0.002	<0.005	<0.005	<0.005	<0.005	0.001	-	-	-
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	0.007	0.0019	0.0018	0.0016	0.0028	0.0028	<0.0005	0.0043	<0.0005	0.0017	0.0018	-	-	-	-
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	<0.002	<0.002	0.002	<0.002	0.001	0.002	<0.001	0.0011	<0.0009	0.0011	<0.0009	-	-	0.001	-
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	0.012	<0.01	0.015	<0.01	0.013	0.042	0.016	<0.1	<0.1	0.12	0.12	-	-	-	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.046	0.025	0.029	0.024	0.04	0.044	<0.002	0.067	0.0022	0.027	0.027	-	-	-	-
Mercury (diss)	mg/L	-	0.001	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	-	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.003	0.003	0.005	0.007	0.004	0.005	0.003	0.0054	0.0059	0.0057	0.0058	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	<0.004	<0.004	<0.004	<0.004	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	9.9	14	15.2	15.1	15	16.1	15.9	16	16	15	15	8.6	8.5	8.3	7.8
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.339	0.609	0.565	0.593	0.581	0.599	0.558	0.68	0.86	0.94	0.94	0.101	0.1	0.103	0.097
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.00005	<0.00005	<0.00005	<0.00005	0.0001	-	0.0005	-
Titanium (diss)	mg/L	-	-	-	-	0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00083	0.00066	0.00065	0.00065	-	-	-	-
Zinc (diss)	mg/L	-	5	-	0.02	0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2008-May-07	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2013-Apr-18	2013-Oct-30	2014-May-13	2014-Oct-14	2015-May-04	2015-Oct-26	2016-Apr-28
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	32	30	28	28	30	29	28	29	34.2	29.9	32.5	35.7	36.3	39	36.4
Nitrate as N	mg/L	2.8	10	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	21	21	19	20	22	20	19	21	21.3	20.4	20.2	19.6	20.6	23.7	21
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	31	28	31	29	28	28	28	32	32.2	32.7	29.3	34.4	34.7	33.9	32.6
Magnesium (diss)	mg/L	-	-	-	-	0.05	6	6	7	6	6	5	6	7	6.95	6.67	6.18	7.12	7.21	6.76	6.67
Potassium (diss)	mg/L	-	-	-	-	0.05	3	3	3	3	3	2	2	3	3.21	3.55	2.95	3.23	3.43	3.34	3.5
Sodium (diss)	mg/L	110.9	200	-	-	0.05	6	5	6	5	6	5	5	6	5.9	6.01	5.33	6.08	6.28	5.94	5.84
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	51	49	53	54	58	54	63	64	64	60	60	65	60	62	66
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	0.02	-	-	-	-	-	-	-	0.15	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	-	-	-	-	-	-	8	-	-	-	-	-	-	27	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	0.5	0.6	0.8	0.9	0.9	0.9	0.9	0.7	0.5	0.8	1.2	0.7	0.8	1.3	1.6
Electrical Conductivity	uS/cm	-	-	-	-	1	255	246	246	247	267	241	248	253	273	257	278	303	279	284	279
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	102.1	94.6	106.2	97.1	94.6	90.5	94.6	108.7	109	109.1	98.6	115.2	116.3	112.5	108.9
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.95	7.84	8.05	7.94	7.89	7.92	6.78	6.76	8.03	7.93	7.95	7.86	8.04	7.03	7.89
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	166	160	160	161	174	157	161	164	190	176	194	170	204	168	174
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	-	-	0.16	-	-	-	0.29	0.12	-	1.73	0.21	-	-	1.61
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**1.74**	**1.41**	**4.03**	**1.52**	**1.21**	**1.66**	**1.28**	**0.91**	**2.43**	**0.83**	**1.34**	**0.91**	**0.77**	**1.16**	**0.51**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	-	-	-	-	-	-	-	-	0.008	0.146	0.005	0.01	0.004	0.006	0.005
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.01	0.01	0.01	-	0.01	0.01	0.01	0.01	0.011	0.016	0.012	0.013	0.013	0.013	0.013
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	-	-	-	0.01	0.01	0.01	-	-	-	-	-	-	-	-	-
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	0.001	0.001	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	-	-	0.01	-	-	-	-	-	-	0.019	-	0.01	-	0.009	-
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	-	-	-	-	-	-	0.002	0.002	0.002	-	0.002	0.002	0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	8.5	8.7	9	7.6	7.7	7.8	8.3	8.2	8.86	8.03	7.68	8.51	8.2	7.72	8.51
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.097	0.1	0.104	0.078	0.093	0.094	0.086	0.102	0.098	0.121	0.11	0.109	0.11	0.109	0.11
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (diss)	mg/L	-	5	-	0.02	0.005	-	-	-	-	-	-	-	-	-	0.287	-	-	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB-MW4	NB MW4	NB-QAQC GW-S20 (NB-MW4)	NB MW4	NB-QAQC GW-F20 (NB-MW4)	NB MW4	NB MW4	NB-QAQC GW-F21 (NB-MW4)	NB MW4
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2016-Oct-26	2017-May-10	2017-Oct-23	2018-May-07	2018-Oct-22	2019-May-07	2019-Oct-24	2020-May-06	2020-May-06	2020-Oct-06	2020-Oct-06	2021-Apr-20	2021-Oct-18	2021-Oct-18	2022-May-03
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	36	33.9	32.1	33.2	32.1	31.8	28.1	31.9	31.7	28.8	28.6	29.1	28.6	28.6	27.8
Nitrate as N	mg/L	2.8	10	-	-	0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	-	500	-	-	0.1	20.7	22	21.2	21.8	22.3	22.6	22.9	25.8	25.9	24.2	24.3	22.1	23.9	23.9	23.3
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	32.1	32.5	32.9	32.2	33	32.2	31.2	29.9	29.9	28.9	29.1	33	29.8	29.7	31.1
Magnesium (diss)	mg/L	-	-	-	-	0.05	6.42	7	6.77	6.76	6.42	6.41	6.09	6.22	6.28	5.73	5.79	7.04	6.32	6.43	6.43
Potassium (diss)	mg/L	-	-	-	-	0.05	3.29	3.38	3.26	3.14	3.31	3.09	3.07	3.13	3.13	3.05	3.05	3.45	3.13	3.22	3.22
Sodium (diss)	mg/L	110.9	200	-	-	0.05	5.49	5.9	5.95	5.66	5.65	5.9	5.67	5.52	5.51	5.3	5.32	6.23	5.67	5.78	5.85
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	64	66	65	69	56	75	62	64	63	66	68	62	61	62	59
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	0.11	-	-	0.07	0.02	0.15	<0.02	<0.02	<0.02	0.1	0.09	<0.02
Chemical Oxygen Demand	mg/L	-	-	-	-	4	-	-	5	-	-	-	-	<5	<5	11	14	<5	<5	<5	<5
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	1.1	0.8	2.5	1.3	3.1	1	0.6	0.8	0.7	0.7	0.7	1.9	0.7	0.7	0.7
Electrical Conductivity	uS/cm	-	-	-	-	1	285	310	241	267	287	276	303	339	339	248	248	285	257	257	261
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	106.6	110	110	108.2	108.8	107	103	100	101	95.8	96.5	111	100	101	104
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.72	7.84	7.63	7.21	7.63	7.37	7.71	7.66	7.69	7.14	7.21	7.8	7.62	7.6	7.29
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	**0.002**
Total Dissolved Solids	mg/L	-	500	-	-	10	162	176	172	152	174	160	148	174	166	152	162	180	176	180	128
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	-	-	0.36	-	-	-	0.12	0.16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**1.42**	**1.46**	**2.66**	**0.86**	**1.62**	**0.67**	**1.21**	**0.86**	**0.79**	**0.64**	**0.67**	**0.55**	**0.91**	**1.1**	**1.21**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	310	1580	446	340	665	609	446	199	240	410
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	130	110	88.9	92	123	139	115	110	107	109
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.026	0.008	0.009	-	0.008	0.007	0.02	0.02	0.019	0.011	<0.004	0.011	0.024	0.022	0.029
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Barium (diss)	mg/L	-	1	-	-	0.002	0.015	0.013	0.015	0.014	0.013	0.014	0.016	0.013	0.013	0.011	0.012	0.012	0.012	0.013	0.012
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	-	-	-	0.011	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.012	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001
Chromium (diss)	mg/L	-	0.05	-	-	0.002	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.006	-	0.002	-	0.003	-	0.004	<0.002	<0.002	0.004	0.003	<0.002	0.003	0.005	<0.002
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	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
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Silicon (diss)	mg/L	-	-	-	-	0.05	9.58	8.4	8.12	8.95	8.42	7.24	8.74	7.96	8.66	10.9	8.81	7.96	8.25	8.91	9.38
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium (diss)	mg/L	-	-	-	-	0.001	0.108	0.105	0.096	0.106	0.103	0.111	0.106	0.098	0.105	0.113	0.106	0.098	0.097	0.096	0.107
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	<0.0003	<0.0003	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc (diss)	mg/L	-	5	-	0.02	0.005	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB MW4	NB MW4	NB-QAQC-GW1 (NB-MW4)	NB MW4	NB-QAQC-GW1 (NB-MW4)	NB MW4	NB-QAQC-GW1 (NB-MW4)	NB MW4	NB-MW5	NB-MW5	NB-MW5	NB-MW5	NB-MW5	NB-MW5	NB-MW5
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2022-Oct-18	2023-May-03	2023-May-03	2023-Oct-19	2023-Oct-19	2024-Apr-29	2024-Apr-29	2024-Oct-29	2006-May-11	2006-Nov-20	2007-May-03	2007-Nov-22	2008-May-07	2008-Oct-09	2009-Jun-03
Anions						**Detection Limit**															
Chloride	mg/L	-	250	-	-	0.1	28.8	30.4	30.4	26	26	27	27	29	-	-	22	21	23	24	24
Nitrate as N	mg/L	2.8	10	-	-	0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	1	-	-	0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
Sulphate	mg/L	-	500	-	-	0.1	25.4	22.4	22.4	20	20	20	20	21	16	35	18	17	18	17	16
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	30	33	33.6	35	35	33	33	31	15	14	15	13	16	16	15
Magnesium (diss)	mg/L	-	-	-	-	0.05	6.17	6.76	6.66	6.9	7.1	6.8	6.7	6.4	6	6	6	5	6	6	6
Potassium (diss)	mg/L	-	-	-	-	0.05	3.17	3.24	3.17	3.2	3.3	3.1	3.1	3.1	3	2	2	2	3	3	2
Sodium (diss)	mg/L	110.9	200	-	-	0.05	5.54	5.77	5.94	6.6	6.9	6.2	6.3	6.1	5	6	6	6	6	6	6
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	59	68	67	61	61	64	63	60	26	26	29	26	25	26	27
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	0.03	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	4	<5	<5	<5	<4	<4	<4	<4	5.7	-	-	-	-	7	5	-
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	0.8	0.6	<0.5	0.6	0.7	0.8	0.8	0.9	-	-	3	1.4	1.3	2.4	2.9
Electrical Conductivity	uS/cm	-	-	-	-	1	260	277	275	270	270	260	260	270	167	168	167	168	170	175	175
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	100	110	111	110	120	110	110	100	62.2	59.7	62.2	53.1	64.7	64.7	62.2
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.85	7.87	7.83	8.03	8.03	8.13	8.15	7.77	6.99	6.87	6.53	7.53	7.38	7.4	7.3
Phenols	mg/L	-	-	0.001	-	0.001	**0.003**	<0.001	<0.001	<0.001	**0.0011**	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	500	-	-	10	166	192	188	160	220	195	200	160	-	-	109	109	111	114	114
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	<0.1	<0.1	0.14	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	0.11	-
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**0.68**	**0.5**	**0.57**	**2.5**	**2.6**	**1.9**	**1.9**	**0.44**	-	-	-	-	**5.13**	**5.75**	**8.81**
Total Suspended Solids	mg/L	-	-	-	-	10	459	278	296	910	900	2200	2300	330	-	-	-	-	-	-	-
Turbidity	NTU	-	5	-	-	0.1	2.5	49.5	52.8	14	15	15	17	11	-	-	-	-	-	-	-
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.021	<0.004	<0.004	0.005	<0.0049	<0.0049	<0.0049	0.0063	0.02	0.02	0.02	-	-	-	-
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Barium (diss)	mg/L	-	1	-	-	0.002	0.011	0.012	0.011	0.013	0.013	0.012	0.012	0.013	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	-	-	-	-	-	-	-
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-
Chromium (diss)	mg/L	-	0.05	-	-	0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	0.001	0.001	-	0.001
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	<0.001	<0.001	<0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	-	-	0.002	-	0.002	-	0.003
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.006	<0.002	<0.002	0.0031	0.0032	<0.002	<0.002	<0.002	0.02	0.02	0.02	-	-	-	-
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	0.002	<0.002	<0.002	0.0021	0.002	0.0021	0.002	0.0023	-	-	-	-	-	-	-
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-
Silicon (diss)	mg/L	-	-	-	-	0.05	9.42	9.09	8.94	10	10	9.3	9.2	8.6	9.9	9.4	9.2	8.8	9.6	9.4	9.6
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-
Strontium (diss)	mg/L	-	-	-	-	0.001	0.095	0.097	0.097	0.099	0.1	0.1	0.1	0.1	0.085	0.085	0.086	0.085	0.086	0.094	0.095
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	<0.0003	<0.0003	<0.0003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-	-	0.0005	-	-	-	-
Titanium (diss)	mg/L	-	-	-	-	0.002	0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	<0.002	<0.002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Zinc (diss)	mg/L	-	5	-	0.02	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0071	-	-	-	-	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB-MW5	NB-MW5	NB-MW5R	NB-MW5R	NB-MW5R	NB-MW5R	NB-MW5R	NB-MW5R	NB-MW5R	NB-MW5R	NB MW5R	NB MW5R	NB MW5R	NB MW5R	NB MW5R
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2009-Oct-22	2010-May-17	2016-Apr-28	2016-Oct-26	2017-May-10	2017-Oct-23	2018-May-07	2018-Oct-22	2019-May-07	2019-Oct-24	2020-May-06	2020-Oct-06	2021-Apr-20	2021-Oct-18	2022-May-03
Anions						Detection Limit															
Chloride	mg/L	-	250	-	-	0.1	23	25	24.4	24.8	24.7	22.4	21.6	21.5	22	21.2	24.5	24.4	24.2	24.1	23.2
Nitrate as N	mg/L	2.8	10	-	-	0.05	-	-	-	-	0.09	-	-	-	-	-	0.06	<0.05	0.06	<0.05	<0.05
Nitrite as N	mg/L	-	1	-	-	0.01	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	0.06	<0.05	<0.05
Sulphate	mg/L	-	500	-	-	0.1	17	19	27.9	21	21.4	20	19.5	20.6	20.7	21	23.7	22.1	20.1	21.7	20.4
Cations																					
Calcium (diss)	mg/L	-	-	-	-	0.05	15	14	9.96	9.21	14.2	15.5	15.5	16.8	17.3	17.6	17	18.6	18.7	18.3	19
Magnesium (diss)	mg/L	-	-	-	-	0.05	6	6	2.92	2.76	4.7	5.06	5.19	5.13	5.38	5.47	5.89	5.66	6.16	6.03	6.02
Potassium (diss)	mg/L	-	-	-	-	0.05	4	2	1.95	1.46	1.91	2.22	1.75	1.75	1.9	2.17	2.09	2.2	2.24	2.21	2.32
Sodium (diss)	mg/L	110.9	200	-	-	0.05	6	5	73.3	29.8	14.9	13.3	8.2	7.74	6.35	6.1	4.96	5.13	5.14	5.47	4.86
General Chemistry																					
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	31	27	138	55	41	40	50	32	42	35	34	38	35	35	33
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	0.04	-	0.05	0.18	0.03	-	0.11	0.07	<0.02	<0.02	0.11	<0.02
Chemical Oxygen Demand	mg/L	-	-	-	-	4	6	8	12	-	5	8	-	-	-	-	<5	17	<5	<5	<5
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	3	2.6	9.9	3.8	1.8	4	3.2	1.7	1.8	1	1	1.2	2.4	1.4	1
Electrical Conductivity	uS/cm	-	-	-	-	1	180	183	387	234	223	174	182	197	191	230	235	186	213	195	194
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	62.2	59.7	36.9	34.4	54.8	59.5	60.1	63.1	65.4	66.5	66.7	69.8	72.1	70.5	72.2
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.52	7.45	8.26	7.68	7.76	7.41	6.84	7.48	7.09	7.59	7.33	6.78	7.48	7.24	7.01
Phenols	mg/L	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	**0.002**
Total Dissolved Solids	mg/L	-	500	-	-	10	117	119	294	198	164	140	160	156	126	120	136	136	146	154	184
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	-	0.46	-	-	-	0.58	-	-	-	0.1	0.14	0.17	0.17	<0.1
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**2.24**	**5.79**	**0.8**	**9.94**	**3.4**	**14**	**4.15**	**10.3**	**4.75**	**6.4**	**2.87**	**5.52**	**4.41**	**3.05**	**4.16**
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	-	2470	4860	1510	3880	2760	1390	2540
Turbidity	NTU	-	5	-	-	0.1	-	-	-	-	-	-	-	-	5560	3620	1910	4310	3680	2280	462
Metals																					
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	-	-	0.053	0.606	0.011	0.007	-	0.008	0.004	0.007	0.012	<0.004	0.004	0.279	0.023
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Barium (diss)	mg/L	-	1	-	-	0.002	0.02	0.02	0.017	0.023	0.014	0.013	0.015	0.013	0.018	0.017	0.017	0.016	0.016	0.021	0.016
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	-	-	0.057	0.023	-	-	-	-	-	-	<0.01	<0.01	<0.01	0.012	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (diss)	mg/L	-	0.05	-	-	0.002	0.001	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	-	-	-	0.002	-	-	-	-	-	-	<0.0005	0.0007	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	0.001	-	-	0.004	-	-	-	-	0.001	-	<0.002	<0.002	<0.002	0.002	<0.002
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	-	-	0.097	**0.649**	-	-	-	-	-	-	<0.01	0.018	<0.01	**0.319**	<0.01
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	-	-	0.149	0.139	0.18	0.046	0.251	0.283	0.264	0.309	0.148	0.252	0.225	0.102	0.18
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	-	-	0.023	0.007	0.003	0.003	0.002	0.003	0.002	0.002	<0.002	0.003	<0.002	<0.002	0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.001
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	<0.004
Silicon (diss)	mg/L	-	-	-	-	0.05	9	9.4	5.98	7.79	7.3	6.76	7.39	7.33	6.29	7.62	7.58	8.95	8.51	9.13	7.85
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	**0.0002**	<0.0001	<0.0001
Strontium (diss)	mg/L	-	-	-	-	0.001	0.087	0.096	0.069	0.061	0.081	0.073	0.09	0.094	0.1	0.095	0.09	0.102	0.091	0.107	0.106
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	-	-	-	-	-	-	-	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Titanium (diss)	mg/L	-	-	-	-	0.002	-	-	0.004	0.047	-	-	-	-	-	-	<0.002	0.01	<0.002	0.014	<0.002
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	0.002	0.002	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc (diss)	mg/L	-	5	-	0.02	0.005	-	-	0.007	0.007	-	-	-	-	-	-	<0.005	<0.005	<0.005	0.066	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Well Screen						Sample ID	NB MW5R	NB MW5R	MW5R	NB MW5R	NB MW5R	NB MW5R
Parameter	Units	RUV-NB	ODWQS	PWQO-GENERAL	PWQO-INTERIM	Sample Date	2022-Oct-18	2023-May-03	2023-Jun-01	2023-Oct-19	2024-Apr-29	2024-Oct-29
Anions						**Detection Limit**						
Chloride	mg/L	-	250	-	-	0.1	26.2	25.9	23	20	24	25
Nitrate as N	mg/L	2.8	10	-	-	0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<1
Nitrite as N	mg/L	-	1	-	-	0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
Sulphate	mg/L	-	500	-	-	0.1	23.4	20.9	20	13	17	20
Cations												
Calcium (diss)	mg/L	-	-	-	-	0.05	18.8	19.8	20	23	22	21
Magnesium (diss)	mg/L	-	-	-	-	0.05	6.22	6.34	6.2	6.9	6.7	6.2
Potassium (diss)	mg/L	-	-	-	-	0.05	2.4	2.51	2.2	2.6	2.5	2.4
Sodium (diss)	mg/L	110.9	200	-	-	0.05	4.72	4.8	4.8	5.9	5.3	5
General Chemistry												
Alkalinity (as CaCO3)	mg/L	-	30 - 500	See Factsheet	-	1	47	43	35	37	40	55
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	<0.02	0.059	<0.05	<0.05	<0.05
Chemical Oxygen Demand	mg/L	-	-	-	-	4	11	<5	<4	4.9	<4	<4
Dissolved Organic Carbon	mg/L	-	5	-	-	0.4	1.1	1.1	0.7	1.1	1.3	0.9
Electrical Conductivity	uS/cm	-	-	-	-	1	206	210	200	210	200	220
Hardness (as CaCO3)	mg/L	-	80 - 100	-	-	0.5	72.6	75.5	76	86	82	78
pH	pH units	-	6.5 - 8.5	6.5 - 8.5	-		7.51	7.58	7.6	7.68	7.78	7.55
Phenols	mg/L	-	-	0.001	-	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	500	-	-	10	138	158	170	170	260	220
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	-	0.21	<0.1	<0.1	<0.1	<0.1
Total Phosphorus	mg/L	-	-	0.03	-	0.02	**2.25**	**6.06**	**1.8**	**2.1**	**3.3**	**2.6**
Total Suspended Solids	mg/L	-	-	-	-	10	1890	1780	1800	1900	3800	2600
Turbidity	NTU	-	5	-	-	0.1	236	1050	180	210	280	170
Metals												
Aluminum (diss, 0.45 µm)	mg/L	0.055	0.1	-	Calculated	0.004	0.018	0.01	0.005	<0.0049	<0.0049	<0.0049
Arsenic (diss)	mg/L	-	0.01	-	0.005	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium (diss)	mg/L	-	1	-	-	0.002	0.017	0.014	0.016	0.017	0.016	0.017
Beryllium (diss)	mg/L	-	-	Calculated	-	0.0004	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004
Boron (diss)	mg/L	1.25	5	-	0.2	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (diss)	mg/L	-	0.005	-	Calculated	0.00009	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009
Chromium (diss)	mg/L	-	0.05	-	-	0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005
Cobalt (diss)	mg/L	-	-	-	0.0009	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (diss)	mg/L	0.5	1	-	Calculated	0.0009	0.001	<0.001	<0.0009	<0.0009	<0.0009	<0.0009
Iron (diss)	mg/L	0.16	0.3	0.3	-	0.01	<0.01	0.03	<0.1	<0.1	<0.1	<0.1
Lead (diss)	mg/L	-	0.01	-	Calculated	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese (diss)	mg/L	0.026	0.05	-	-	0.002	0.206	0.071	0.19	0.16	0.09	0.062
Mercury (diss)	mg/L	-	0.001	0.0002	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (diss)	mg/L	-	-	-	0.04	0.0005	<0.002	<0.002	0.0022	0.0022	0.002	0.002
Nickel (diss)	mg/L	-	-	0.025	-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium (diss)	mg/L	-	0.05	0.1	-	0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002
Silicon (diss)	mg/L	-	-	-	-	0.05	8.84	8.75	7.9	9.8	9	8
Silver (diss)	mg/L	-	-	0.0001	-	0.00009	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009
Strontium (diss)	mg/L	-	-	-	-	0.001	0.111	0.099	0.11	0.1	0.11	0.11
Thallium (diss)	mg/L	-	-	-	0.0003	0.00005	<0.0003	<0.0003	<0.00005	<0.00005	<0.00005	<0.00005
Titanium (diss)	mg/L	-	-	-	-	0.002	0.003	<0.002	<0.005	<0.005	<0.005	<0.005
Vanadium (diss)	mg/L	-	-	-	0.006	0.0005	<0.002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005
Zinc (diss)	mg/L	-	5	-	0.02	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds RUV-NB	Reasonable Use Values North Baptiste
Concentration exceeds ODWQS	Ontario Drinking Water Quality Standards All Types Merged
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim

Appendix F

F-2 Historical Surface Water Chemistry

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2003-Sep-30**	**2003-Oct-29**	**2003-Nov-17**	**2004-Apr-29**	**2004-Jun-23**	**2004-Aug-20**	**2004-Sep-10**	**2004-Oct-28**	**2006-May-11**	**2006-Jul-19**	**2006-Nov-20**	**2007-May-03**	**2007-Jun-04**	**2008-May-07**	**2008-Jun-19**	**2008-Sep-16**	**2008-Oct-09**	**2009-Jun-03**	**2009-Jul-16**	**2009-Aug-06**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	68	4	4	3	6	12	9	15	3	24	1	2	2	2	2	6	10	2	9	2
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	17	8	30	8	7	6	8	8	7	5	7	7	5	6	5	7	6	6	4	5
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	17	5	4	5	8	9	10	4	7	11	4	5	8	4	7	8	9	5	9	6
Magnesium (tot)	mg/L	-	-	-	-	0.05	2	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Potassium (tot)	mg/L	-	-	-	-	0.05	4	-	1	-	-	1	2	2	-	1	-	-	-	-	-	1	1	-	-	-
Sodium (tot)	mg/L	-	-	-	-	0.05	39	4	2	2	6	13	12	24	3	16	-	2	2	-	2	5	11	2	8	3
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	39	18	13	18	29	51	44	57	15	39	9	17	24	12	20	26	38	14	34	23
Ammonia as N	mg/L	-	-	-	-	0.02	1.01	0.06	0.04	0.02	0.2	0.68	0.48	1.11	0.06	0.86	0.04	0.03	0.06	0.02	0.07	0.25	0.58	0.04	0.27	0.06
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-
Colour	TCU	-	-	-	-	2	120	18	11	9	96	358	216	56	17	286	13	16	28	10	38	128	162	31	331	199
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		7.6	-	-	11	8.8	7.1	7.1	1.5	-	5.4	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	338	66	51	49	88	138	130	178	63	165	40	48	65	43	52	88	128	45	108	59
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	51	13	10	13	20	23	25	10	18	32	10	13	20	10	18	20	23	13	23	15
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.43	7.47	6.3	6.17	6.68	6.62	6.56	6.14	6.71	6.65	6.59	6.37	7.58	6.92	7.1	7.16	7.08	6.94	7.11	7.1
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	-	43	33	32	57	90	85	116	41	107	26	31	42	28	34	57	83	29	70	38
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	1.17	0.31	0.17	0.19	0.44	0.97	0.73	10.5	0.28	1.42	-	0.1	0.24	0.23	-	0.46	0.81	0.15	0.52	0.11
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.05	0.03	-	0.02	0.02	0.04	0.03	0.9	-	0.04	-	0.01	-	-	-	0.01	0.01	-	-	-
Total Suspended Solids	mg/L	-	-	-	-	10	76	6	6	-	19	19	3	3100	8	212	-	-	-	4	-	-	28	-	3	-
Turbidity	NTU	-	-	-	-	0.1	45.1	8.6	7.5	0.7	29.8	44.9	14.5	-	6.3	-	0.8	1.4	3.5	0.8	1.9	4.2	-	2.3	14.2	3.4
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0001362	0.0008349	0.0001714
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.16	0.06	0.08	0.06	0.11	0.28	0.23	2.8	0.51	0.23	0.08	0.07	0.07	0.06	0.05	0.06	0.12	0.07	0.12	0.06
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	0.001	-	-	-	-	0.002	0.002	-	-	0.003	-	-	0.001	0.001	-	-	0.001	-	0.002	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0123	0.0006	0.0004	-	0.018	0.0096	0.0061	0.046	0.0006	0.0105	0.0002	0.0003	0.0009	0.0003	0.0012	0.0023	0.0048	0.0007	0.0048	0.0017
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	0.001	-	-	0.032	-	0.001	-	-	-	-	-	0.001	-	-	-	-	-	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	**19.8**	**1.49**	**1.54**	0.28	**6.23**	**21.5**	**12.4**	**125**	**1.95**	**41.8**	0.49	0.68	**1.16**	0.45	**1.68**	**5.17**	**15.7**	**1.32**	**14.4**	**3.96**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-	-
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	0.046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.32	0.02	0.02	0.02	0.51	0.1	0.14	0.3	0.05	0.08	-	0.02	0.03	0.03	0.05	0.05	0.05	0.06	0.06	0.04

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A	MCG-A
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2009-Sep-16	2009-Oct-22	2010-May-17	2010-Jul-19	2010-Oct-18	2011-May-18	2012-Apr-17	2013-Apr-18	2013-Oct-30	2014-May-13	2015-May-04	2016-Apr-28	2016-Aug-17	2017-May-10	2017-Jul-20	2018-May-07	2019-May-07	2020-May-07	2022-May-03	2023-May-03
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	6	2	4	4	3	4	2	5.56	1.55	3.15	4.12	4.26	8.56	2.03	4.5	3.64	3.04	-	5.43	1.3
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	0.7	0.064	0.08	0.07	-	-	-	-	0.06	-	<0.05	-	<0.05	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05
Sulphate	mg/L	-	-	100	-	0.1	4	5	5	4	5	5	8	5.5	12	7.62	9.4	6.02	14.4	4.69	5.93	4.21	4.42	-	4.08	2.49
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	9	6	6	7	4	4	11.9	4.02	8.65	5.51	6.43	4.39	10.8	3.15	7.3	3.31	3.19	-	4.54	1.53
Magnesium (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	0.817	-	8	0.59	0.65	0.47	0.79	0.38	0.7	0.39	0.36	-	0.42	0.24
Potassium (tot)	mg/L	-	-	-	-	0.05	1	-	-	-	-	-	0.749	-	0.87	0.58	0.68	0.43	1.54	0.4	0.81	0.38	0.39	-	<1.15	<0.5
Sodium (tot)	mg/L	-	-	-	-	0.05	9	2	3	2	-	2	3.17	3.67	2.43	2.76	3.57	2.57	10.3	2.01	4.37	2.63	2.77	-	3.88	1.43
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	44	24	17	26	11	16	21	6.1	13	10	10	8	38	12	26	8	-	10	8	7
Ammonia as N	mg/L	-	-	-	-	0.02	0.6	0.08	0.08	0.12	0.06	0.07	0.15	-	-	-	-	-	-	-	-	0.15	<0.02	-	<0.02	<0.02
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	334	49	58	81	46	38	9	11	7	8	10	8	17	10	35	10	<5	-	9.07	9
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	9.7	5.58	10.93	11.54	-	-	-	12.22	7.52	12.64	8.49	12.83	6.78	9.08	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	113	56	56	62	42	42	85	48	67	56	62	48	124	41	76	39	40	-	51	25
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	23	15	15	18	10	10	33.1	10	24.9	16.2	18.7	12.9	30.2	9.4	21.1	9.9	9.4	-	13.1	4.8
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.37	7.26	7.06	7.19	7.03	**5.86**	7.1	6.82	6.88	7.05	7.28	6.57	7.54	8.58	7	6.17	6.45	-	6.5	6.92
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	74	36	36	40	27	27	149	26	48	36	40	38	80	28	54	20	28	-	<10	36
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.92	0.16	0.45	0.19	0.18	0.22	0.2	-	0.23	1.13	0.19	0.13	0.21	0.17	0.18	0.37	<0.1	-	0.11	<0.1
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.01	-	-	0.01	-	-	0.01	-	-	-	-	-	-	-	0.02	-	0.09	-	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	2	-	-	-	-	-	41	-	11	-	-	-	-	-	-	-	<10	-	<10	<10
Turbidity	NTU	-	-	-	-	0.1	26.3	5.6	6.3	3.3	2	2	3.4	0.8	-	1	0.6	259	0.8	-	5.8	0.5	0.9	-	0.5	0.7
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.002667	0.000029	0.00005	0.00028	0.000038	0.0000002	0.0000524	-	-	0.00002	0.00002	0.000001	0.000027	0.000002	0.000055	0.0000369	-	-	-	<0.000002
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.038	0.095
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	44	70	65	0.055	0.049	0.066	0.044	0.083	0.037	0.072	0.071	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.18	0.06	0.05	0.07	0.06	0.06	0.046	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	-	-	0.011	-	-	-	-	-	0.017	-	-	-	-	-	<0.01	0.013
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001
Chromium (tot)	mg/L	-	-	0.064	-	0.003	0.002	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	<0.003	-	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.006	0.0008	0.0008	0.0012	0.0006	0.0005	0.0006	-	-	-	-	-	-	-	0.0013	-	<0.0005	-	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.002	-	-	-	-	-	0.0012	0.0021	-	-	-	-	0.002	-	-	-	<0.002	-	<0.002	0.001
Iron (tot)	mg/L	0.3	-	1	-	0.01	**21.1**	**2.53**	**3.02**	**4.17**	**2.5**	**1.93**	0.92	0.03	0.02	0.19	0.12	0.07	0.21	0.03	**3.24**	0.17	0.17	-	0.49	0.085
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.037	0.003
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	-	<0.003	0.005
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	-	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.05	0.02	0.01	0.02	0.01	0.02	0.015	0.136	0.097	0.007	0.006	0.011	0.008	-	0.01	0.006	<0.005	-	<0.02	<0.02

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-A	MCG-A	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2	MCG-A2
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Apr-29	2024-Jul-11	2008-May-08	2008-Jun-19	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2012-Apr-17	2013-Apr-18	2014-May-13	2015-May-04	2016-Apr-28	2017-May-10	2017-Jul-20	2018-May-07	2019-May-07	2020-May-06	2021-Apr-20
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	1.5	<1	1	1	2	1	-	1	2	-	0.361	0.38	0.67	0.39	0.24	0.25	0.24	0.8	0.38	0.34
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05
Sulphate	mg/L	-	-	100	-	0.1	2.6	1.5	6	6	6	5	5	5	5	5	4.31	4.38	4.25	3.84	3.76	3.56	3.16	2.93	3.03	2.97
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	2.9	1.9	2	3	3	4	3	2	2	3.19	1.7	2.12	2.38	1.79	1.56	2.16	1.59	1.84	1.61	1.7
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.31	0.26	-	-	-	-	-	-	-	0.509	-	0.35	0.39	0.31	0.28	0.34	0.29	0.27	<0.25	0.35
Potassium (tot)	mg/L	-	-	-	-	0.05	0.34	0.29	-	-	-	-	-	-	-	0.549	-	0.38	0.4	0.26	0.26	0.27	0.23	0.3	0.38	<0.58
Sodium (tot)	mg/L	-	-	-	-	0.05	2.3	1.1	-	-	-	-	-	-	-	1.11	0.78	0.88	1.09	0.81	0.78	1.07	0.76	1.08	0.85	0.98
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	7.9	9.6	-	8	7	15	10	13	11	6	-	-	-	-	-	8	-	5	<5	<5
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	<0.05	-	0.02	-	0.05	-	0.04	0.06	0.02	-	-	0.07	-	-	-	0.09	<0.02	0.02	<0.02
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	<5	-
Colour	TCU	-	-	-	-	2	7	23	7	4	6	27	17	25	14	11	21	-	10	7	10	7	10	7	-	8
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	6.3	4.49	9.76	-	-	9.85	5.82	10.05	10.75	4.93	9.48	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	31	29	24	28	27	42	29	39	25	29	18	23	24	19	19	24	17	21	21	19
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	9.5	6.2	5	7	7	10	7	5	5	10.1	4.24	6.7	7.5	5.7	5	6.8	5.2	5.7	4.5	5.7
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.96	6.97	6.33	6.4	**5.61**	6.89	6.75	7.06	**5.65**	6.5	**5.97**	**5.52**	6.45	**5.78**	6.65	6.4	**5.85**	6.12	**5.99**	**5.98**
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	30	25	16	18	18	27	19	25	16	119	24	20	22	22	-	26	-	24	<20	32
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.11	0.23	0.31	0.53	0.23	0.16	0.29	0.3	0.48	0.1	-	1.45	0.24	0.13	0.16	0.36	0.37	<0.1	0.2	0.18
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	0.021	0.02	0.07	-	-	-	0.02	-	0.02	-	0.05	-	-	-	0.13	0.02	<0.02	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	29	15	4	4	6	9	3	9	-	137	17	21	-	415	30	<10	24	<10
Turbidity	NTU	-	-	-	-	0.1	0.2	1	2.3	0.4	0.3	5	4.6	8.1	2.8	1.8	-	2.1	3.4	7.9	-	147	1.6	0.7	4.6	1.2
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	<0.00061	-	-	-	0.00001	-	0.000013	0	0.0000006	-	0.000002	0.00009	0.0000001	0.0000002	0.0000028	0.0000015	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.07	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	0.065	0.125	0.09	0.074	0.092	0.106	0.07	0.111	0.082	0.114	0.094
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.067	0.25	0.08	0.48	0.12	0.08	0.08	0.08	0.08	0.13	-	-	-	-	-	-	-	-	0.173	0.131
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.011
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	<0.005	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	-	0.0007	-	0.0014	0.0004	0.0005	0.0003	-	-	-	-	-	-	0.0037	-	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.001	0.0014	-	0.001	-	-	-	-	-	0.0008	-	-	-	-	-	0.005	-	<0.002	<0.002	<0.002
Iron (tot)	mg/L	0.3	-	1	-	0.01	<0.1	0.13	0.39	**2.65**	0.55	**5.17**	**2.57**	**2.86**	**1.82**	0.513	**16**	0.1	**1.15**	0.48	-	**34.9**	0.07	0.05	0.042	0.036
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-	<0.001	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	0.0042	0.013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.007	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.62	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.012	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	0.0079	-	-	-	-	-	-	-	0.008	0.0078	0.008	-	0.008	-	0.021	0.006	<0.005	<0.005	0.006

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-A2	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2021-Jul-14**	**2003-Aug-14**	**2003-Sep-17**	**2003-Sep-30**	**2003-Oct-29**	**2003-Nov-17**	**2004-Apr-29**	**2004-Jun-23**	**2004-Aug-20**	**2004-Sep-10**	**2004-Oct-28**	**2006-May-11**	**2006-Jul-19**	**2006-Aug-21**	**2006-Sep-19**	**2006-Nov-20**	**2007-May-03**	**2007-Jun-04**	**2007-Aug-15**	**2007-Sep-27**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	0.19	39	33	31	36	34	29	29	36	31	28	28	31	32	25	28	24	27	31	29
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.05	-	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	2.65	10	35	62	93	**128**	**115**	74	61	60	25	35	30	19	11	54	61	30	13	7
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	1.84	50	33	69	95	89	92	92	56	84	68	40	35	35	36	35	70	55	36	37
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.3	13	9	16	22	20	21	20	14	18	15	11	9	9	9	9	16	14	10	10
Potassium (tot)	mg/L	-	-	-	-	0.05	<0.58	13	12	20	23	21	21	18	14	21	18	8	8	7	10	7	16	13	7	12
Sodium (tot)	mg/L	-	-	-	-	0.05	1.08	26	26	27	23	21	19	17	28	16	13	10	10	9	8	9	13	11	9	10
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	6	215	120	200	252	206	199	267	177	243	232	89	92	89	88	72	180	171	96	118
Ammonia as N	mg/L	-	-	-	-	0.02	<0.02	0.89	3.04	0.44	0.88	0.11	0.23	0.49	0.13	0.21	0.53	0.2	0.39	0.04	0.18	0.18	0.35	0.21	0.3	0.34
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	51	5	-	-	-	-	56	-	6	-	-	4	2	3	6	-	14	7	6
Colour	TCU	-	-	-	-	2	9	34	49	37	9	10	13	47	22	35	67	13	18	39	79	21	19	20	27	119
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	0.7	5	1.9	-	-	8.6	9.4	2.8	2.5	1	-	1.8	1.4	4.4	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	18	486	396	572	760	691	673	733	550	655	577	356	331	311	286	331	549	480	323	345
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	5.8	178	119	238	328	305	316	312	197	284	232	145	124	124	127	124	241	195	131	134
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.41	7.04	6.72	6.95	7.26	8.83	6.69	6.86	6.91	6.69	6.67	7.13	6.82	6.78	6.75	7.07	7.27	7.64	7.62	7.26
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	0.017	0.002	0.001	0.002	0.017	-	0.014	-	-	0.005	-	-	-	0.002	0.01	-	-	0.001	0.011
Total Dissolved Solids	mg/L	-	-	-	-	10	28	316	257	-	494	449	437	476	358	426	375	231	215	202	186	215	357	312	210	224
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	<0.1	21.7	12.9	3.35	1.67	2.22	0.75	2.46	6.2	2.33	6.41	1.52	2.47	1.11	0.57	1.77	0.81	16	2.3	4.4
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	1.59	0.18	0.18	0.15	0.69	0.12	1.35	0.44	0.21	1.17	0.16	1.68	0.04	-	2.33	0.15	1.77	-	0.34
Total Suspended Solids	mg/L	-	-	-	-	10	<10	1940	305	100	160	2250	12	2540	125	168	330	38	2030	320	16	5410	23	766	336	64
Turbidity	NTU	-	-	-	-	0.1	0.8	137	13.1	18.9	33.8	-	20.8	-	51.7	51.7	-	11	-	85.6	7.8	-	24.4	-	79.1	5
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.096	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.159	0.58	0.14	0.09	0.21	3.13	-	3.92	0.25	0.12	0.2	0.09	1.71	0.16	0.04	5.5	0.02	0.86	0.68	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	0.001	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.0001	0.0007	0.0007	-	0.0001	0.0014	-	0.002	0.0002	-	0.0003	-	0.0007	-	-	-	-	0.0004	0.0004	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	-	0.005	0.006	0.002	-	-	0.011	0.001	0.002	-	-	0.002	-	-	-	0.001	0.002	0.001	0.002
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	0.0011	0.0003	0.0002	0.004	0.0022	0.0003	0.02	0.0003	0.0004	0.0003	-	0.001	0.0009	-	0.006	-	0.0004	0.0002	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.002	0.007	0.004	0.001	0.001	0.002	-	0.043	0.001	0.001	-	-	-	-	-	0.06	-	0.001	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.052	27	4.15	3.99	12.5	79.5	2.54	76.2	16.8	22.8	20.9	4.8	65.9	2.2	3.89	110	6.27	22.1	7.02	4.79
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.001	0.009	0.002	0.001	0.003	0.013	-	0.04	0.003	-	0.002	-	0.007	-	-	0.04	-	0.008	0.007	0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	0.005	-	-	-	0.009	-	0.01	-	-	-	-	0.006	-	-	0.02	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	0.001	-	-	0.002	0.004	-	-	-	-	0.002	-	0.009	-	-	-	-	-	0.013	0.003
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	0.18	0.07	0.01	0.03	0.49	-	0.54	0.06	0.01	0.08	0.01	0.42	-	-	0.85	-	0.15	0.07	0.02

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2007-Nov-22**	**2008-May-07**	**2008-Jun-19**	**2008-Aug-21**	**2008-Sep-16**	**2008-Oct-09**	**2009-Jun-03**	**2009-Jul-16**	**2009-Aug-06**	**2009-Sep-16**	**2009-Oct-22**	**2010-May-17**	**2010-Jul-19**	**2010-Oct-18**	**2011-May-18**	**2011-Aug-11**	**2011-Nov-03**	**2012-Apr-17**	**2012-Jul-11**	**2012-Oct-17**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	25	17	17	22	22	18	16	17	14	16	16	20	16	24	14	19	20	11	22	16
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	60	**132**	61	26	**127**	49	**109**	47	**125**	33	68	**107**	21	**101**	**109**	8	51	**123**	14	**446**
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	79	113	93	55	118	69	119	91	142	105	122	116	56	119	114	42	96	71.8	43.2	168
Magnesium (tot)	mg/L	-	-	-	-	0.05	19	22	21	12	25	17	24	19	25	20	24	21	11	25	23	9	20	21.9	8.97	27.7
Potassium (tot)	mg/L	-	-	-	-	0.05	18	23	20	10	30	18	24	19	27	21	26	23	13	27	23	12	23	22.1	10.3	30
Sodium (tot)	mg/L	-	-	-	-	0.05	16	16	14	11	19	12	16	14	16	13	15	15	9	14	12	9	14	11.3	7.42	9.32
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	276	239	279	168	326	241	302	299	355	344	409	298	198	364	277	171	280	61	131	189
Ammonia as N	mg/L	-	-	-	-	0.02	0.87	0.5	0.65	0.28	0.76	0.83	0.6	0.87	0.49	0.86	1.68	0.36	0.83	1.49	0.51	13.4	0.86	0.25	2.01	0.23
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	32	-	7	17	3	18	2	2	1	-	11	3	7	15	2	90	19	-	145	19
Colour	TCU	-	-	-	-	2	21	8	12	8	13	14	10	14	12	15	14	20	56	18	13	119	24	8	49	10
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	6.3	1.41	4.46	1.57	2.12	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	697	740	680	443	898	614	790	697	907	729	911	819	471	911	743	393	651	191	390	1220
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	276	373	319	187	398	242	396	305	458	345	403	376	185	400	379	142	322	53.9	145	533
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.41	7.69	7.42	7.52	7.48	7.43	6.87	7.44	7.23	7.72	7.25	7.47	7.41	7.22	7.06	7.25	7.2	7	7	7.2
Phenols	mg/L	0.001	-	0.04	0.004	0.001	0.014	-	-	0.003	-	0.01	-	-	-	-	0.001	-	0.004	0.01	-	0.016	0.009	-	0.027	0.037
Total Dissolved Solids	mg/L	-	-	-	-	10	453	481	442	288	584	399	514	453	590	474	592	532	306	592	483	255	423	566	228	943
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	2.66	0.86	2.72	1.05	2.31	1.57	1.47	2.1	1.42	2.07	2.29	1.18	2.89	2.87	1.79	97	5.21	0.6	24	1.7
Total Phosphorus	mg/L	0.03	-	-	-	0.02	1.32	0.09	0.37	2.1	0.36	1.33	0.14	0.35	0.17	0.65	0.32	0.07	0.35	0.5	0.13	1.02	0.38	0.07	3.28	0.21
Total Suspended Solids	mg/L	-	-	-	-	10	940	42	176	2130	105	2720	59	49	55	63	77	37	350	231	66	8120	231	28	871	91
Turbidity	NTU	-	-	-	-	0.1	-	58.4	18.2	-	81.4	-	-	60.1	-	95.7	-	38.2	-	33.8	-	-	71.1	40.9	236	94
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	0.00162	0.000757	0.00054	0.000808	0.000587	0.00056	0.00021	0.00052	0.0000817	0.0198	0.000257	0.000159	0.00403	0.000134
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	0.15	0.7	0.05	0.83	0.01	-	0.02	0.02	0.02	0.2	0.5	0.6	-	2.6	0.2	0.013	0.42	0.089
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	0.15	0.17	0.23	0.23	0.18	0.15	0.23	0.17	0.27	0.17	0.2	0.4	0.16	0.9	0.3	0.17	0.957	0.61
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	0.0005	-	0.0006	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0005
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	0.003	0.002	0.002	0.003	0.002	0.003	0.004	0.004	0.004	0.006	-	-	-	0.002	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	0.0004	0.0003	0.0003	0.0006	0.0006	0.0003	0.0002	0.0006	0.0003	0.0003	-	-	-	0.0003	-	-	0.0025	0.0005	0.0025
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.02	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	0.04	-	0.0025	0.0007	0.0024
Iron (tot)	mg/L	0.3	-	1	-	0.01	78.2	11.2	14.7	29	16.8	37.7	23.8	17.1	21.7	23.8	25.2	6.93	7.9	39.2	17.7	65.4	11.6	6.89	102	8.95
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	0.1	-	0.002	0.006	-	0.006	-	-	-	-	-	-	-	-	-	0.02	-	-	0.0011	0.0014
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	0.006	0.009
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	0.003	0.008	0.003	0.022	-	-	-	0.003	0.007	-	-	-	-	-	-	-	0.003	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.43	0.03	0.04	0.15	0.05	0.25	-	-	-	-	-	-	0.08	0.1	-	0.46	-	-	0.247	0.658

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2013-Apr-18**	**2013-Aug-15**	**2013-Oct-30**	**2014-May-13**	**2014-Aug-19**	**2014-Oct-14**	**2015-May-04**	**2015-Sep-09**	**2015-Oct-26**	**2016-Apr-28**	**2016-Aug-17**	**2016-Oct-26**	**2017-May-10**	**2017-Jul-20**	**2017-Oct-23**	**2018-May-07**	**2018-Jul-30**	**2018-Oct-22**	**2019-May-07**	**2019-Aug-14**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	23.7	18.3	16.6	43.2	29.7	30.3	43.7	37.6	44.3	36.4	30.1	34.6	21.8	29.2	27.8	46.3	42.5	38	33.6	33
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	0.298	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.05
Sulphate	mg/L	-	-	100	-	0.1	72	24.9	71	**120**	72.9	61	**141**	17.4	**158**	94.8	**186**	31.9	**111**	57.1	41	71.1	55.1	80.3	64.5	6.22
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	69.4	57.9	116	95.9	110	119	98.1	73.6	108	93	132	90.9	104	115	118	69.4	70.9	125	86.2	30
Magnesium (tot)	mg/L	-	-	-	-	0.05	10.2	11.3	21.3	16.2	19.5	22.7	18.5	15.2	23.8	15.4	22.7	17.3	15.2	18.6	21	10.8	13.5	22.1	13.7	6.37
Potassium (tot)	mg/L	-	-	-	-	0.05	9.69	10.8	19.8	14.8	18.1	25	17.9	21.5	25.9	13.3	21.1	17.3	13.4	17	21.7	9.49	10.3	22.2	12.9	4.04
Sodium (tot)	mg/L	-	-	-	-	0.05	18.4	9.99	14.9	19.2	19.1	20	27.8	21.8	25.8	21.9	33	17.5	22.2	22.5	22.5	32.9	24.7	27.3	28.3	11.6
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	170	188	330	217	288	307	222	226	258	218	297	305	246	365	384	187	157	330	299	79
Ammonia as N	mg/L	-	-	-	-	0.02	-	0.27	0.3	0.06	0.36	0.09	0.28	0.12	0.22	0.12	0.23	0.58	0.13	0.39	0.82	0.05	0.57	0.55	0.13	0.41
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	13
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	9	-	20	43	-	14	45	-	21	76	-	-	69	8	50	7	-	-
Colour	TCU	-	-	-	-	2	27	30	13	13	19	16	14	98	27	12	28	17	10	23	18	19	9	8	8	49
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	2.52	-	2.1	0.87	-	-	3.41	0.68	1.48	1.55	0.24	1.98	2.99	3.32	6.68	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	524	469	740	774	806	934	813	592	859	704	992	688	797	858	733	603	551	979	684	304
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	215	191	377	306	355	391	321	246	368	296	423	298	322	364	381	218	233	403	272	101
pH	pH units	6.5 - 8.5	-	6 - 9	-		8.1	7.5	7.73	7.9	7.64	7.85	7.43	7.66	7.81	7.67	7.98	7.9	8.12	8.16	7.96	7.38	7.81	7.7	7.63	7.21
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	0.014	**0.051**	-	**0.044**	0.035	-	0.005	0.026	-	-	0.027	-	-	0.019	0.002	0.006	0.011	0.002	0.016
Total Dissolved Solids	mg/L	-	-	-	-	10	342	310	458	436	468	484	488	330	528	404	632	390	418	388	500	348	344	590	380	166
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.308	7.38	6.1	2.64	11.2	11.2	1.85	3.6	9.46	1.29	4.58	4.02	0.65	1.92	4.83	4.58	12	0.84	0.64	2.93
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.031	1.23	0.43	0.28	1.83	1	0.11	0.66	1.49	0.06	0.52	3.37	0.21	0.44	7.66	0.52	2.21	0.68	0.18	0.76
Total Suspended Solids	mg/L	-	-	-	-	10	15	237	260	79	1710	304	59	208	206	50	176	2480	37	188	2570	172	346	461	<10	60
Turbidity	NTU	-	-	-	-	0.1	2.5	128	135	58	245	158	77.9	49.9	29.5	33.7	21.2	510	58.2	112	5040	54.3	63.6	249	31.8	63
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	0.000525	0.000133	0.000125	0.000631	0.0000896	0.00047	0.00187	0.00026	0.000014	0.000213	0.00028	0.000079	0.000821	0.000781	0.000037	0.000317	0.000121	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.0112	0.025	0.009	-	0.005	0.006	0.004	0.007	-	-	0.008	0.016	-	0.008	0.019	-	0.009	0.015	<0.004	0.006
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	0.123	0.586	0.238	0.202	0.595	0.363	0.16	0.335	0.28	0.182	0.332	0.295	0.149	0.199	0.291	0.179	0.863	0.141	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	0.0002	**0.001**	-	**0.0013**	**0.0009**	-	-	0.0002	-	-	**0.0017**	0.0002	0.0002	**0.0018**	**0.0003**	**0.0003**	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	0.005	-	0.007	0.009	0.004	-	-	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	0.0005	-	-	-	0.0008	-	-	-	-	-	0.0021	-	0.0006	0.0037	0.0005	-	0.0027	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	0.002	-	-	-	0.003	-	-	-	-	-	-	0.003	0.003	-	0.002	0.002	**0.01**	<0.002	<0.002
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.338	**28.4**	**35.8**	**8.84**	**62.8**	**69.3**	**14.8**	**6**	**8.71**	**9.17**	**3.37**	**45.5**	**13**	**28.8**	**44**	**11.2**	**14.8**	**15.2**	**5.35**	**8.3**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	0.001	**0.005**	-	0.002	**0.005**	-	-	0.001	-	-	**0.019**	0.001	0.002	**0.036**	**0.008**	0.001	0.002	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	0.003	-	-	-	0.004	-	0.003	0.005	-	-	0.006	-	-	0.008	-	-	-	<0.003	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	0.004	0.013	-	0.285	0.074	-	-	0.014	-	-	0.022	-	-	0.086	0.033	0.037	-	<0.004	<0.004
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	0.0001	-	-	-	-	-	-	-	-	-	-	0.0002	-	-	-	-	-	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.0364	0.081	**0.443**	0.019	**0.221**	**0.291**	0.026	0.027	**0.11**	0.042	0.032	**0.443**	**0.111**	0.026	**0.386**	0.067	0.085	0.014	0.034	0.023

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-B	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2019-Oct-24**	**2020-May-06**	**2020-Oct-06**	**2021-Apr-20**	**2021-Jul-14**	**2022-May-03**	**2023-May-03**	**2024-Apr-29**	**2024-Jul-11**	**2024-Oct-29**	**2003-Oct-29**	**2003-Nov-17**	**2004-Apr-29**	**2004-Jun-23**	**2004-Aug-20**	**2004-Sep-10**	**2004-Oct-28**	**2006-May-11**	**2006-Sep-19**	**2006-Nov-20**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	47.3	31.7	47.8	25.6	27.3	17.4	9.78	12	8.4	13	21	-	27	33	56	36	62	72	50	14
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.05	<0.25	<0.1	<0.1	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	<0.25	<0.1	<0.1	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	37.9	53.4	15.9	44.6	14.4	44.1	50.2	28	55	24	24	33	19	5	5	6	21	48	75	12
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	76.2	85.39	100.49	109	116	102	88.4	94	130	88	13	17	15	19	21	11	23	36	26	10
Magnesium (tot)	mg/L	-	-	-	-	0.05	14.6	15.39	18	19.7	20.4	16.2	11.6	14	25	13	4	5	4	5	5	3	6	9	7	3
Potassium (tot)	mg/L	-	-	-	-	0.05	15.2	14.46	20.94	18	21.4	17.7	13.3	19	18	17	4	4	5	-	-	3	6	8	5	2
Sodium (tot)	mg/L	-	-	-	-	0.05	22	21.23	23.17	24.3	21.7	21.7	13.4	19	21	18	7	10	11	11	13	25	14	30	19	6
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	228	236	338	296	426	261	279	290	440	300	26	40	24	38	34	37	16	39	9	14
Ammonia as N	mg/L	-	-	-	-	0.02	0.42	0.05	0.12	<0.02	0.1	<0.02	0.03	0.18	<0.05	0.55	0.06	0.09	0.12	-	0.07	0.1	0.07	0.18	0.11	0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	17	-	5	2	14	2	<2	<2	<2	29	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	23	-	-	-	-	-	-	-	-	-	-	-	26	-	6	-	4	7	4
Colour	TCU	-	-	-	-	2	13	-	19	17	34	13.1	27.8	11	20	23	138	122	52	124	69	250	25	52	160	235
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	10.7	9.6	10.4	4.5	4.7	-	3.6	-
Electrical Conductivity	uS/cm	-	-	-	-	1	680	805	730	776	782	654	622	640	940	620	148	206	182	210	238	201	308	453	287	109
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	250	277	325	353	374	321	269	310	460	290	49	63	54	68	73	40	82	127	94	37
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.69	7.27	7.93	7.5	7.64	7.17	7.61	7.5	7.94	7.58	6.61	6.31	6.29	6.27	6.26	6.18	**5.99**	6.82	**5.83**	6.55
Phenols	mg/L	0.001	-	0.04	0.004	0.001	0.031	0.003	0.025	0.004	0.006	0.014	0.0012	0.0013	0.0011	0.0019	-	0.001	-	0.001	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	376	408	434	462	472	376	384	385	520	405	96	134	118	137	155	131	200	294	187	71
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	1.89	0.46	1.82	0.54	1.68	0.7	0.33	0.65	0.71	1.2	0.18	1.37	2.6	0.84	6.2	9.97	8.28	1.33	1.4	4.93
Total Phosphorus	mg/L	0.03	-	-	-	0.02	1.24	0.02	0.37	0.05	0.48	0.1	0.05	0.077	0.12	0.32	0.09	0.95	0.22	2.24	0.55	0.55	2.28	0.44	0.83	0.84
Total Suspended Solids	mg/L	-	-	-	-	10	630	<10	169	10	12	50	<10	34	23	320	53	950	22	520	100	1910	1460	564	1120	175
Turbidity	NTU	-	-	-	-	0.1	184	10.1	125	12.8	94.6	9	9.9	11	4.4	-	15.5	81.3	2.7	43	12.8	-	-	-	-	43.5
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	0.000035	<0.00061	<0.00061	<0.00061	-	-	-	-	-	-	-	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	0.005	<0.004	<0.005	0.005	<0.005	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.132	0.032	0.011	<0.004	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	0.011	1.83	0.014	0.145	-	-	0.012	0.056	0.8	0.16	1.29	0.1	1.19	0.08	0.44	0.18	0.53	0.41	0.29
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	-	0.004	0.001	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	0.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	0.133	0.161	0.184	0.2	0.164	0.184	0.18	0.35	0.16	-	-	-	-	-	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	0.00015	0.00083	-	0.0006	-	-	-	0.0001	-	-	0.0002	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	0.014	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	-	0.002	-	-	-	0.001	-	-	-	0.002
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0006	0.0006	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00085	0.0018	0.0087	0.0008	0.018	0.0014	0.0021	0.0013	0.0014	0.002	0.0042
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.004	0.004	0.003	<0.002	<0.002	<0.002	<0.001	<0.0009	0.0041	0.0091	0.001	0.013	0.002	0.03	-	0.001	0.001	0.001	0.002	0.001
Iron (tot)	mg/L	0.3	-	1	-	0.01	**10.6**	**1.57**	**16.9**	**2.97**	**18.1**	**7.06**	**2.31**	**14**	**4.2**	**47**	**1.47**	**13.7**	0.71	**28.6**	**5.94**	**8.13**	**10.9**	**1.29**	**3.16**	**4.61**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	**0.003**	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	**0.0035**	0.001	0.017	-	-	-	**0.003**	0.002	0.001	0.008	**0.003**
Manganese (tot)	mg/L	-	-	-	-	0.002	-	0.414	-	-	-	0.938	0.385	0.92	0.4	0.96	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	0.013	<0.003	<0.003	0.004	<0.003	<0.003	<0.001	0.003	0.004	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	8.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	0.456	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	<0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.031	0.019	0.063	0.021	0.018	<0.02	0.057	0.007	**0.13**	**0.31**	0.01	0.07	-	**0.11**	-	-	-	0.01	0.04	0.02

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2007-May-03	2007-Jun-04	2008-May-07	2008-Jun-19	2008-Aug-21	2008-Sep-16	2008-Oct-09	2009-Oct-22	2010-May-17	2010-Jul-19	2010-Oct-18	2011-May-18	2011-Nov-03	2012-Apr-17	2012-Oct-17	2013-Apr-18	2013-Oct-30	2014-May-13	2015-May-04	2015-Sep-09
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	31	36	24	2	22	18	26	105	62	92	83	75	89	91	129	31.5	65.5	47	36.2	64
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	34	9	30	1	5	9	12	**101**	79	81	92	**115**	**119**	**222**	**359**	**153**	99.8	97.4	54.3	93.9
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	16	16	17	6	15	15	16	52	38	51	48	46	40	63.1	99.2	70.6	38.4	41.8	30.9	45.9
Magnesium (tot)	mg/L	-	-	-	-	0.05	4	4	5	1	4	4	5	13	9	11	12	12	11	16	26	12.4	9.46	9.79	7.85	11
Potassium (tot)	mg/L	-	-	-	-	0.05	7	4	5	-	2	2	2	26	17	14	21	21	20	27.3	27.2	20.4	18.4	17.6	14.2	16
Sodium (tot)	mg/L	-	-	-	-	0.05	20	19	14	-	8	6	8	84	57	85	75	68	74	88.7	102	46.4	76.3	57.3	44.6	79.8
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	26	45	17	16	28	22	25	148	105	176	125	108	76	213	26	154	125	127	112	115
Ammonia as N	mg/L	-	-	-	-	0.02	0.04	0.1	0.03	0.12	0.04	0.05	0.05	0.02	-	-	-	0.03	0.03	0.03	0.01	0.675	-	0.03	-	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	23	-	3	8	7	10	3	150	2	4	57	2	3	3	-	36	-	-	7
Colour	TCU	-	-	-	-	2	69	191	82	94	242	242	113	53	99	147	67	50	81	44	55	61	99	102	98	219
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	2	6.05	4.2	5.21	8.01	-	-	-	-	8.02	4.81	-
Electrical Conductivity	uS/cm	-	-	-	-	1	253	232	198	42	150	141	175	880	609	831	733	722	704	603	1150	708	670	608	459	603
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	56	56	63	19	54	54	61	183	132	173	169	164	145	44.8	355	227	135	145	109	160
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.44	7.04	7.03	7.23	6.76	6.58	6.74	7.78	7.33	7.72	7.8	6.73	6.7	7.7	6.8	8.05	7.78	8.06	7.73	7.81
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	0.003	-	-	-	-	-	-	-	0.001	-	-	-	0.003	0.003	0.003	-	-	-	0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	164	151	129	27	98	92	114	572	396	540	476	469	458	596	749	48	428	396	284	438
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.68	6.53	1.03	0.38	2.62	3.11	2.49	1.39	4.76	1.86	0.7	3.41	0.77	1.2	1.1	1.66	1.2	2.54	1.67	7.42
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.02	1.55	0.15	0.02	0.4	0.63	0.56	0.04	0.16	0.02	0.09	0.02	-	0.05	0.01	0.056	0.04	0.1	-	0.28
Total Suspended Solids	mg/L	-	-	-	-	10	-	162	23	3	160	190	182	27	4690	-	202	596	27	156	114	-	1030	51	23	328
Turbidity	NTU	-	-	-	-	0.1	1.4	32	3.6	2.4	18.9	46.9	-	5.9	-	1.9	0.9	-	0.7	10	11.5	2.9	23	25.3	9.1	51.1
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	-	0.000005	-	-	-	0.0000029	0.0000138	0.000023	0.000001	0.000516	-	0.000091	0.00069	0.00007
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	0.009	-	0.011	0.024	0.014	0.012	0.02
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.07	0.2	0.09	0.06	0.12	0.2	0.09	0.02	0.6	0.02	0.3	0.01	0.02	0.024	0.021	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	0.03	0.02	0.02	0.15	0.2	0.35	0.1	0.1	0.2	0.227	0.948	0.382	0.208	0.313	0.207	0.613
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	0.002	0.002	0.002	-	0.005	0.001	-	0.003	-	0.008	-	-	0.002	-	-	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0008	0.0031	0.0005	-	0.002	0.0019	0.0018	0.0003	-	0.0004	-	-	0.0002	-	0.0006	0.0007	-	0.0006	-	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	0.0012	0.0021	-	-	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.38	**17.9**	0.45	**1.69**	**3.66**	**3.57**	**3.55**	0.08	**1.7**	0.11	0.3	0.6	0.1	-	0.133	0.022	0.018	0.1	0.11	0.23
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	**0.003**	-	-	0.001	0.001	-	-	**0.01**	-	-	-	-	0.0005	0.0005	-	-	-	-	0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	0.004	-	-	-	-	0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	0.001	-	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	-	-	0.01	-	-	-	-	-	0.08	-	-	-	-	-	0.017	0.0092	0.051	0.007	-	0.017

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C	MCG-C
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2015-Oct-26	2016-Apr-28	2016-Aug-17	2016-Oct-26	2017-May-10	2018-May-07	2019-May-07	2020-May-06	2020-Oct-06	2021-Apr-20	2021-Jul-14	2021-Oct-18	2022-May-03	2022-Aug-04	2022-Oct-18	2023-May-03	2023-Aug-09	2023-Oct-19	2024-Apr-29	2024-Jul-11
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	67.3	32.7	36	46.9	25.9	19	16.9	16.9	37.9	33.3	12.5	13.1	8.42	31.5	24.9	4.92	28	58	13	9
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	0.2
Nitrate as N	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	0.2
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	78.5	62.4	85.8	67.2	63.6	21.6	35.4	21.3	12	25.1	3.57	2.47	17.2	4.56	14.9	15.3	2.9	10	11	8.4
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	36.7	44.3	35.6	38.3	53.4	28.2	34	28.73	47.16	57.3	32.6	26.5	17.5	49.3	28.6	13.3	51	54	20	16
Magnesium (tot)	mg/L	-	-	-	-	0.05	8.9	9.9	8.37	9.16	11.6	6.58	7.69	7.41	10.41	13.7	9.63	8.23	4.85	11.5	9.64	4.58	13	14	5.7	4
Potassium (tot)	mg/L	-	-	-	-	0.05	14.6	16.9	13.1	11.6	20.2	11.3	11.1	8.44	13.52	20.2	4.88	6.37	3.73	3.79	8.66	2.9	4	14	3.6	5
Sodium (tot)	mg/L	-	-	-	-	0.05	61.7	44.5	58.1	42.5	45.3	25.7	23.8	21.05	37.39	40.2	15.3	13.5	10.3	24.4	23.9	7.82	21	35	9.9	11
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	107	166	107	113	197	130	148	110	185	209	129	104	53	142	83	40	180	170	97	60
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	0.07	0.03	0.07	0.02	<0.02	<0.02	<0.02	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	<5	-	<5	<2	<6	5	2	10	<2	<2	4	<2	2	2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	50	42	8	-	57	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	126	65	197	147	82	93	35	-	110	60	249	366	117	183	102	174	98	83	140	130
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	18.8	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	6.52	3.15	0.91	9.06	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	566	548	536	517	640	331	375	384	457	611	285	224	181	355	268	136	420	540	250	170
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	128	151	123	133	181	97.5	117	102	161	199	121	100	63.7	170	111	52.1	180	190	110	59
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.53	7.66	7.78	7.58	8.07	7.35	7.46	7.53	7.72	8.02	7.41	7.27	7.01	7.43	7.21	7.24	7.6	7.93	7.71	7.46
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	0.002	0.001	0.001	0.002	0.002	0.005	0.003	<0.001	0.005	0.007	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	368	326	372	352	380	188	222	196	312	370	228	230	132	268	224	134	250	270	170	150
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	1.84	11.2	1.57	10.4	1.85	2.39	0.68	0.91	1.34	0.82	1.2	1.23	0.73	1.3	1.06	0.84	0.77	0.91	0.63	0.76
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.25	0.48	0.05	3.15	1.18	0.24	0.52	0.04	0.1	<0.02	0.1	0.05	0.04	0.16	<0.02	<0.02	0.026	0.025	<0.02	0.047
Total Suspended Solids	mg/L	-	-	-	-	10	221	300	204	2910	1170	56	172	<10	82	<10	<10	<10	<10	10	<10	<10	12	18	10	<10
Turbidity	NTU	-	-	-	-	0.1	81	120	6.8	4570	124	112	85.2	10.3	45.7	4.9	5.6	6.2	1.3	3.5	2.6	0.9	0.8	0.5	0.7	1.5
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.00002	0.000013	0.000037	0.00003	0.000112	0.000359	-	-	-	-	-	-	-	<0.000002	<0.000002	<0.000002	<0.00061	<0.00061	<0.00061	<0.00061
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	0.036	-	-	0.099	<0.005	0.008	0.018	0.12
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.014	0.008	0.021	0.021	0.01	0.013	0.012	0.01	0.013	0.005	0.057	0.043	-	0.009	0.015	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	-	-	-	-	-	0.04	0.415	0.044	0.09	0.083	-	0.029	0.039	-	0.014	0.024	0.034	0.17
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	0.033	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	0.348	0.398	0.656	0.345	0.337	0.264	0.341	0.191	0.262	0.306	0.17	0.128	0.174	0.356	0.241	0.181	0.19	0.22	0.1	0.18
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	0.0002	**0.0003**	-	0.0008	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0005	0.0035	-	0.0024	0.0013	0.0008	0.0006	<0.0005	0.0022	0.0008	0.0019	0.0016	<0.0005	0.0009	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	0.004	-	0.002	-	-	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.0009	<0.0009	<0.0009	0.0014
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.87	**4.35**	0.05	**8.82**	0.89	**1.16**	0.72	0.088	**1.36**	0.584	0.945	**2.47**	0.299	**1.44**	0.331	0.551	0.74	0.39	0.41	0.35
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	0.006	0.019	-	0.022	**0.004**	**0.005**	**0.003**	<0.001	**0.003**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	0.079	-	-	-	0.757	0.064	0.906	0.097	0.02	0.64	0.17	0.025	0.12
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	0.003	-	-	0.004	-	-	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	0.0014	<0.001	0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	0.006	-	-	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	5.79	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	0.206	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	<0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.032	0.091	0.006	0.156	0.018	0.022	0.013	<0.005	0.02	0.018	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-C	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2024-Oct-29**	**2003-Aug-14**	**2003-Sep-17**	**2003-Sep-30**	**2003-Oct-29**	**2003-Nov-17**	**2004-Apr-29**	**2004-Jun-23**	**2004-Aug-20**	**2004-Sep-10**	**2004-Oct-28**	**2006-May-11**	**2006-Jul-19**	**2006-Aug-21**	**2006-Sep-19**	**2006-Nov-20**	**2007-May-03**	**2007-Jun-04**	**2007-Aug-15**	**2007-Sep-27**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	17	12.8	3.1	2.64	1.6	7.3	1.2	2.3	7	1.4	2.4	4	6.6	6.5	6.1	1.5	1.6	4.2	4.7	5.2
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	<0.1	<0.1	2.64	0.58	0.72	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.1	0.23	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulphate	mg/L	-	-	100	-	0.1	3.1	7	11	26	21	27	8	4	3	10	9	7	2	4	18	9	7	2	1	3
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	24	7	7	7	5	3	3	5	5	4	5	5	6	7	12	3	3	4	11	9
Magnesium (tot)	mg/L	-	-	-	-	0.05	6.3	3	2	3	2	1	<1	1	2	1	2	1	2	2	4	1	<1	1	3	2
Potassium (tot)	mg/L	-	-	-	-	0.05	4.2	<1	2	1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	2	<1	<1	<1	2	2
Sodium (tot)	mg/L	-	-	-	-	0.05	9.4	2	4	3	2	2	3	3	3	2	3	2	2	<2	3	2	<2	<2	3	4
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	84	29	38	6	5	7	12	16	21	8	12	15	17	24	-	-	-	13	38	37
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	0.16	0.24	0.15	0.06	-	0.04	-	0.05	-	0.05	-	0.07	-	0.04	0.04	-	0.05	0.1	0.21
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	14	3	-	-	-	1	-	-	-	-	4	3	2	-	1	-	4	2	2
Colour	TCU	-	-	-	-	2	98	82	118	52	62	62	96	182	124	129	67	130	166	116	49	97	78	214	26	122
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	2.8	8.5	8.5	-	-	8.1	9.7	5	6	5.8	-	7.5	6.7	6.9	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	220	64	87	93	59	52	38	58	57	49	61	52	47	59	122	38	34	35	91	86
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	97	30	26	30	21	12	9.6	17	21	14	21	17	23	26	46	12	9.6	14	40	31
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.49	6.5	6.48	**5.82**	**5.77**	**5.51**	**5.88**	6.11	6.18	**5.58**	**5.85**	6.53	6.27	6.29	**5.48**	**5.84**	**5.88**	6.62	7.43	7.04
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	155	42	57	-	38	34	25	38	37	32	40	34	31	38	79	25	22	23	59	56
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.57	2.1	1.1	0.84	0.22	0.82	0.86	0.96	2.12	0.94	0.66	1.01	0.87	1.95	1.05	0.46	0.65	1.7	1.25	1.11
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.02	0.1	0.04	0.03	0.02	0.28	0.07	0.07	0.19	0.07	0.03	0.05	0.02	0.26	-	0.03	0.02	0.18	-	0.04
Total Suspended Solids	mg/L	-	-	-	-	10	<10	36	10	21	3	44	11	17	12	5	5	13	16	21	5	-	4	13	10	7
Turbidity	NTU	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.029	0.03	0.14	0.12	0.2	0.83	0.19	0.25	0.11	0.26	0.08	0.48	0.12	0.2	0.19	0.27	0.22	0.38	0.04	0.03
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	0.06	-	-	0.001	0.0001	0.0005	-	-	-	-	-	-	-	-	0.0002	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.0001	<0.0001	0.001	0.0001	0.0005	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	0.0004	<0.001	0.0002	0.001	<0.001	0.002	0.002	<0.001	<0.001
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	0.0007	0.0006	0.0013	0.0004	0.0019	0.0003	0.016	0.002	0.0016	0.0012	0.0004	0.0013	0.0002	0.001	<0.0002	0.0003	0.0024	0.0006	0.0009
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.0009	0.004	<0.001	0.001	0.002	0.003	0.001	0.018	<0.001	0.002	<0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.002	<0.001	<0.001
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.88	**1.59**	**2.01**	0.52	0.26	**3.01**	0.39	**2.45**	**2.09**	**1.19**	**1.31**	0.66	**1.97**	**2.97**	0.63	0.34	0.45	**2.12**	**1.64**	**3.03**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	0.008	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	0.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<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 (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	<0.001	<0.01	0.02	0.01	0.04	0.01	**0.17**	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.03	<0.01	<0.01	0.01	<0.01	<0.01

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2007-Nov-22	2008-May-07	2008-Jun-19	2008-Aug-21	2008-Sep-16	2008-Oct-09	2009-Jun-03	2009-Jul-16	2009-Aug-06	2009-Sep-16	2009-Oct-22	2010-May-17	2010-Jul-19	2010-Oct-18	2011-May-18	2011-Nov-03	2012-Apr-17	2012-Oct-17	2013-Apr-18	2013-Aug-15
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	8.3	1.2	2.1	16.3	1.3	-	0.5	5	1.1	1.9	0.7	0.7	1.3	0.7	0.1	2.5	1.3	23.6	0.7	42.1
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	0.32	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.7	<0.1	6.1	0.716	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	-	-	100	-	0.1	13	8	1	1	9	6	4	4	<1	7	2	1	4	5	5	25	10	35	12.5	14.6
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	5	3	5	6	4	4	3	4	4	7	2	3	4	2	3	8	3.36	8.17	3.85	7.3
Magnesium (tot)	mg/L	-	-	-	-	0.05	2	<1	1	2	1	1	1	1	1	2	<1	<1	1	<1	<1	3	1.16	4.21	1.3	1.96
Potassium (tot)	mg/L	-	-	-	-	0.05	1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	1	<0.5	1.24	0.96	0.98
Sodium (tot)	mg/L	-	-	-	-	0.05	3	<2	2	<2	<2	<2	2	<2	3	3	2	<2	2	<2	<2	<2	2.17	3.33	2.42	2.85
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	12	9	10	15	-	7	12	10	11	25	5	7	17	11	9	-	-	7	-	23
Ammonia as N	mg/L	-	-	-	-	0.02	0.17	-	0.04	0.03	0.14	-	0.02	-	-	-	-	-	-	-	-	0.03	0.02	-	-	0.14
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	2	-	3	9	-	-	-	1	1	-	1	2	1	3	-	2	-	5	-	11
Colour	TCU	-	-	-	-	2	135	98	283	144	107	76	126	121	217	48	101	128	163	122	119	31	60	23	80	73
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	6.01	3.4	5.22	5.92	8.12	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	72	38	31	42	46	43	29	35	36	70	31	29	53	45	28	85	45	150	52	85
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	21	9.6	17	23	14	14	12	14	14	26	7.1	9.6	14	7.1	9.6	32	2.6	37.8	15	26.3
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.64	6.42	6.1	6.4	**5.96**	6.25	**5.58**	6.4	6.38	7.17	6.27	6.37	6.92	6.89	**5.71**	**5.78**	**5.9**	6.5	**5.68**	6.46
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.003	-	-	-	-	0.002	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	47	25	20	27	30	28	19	23	23	46	20	19	35	29	18	55	31	110	460	74
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.93	0.4	1.71	2.49	0.95	0.59	0.76	0.82	1.06	0.49	0.59	0.57	1.19	0.56	0.83	0.28	0.4	1.6	0.296	3.41
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.09	-	0.06	0.16	0.05	0.04	0.01	0.01	0.02	-	-	-	-	0.02	-	-	0.03	0.1	0.031	0.76
Total Suspended Solids	mg/L	-	-	-	-	10	25	-	4	53	-	-	3	19	3	5	-	2	-	22	5	49	-	155	-	60
Turbidity	NTU	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	0.000004	-	-	-	-	-	-	-	-	0.000008	0.000006	0.000004	-	0.000059
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	-	0.12	0.131
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.03	0.23	0.39	0.29	0.23	0.16	0.29	0.23	0.42	0.07	0.25	0.26	0.27	0.23	0.24	0.12	0.208	0.234	0.12	0.131
Arsenic (tot)	mg/L	-	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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.003	<0.003
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	0.0001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.035	0.02	<0.001
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0005	0.0002	<0.0001	0.0003
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.001	0.001	0.001	0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.001	0.0002	0.0016	0.0032	0.0009	0.0011	0.0003	0.0009	0.0006	0.0003	<0.0002	0.0004	0.0005	<0.0002	0.0002	0.0003	<0.0025	0.0008	<0.0005	0.0041
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.001	0.001	0.001	0.001	0.002	<0.001	0.002	0.001	0.002	<0.001	0.001	0.002	0.002	0.001	0.002	<0.001	<0.0025	0.0064	<0.002	0.003
Iron (tot)	mg/L	0.3	-	1	-	0.01	**1.78**	0.29	**1.93**	**2.84**	**1.02**	0.91	0.52	**1.26**	**1.03**	0.44	0.65	0.62	**1.02**	0.52	0.39	0.24	<0.5	0.766	0.158	**6.34**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<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	<0.001	0.0007	**0.0045**	<0.001	**0.004**
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<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	<0.005	<0.005	0.001	<0.003	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.004	<0.004
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.025	0.048	0.0118	0.018

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D	MCG-D
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2013-Oct-30**	**2014-May-13**	**2015-Sep-09**	**2016-Apr-28**	**2016-Aug-17**	**2016-Oct-26**	**2017-May-10**	**2017-Oct-23**	**2018-May-07**	**2019-May-07**	**2020-May-06**	**2020-Oct-06**	**2021-Apr-20**	**2021-Jul-14**	**2021-Oct-18**	**2022-May-03**	**2022-Oct-18**	**2023-May-03**	**2023-Aug-09**	**2023-Oct-19**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	76	1.5	43.5	1.3	166	1.35	6.1	0.08	0.48	0.51	0.4	0.64	0.42	0.6	0.69	0.66	1.99	0.67	<20	1
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1
Nitrate as N	mg/L	-	-	-	-	0.05	0.52	<0.05	<0.05	0.08	0.07	<0.05	<0.05	0.08	0.1	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	12.1	6.34	18	6.72	10.3	22.2	7.14	8.85	4.95	5.73	6.44	6.58	4.38	1.14	0.83	4.39	20.8	4.73	<20	9.3
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	4.64	2.92	6.74	2.31	4.21	7.9	2.49	3.79	2.14	2.63	2.71	4.35	2.69	3.92	4.23	2.38	5.89	1.98	8	6.1
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.45	0.85	1.91	0.73	1.25	2.28	0.82	1.26	0.71	0.76	0.79	1.05	1.07	1.1	1.35	0.86	2.01	0.68	2.1	1.7
Potassium (tot)	mg/L	-	-	-	-	0.05	0.71	0.48	2.12	0.47	0.47	2.17	0.51	0.67	0.61	0.5	0.52	0.6	<0.58	<0.58	1.31	<1.15	0.67	<0.5	1.2	0.89
Sodium (tot)	mg/L	-	-	-	-	0.05	2.2	1.84	3.44	1.52	1.74	3.33	1.7	2.1	1.42	1.54	1.82	2.06	2.16	2.18	2.39	2.15	3.3	1.35	2.3	3.2
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	-	-	12	-	6	17	-	6	-	6	5	9	6	10	12	6	<5	<5	30	16
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	-	-	-	0.48	-	-	0.06	<0.02	0.04	0.07	<0.02	0.05	0.06	<0.02	0.05	<0.02	0.072	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	<5	-	6	<2	<6	10	<2	3	<2	12	3
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	5	-	-	44	-	-	-	-	41	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	54	130	74	62	117	67	96	105	95	41	-	122	110	249	186	80.7	34.8	102	150	96
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	12.8	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	5.78	-	8.25	2.1	1.99	10.96	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	52	34	75	30	48	101	35	44	28	31	39	37	33	32	33	30	72	32	66	67
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	17.6	10.8	24.7	8.8	15.7	29.1	9.6	14.7	8.3	9.7	10	15.2	11.1	14.3	16.1	9.5	23	7.7	29	24
pH	pH units	6.5 - 8.5	-	6 - 9	-		**5.66**	**5.83**	6.97	**5.93**	6.31	6.91	6.27	6.37	**5.94**	6.08	6.37	6.41	6.26	6.62	6.45	6.14	6.13	6.26	6.58	7.02
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	0.005	-	-	-	0.001	0.002	<0.001	<0.001	0.002	0.001	<0.001	0.002	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	74	54	72	36	88	88	32	68	22	50	32	28	48	90	86	32	74	68	70	115
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	4.74	2	2.37	0.34	6.08	6.25	0.48	12	0.66	0.18	0.59	1.35	0.56	1.14	1.6	0.39	0.78	0.38	1.1	0.97
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.46	0.04	0.16	0.01	0.42	11	0.02	2.04	0.09	0.02	0.06	0.05	<0.02	0.1	0.79	<0.02	<0.02	0.03	0.2	0.097
Total Suspended Solids	mg/L	-	-	-	-	10	684	-	224	-	1020	11000	-	1330	47	<10	20	1170	<10	<10	96	11	26	<10	47	40
Turbidity	NTU	-	-	-	-	0.1	-	-	-	-	-	7310	-	616	0.8	0.9	7.2	54.4	2.6	2.3	49.1	<0.5	24.5	0.6	5.1	1.6
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	0.000002	0.00002	0.000008	0.000001	0.00002	0.000001	0.000003	0.000018	-	-	-	-	-	-	-	0.000005	<0.000002	<0.00061	<0.00061
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.138	-	0.187	0.098	0.098
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.193	0.283	0.103	0.142	0.231	0.089	0.187	0.153	0.147	0.167	0.173	0.302	0.237	0.424	0.226	-	0.073	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.193	0.283	0.103	0.142	0.231	0.089	0.187	0.153	0.147	-	0.372	1.17	0.255	0.559	0.938	-	0.517	-	0.2	0.26
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	0.014	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.001	<0.01	<0.01	0.011	0.016	0.024	0.013	<0.01	<0.01	-	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	0.0006	<0.0001	0.0002	<0.0001	0.0006	0.0128	<0.0001	0.0011	<0.0001	-	<0.0001	0.0002	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0032	<0.0005	0.0031	<0.0005	0.0047	0.0387	<0.0005	0.0075	0.0017	<0.0005	<0.0005	0.0022	<0.0005	0.0009	0.002	<0.0005	0.0018	<0.0005	0.0028	0.0015
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.006	0.002	0.002	<0.002	0.005	0.004	<0.002	0.011	0.002	<0.002	0.002	0.004	<0.002	0.002	0.004	<0.002	0.002	0.001	<0.0009	0.0013
Iron (tot)	mg/L	0.3	-	1	-	0.01	**3.39**	0.43	**4.57**	0.09	**4.56**	**56.2**	0.17	**21.7**	**1.15**	0.19	0.669	**4.7**	0.392	**1.62**	**9.16**	0.337	**2.31**	0.271	**4.1**	**1.7**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	**0.012**	<0.001	**0.004**	<0.001	**0.011**	**0.087**	<0.001	**0.029**	**0.003**	<0.001	<0.001	**0.005**	<0.001	<0.001	**0.004**	<0.001	**0.003**	<0.001	0.00074	0.00081
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	0.103	-	-	-	0.521	0.05	0.464	0.014	1.2	0.47
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	<0.003	<0.003	<0.003	<0.003	0.029	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	2.79	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	0.016	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	<0.0003	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	0.016	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.037	0.01	0.013	0.006	0.035	0.768	<0.005	0.056	0.012	<0.005	0.006	0.017	0.008	0.024	<0.02	<0.02	<0.02	<0.02	<0.005	0.0082

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-D	MCG-D	MCG-D	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Apr-29	2024-Jul-11	2024-Oct-29	2008-May-07	2008-Jun-19	2008-Aug-21	2008-Sep-16	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2012-Apr-17	2012-Jul-11	2012-Oct-17	2013-Apr-18	2013-Aug-15	2013-Oct-30
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	<1	1	<1	32	5	61	40	59	31	25	39	29	31	48	28	78	59	23.6	67.1	42.8
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2	0.141	0.15	0.08
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	6.7	<1	1.2	7	5	6	6	7	6	6	7	6	6	10	8	9	19	5.53	8.81	7.01
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	3.3	3.8	5	7	10	15	8	11	7	7	8	7	7	11	7.36	9.43	8.59	4.53	13.1	8.73
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.99	1	1.6	1	2	2	1	2	1	1	1	1	1	2	1.46	2.55	2.95	0.78	2.46	1.65
Potassium (tot)	mg/L	-	-	-	-	0.05	0.44	0.56	0.72	-	-	1	-	1	-	-	-	-	-	2	0.814	1.27	1.74	0.79	1.3	1.44
Sodium (tot)	mg/L	-	-	-	-	0.05	1.9	1.4	2	20	25	36	25	32	22	16	24	18	18	26	17.1	33.4	33.3	13.5	32.3	25.1
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	7	9.3	26	13	23	28	14	25	22	23	17	22	21	26	15	24	20	6.63	24	17
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	<0.05	0.056	0.03	0.06	-	0.15	0.05	-	-	-	-	0.09	-	0.04	-	0.02	0.148	0.07	0.02
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	<2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	2	-	-	-	-	1	-	4	-	2	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	97	220	100	34	337	40	61	35	43	44	32	40	32	32	22	20	19	39	27	43
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	13.3	14.19	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	32	35	56	155	194	278	188	265	159	146	193	158	153	227	149	281	295	107	317	200
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	12	14	22	22	33	46	24	36	22	22	24	22	22	36	4.9	34.1	33.6	14.5	42.8	28.6
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.53	6.38	6.84	7	7.28	7.36	7.18	7.41	6.27	7.42	7.25	7.31	6.06	6.29	7.1	7.3	7.3	6.81	6.69	7
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	45	90	40	101	126	181	122	172	103	95	125	103	99	148	170	157	154	64	178	108
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.44	0.85	0.68	0.32	0.26	0.47	0.59	0.24	0.18	0.19	-	0.15	0.56	-	0.2	0.1	0.3	0.119	0.21	0.42
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	0.11	0.099	0.03	-	-	0.02	-	-	-	-	0.01	-	-	-	-	-	0.025	-	-
Total Suspended Solids	mg/L	-	-	-	-	10	<10	27	<10	-	-	-	5	-	-	-	-	2	-	-	-	16	-	-	-	-
Turbidity	NTU	-	-	-	-	0.1	0.5	2.4	-	0.6	1.3	1.4	2.7	-	1	1.1	0.8	0.8	1.3	1.2	1.3	1.2	0.6	0.8	1	0.9
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	<0.00061	<0.00061	-	-	-	-	-	-	-	-	-	0.0000229	-	0.0000442	0.000162	0.0000108	0.00145	0.000263	0.0000433
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.23	0.37	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-	-	0.0544	0.025	0.065
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.26	0.6	0.14	0.04	0.05	0.01	0.07	0.03	0.06	0.05	0.05	0.04	0.04	0.03	0.049	0.016	0.022	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	0.011	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.026	0.02	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	0.00013	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	<0.005	<0.005	0.001	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	0.0016	0.0055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.0017	0.0024	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	0.0007	-	-	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.43	**2**	**3.9**	0.25	0.84	0.45	0.54	0.37	0.34	0.35	0.34	0.31	0.26	0.25	-	0.313	0.163	0.108	0.22	0.27
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	0.0015	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	0.0001	-	-	-	-
Manganese (tot)	mg/L	-	-	-	-	0.002	0.076	0.4	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	0.0011	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.007	0.013	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0264	-	0.064

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	MCG-E	QC SW-S19 (M	MCG-E	QC SW-SU19 (	MCG-E
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2014-May-13**	**2014-Aug-19**	**2014-Oct-14**	**2015-May-04**	**2015-Sep-09**	**2015-Oct-26**	**2016-Apr-28**	**2016-Aug-17**	**2016-Oct-26**	**2017-May-10**	**2017-Jul-20**	**2017-Oct-23**	**2018-May-07**	**2018-Jul-30**	**2018-Oct-22**	**2019-May-07**	**2019-May-07**	**2019-Aug-14**	**2019-Aug-14**	**2019-Oct-24**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	44.2	58.2	60.9	51.6	62.6	79.6	28.6	37.7	70	34.9	52	55.6	29.9	73	74.4	31	30.9	68	67.8	74.6
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	0.06	0.08	0.06	0.08	0.09	-	-	0.14	0.06	0.05	0.11	0.06	0.07	0.12	-	<0.05	<0.05	0.14	0.15	0.21
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	-	-	100	-	0.1	6.94	5.85	5.77	7.16	7.65	9.6	5.85	7.44	10.4	5.78	4.6	5.83	4.62	7.6	8.1	5.17	5.07	8.8	8.53	14.4
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	7.79	11.8	10.2	8.85	13.3	13	5.27	6.13	13.5	5.49	9.09	10.3	4.88	13	12.7	5.45	5.41	14.2	14.2	13.5
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.39	2.11	1.89	1.52	2.38	2.45	0.92	1.22	2.68	0.95	1.61	1.94	0.86	2.25	2.3	0.89	0.89	2.53	2.52	2.46
Potassium (tot)	mg/L	-	-	-	-	0.05	0.99	1.11	1.44	1.1	1.83	1.64	0.64	1.03	1.42	0.76	0.81	1.25	0.66	1.2	1.25	0.65	0.66	1.41	1.41	1.52
Sodium (tot)	mg/L	-	-	-	-	0.05	24	32.1	34.4	29.3	40.2	37.8	16.9	24.8	35.1	21.5	29.9	33.3	17.9	39.5	40.8	18.3	18.3	35	34.8	44.3
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	12	25	17	13	24	24	9	12	25	11	28	26	11	24	21	12	12	30	27	21
Ammonia as N	mg/L	-	-	-	-	0.02	-	0.1	0.14	-	-	-	0.06	-	-	-	-	0.16	0.06	-	-	<0.02	<0.02	<0.02	<0.02	0.09
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	37	42	46	33	52	30	32	75	26	44	84	46	39	10	10	15	14	34	32	40
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		12.42	-	11.18	7.85	-	-	13.15	9.55	11.52	14	8.74	10.29	11.36	7.47	13.71	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	197	271	283	222	273	304	136	180	310	174	231	221	133	324	333	144	145	328	329	383
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	25.2	38.2	33.3	28.4	43	42.6	16.9	20.3	44.7	17.6	29.3	33.7	15.7	41.6	41.2	17.3	17.2	45.9	45.8	43.8
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.15	7.49	7.24	7.22	7.55	6.95	6.31	7.22	7.43	7.35	7	7.18	6.25	7.12	6.84	6.56	6.63	7.22	7.23	6.95
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	0.004
Total Dissolved Solids	mg/L	-	-	-	-	10	118	140	144	120	152	168	78	112	162	86	112	132	70	170	178	86	72	150	160	178
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	1.45	0.33	0.46	0.29	0.27	0.21	0.25	0.56	0.14	0.25	0.32	0.3	0.47	0.25	-	<0.1	<0.1	0.1	<0.1	0.27
Total Phosphorus	mg/L	0.03	-	-	-	0.02	-	-	0.04	-	-	0.01	0.01	0.03	-	0.01	0.03	0.02	0.05	-	-	<0.02	<0.02	0.03	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	<10	<10	<10	<10	<10
Turbidity	NTU	-	-	-	-	0.1	2.3	-	1.1	3.4	1.8	0.6	1.4	4.3	-	0.8	2.1	1.5	1.2	3.5	4.9	1.3	1.4	0.8	0.9	1.2
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.000082	0.000998	0.0000493	0.00003	0.00009	0.00004	0.000007	0.000057	0.00003	0.0000119	0.000251	0.0006	0.0000276	0.0001083	0.0000203	-	-	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.041	0.021	0.022	0.034	0.018	0.014	0.06	0.081	0.01	0.07	0.036	0.018	0.065	0.016	0.014	0.052	0.053	0.011	0.012	0.023
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	-	-	-	0.013	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.22	0.52	0.28	0.18	0.3	0.01	0.11	0.42	0.08	0.1	0.69	0.27	0.15	0.42	0.12	0.1	0.12	0.18	0.18	0.21
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	0.007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	<0.004
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	-	-	-	-	-	-	0.007	-	-	-	0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	QC SW-F19 (M	MCG-E	QC SW-S20 (M	MCG-E	QC SW-SU20 (	MCG-E	QC SW-F20 (M	MCG-E	QC SW-21 (M	MCG-E	MCG-E	MCG-E	MCG-E	QC SW-SU22 (	MCG-E	QC SW-F22 (M	MCG-E	QAQC-SW1 (MC	MCG-E	QAQC-1 (MC
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2019-Oct-24	2020-May-06	2020-May-06	2020-Aug-25	2020-Aug-25	2020-Oct-06	2020-Oct-06	2021-Apr-20	2021-Apr-20	2021-Jul-14	2021-Oct-18	2022-May-03	2022-Aug-04	2022-Aug-04	2022-Oct-18	2022-Oct-18	2023-May-03	2023-May-03	2023-Aug-09	2023-Aug-09
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	74.7	35	35.7	74.6	74.6	53.7	53.7	34.8	34.8	32.7	35.5	32.4	70.3	70.3	58.9	57.7	20.4	-	53	54
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.17	0.17
Nitrate as N	mg/L	-	-	-	-	0.05	0.2	<0.05	0.05	0.12	0.13	<0.05	<0.05	0.07	0.07	0.06	<0.05	0.07	0.17	0.17	0.05	0.06	0.05	-	0.17	0.17
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	14.7	6.16	5.93	7.43	6.75	5.51	5.51	5.07	5.05	3.34	4.46	4.99	5.81	5.8	6.39	6.83	3.77	-	6.1	6.2
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	13.5	6.19	6.76	14.79	14.34	8.54	8.68	7.15	7.01	7.17	8.98	6.25	12.8	13	10.9	9.25	3.21	-	12	12
Magnesium (tot)	mg/L	-	-	-	-	0.05	2.48	1.04	1.12	2.68	2.53	1.4	1.46	1.34	1.33	1.17	1.5	1.15	2.26	2.34	2.31	2.23	0.73	-	2.1	2.1
Potassium (tot)	mg/L	-	-	-	-	0.05	1.52	0.77	0.81	1.56	1.43	1.13	1.08	0.72	0.77	0.71	1.11	<1.15	1.49	1.33	1.9	1.47	0.71	-	1.1	1.1
Sodium (tot)	mg/L	-	-	-	-	0.05	43.9	19.56	21.2	47.09	45.43	29.91	30.08	23.2	22.7	20.6	22.9	19.4	43.1	46.5	45.1	37.5	15.3	-	36	36
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	20	10	10	31	30	21	33	12	12	20	26	11	33	28	23	24	11	-	30	30
Ammonia as N	mg/L	-	-	-	-	0.02	0.1	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<5	-	-	<2	<2	<5	<5	<2	<2	<6	<2	<2	<2	<2	<2	<2	<2	-	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	8	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	39	-	-	42	43	66	65	35	37	83	58	27.4	68.8	69.6	50.3	50.6	47.9	-	46	47
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	5.7	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	338	200	201	318	317	217	218	173	174	156	176	155	283	284	245	249	105	-	270	260
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	43.9	19.7	21.5	48	46.2	27.1	27.7	23.4	23	22.7	28.6	20.3	41.3	42.1	36.7	32.3	11	-	40	39
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.46	6.76	6.84	6.53	6.52	6.59	6.63	6.94	7.02	6.83	6.94	6.49	7.57	7.11	7.23	7.22	6.84	-	7.33	7.42
Phenols	mg/L	0.001	-	0.04	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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	210	82	90	202	196	126	130	112	110	102	106	68	174	170	140	146	88	-	140	130
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.26	0.32	0.33	0.3	0.32	0.36	0.38	0.28	0.29	0.29	0.26	0.17	0.47	0.43	0.5	0.46	0.2	-	0.29	0.23
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.06	0.06	<0.02	<0.02	<0.02	-	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10
Turbidity	NTU	-	-	-	-	0.1	1	0.9	1.4	4.3	1.3	1.1	0.9	1.5	1.2	2.3	1.3	0.7	3.3	3	1.6	1.4	1.4	-	2.6	2.7
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	-	-	-	-	-	-	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	-	<0.00061	<0.00061
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	0.033	-	-	-	-	0.08	-	0.036	0.039
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.027	0.058	0.058	0.018	0.018	0.042	0.039	0.036	0.047	0.065	0.038	-	0.035	0.035	0.029	0.03	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	0.086	0.092	0.072	0.057	0.031	0.103	0.085	0.088	0.169	0.078	-	0.064	0.146	0.069	0.058	-	-	0.092	0.087
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	0.019	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	-	<0.01	<0.01
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	<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	<0.0001	<0.0001	-	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.008	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	-	<0.0009	<0.0009
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.2	0.169	0.197	0.469	0.47	0.286	0.312	0.23	0.254	0.831	0.576	0.266	**1.69**	**1.64**	0.619	0.469	0.25	-	**1.1**	**1.1**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<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	<0.001	0.002	-	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	-	0.01	0.012	-	-	-	-	-	-	-	0.014	0.017	0.036	0.03	0.015	0.013	0.015	-	0.036	0.035
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.007	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	2.47	2.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	0.046	0.054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	<0.0003	<0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	<0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.005	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-E	)AQC-SW1 (M	MCG-E	MCG-E	)AQC-SW1 (M	MCG-E	)AQC-SW1 (M	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2023-Oct-19	2023-Oct-19	2024-Apr-29	2024-Jul-11	2024-Jul-11	2024-Oct-29	2024-Oct-29	2008-May-07	2008-Jun-19	2008-Aug-21	2008-Sep-16	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2012-Apr-17	2012-Jul-11
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	62	56	27	13	13	38	38	48	54	59	58	57	49	36	40	21	22	28	46	90
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	0.2	0.1
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	9	8.5	6.6	1.1	1.5	5.9	6.2	7	4	3	3	3	5	3	5	4	5	4	6	3
Cations																									
Calcium (tot)	mg/L	-	-	-	-	0.05	13	12	6	3.8	3.7	9	8.7	5	6	9	6	6	5	5	5	3	4	5	7.94	5.51
Magnesium (tot)	mg/L	-	-	-	-	0.05	2.4	2.3	1.1	0.71	0.67	1.6	1.6	-	1	1	1	1	1	1	-	-	-	-	1.26	1.5
Potassium (tot)	mg/L	-	-	-	-	0.05	1.5	1.4	0.67	0.65	0.62	0.94	0.95	1	1	1	-	-	1	1	1	-	-	2	1.7	1.78
Sodium (tot)	mg/L	-	-	-	-	0.05	41	41	19	9.7	9.3	24	24	31	35	38	36	35	34	23	25	13	13	17	27.5	36.9
General Chemistry																									
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	27	26	14	14	10	27	25	11	13	15	12	15	9	22	9	11	10	12	9	12
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.05	0.05	-	-	-	-	-	-	0.02	-	0.03	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	<2	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	3	-	2	-	-
Colour	TCU	-	-	-	-	2	25	24	30	96	96	25	25	35	71	47	35	42	39	50	27	44	25	37	18	31
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.34	11.64	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	290	290	140	76	75	200	200	205	232	244	240	233	210	175	179	106	100	129	198	275
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	40	42	22	12	12	33	33	13	19	27	19	19	17	17	13	7	10	12	25	19.9
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.55	7.47	7.25	7.18	6.85	7.26	7.44	6.84	6.94	7.09	7.07	7.06	6.2	7.37	7.06	7.02	**5.84**	6.15	6.7	6.8
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	0.001	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	195	160	75	70	70	160	115	133	151	159	156	151	137	114	116	69	65	84	132	135
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.27	0.26	0.23	0.47	0.48	0.15	0.14	0.35	0.18	0.54	0.33	0.36	0.15	0.53	-	0.17	0.47	-	0.2	0.4
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	<0.02	<0.02	0.046	0.046	<0.02	<0.02	0.02	0.02	-	0.02	-	0.01	-	0.01	0.01	-	-	-	0.02
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	<10	44	48	<10	<10	-	3	3	2	2	-	-	4	-	-	-	5	14
Turbidity	NTU	-	-	-	-	0.1	0.9	0.9	0.5	4.2	2.6	-	-	0.8	2.2	2.2	1.1	-	0.5	1.1	1.6	0.8	1.1	0.8	1.3	1.9
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00052	<0.00061	-	-	-	-	-	-	-	-	-	0.0000003	-	0.0000107	0.0000867
Metals																									
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.014	0.013	0.045	0.15	0.17	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.031	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.025	0.023	0.075	0.46	0.45	0.027	0.026	0.06	0.08	0.04	0.03	0.04	0.06	0.06	0.07	0.05	0.04	0.05	0.036	0.044
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	0.01	0.011
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.001	0.001	-	-	-	-	-	-	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	<0.0005	0.00064	0.0006	<0.0005	<0.0005	-	0.001	0.0003	-	-	-	-	-	-	-	-	-	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.0009	<0.0009	<0.0009	0.0013	0.0013	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	0.0006
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.25	0.24	0.25	**1.3**	**1.3**	0.3	0.31	0.18	**1.4**	0.64	0.31	0.5	0.27	0.29	0.6	0.4	0.28	0.23	0.341	0.761
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	<0.0005	<0.0005	0.00054	0.00051	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	0.0002
Manganese (tot)	mg/L	-	-	-	-	0.002	0.0069	0.0067	0.015	0.11	0.11	0.0074	0.0082	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	<0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	<0.005	<0.005	0.0055	0.0055	<0.005	<0.005	-	-	-	-	-	-	-	-	-	0.01	-	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2012-Oct-17	2013-Apr-18	2013-Aug-15	2013-Oct-30	2014-May-13	2014-Aug-19	2014-Oct-14	2015-May-04	2015-Sep-09	2015-Oct-26	2016-Apr-28	2016-Aug-17	2016-Oct-26	2017-May-10	2017-Jul-20	2017-Oct-23	2018-May-07	2018-Jul-30	2018-Oct-22	2019-May-07
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	63	30.4	64.9	58.8	70.9	62.8	72.3	84.4	95.4	119	41.2	57.4	66.8	52.4	58.5	64.1	-	-	-	38.1
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	-	0.154	0.06	-	0.05	-	-	0.08	-	-	-	-	-	-	0.09	-	37.5	62.3	71.7	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	<0.05
Sulphate	mg/L	-	-	100	-	0.1	6	4.66	4.92	4.18	5.98	2.52	2.96	6.12	5.63	5.38	4.99	3.42	4.8	5.95	2.46	2.74	-	-	-	4.76
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	4.55	3.55	6.75	5.89	6.18	7.29	6.19	7.91	9.65	9.08	3.85	4.69	6.35	4.51	6.42	7.3	3.59	8.04	7.4	3.84
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.67	0.66	1.27	1.28	1.24	1.44	1.36	1.49	1.92	1.86	0.73	1.07	1.34	0.88	1.26	1.39	0.67	1.45	1.43	0.63
Potassium (tot)	mg/L	-	-	-	-	0.05	2.5	1.53	1.86	2.81	2.27	2.18	2.48	2.97	3.47	3.13	1.35	1.37	1.7	1.72	1.32	1.76	1.09	1.37	1.35	1.1
Sodium (tot)	mg/L	-	-	-	-	0.05	36.1	17.2	34.3	35.3	39.6	37	41.3	47.5	60.9	58.2	24.7	36.7	35.5	33.6	36.6	40	23.1	37.1	40	23.7
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	6	6.86	14	10	8	22	11	8	13	10	8	11	12	12	29	23	9	22	10	10
Ammonia as N	mg/L	-	-	-	-	0.02	0.02	-	-	0.02	0.02	0.23	0.19	-	-	-	-	-	-	-	-	-	0.23	0.04	-	<0.02
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	16	33	39	49	28	72	41	29	54	19	32	41	32	51	94	51	36	9	9	12
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	9.27	-	8.83	6.32	-	-	10.85	7.76	10.06	12.08	7.23	8.31	10.78	7.47	10.58	-
Electrical Conductivity	uS/cm	-	-	-	-	1	255	126	277	238	281	279	307	326	364	395	171	233	269	241	245	235	152	270	292	164
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	18.3	11.6	22.1	20	20.5	24.1	21.1	25.9	32	30.3	12.6	16.1	21.4	14.9	21.2	24	11.7	26	24.4	12.2
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.6	6.76	6.39	6.72	6.88	7.19	6.91	6.89	7.26	6.69	6.31	7.2	7.13	7.35	7.04	7.16	6.22	7.27	6.94	6.51
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	131	62	150	138	156	144	152	170	180	206	86	124	112	112	114	138	82	130	156	86
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.3	0.179	0.27	0.52	1.39	0.72	0.58	0.39	0.43	0.32	0.26	0.46	0.26	0.34	0.41	0.39	0.68	0.42	0.14	<0.1
Total Phosphorus	mg/L	0.03	-	-	-	0.02	-	0.025	-	-	-	0.02	0.04	-	-	-	0.01	0.02	-	0.01	0.03	0.03	0.02	0.03	-	0.03
Total Suspended Solids	mg/L	-	-	-	-	10	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
Turbidity	NTU	-	-	-	-	0.1	1.3	0.9	4	0.9	2.4	-	1.7	1.3	433	0.8	1.8	1.8	0.9	0.7	2.4	1.5	1	5.1	3	1.1
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.0000072	-	-	0.0000605	0.0000139	0.0009875	0.0000673	0.00003	0.00007	0.00003	0.000001	0.000023	0.000001	0.0000098	0.000128	0.000036	0.0000967	0.00010766	0.0000088	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	0.0597	0.086	0.056	0.042	0.044	0.042	0.029	0.031	0.012	0.055	0.028	0.022	0.07	0.034	0.021	0.056	0.032	0.018	0.06
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.01	3.16	4.04	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	0.015	-	-	-	-	-	-	-	-	0.018	-	-	-	-	-	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	-	-	-	-	0.0017	0.0009	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.0006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.712	0.09	0.59	0.2	0.34	**3.23**	**1.08**	0.3	0.87	0.21	0.09	0.23	0.39	0.1	0.99	0.41	0.16	**1.33**	0.41	0.16
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	-	0.0096	-	0.024	-	-	-	-	-	-	-	-	-	-	-	0.011	-	0.006	-	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	QC-SW-SU21 (	MCG-F	QC SW-F21 (M	MCG-F	QC SW-S22 (M	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	MCG-F	QAQC-SW (MC	MCG-F
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2019-Jul-14**	**2019-Oct-24**	**2020-May-06**	**2020-Aug-25**	**2020-Oct-06**	**2021-Apr-20**	**2021-Jul-14**	**2021-Jul-14**	**2021-Oct-18**	**2021-Oct-18**	**2022-May-03**	**2022-May-03**	**2022-Aug-04**	**2022-Oct-18**	**2023-May-03**	**2023-Aug-09**	**2023-Oct-19**	**2024-Apr-29**	**2024-Apr-29**	**2024-Jul-11**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	57.4	51.6	45.6	49.5	61.2	55.1	56.4	57.1	42.8	42.8	57	56.9	58.7	54	34.7	30	35	39	39	45
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as N	mg/L	-	-	-	-	0.05	0.1	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.06	0.08	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	1.28	7.3	6.73	3.5	3.71	4.2	2.57	2.59	2.01	1.98	4.4	4.36	1.96	4.5	3.33	2.6	3.9	4.5	4.5	2.7
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	6.82	7.92	5.01	8.6	6.9	5.91	5.93	5.83	5.93	5.84	5.54	5.68	7.53	6.51	3.2	7	5.6	4.7	4.8	5.8
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.25	1.53	0.87	1.42	1.07	1.22	1.09	1.11	1.1	1.16	0.94	1.1	1.57	1.59	0.61	1.1	1.1	0.86	0.9	1
Potassium (tot)	mg/L	-	-	-	-	0.05	1.35	1.66	1.41	1.44	1.5	1.42	1.14	1.18	1.68	1.69	1.3	1.53	1.42	1.52	0.82	0.91	1.2	0.92	0.95	1.1
Sodium (tot)	mg/L	-	-	-	-	0.05	35.8	32.9	27.3	34.48	34.56	34.6	34.6	34.2	27.5	27.8	33.5	33.9	42.5	34.2	20.4	24	25	26	27	29
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	26	18	7	34	14	7	12	13	43	20	6	6	23	17	8	27	14	8.8	14	25
Ammonia as N	mg/L	-	-	-	-	0.02	0.04	0.1	0.1	<0.02	<0.02	<0.02	0.03	0.03	0.18	0.12	<0.02	<0.02	<0.02	0.06	<0.02	0.057	<0.05	<0.05	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<5	<5	-	<2	<5	<2	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	67	28	-	53	59	32	88	88	67	68	25.9	25.8	77.8	34.7	37.8	61	32	28	28	88
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	269	281	236	218	229	232	218	218	183	182	221	219	227	218	143	170	180	170	170	200
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	22.2	26.1	16.1	27.3	21.6	19.8	19.3	19.1	19.3	19.4	17.7	18.7	25.3	22.8	10.5	24	19	17	17	19
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.19	7.34	6.62	6.53	6.52	6.75	6.75	6.77	6.82	6.82	6.28	6.28	7.02	6.91	6.67	7.1	7.27	6.93	7.25	7.26
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	112	116	100	120	134	116	118	124	114	108	96	104	134	126	100	90	145	105	115	115
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.33	0.3	0.38	0.39	0.46	0.32	0.35	0.38	0.31	0.23	0.2	0.17	0.59	0.42	0.26	0.38	0.35	0.24	0.31	0.48
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.28	<0.02	<0.02	<0.02	<0.02	<0.02	0.026
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	<10	<10	<10	<10	<10	<10	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10
Turbidity	NTU	-	-	-	-	0.1	9	4.8	1.4	4.6	1.2	2.9	2	1.8	1.7	1.5	<0.5	<0.5	3.4	2	1.7	3.8	1.2	0.5	0.6	0.6
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	-	-	-	-	-	-	-	-	-	-	<0.000002	0.000011	<0.000002	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	0.04	0.036	-	-	0.065	0.039	0.025	0.045	0.044	0.062
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.03	0.029	0.059	0.029	0.036	0.05	0.065	0.067	0.065	0.064	-	-	0.043	0.037	-	-	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	0.126	0.076	0.043	0.061	0.114	0.115	0.112	0.12	-	-	0.347	0.071	-	0.069	0.046	0.057	0.058	0.14
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	0.017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	<0.01	<0.01	<0.01	0.014	<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
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	<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	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.00053	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.002	<0.002	<0.002	<0.002	0.003	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
Iron (tot)	mg/L	0.3	-	1	-	0.01	**1.17**	0.83	0.273	**1.14**	0.283	0.126	0.707	0.834	0.933	0.891	0.255	0.236	**3.51**	0.804	0.3	**2**	0.58	0.22	0.23	0.83
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	0.02	-	-	-	-	-	0.051	0.055	0.027	0.025	0.183	0.103	0.012	0.2	0.035	0.02	0.02	0.078
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<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
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	1.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	0.039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	<0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.007	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-F	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Oct-29	2008-May-07	2008-Jun-19	2008-Aug-21	2008-Sep-16	2008-Oct-09	2009-Jun-03	2009-Oct-22	2010-May-17	2010-Oct-18	2011-May-18	2011-Nov-03	2012-Apr-17	2012-Jul-11	2012-Oct-17	2013-Apr-18	2013-Aug-15	2013-Oct-30	2014-May-13	2014-Aug-19
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	38	1	5	-	1	-	2	1	1	2	3	-	-	-	-	0.325	0.39	0.4	0.32	0.31
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	-	-	0.23	-	-	-	-	-	-	-	-	0.2	-	0.065	0.35	-	-	0.06
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	3.2	5	5	-	1	1	4	2	3	4	5	6	8	2	12	4.27	3.13	3.9	4.45	3.35
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	5.7	4	16	9	6	5	4	3	4	4	4	6	4.92	3.93	4.56	2.7	5.77	5.2	3.85	6.23
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.1	-	4	2	1	1	-	-	-	-	-	2	0.988	1.4	2.23	0.57	1.38	1.36	0.84	1.44
Potassium (tot)	mg/L	-	-	-	-	0.05	1.3	-	1	-	-	-	-	-	-	-	-	-	0.644	0.281	0.861	-	0.38	0.75	0.6	0.35
Sodium (tot)	mg/L	-	-	-	-	0.05	23	-	10	-	-	2	-	-	-	-	2	-	1.44	1.15	2.53	0.86	1.55	1.91	1.28	1.47
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	17	10	33	24	21	17	14	13	14	16	17	25	7	19	19	-	17	16	9	18
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	-	-	-	0.05	0.04	-	-	-	-	-	0.03	0.01	-	0.01	-	-	-	-	0.15
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	3	-	-	-	1	-	-	3	1	2	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	36	34	227	34	69	43	43	46	34	44	37	24	28	44	14	34	22	28	42	56
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	11.4	10.77	-	-	-	-	-	-	9.91	-
Electrical Conductivity	uS/cm	-	-	-	-	1	180	32	160	51	42	41	33	36	36	38	38	55	42	51	67	24	57	45	36	52
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	21	10	56	31	19	17	10	7	10	10	10	23	16.4	15.6	20.6	9.09	20.1	18.6	13.1	21.5
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.04	6.84	6.73	7.31	7.3	7.27	6.97	7.15	7.09	7.18	6	6.27	6.6	6.9	7.2	6.51	6.33	6.81	6.76	7.33
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	130	21	104	33	27	27	22	23	23	25	25	36	110	34	41	-	42	52	28	32
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.27	0.36	1.08	0.53	0.45	0.34	0.39	0.36	0.14	0.26	0.56	0.12	0.2	0.4	0.3	0.131	-	0.3	1.53	0.49
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	-	0.46	0.01	0.03	0.02	0.02	-	-	-	-	0.01	-	0.03	-	0.022	-	-	-	0.03
Total Suspended Solids	mg/L	-	-	-	-	10	21	-	349	3	2	-	4	-	-	-	-	-	5	10	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	0.1	-	1	1.3	1.7	3.1	-	1.7	1.1	0.9	1.1	1.3	0.8	1.1	1.2	0.5	0.9	1	0.9	1.6	1.5
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	-	-	-	-	-	-	-	-	-	-	0.0000141	0.0000029	0.000123	0.0000103	-	-	-	0.0000355	0.0006126
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	0.04	-	-	0.0527	0.025	0.031	0.043	0.032
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.17	0.04	0.33	0.02	0.04	0.03	0.07	0.05	0.05	0.04	0.03	0.02	0.044	0.029	0.013	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	-	0.03	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	0.001	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	0.0005	-	0.0021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.0009	-	0.001	-	-	-	-	-	-	0.004	-	-	-	0.0005	-	-	-	0.004	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	**1.5**	0.34	**2.31**	0.49	**1.5**	0.69	0.76	0.61	0.47	0.69	0.54	0.19	0.28	0.706	0.128	0.153	0.14	0.34	0.33	0.82
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	-	**0.003**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (tot)	mg/L	-	-	-	-	0.002	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-	0.0062	-	0.059	-	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2014-Oct-14	2015-May-04	2015-Sep-09	2015-Oct-26	2016-Apr-28	2016-Aug-17	2016-Oct-26	2017-May-10	2017-Jul-20	2017-Oct-23	2018-May-07	2018-Jul-30	2018-Oct-22	2019-May-07	2019-Oct-24	2020-May-06	2020-Aug-25	2020-Oct-06	2021-Apr-20	2021-Jul-14
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	0.43	0.59	0.32	1.01	0.41	0.18	0.54	0.25	-	0.33	0.37	0.31	0.44	0.37	0.45	0.29	0.28	0.42	0.24	0.36
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	-	0.07	0.05	0.07	-	-	-	-	-	-	0.06	0.05	-	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	-	-	100	-	0.1	2.16	4.98	2.42	4.65	4.96	14.2	7.62	5.08	2.4	3.26	4.59	3.93	8.06	4.2	14.4	4.84	1.42	2.73	3.39	1.95
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	5	3.83	6.81	5.98	3.16	7.33	6.97	3.44	4.27	4.97	2.94	6.73	5.61	3.11	7.11	3.69	8.55	5.3	3.95	5.09
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.22	0.88	1.68	1.57	0.73	1.65	1.74	0.75	0.95	1.23	0.68	1.67	1.4	0.62	1.8	0.67	1.99	1.12	0.97	1.09
Potassium (tot)	mg/L	-	-	-	-	0.05	0.58	0.66	0.62	1.19	0.5	0.81	1.17	0.46	0.27	0.78	0.52	0.56	0.95	0.48	0.85	0.52	0.76	0.7	<0.58	<0.58
Sodium (tot)	mg/L	-	-	-	-	0.05	1.87	1.31	1.96	2.67	1.16	1.94	2.34	1.09	1.36	2.01	1.01	2.14	2.1	1.02	2.19	1.21	2.01	1.69	1.41	1.35
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	14	10	23	25	6	17	25	8	18	18	8	21	13	8	15	12	30	18	8	14
Ammonia as N	mg/L	-	-	-	-	0.02	0.12	-	-	0.07	-	-	-	-	-	-	0.07	-	-	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	-	<2	<5	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-
Colour	TCU	-	-	-	-	2	59	45	58	54	35	75	40	44	79	50	43	10	12	16	27	-	63	58	46	80
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.4	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		9.36	6.72	-	-	10.65	9.06	10.03	13.24	7.1	9.27	11.36	7.09	11.28	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	48	36	54	58	32	72	67	36	39	43	30	59	59	28	107	42	58	43	33	36
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	17.5	13.2	23.9	21.4	10.9	25.1	24.6	11.7	14.6	17.5	10.1	23.7	19.8	10.3	25.2	12	29.5	17.8	13.9	17.2
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.92	7.06	7.58	7.31	6.18	7.36	7.45	7.02	6.81	7.08	6.14	7.3	6.93	6.41	7.38	7.9	6.57	6.61	6.78	6.85
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	0.003	0.001	0.002	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	30	30	42	52	40	68	32	34	32	36	26	40	50	26	66	28	52	34	64	46
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.51	0.42	0.42	0.47	0.26	0.69	0.26	0.28	0.36	0.29	0.39	0.42	0.26	<0.1	0.34	0.52	0.57	0.48	0.41	0.33
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.03	-	-	0.02	0.01	0.04	-	0.01	0.03	0.02	0.03	0.02	-	0.05	<0.02	<0.02	0.02	0.09	<0.02	0.03
Total Suspended Solids	mg/L	-	-	-	-	10	-	47	-	-	-	-	-	-	-	-	10	-	-	<10	<10	<10	<10	<10	<10	<10
Turbidity	NTU	-	-	-	-	0.1	1.3	1.7	-	4	1.5	3.8	1.2	0.8	2.3	1.3	1.4	2.7	2.9	1.5	1.4	1.3	5.4	3.2	1.4	4.6
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.0000402	0.0001	0.00007	0.0001	0.000003	0.000065	0.00003	0.000004	0.000148	0.000014	0.00001	0.000055	0.000004	-	-	-	-	-	-	-
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.025	0.041	0.019	0.038	0.058	0.055	0.022	0.077	0.028	0.021	0.059	0.014	0.019	0.06	0.02	0.084	0.029	0.035	0.038	0.041
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.179	0.085	0.108	0.072	0.134
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.011	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	0.01	<0.01
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	0.0005	<0.0001	<0.0001
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.89	0.32	0.84	**1.3**	0.19	**1.14**	0.84	0.19	0.75	0.41	0.2	0.54	0.19	0.15	0.29	0.313	0.854	0.653	0.356	**1.65**
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.026	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.62	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.032	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0003	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.005	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	-	-	-	-	-	0.006	-	0.006	0.007	0.008	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-G	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H
Parameter	**Units**	**PWQO-GENERAL**	**PWQO-INTERIM**	**MECP-GD-TA**	**MECP-GD-TB**	**Sample Date**	**2021-Oct-18**	**2022-May-03**	**2022-Aug-04**	**2022-Oct-18**	**2023-May-03**	**2023-Aug-09**	**2023-Oct-19**	**2024-Apr-29**	**2024-Jul-11**	**2024-Oct-29**	**2014-May-13**	**2014-Aug-19**	**2014-Oct-14**	**2015-May-04**	**2015-Sep-09**	**2015-Oct-26**	**2016-Apr-28**	**2016-Aug-17**	**2016-Oct-26**	**2017-May-10**
Anions						**Detection Limit**																				
Chloride	mg/L	-	-	180	128	0.1	0.4	0.28	0.25	0.45	0.32	<1	<1	<1	<1	<1	6.14	7.5	8.9	6.32	11.2	13.1	6.61	13.1	13.5	4.31
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	0.38	0.11	<0.1	<0.1	0.14	-	-	-	-	-	-	-	-	-	-
Nitrate as N	mg/L	-	-	-	-	0.05	<0.05	<0.05	0.23	<0.05	<0.05	0.38	0.11	<0.1	<0.1	0.14	-	-	-	-	-	-	-	-	-	-
Nitrite as N	mg/L	-	-	-	-	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Sulphate	mg/L	-	-	100	-	0.1	1.67	4.02	0.93	2	2.92	1.5	1.3	2.7	<1	2.2	6.9	4.81	5.47	7.13	5.7	10.9	5.68	14.2	12.6	5.24
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	5.32	3.34	7.48	4.21	2.82	7.6	5.1	3.4	3.7	4.1	5.27	10.5	7.73	5.18	10.7	9.8	4.12	8.69	11.3	3.91
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.15	0.8	1.61	1.24	0.64	1.6	1.2	0.75	0.75	0.95	1.08	2.51	1.82	1.08	2.49	2.49	0.86	2.4	3.24	0.83
Potassium (tot)	mg/L	-	-	-	-	0.05	0.88	<1.15	0.58	0.75	0.53	0.74	0.64	0.48	0.22	0.43	0.87	1.36	1.24	0.83	1.78	1.91	0.63	1.74	2.08	0.66
Sodium (tot)	mg/L	-	-	-	-	0.05	1.58	1.57	1.94	1.86	0.62	1.4	1.5	1.2	0.98	1.5	4.38	6.33	6.45	4.5	8.71	7.61	4.13	10.1	7.5	3.7
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	17	5	23	15	7	25	16	10	12	15	11	36	16	10	29	25	7	23	30	9
Ammonia as N	mg/L	-	-	-	-	0.02	0.11	<0.02	<0.02	0.03	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.09	0.19	-	-	-	0.25	-	0.06	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	63	34.3	87.4	38.5	50.1	63	39	33	75	25	29	73	60	36	101	68	23	112	65	38
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-	-	-	-	-	-	-	-	-	9.72	-	11.1	6.75	-	-	10.96	6.74	4.84	10.19
Electrical Conductivity	uS/cm	-	-	-	-	1	43	31	54	42	27	56	42	28	29	40	68	115	100	64	110	114	58	129	137	54
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	18	11.6	25.3	15.6	9.7	27	18	12	13	17	17.6	36.6	26.8	17.4	37	34.7	13.8	31.6	41.6	13.2
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.82	6.27	7.03	7.03	6.66	7.34	7.32	7.03	6.98	7.22	6.78	7.25	6.72	6.95	7.45	7.05	6.2	7.32	7.27	7.23
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	10	52	56	54	42	50	55	60	15	35	50	48	74	66	50	90	82	38	110	96	44
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.36	0.27	0.73	0.51	0.28	0.38	0.43	0.26	0.35	0.16	1.39	0.38	0.46	0.28	0.56	0.29	0.45	0.58	0.43	0.22
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	<0.02	0.08	0.04	<0.02	0.036	0.021	<0.02	0.034	<0.02	-	0.03	0.04	-	0.02	0.03	0.01	0.02	0.03	-
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10	<10	<10	<10	13	<10	<10	17	<10	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	0.1	2.2	0.7	7.7	2.1	5.9	7.9	3.1	0.8	1.6	-	0.7	1.9	3.4	1.4	32.8	2.3	-	1.7	5	-
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	-	-	<0.000002	0.000009	<0.000002	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	0.00004	0.00049	0.00006	0.00007	0.00006	0.00001	0.000001	0.000005	0.00001	0.0000022
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	0.043	-	-	0.073	0.048	0.033	0.046	0.05	0.031	-	-	-	-	-	-	-	-	-	-
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.032	-	0.035	0.021	-	-	-	-	-	-	0.065	0.063	0.061	0.072	0.077	0.071	0.066	0.146	0.088	0.077
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.083	-	0.158	0.086	-	0.23	0.065	0.084	0.17	0.051	-	-	-	-	-	-	-	-	-	-
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	0.032	0.011	-
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0005	0.00088	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	0.0005	0.0005	-
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	<0.002	<0.002	<0.002	<0.002	<0.001	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	-	-	-	-	-	-	-	-	-	-
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.978	0.248	**2.54**	0.885	0.755	**2.5**	0.92	0.39	**2.1**	0.48	0.17	0.44	0.55	0.17	0.62	0.72	0.05	0.51	**1.46**	0.06
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.001	<0.001	<0.001	<0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-	-	-	-
Manganese (tot)	mg/L	-	-	-	-	0.002	0.04	0.016	0.244	0.075	0.06	0.33	0.051	0.028	0.11	0.048	-	-	-	-	-	-	-	-	-	-
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.003	<0.003	<0.003	<0.003	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	-	-	-	-	-	-	-	-	-	-
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	0.01	0.005	-

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H	MCG-H
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2017-Jul-20	2017-Oct-23	2018-May-07	2018-Jul-30	2018-Oct-22	2019-May-07	2019-Aug-14	2019-Oct-24	2020-May-06	2020-Aug-25	2020-Oct-06	2021-Apr-20	2021-Oct-18	2022-May-03	2022-Aug-04	2022-Oct-18	2023-May-03	2023-Aug-09	2023-Oct-19	2024-Apr-29
Anions						**Detection Limit**																			
Chloride	mg/L	-	-	180	128	0.1	6.24	63.5	6.63	10.4	14.3	5.15	6.94	14.4	5.49	10.9	11.8	7.44	4.7	9.79	5.68	19.4	2.75	10	16	7.1
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1
Nitrate as N	mg/L	-	-	-	-	0.05	-	-	-	-	0.06	<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	<0.1	<0.1
Nitrite as N	mg/L	-	-	-	-	0.01	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	2.29	2.7	4.1	6.83	7.61	4.39	3.33	17.9	4.21	2.6	4.42	4.1	1.44	3.48	0.49	2.53	2.78	1.7	2.9	4.5
Cations																										
Calcium (tot)	mg/L	-	-	-	-	0.05	7.18	7.17	3.79	11.4	9.78	3.86	9.16	11.9	4.02	14.27	7.07	6.38	7.53	7.1	9.18	16	4.4	9.6	22	9.5
Magnesium (tot)	mg/L	-	-	-	-	0.05	1.49	1.38	0.79	2.83	2.54	0.73	2.23	3.56	0.81	3.42	1.22	1.77	1.47	1.63	2.05	6.02	0.67	2.6	7	2.5
Potassium (tot)	mg/L	-	-	-	-	0.05	0.74	1.76	0.56	1.36	1.52	0.58	0.61	2.32	0.59	1.7	0.89	1.25	1.19	<1.15	1.6	5.36	<0.5	0.83	6.4	2.1
Sodium (tot)	mg/L	-	-	-	-	0.05	5.13	39.5	4.18	7.21	7.36	3.97	5.58	7.79	3.82	8.04	7.17	5.18	4.34	6.46	6.09	11.1	2.74	4.8	12	5.7
General Chemistry																										
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	31	23	9	24	21	11	30	24	7	42	18	15	29	11	30	34	8	34	68	36
Ammonia as N	mg/L	-	-	-	-	0.02	-	-	0.07	-	0.02	<0.02	<0.02	0.05	0.03	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	0.02	<0.02	<0.05	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	-	-	-	-	-	<5	<5	<5	-	<2	<5	<2	<2	2	5	<2	<2	5	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-
Colour	TCU	-	-	-	-	2	65	50	27	69	15	13	69	108	-	156	42	49	48	29.5	93.9	108	33.5	90	160	48
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-	-	-	-	-	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		4.72	3.82	9.64	7.7	6.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	82	235	53	126	125	52	111	145	64	119	86	78	72	77	83	146	40	89	250	99
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	24.1	23.6	12.7	40.1	34.9	12.6	32.1	44.4	13.4	49.7	22.7	23.2	24.9	24.4	31.4	64.7	13.7	36	86	37
pH	pH units	6.5 - 8.5	-	6 - 9	-		7.12	7.19	6.17	7.32	7.25	6.5	7	7.26	6.59	6.62	6.6	6.74	6.83	6.38	6.85	6.98	6.62	6.89	7.64	7.46
Phenols	mg/L	0.001	-	0.04	0.004	0.001	-	-	-	-	-	<0.001	0.002	0.004	<0.001	0.004	<0.001	<0.001	<0.001	0.002	0.004	0.012	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	46	78	34	94	88	28	54	118	34	110	66	68	80	44	72	124	64	60	195	70
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.28	0.35	0.47	0.36	0.18	<0.1	0.37	0.46	0.24	0.72	0.33	0.42	0.27	0.24	1.02	0.81	0.18	0.62	0.98	0.3
Total Phosphorus	mg/L	0.03	-	-	-	0.02	0.04	0.05	0.05	-	0.04	<0.02	0.04	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	0.057	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	-	-	-	-	19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	39	<10	<10
Turbidity	NTU	-	-	-	-	0.1	1.9	2.9	0.7	4	5.1	<0.5	2.4	1.6	0.7	8.4	1.8	2.8	2.3	0.5	2.6	1.3	0.7	1.7	0.5	0.3
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	0.00004	0.00001	0.0000039	0.0000197	0.0000042	-	-	-	-	-	-	-	-	-	<0.000002	0.000006	<0.000002	<0.00061	<0.00061	<0.00061
Metals																										
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	0.024	-	-	0.077	0.031	0.015	0.022
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	0.063	0.08	0.07	0.045	0.05	0.065	0.023	0.113	0.053	0.084	0.058	0.047	0.044	-	0.02	0.036	-	-	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	-	-	-	-	-	-	-	-	0.089	0.119	0.122	0.057	0.087	-	0.105	0.044	-	0.081	0.017	0.026
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	-	-	-	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-	-	-	-	-	-	-	0.012	-	-	-	-	-	-	-	-	-	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	0.014	0.017	0.012	0.02	0.01	0.014
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.001	<0.0009	<0.0009	<0.0009
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.46	0.59	0.24	0.63	**1.28**	0.04	0.62	0.39	0.054	**1.63**	0.568	0.056	0.78	0.087	**1.17**	0.326	0.079	**1.3**	0.16	<0.1
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	0.007	-	-	-	0.14	0.021	0.234	0.095	0.004	0.09	0.02	0.0032
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	-	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-	-	-	-	-	-	-	3.44	-	-	-	-	-	-	-	-	-	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-	-	-	-	-	-	-	<0.0003	-	-	-	-	-	-	-	-	-	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	0.007	-	-	-	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.009	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Hastings Highlands Analytical Chemistry Results: Anions, Cations, GenChem, Met in Surface Water						Sample ID	MCG-H	MCG-H
Parameter	Units	PWQO-GENERAL	PWQO-INTERIM	MECP-GD-TA	MECP-GD-TB	Sample Date	2024-Jul-11	2024-Oct-29
Anions						**Detection Limit**		
Chloride	mg/L	-	-	180	128	0.1	<1	15
Nitrate + Nitrite	mg/L	-	-	-	-	0.1	<0.1	<0.1
Nitrate as N	mg/L	-	-	-	-	0.05	<0.1	<0.1
Nitrite as N	mg/L	-	-	-	-	0.01	<0.01	<0.01
Sulphate	mg/L	-	-	100	-	0.1	3.1	2.6
Cations								
Calcium (tot)	mg/L	-	-	-	-	0.05	2.7	20
Magnesium (tot)	mg/L	-	-	-	-	0.05	0.52	4.8
Potassium (tot)	mg/L	-	-	-	-	0.05	0.39	4.8
Sodium (tot)	mg/L	-	-	-	-	0.05	1.9	8.4
General Chemistry								
Alkalinity (as CaCO3)	mg/L	See Factsheet	-	-	-	1	12	70
Ammonia as N	mg/L	-	-	-	-	0.02	<0.05	<0.05
Biochemical Oxygen Demand	mg/L	-	-	-	-	2	<2	<2
Chemical Oxygen Demand	mg/L	-	-	-	-	5	-	-
Colour	TCU	-	-	-	-	2	56	37
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	-	-
Dissolved Oxygen	mg/L	See Factsheet	-	-	-		-	-
Electrical Conductivity	uS/cm	-	-	-	-	1	28	200
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	9.1	77
pH	pH units	6.5 - 8.5	-	6 - 9	-		6.95	7.43
Phenols	mg/L	0.001	-	0.04	0.004	0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	-	-	-	-	10	45	130
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.1	0.28	0.24
Total Phosphorus	mg/L	0.03	-	-	-	0.02	<0.02	<0.02
Total Suspended Solids	mg/L	-	-	-	-	10	<10	<10
Turbidity	NTU	-	-	-	-	0.1	1.3	-
Unionized Ammonia (Calc)	mg/L	-	-	-	-	0.000002	<0.00061	<0.00061
Metals								
Aluminum (diss, 0.2 µm)	mg/L	-	Calculated	-	-	0.004	0.17	0.012
Aluminum (diss, 0.45 µm)	mg/L	-	Calculated	-	-	0.004	-	-
Aluminum (tot)	mg/L	-	-	-	-	0.004	0.21	0.015
Arsenic (tot)	mg/L	-	0.005	-	-	0.001	<0.001	<0.001
Barium (tot)	mg/L	-	-	2.3	-	0.002	-	-
Beryllium (tot)	mg/L	Calculated	-	-	-	0.001	-	-
Boron (tot)	mg/L	-	0.2	3.55	1.5	0.01	<0.01	0.012
Cadmium (tot)	mg/L	-	Calculated	0.00021	0.000017	0.00009	<0.00009	<0.00009
Chromium (tot)	mg/L	-	-	0.064	-	0.003	<0.005	<0.005
Cobalt (tot)	mg/L	-	0.0009	-	-	0.0005	<0.0005	<0.0005
Copper (tot)	mg/L	-	Calculated	0.0069	-	0.0009	0.0011	<0.0009
Iron (tot)	mg/L	0.3	-	1	-	0.01	0.19	0.16
Lead (tot)	mg/L	-	Calculated	0.002	-	0.0005	<0.0005	<0.0005
Manganese (tot)	mg/L	-	-	-	-	0.002	0.01	0.024
Mercury (diss)	mg/L	0.0002	-	-	-	0.0001	<0.0001	-
Mercury (tot)	mg/L	0.0002	-	-	-	0.0001	-	-
Molybdenum (tot)	mg/L	-	0.04	-	-	0.002	-	-
Nickel (tot)	mg/L	0.025	-	-	-	0.001	<0.001	<0.001
Selenium (tot)	mg/L	0.1	-	-	-	0.002	<0.002	<0.002
Silicon (tot)	mg/L	-	-	-	-	0.05	-	-
Silver (tot)	mg/L	0.0001	-	-	-	0.00009	<0.00009	<0.00009
Strontium (tot)	mg/L	-	-	-	-	0.005	-	-
Thallium (tot)	mg/L	-	0.0003	-	-	0.0003	-	-
Titanium (tot)	mg/L	-	-	-	-	0.002	-	-
Vanadium (tot)	mg/L	-	0.006	-	-	0.002	-	-
Zinc (tot)	mg/L	-	0.02	0.089	0.03	0.005	<0.005	<0.005

-LEGEND-

Detection Limit	DL: May vary between sample locations and events
DL exceeds criteria	
Concentration exceeds PWQO-GENERAL	Provincial Water Quality Objectives General
Concentration exceeds PWQO-INTERIM	Provincial Water Quality Objectives Interim
Concentration exceeds MECP-GD-TA	MECP Guidance Document Table A
Concentration exceeds MECP-GD-TB	MECP Guidance Document Table B

Appendix G

Selby Creek Comparison Table

Appendix G: Comparison of Surface Water Quality Upstream & Downstream on Selby Creek 2024

Parameter	Units	MDL	MCG-F (upstream)			Average	MCG-E (downstream)			Average	Percent Difference
			29-Apr-24	11-Jul-24	29-Oct-24		29-Apr-24	11-Jul-24	29-Oct-24		
pH	pH Units	NA	6.9300	7.26	7.04	7.08	7.2500	7.18	7.26	7.23	-2%
Alkalinity (as CaCO3)	mg/L	5	8.8000	25	17	16.93	14.0000	14	27	18.33	-8%
Electrical Conductivity	uS/cm	2	170.0000	200	180	183.33	140.0000	76	200	138.67	28%
Hardness (as CaCO3) (Calculated)	mg/L	0.5	17.0000	19	21	19.00	22.0000	12	33	22.33	-16%
Total Dissolved Solids	mg/L	20	105.0000	115	130	116.67	75.0000	70	160	101.67	14%
Total Suspended Solids	mg/L	10	10.0000	10	21	13.67	10.0000	44	10	21.33	-44%
Chloride	mg/L	0.20	39.0000	45	38	40.67	27.0000	13	38	26.00	44%
Nitrate as N	mg/L	0.10	0.1000	0.1	0.1	0.10	0.1000	0.1	0.1	0.10	0%
Nitrite as N	mg/L	0.10	0.0100	0.01	0.01	0.01	0.0100	0.01	0.01	0.01	0%
Sulphate	mg/L	0.20	4.5000	2.7	3.2	3.47	6.6000	1.1	5.9	4.53	-27%
Ammonia as N	mg/L	0.02	0.0500	0.05	0.05	0.05	0.0500	0.05	0.05	0.05	0%
Total Kjeldahl Nitrogen	mg/L	0.10	0.2400	0.48	0.27	0.33	0.2300	0.47	0.15	0.28	15%
Total Phosphorus	mg/L	0.02	0.0200	0.026	0.02	0.02	0.0200	0.046	0.02	0.03	-26%
Phenols	mg/L	0.001	0.0010	0.001	0.001	0.00	0.0010	0.001	0.001	0.00	0%
True Colour	TCU	5	28.0000	88	36	50.67	30.0000	96	25	50.33	1%
Turbidity	NTU	0.5	0.5000	0.6	-	0.55	0.5000	4.2	-	2.35	-124%
Total Calcium	mg/L	0.16	4.7000	5.8	5.7	5.40	6.0000	3.8	9	6.27	-15%
Total Magnesium	mg/L	0.17	0.8600	1.00	1.1	0.99	1.1000	0.71	1.6	1.14	-14%
Total Potassium	mg/L	0.58	0.9200	1.1	1.3	1.11	0.6700	0.65	0.94	0.75	38%
Total Sodium	mg/L	0.22	26.0000	29	23	26.00	19.0000	9.7	24	17.57	39%
Aluminum-dissolved	mg/L	0.004	0.0450	0.062	0.043	0.05	0.0450	0.15	0.020	0.07	-36%
Total Aluminum	mg/L	0.010	0.0570	0.14	0.17	0.12	0.0750	0.46	0.027	0.19	-42%
Total Arsenic	mg/L	0.003	0.0010	0.001	0.001	0.00	0.0010	0.001	0.001	0.00	0%
Total Boron	mg/L	0.010	0.0100	0.01	0.01	0.01	0.0100	0.01	0.01	0.01	0%
Total Cadmium	mg/L	0.0001	0.0001	0.00009	0.00009	0.00	0.0001	0.00009	0.00009	0.00	0%
Total Chromium	mg/L	0.003	0.0050	0.005	0.005	0.01	0.0050	0.005	0.005	0.01	0%
Total Cobalt	mg/L	0.0005	0.0005	0.0005	0.0005	0.00	0.0005	0.00064	0.0005	0.00	-9%
Total Copper	mg/L	0.002	0.0009	0.0009	0.0009	0.00	0.0009	0.0013	0.0009	0.00	-14%
Total Iron	mg/L	0.010	0.2200	0.83	1.5	0.85	0.2500	1.3	0.3	0.62	32%
Total Lead	mg/L	0.001	0.0005	0.0005	0.0005	0.00	0.0005	0.00054	0.0005	0.00	-3%
Total Manganese	mg/L	0.002	0.0200	0.078	0.13	0.08	0.0150	0.11	0.0074	0.04	53%
Dissolved Mercury	mg/L	0.0001	0.0001	0.0001	-	0.00	0.0001	0.0001	-	0.00	0%
Total Nickel	mg/L	0.003	0.0010	0.001	0.001	0.00	0.0010	0.001	0.001	0.00	0%
Total Selenium	mg/L	0.004	0.0020	0.002	0.002	0.00	0.0020	0.002	0.002	0.00	0%
Total Silver	mg/L	0.0001	0.0001	0.00009	0.00009	0.00	0.0001	0.00009	0.00009	0.00	0%
Total Zinc	mg/L	0.005	0.0050	0.005	0.005	0.01	0.0050	0.0055	0.005	0.01	-3%
BOD5	mg/L	6	2.0000	2	2	2.00	2.0000	2	2	2.00	0%

RDL = Readable Detection Limit

Negative percentages represent higher concentrations at downstream compared to upstream monitoring location

0.02 indicates < removed

- indicated no data

Appendix H

Final Trigger Mechanisms and Contingency Plan (January 2020)

NORTH BAPTISTE WASTE TRANSFER STATION
(FORMER WDS)
SURFACE WATER CONTINGENCY PLAN
(FINAL APPROVED – AUGUST 16, 2019)

OBJECTIVE AND BACKGROUND

The objective of the contingency plan for the North Baptiste Lake Waste Transfer Station (WTS)/Waste Disposal Site (WDS) is to ensure that procedures have been developed in the event of a failing toxicity sample result at either surface water location MCG-H or MCG-C. The toxicity testing includes a 48-hour *Daphnia magna* single concentration test and 96-hour Rainbow Trout single concentration test. The single concentration test is typically reported as a "pass" or "fail" test, with 50% mortality being the passing limit. Surface water has been monitored at the Site since 2008 and toxicity testing has been conducted continuously (once annually) since 2013.

The MOECC requested this Contingency Plan be developed as part of the surface water review of the 2015 Annual Monitoring Report for the Site (August 15, 2016) to "ensure fast and effective steps to mitigate environmental impacts should a failed toxicity test occur".

OBJECTIVE: MITIGATE SURFACE WATER IMPACTS

- To identify steps in the mitigation of surface water run-off impacts from the waste site.
- To identify steps in the mitigation of groundwater discharging from below the waste site to the surface.

Wetland East and South of Site-Surface Water

Assessment Points- MCG-H (East) and MCG-C (South)
Trigger Mechanisms- Failed Toxicity Results
Frequency-Sampling: Semi - annually in the spring and fall
Contingency Plan is activated if a failed toxicity result is obtained

Note: The MOECC requested fall toxicity sampling, the current locations are sometimes dry, or have too little water to obtain samples during the fall sampling event, therefore we are

suggesting continuing with the spring toxicity sampling and collecting fall toxicity samples when sufficient water is present. Additionally if fall sampling fails, it is likely that the surface water may be frozen by the time analytical results are obtained, reviewed, and re-sampling can be scheduled. Sampling in the wetland during frozen/semi-frozen conditions is a Health and Safety Hazard and is not recommended during snow cover or semi-frozen conditions. Historic toxicity sampling location MCG-B (East) and adjacent to the toe of the mound, is hereby replaced by MCG-H for "East" toxicity sampling.

SURFACE WATER CONTINGENCY PLAN

Tier 1: If a toxicity test results in a failed test, a repeat toxicity and the site surface water suite will be collected and analyzed at the failed sample location within one (1) month to confirm or refute the result.

Tier 2: If the "failed" test result is confirmed through additional sampling then the following measures will be implemented:

- Increase toxicity sample monitoring frequency to twice monthly, for four months under non-freezing or snow cover conditions.
- Collect groundwater monitoring at the nearest monitoring well location to coincide with the additional toxicity sampling.
- If four "failed" toxicity test results are obtained (including the initial and Tier 1 sampling) then proceed to Tier 3 procedures.
- If four consecutive "pass" toxicity test results are obtained, revert back to semi-annual sampling; and
- Review site conditions during each sampling event to identify any other potential causes for surface water impacts.

Tier 3: If four "failed" toxicity test results are obtained from semi-annual, Tier 1, and Tier 2 additional sampling, then the following measures are to be implemented:

- Within six months of the failed test results (allowing for additional drilling to be completed around the perimeter toe of the waste mound) an additional hydrogeological and surface water assessment will be completed. Following the completion of hydrogeological/surface water assessment, then one or more of the following Tier 4 mitigation measures will be designed.

Tier 4: If additional remedial measures are necessary they may include but are not limited to:

Tier 4: If additional remedial measures are necessary they may include but are not limited to:

- Installation of purge wells upgradient of the "failed" toxicity test location;
- Installation of a barrier wall immediately adjacent to licensed disposal area within the groundwater flow path.
- Installation of interceptor trenches immediately adjacent to the licensed disposal area within the groundwater flow path.

NORTH BAPTISTE WASTE TRANSFER STATION
(FORMER WDS)
GROUNDWATER
TRIGGER MECHANISMS
APPROVED AUGUST 16, 2019

OBJECTIVE: GROUNDWATER IMPACTS

The objective of the groundwater trigger mechanisms and contingency plan for the former Waste Disposal Site (WDS) is to identify increased concerns for leachate impacted groundwater discharging to surface water and ensure timely action to prevent and mitigate any adverse impacts to the environment.

East & South Property Boundary-Groundwater

Assessment Points- NB-MW3 (East) and NB-MW5R (South)
Trigger Parameters- Alkalinity, Chloride, Iron, Manganese, Sodium, and TDS
Frequency-Sampling four times per year (Semi-annually)
Contingency Plan is activated if three or more of the following trigger parameter exceedances occur at one assessment point for one discreet sample:

- Alkalinity, Chloride, Iron, Manganese, Sodium, and TDS exceeds the 75th percentile of the historical data for the assessment point;

Table 2: Trigger Parameter Concentrations (2009- 2017)

Parameter	MW3 75th percentile of historic data (2009-2017) (mg/L)	MW5R 75th percentile of historic data (2006-2017) (mg/L)
Alkalinity	190	40
Chloride	57	25
Iron	0.83	0.51
Manganese	0.23	0.14
Sodium	60	13
TDS	366	152

Note: MW5R includes historic data from MW5

CONTINGENCY PLAN – GROUNDWATER

Tier 1: If three or more trigger parameter concentrations are exceeded at one assessment point during one sampling event, a repeat sampling will be conducted within one (1) month to confirm or refute the results at that location.

Tier 2: If Tier 1 re-sampling confirms parameter exceedances then collect a toxicity sample at the downgradient surface water monitoring location from the assessment point which was triggered (MCG-H for well NB-MW3, MCG-C for NB-MW-5R).

Respectfully submitted,

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