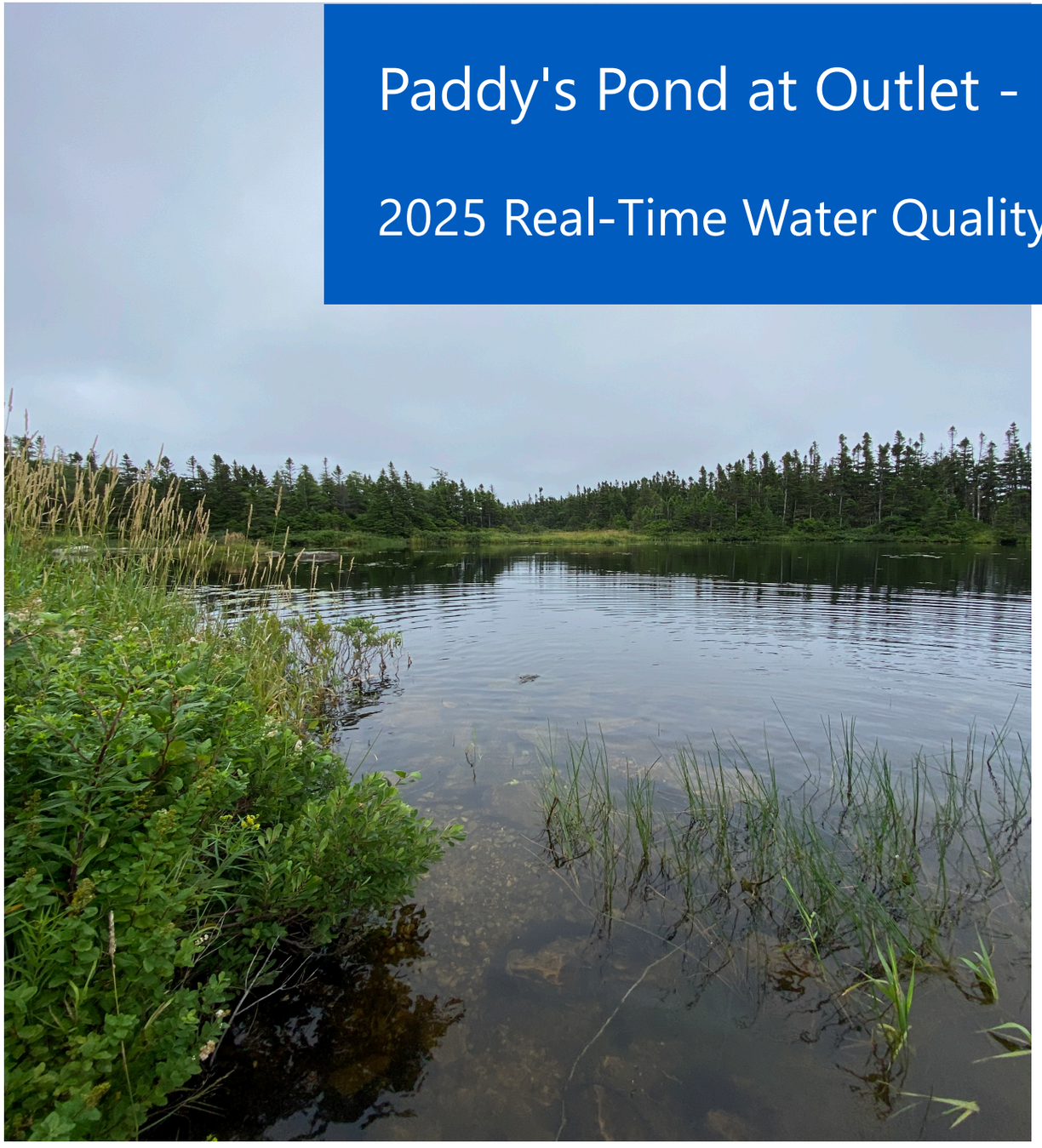
Paddy's Pond at Outlet - NLENWQ0001

2025 Real-Time Water Quality Annual Report



Government of Newfoundland & Labrador
Department of Environment, Conservation & Climate Change

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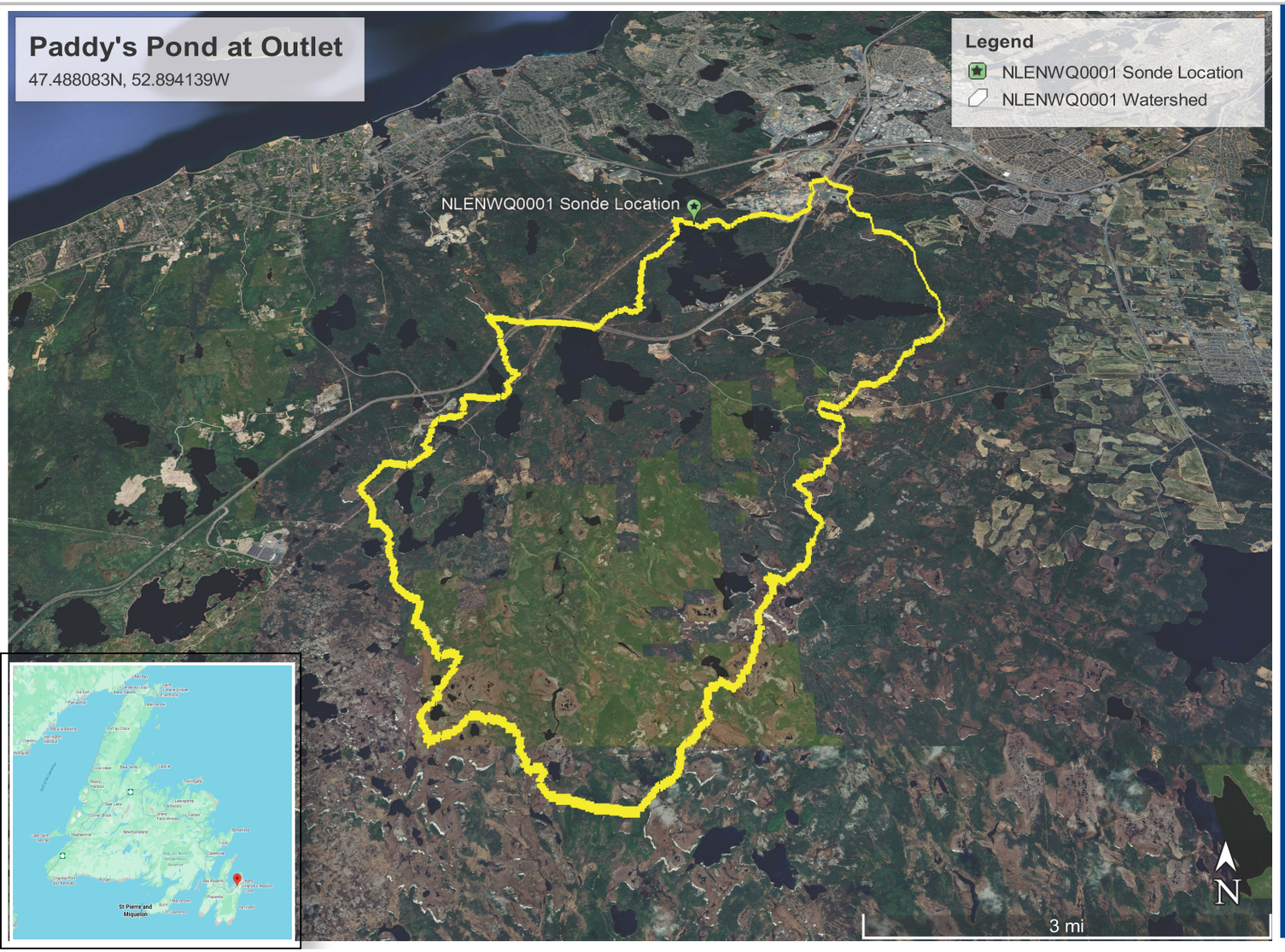
Paddy's Pond at Outlet NLENWQ0001



The Department of Environment, Conservation and Climate Change, Water Resources Management Division (WRMD), conducts real-time water quality monitoring at Paddy's Pond at the outlet to Three Arm Pond (47.488129°N, 52.893809°W), located west of St. John's, Newfoundland and Labrador.

This station is part of the provincial surface water monitoring network. Paddy's Pond is an important freshwater body in the St. John's area. Monitoring at the outlet allows staff to assess water quality conditions before water flows downstream into Three Arm Pond and the surrounding watershed.

The station collects hourly measurements of key water quality parameters, including water temperature, pH, specific conductivity, dissolved oxygen, and turbidity using a YSI EXO2 sonde. These parameters help describe overall water quality, aquatic habitat conditions, and potential environmental changes.

Monitoring at Paddy's Pond helps to:

- -Protect aquatic life
- -Track seasonal and weather-related changes
- -Detect unusual water quality events
- -Support water resource management decisions
- -Contribute to long-term environmental records

Quality Assurance and Quality Control

As part of the Quality Assurance and Quality Control protocol (QA/QC), an assessment of the reliability of data recorded by an instrument is made at the beginning and end of the deployment period. The procedure is based on the approach used by the United States Geological Survey. Hydrometric data is not available for this station.

Parameter	Excellent	Good	Fair	Marginal	Poor
Dissolved oxygen	≤ ± 0.3 mg/L	≤ ± 0.31 -0.5 mg/L	≤ ± 0.51 - 0.8 mg/L	≤ ± 0.81 - 1 mg/L	> ± 1 mg/L
pH	≤ ± 0.2 units	≤ ± 0.21 - 0.5 units	≤ ± 0.51 - 0.8 units	≤ ± 0.81 - 1 units	> ± 1 units
Specific Conductance	≤ ± 3 µS/cm or ≤ ± 3%, whichever is greater	≤ ± 3.1-10 µS/cm or ≤ ± 3.1-10%, whichever is greater	≤ ± 10 - 15 µS/cm or ≤ ± 10.1-15 %, whichever is greater	≤ ± 15.1 - 20 µS/cm or ≤ ± 15.1-20 %, whichever is greater	> ± 20 µS/cm or > ± 20 %, whichever is greater
Turbidity	≤ ± 2 turbidity units or ≤ ± 5%, whichever is greater	≤ ± 2.1-5 turbidity units or ≤ ± 5.1-10 %, whichever is greater	≤ ± 5.1-8 turbidity units or ≤ ± 10.1-15 %, whichever is greater	≤ ± 8.1-10 turbidity units or ≤ ± 15.1-20 %, whichever is greater	> ± 10 turbidity units or > ± 20 %, whichever is greater
Water Temperature	≤ ± 0.2°C	≤ ± 0.21 - 0.5°C	≤ ± 0.51 - 0.8°C	≤ ± 0.81 - 1°C	> ± 1°C

At deployment and removal, a QA/QC Sonde is temporarily deployed adjacent to the Field Sonde. Values for temperature, pH, conductivity, dissolved oxygen and turbidity are compared between the two instruments**.** Based on the degree of difference between parameters recorded by the Field Sonde and QA/QC Sonde at deployment and at removal, a qualitative statement is made on the data quality.

There are a few circumstances which may cause QA/QC rankings below excellent, including the placement of the QA/QC sonde in relation to the field sonde, the amount of time each sonde was given to stabilize before readings were recorded, and deteriorating performance of one of the sensors.

The temperature sensor on any sonde is the most important. All other parameters can be divided into subgroups of: temperature dependent, temperature compensated, and temperature independent. Due to the temperature sensor's location on the sonde, the entire sonde must be at a constant temperature before the temperature sensor will stabilize. The values may take some time to climb to the appropriate reading; if a reading is taken too soon it may not accurately portray the water body.

Deployment Periods & Grab Sample Rankings

DEPLOYMENT DATE	REMOVAL DATE	GRAB SAMPLE #	pH	Conductivity	Turbidity
Thursday, November 28, 2024	Tuesday, January 21, 2025	2024-1720-00-SI-SP	GOOD	EXCELLENT	EXCELLENT
Tuesday, January 21, 2025	Thursday, April 17, 2025	2025-1700-00-SI-SP	EXCELLENT	POOR	EXCELLENT
Thursday, April 17, 2025	Monday, May 26, 2025	2025-1703-00-SI-SP	POOR	GOOD	EXCELLENT
Monday, May 26, 2025	Tuesday, July 08, 2025	2025-1706-00-SI-SP	EXCELLENT	MARGINAL	EXCELLENT
Tuesday, July 08, 2025	Wednesday, July 16, 2025	2025-1712-00-SI-SP	POOR	FAIR	EXCELLENT
Wednesday, July 16, 2025	Thursday, November 20, 2025	Not Collected			
Thursday, November 20, 2025	Wednesday, December 31, 2025	2025-1726-00-SI-SP	GOOD	EXCELLENT	EXCELLENT

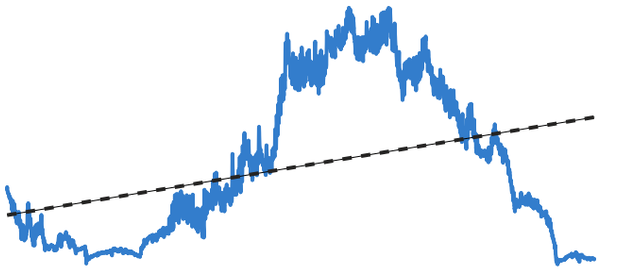
Water Temperature

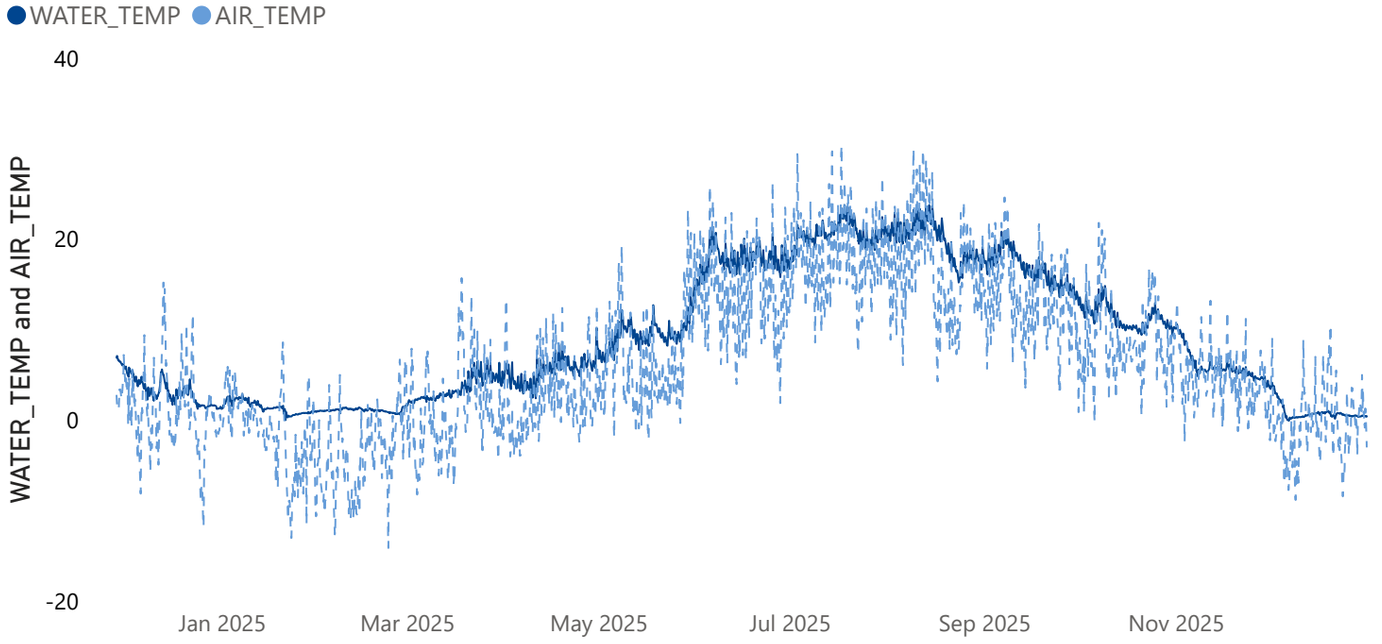
8.92	-0.06	23.78	6.15
Average (°C)	Minimum (°C)	Maximum (°C)	Median (°C)

Water temperature is an important parameter for wildlife. Many organisms cannot regulate their own temperatures, and rely on surrounding air and water temperatures. Water temperature may be affected by inputs from industry or by modifying natural conditions like clearing trees and other vegetation, which eliminates the canopy protection they offer. Water temperature also affects other parameters monitored including dissolved oxygen and specific conductivity.

Water temperature during this monitoring period displayed a clear seasonal pattern, increasing steadily from winter into summer before gradually declining into fall. The maximum water temperature of **23.78 °C** occurred during mid-summer, corresponding with peak air temperatures, while the minimum temperature of **-0.06 °C** was recorded during winter conditions. The overall average temperature was **9.44 °C**, with a median of **7.70 °C**, indicating that temperatures were below 10 °C for a significant portion of the year. A strong relationship between air and water temperature is evident, with water temperatures responding to seasonal atmospheric changes but showing less extreme fluctuations due to the thermal buffering capacity of the waterbody. The trendline suggests a gradual overall increase across the period shown; however, short-term variability reflects normal diurnal cycles and weather-driven influences such as warm spells and cold fronts.

Water Temperature Trendline





Year	Month	Average WATER_TEMP (°C)	Average Air Temperature (°C)
2024	November	6.46	3.02
2024	December	3.06	1.02
2025	January	1.44	-1.44
2025	February	1.12	-3.84
2025	March	3.50	0.74
2025	April	5.50	2.45
2025	May	9.50	6.20
2025	June	17.70	14.25
2025	July	20.61	18.15
2025	August	19.84	16.63
2025	September	16.71	13.35
2025	October	11.38	8.65
2025	November	5.99	4.62
2025	December	0.88	-0.43

pH

6.83	6.10	9.37	6.70
Average pH	Minimum pH	Maximum pH	Median pH

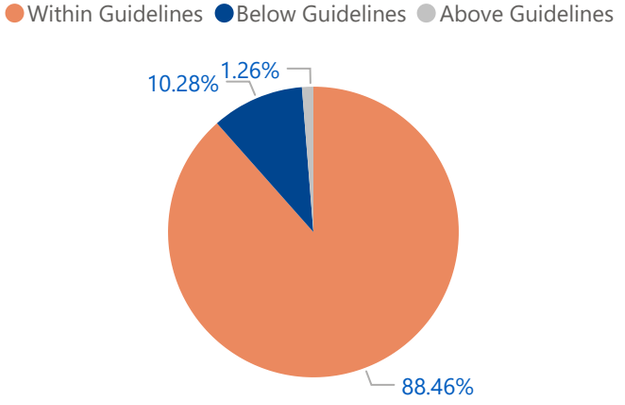
pH relates to the free hydrogen ions in water and it is a measure of acidity in water. A pH of 7 indicates a neutral pH, below 7 is considered acidic, and above 7 is considered basic. The Canadian Council of Ministers of the Environment (CCME) Freshwater Aquatic Life guideline provides a basis by which to judge the overall health of the brook. Their freshwater guidelines recommend a minimum pH of 6.5 and a maximum pH of 9.0; however, many rivers in Newfoundland and Labrador are naturally more acidic due to the local geology. Water parameter maps can be found on the Water Resources Management website.

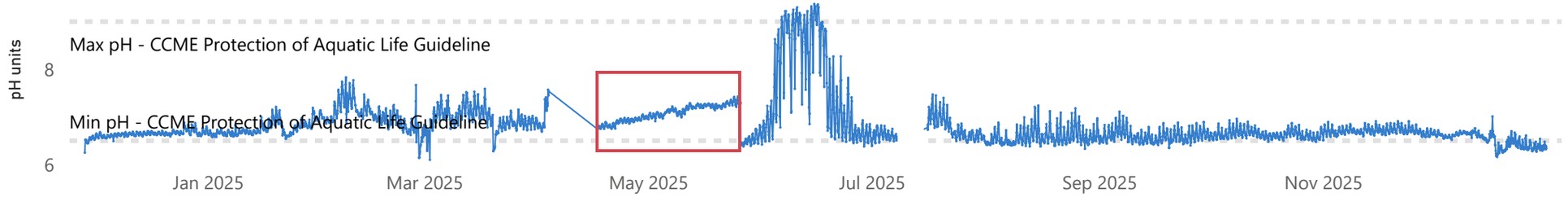
Over the full monitoring year, pH values remained generally stable and within the CCME Freshwater Aquatic Life guidelines. The annual average pH was **6.83**, with a minimum of **6.10** and a maximum of **9.37**. Seasonal variability was evident, with greater fluctuations observed during late spring and early summer and more stable conditions through late summer and fall. Routine short-term changes throughout the year are consistent with natural diurnal cycles influenced by temperature and biological activity.

During May, a gradual upward drift in pH was observed. The steady and progressive nature of this increase suggests possible minor sensor drift rather than a sudden environmental shift. Values returned to a more typical pattern following recalibration of the instrument.

In contrast, a pronounced spike in June appears to reflect environmental conditions rather than instrument behavior. Elevated pH levels during this time were most likely associated with increased algal productivity. Active photosynthesis by algae removes carbon dioxide from the water, reducing carbonic acid formation and temporarily increasing pH. Overall, pH conditions at the site indicate a generally healthy and seasonally responsive freshwater system.

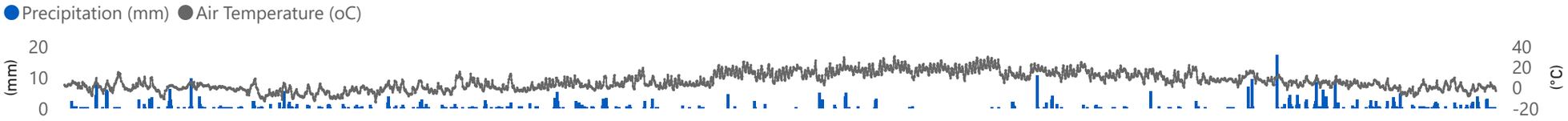
CCME Freshwater Aquatic Life Guideline





Year	Month	Average pH
2024	November	6.52
2024	December	6.65
2025	January	6.76
2025	February	7.02
2025	March	6.96
2025	April	6.91
2025	May	7.06
2025	June	7.73
2025	July	6.72
2025	August	6.59
2025	September	6.61
2025	October	6.64
2025	November	6.71
2025	December	6.51

Climate data from St. John's West Climate Station



Specific Conductivity

µS/cm

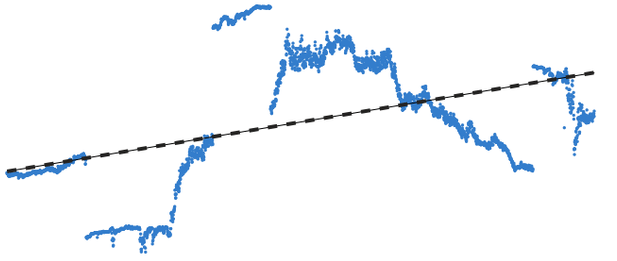
92.22	36.21	142.96	92.43
Average µS/cm	Minimum µS/cm	Maximum µS/cm	Median µS/cm

Conductivity relates to the ability of an electric charge to pass through a solution. Pure water has low conductance and water with dissolved ions has higher conductance. Specific conductance is corrected to 25°C to allow comparison across temperatures. Water parameter maps can be found on the Water Resources Management website.

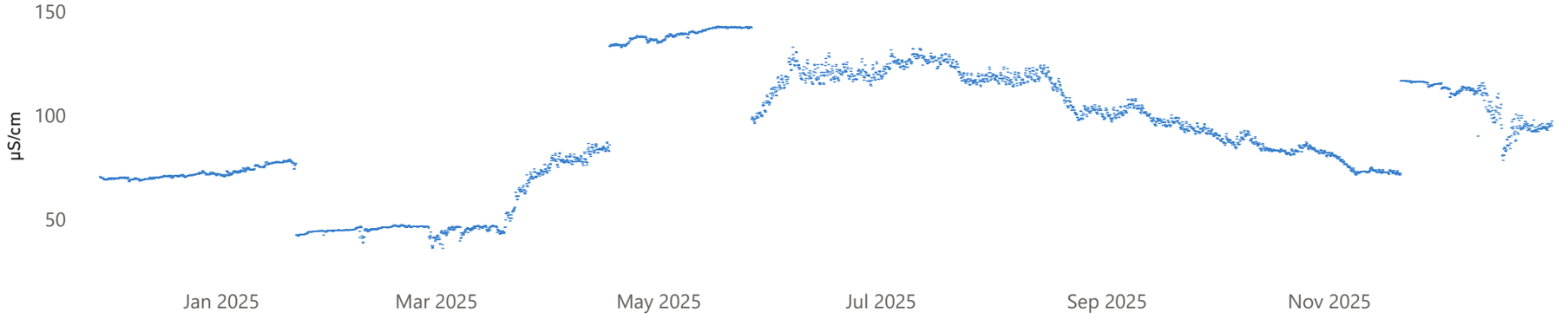
Over the monitoring year, specific conductivity had an annual average of **92.22 µS/cm**, with a minimum of **36.21 µS/cm** and a maximum of **142.96 µS/cm**. Seasonal patterns were evident, with higher values generally observed during late spring and summer and gradual declines into fall. Throughout most of the year, conductivity followed expected seasonal trends, likely reflecting natural dilution during snowmelt and increased ion concentration during drier periods. Sudden increases and decreases observed in the dataset correspond to periods of sonde removal, calibration, and redeployment. These step changes are associated with instrument calibration rather than true shifts in water chemistry.

Aside from these maintenance-related transitions, conductivity values remained consistent with typical seasonal behavior for the watershed and indicate stable overall ionic conditions.

Specific Conductivity Trendline

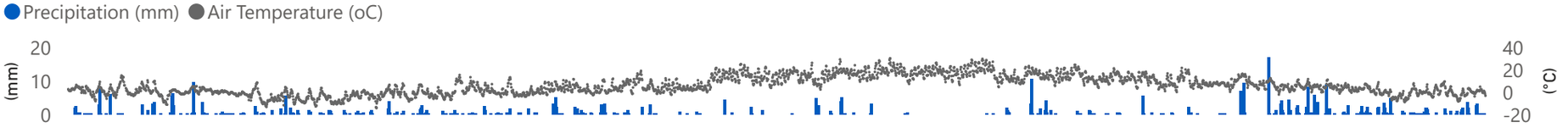


SPEC_CONDUCT by NST_DATI



Year	Month	Average
2024	November	69.66
2024	December	70.65
2025	January	64.54
2025	February	45.45
2025	March	53.04
2025	April	105.77
2025	May	133.67
2025	June	119.97
2025	July	123.46
2025	August	111.81
2025	September	97.86
2025	October	85.21
2025	November	89.26
2025	December	102.14

Climate data from St. John's West Climate Station



Dissolved Oxygen Concentration and Saturation

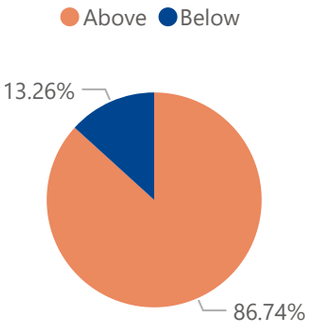
12.12	7.14	17.17	12.39
Average (mg/L)	Minimum (mg/L)	Maximum (mg/L)	Median (mg/L)

Dissolved oxygen (DO) in water is crucial for aquatic life. The CCME (Canadian Council of Ministers of the Environment) Freshwater Aquatic Life guidelines provide a basis by which to judge the overall health of waterways. The minimum guideline for early life stages in cold water is 9.5 mg/L and the minimum guideline for other life stages is 6.5 mg/L. DO and water temperatures are correlated; colder waters can hold higher concentrations of DO than warm waters.

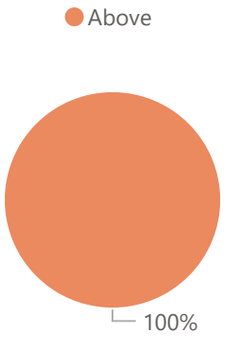
Over the monitoring year, DO concentrations had an annual average of **12.12 mg/L**, with a minimum of **7.14 mg/L** and a maximum of **17.17 mg/L**. A clear seasonal pattern is evident, with higher concentrations observed during colder months and lower concentrations during the warmer summer period, reflecting the inverse relationship between water temperature and oxygen solubility.

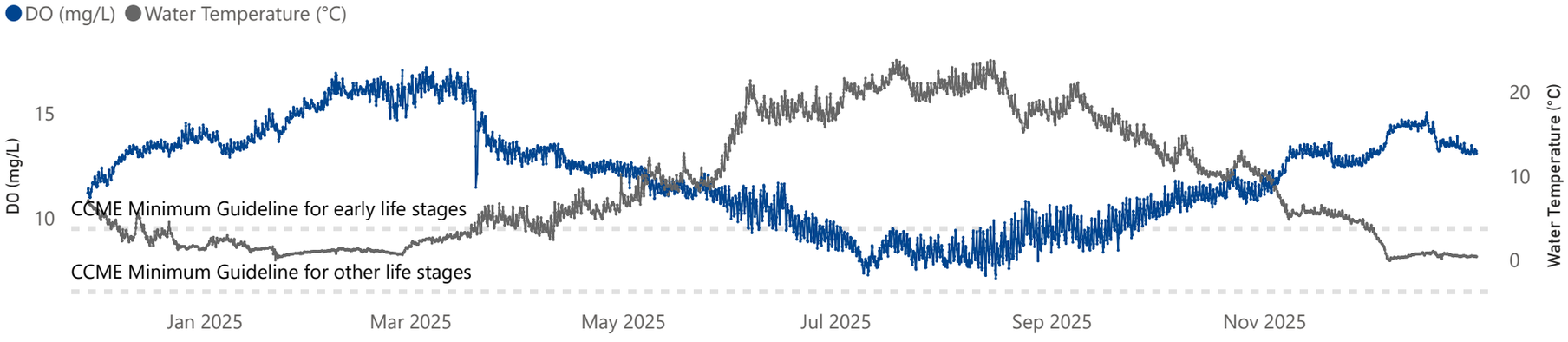
DO concentrations remained above the CCME guideline for the Protection of Other Life Stages (6.5 mg/L) throughout the year. Periods during mid-summer show concentrations approaching or falling below the Early Life Stages guideline (9.5 mg/L), which is expected during warmer conditions when oxygen solubility naturally decreases. Percent saturation remained relatively stable and generally near or above 100% during cooler periods, with modest reductions during peak summer temperatures. Overall, dissolved oxygen conditions indicate a healthy, seasonally responsive freshwater system, with fluctuations consistent with natural thermal and biological processes.

CCME Early Life Stages Guideline

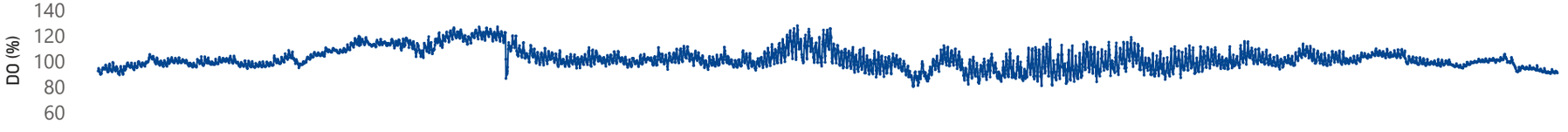


CCME Other Life Stages Guideline





Percent Saturation (%)



Year	Month	Average mg/L	Average %Sat
2024	November	11.45	93.08
2024	December	13.15	97.76
2025	January	14.13	100.59
2025	February	15.89	112.19
2025	March	15.19	114.13
2025	April	12.73	100.98
2025	May	11.56	101.20
2025	June	10.10	106.13
2025	July	8.54	95.18
2025	August	8.77	96.06
2025	September	9.70	99.68
2025	October	11.14	101.93
2025	November	12.70	101.93
2025	December	13.80	96.76

Turbidity

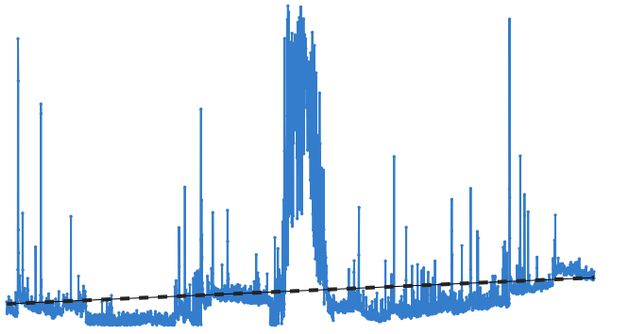
1.00	0.00	9.93	0.61
Average (NTU)	Minimum (NTU)	Maximum (NTU)	Median (NTU)

Water turbidity is characterized by the cloudiness or haziness caused by suspended particles and can significantly impact water quality. High turbidity reduces light penetration, hindering photosynthesis and affecting aquatic vegetation growth and habitat suitability. It can lead to temperature fluctuations, oxygen depletion from microbial decomposition of organic matter, and sedimentation, smothering benthic habitats and compromising biodiversity.

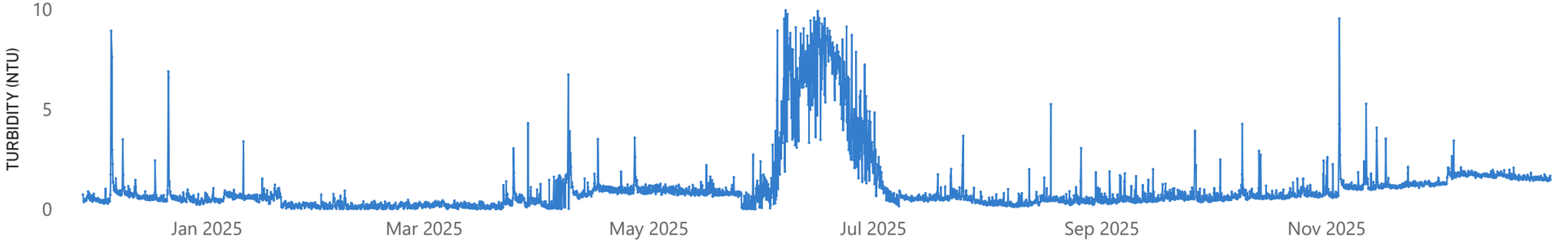
Over the monitoring year, turbidity values remained generally low, with an annual average of **1.00 NTU**, a minimum of **0.00 NTU**, and a maximum of **9.93 NTU**. For most of the year, readings were stable and near baseline conditions, indicating clear water with minimal suspended material.
A pronounced increase in turbidity was observed during June. This sustained elevation is most likely associated with a documented algal bloom during that period. Elevated algal biomass can increase light scattering in the water column, resulting in higher NTU values even in the absence of sediment inputs. The timing and duration of the increase, along with relatively stable precipitation patterns, support a biological rather than sediment-driven cause.

Outside of this bloom event, short-term turbidity spikes align with isolated precipitation or wind events and reflect normal watershed responses. Overall, turbidity conditions indicate generally good water clarity, with seasonal variability largely driven by natural biological and hydrological processes.

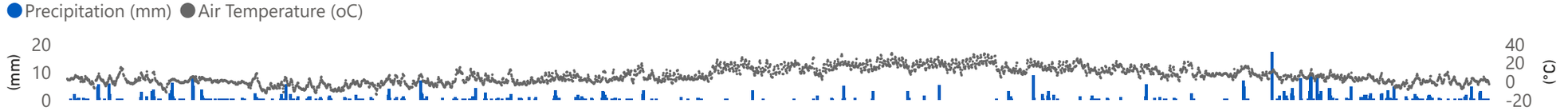
Turbidity Trendline



TURBIDITY (NTU) by NST_DATI



Climate data from St. John's West Climate Station



Year	Month	Average NTU
2024	November	0.53
2024	December	0.68
2025	January	0.45
2025	February	0.16
2025	March	0.27
2025	April	0.91
2025	May	0.77
2025	June	5.01
2025	July	0.67
2025	August	0.39
2025	September	0.57
2025	October	0.69
2025	November	1.19
2025	December	1.62

Cyanobacteria & Total Algal Cells Grab Samples

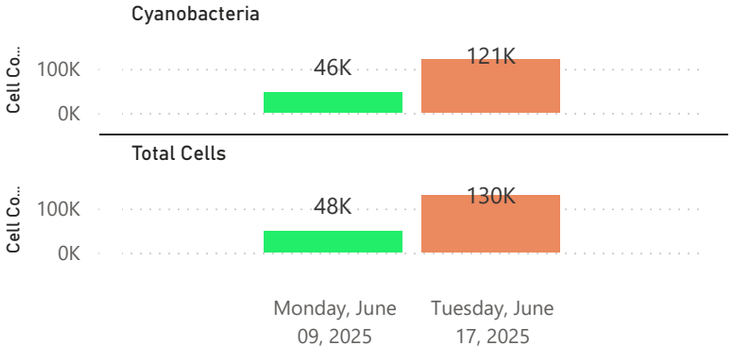
Algae and cyanobacteria (commonly referred to as blue-green algae or BGA) are naturally occurring components of freshwater ecosystems. They form the base of the aquatic food web and contribute to oxygen production through photosynthesis. However, under favourable conditions such as warm temperatures, high sunlight, and elevated nutrient availability, populations can increase rapidly and form blooms. Cyanobacterial blooms are of particular interest because some species are capable of producing toxins (e.g., microcystins) that may pose risks to aquatic life, drinking water supplies, and recreational users.

Grab samples collected in June confirm the presence of elevated algal activity during the monitoring period. On June 9, 2025, cyanobacteria cell counts were 46,120 cells/mL, with total algal cells measured at 48,000 cells/mL. By June 17, 2025, cyanobacteria concentrations increased substantially to 120,750 cells/mL, while total algal cells rose to 130,000 cells/mL.

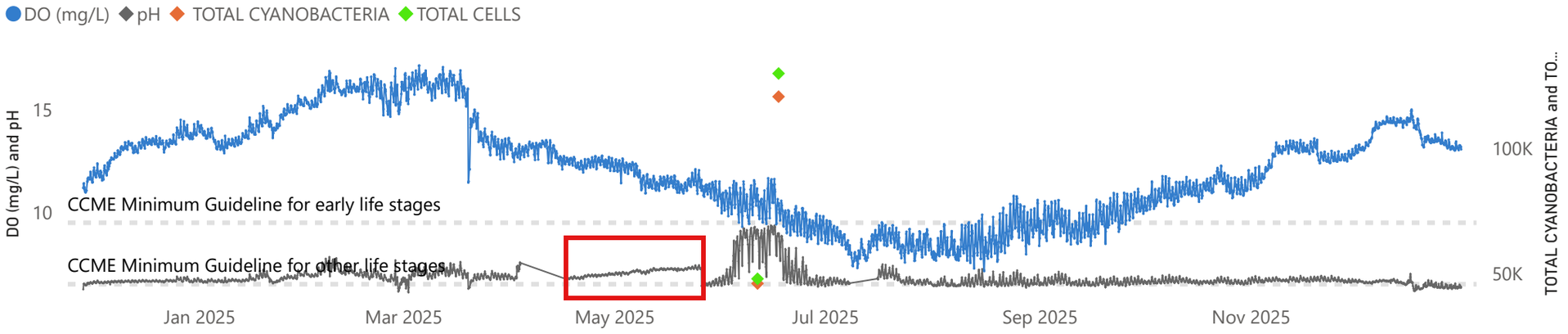
Health Canada's Guidelines for Canadian Recreational Water Quality for total cyanobacterial Cells is 50,000 cells/mL. This guideline can be used as an indicator to determine when the waterbody is at an elevated risk of cyanotoxins. During one sampling event, the cyanobacteria cell count at Paddy's Pond was more than double the guideline. The major risk associated with such a bloom is the potential for toxin production, which was ruled out through direct microcystin (toxin) testing as well as eDNA testing. Nonetheless, caution should be taken when blooms are present due to the possibility of skin rashes, gastrointestinal upset, or other complications. This marked increase aligns with the elevated turbidity and pH levels observed during the same period, supporting the occurrence of a documented algal bloom.

Despite the elevated cell counts, microcystin concentrations remained below the laboratory detection limit (<0.15 µg/L) in both samples, indicating that toxin levels were not detected at the time of sampling. The temporal correspondence between increased algal biomass, higher turbidity values, and elevated pH is consistent with enhanced photosynthetic activity, which can influence water chemistry and clarity. Overall, the grab sample results confirm a short-term bloom event in June, likely driven by favorable environmental conditions such as increased temperature, sunlight, and stable water conditions.

Grab Sample Results



Date	Analysis	Cell Count (Cells/mL)	Microcystin
Monday, June 09, 2025	Cyanobacteria	46120	<0.15
Monday, June 09, 2025	Total Cells	48000	<0.15
Tuesday, June 17, 2025	Cyanobacteria	120750	<0.15
Tuesday, June 17, 2025	Total Cells	130000	<0.15

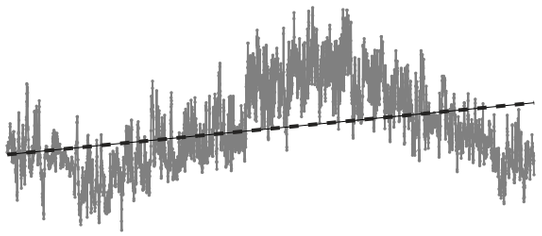


Meteorological Data

*Climate data obtained from St. John's West Station

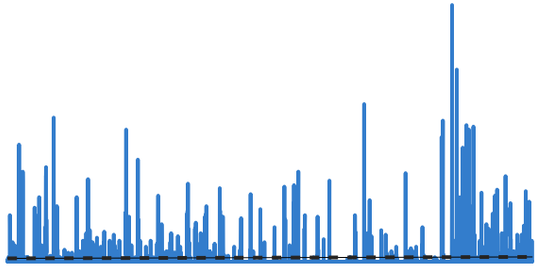
Newfoundland Labrador

Air Temperature Trendline



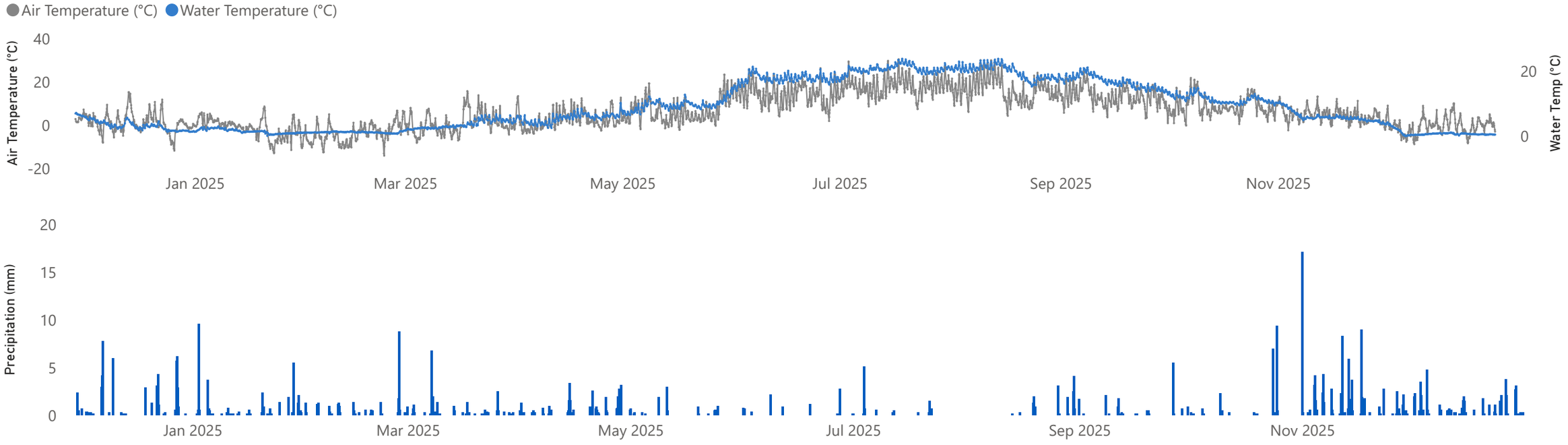
6.23	4.90
Average (°C)	Median (°C)
-14.10	30.40
Minimum (°C)	Maximum (°C)

Precipitation Trendline



0.14	0.00
Average (mm)	Median (mm)
0.00	17.10
Minimum (mm)	Maximum (mm)

Air Temperature (°C) and Water Temperature (°C) by NST_DATI

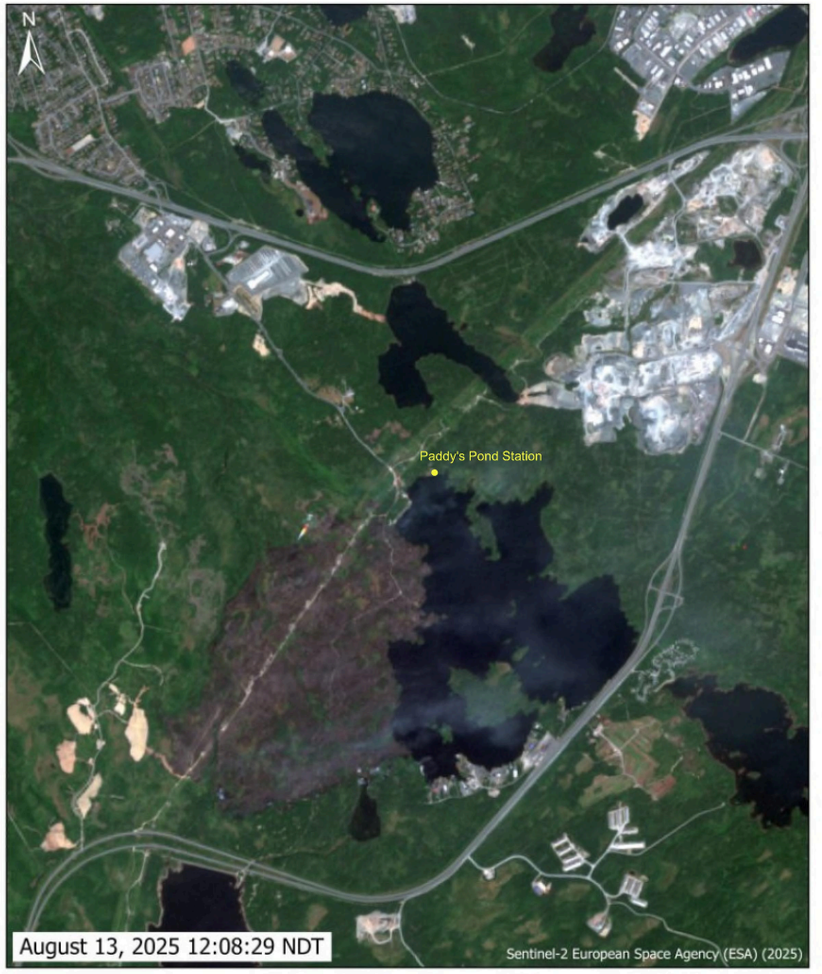


August 2025 Forest Fire

During August 2025, a significant forest fire occurred in the Paddy's Pond area. The wildfire began on August 11, 2025 and quickly expanded due to dry conditions and wind, eventually reaching an estimated size of approximately 741 - 786 acres.

Fire suppression efforts included ground crews, helicopters, and water bombers, and evacuation alerts and orders were issued for nearby communities including Paradise, Conception Bay South, and the Three Island Pond area. Portions of nearby infrastructure and industrial areas were temporarily evacuated, and sections of the Trans-Canada Highway were closed during the emergency response. The fire was later brought under control and declared out by late August, with crews continuing to monitor the area for remaining hot spots.

Potential impacts to water quality following a forest fire can occur due to the loss of vegetation and the deposition of ash and burned organic material across the watershed. Without vegetation to stabilize soils, rainfall events can increase surface runoff and erosion, potentially transporting sediment, nutrients, and ash into nearby water bodies such as Paddy's Pond. These inputs can temporarily elevate parameters such as turbidity, total suspended solids, and nutrient concentrations, and may also contribute to increased organic matter in the water column. In some cases, nutrient enrichment from burned vegetation and ash can create conditions that promote algal growth, including cyanobacteria (blue-green algae), particularly during warm summer conditions. Continued monitoring of water quality parameters will help identify any changes associated with post-fire runoff and supports the assessment of potential impacts to aquatic ecosystems and drinking water sources.



Conclusions

A clean and calibrated instrument was deployed at the Paddy's Pond at Outlet (NLENWQ0001) water quality monitoring station for the 2025 monitoring period. Data collected provide a clear representation of seasonal water quality conditions within the watershed.

• Overall, water quality remained stable and within expected ranges for a natural freshwater system, with variability primarily driven by seasonal, meteorological, and biological processes.

• Water temperature followed a typical seasonal pattern, ranging from -0.06°C to 23.78°C, and closely corresponded with air temperature trends.

• pH values (6.10–9.37) were generally within CCME Guidelines for the Protection of Aquatic Life. Short-term increases in late spring and early summer were attributed to algal activity, with minor drift observed prior to recalibration.

• Specific conductivity (36.21–142.96 µS/cm) showed expected seasonal variability, with higher values during drier periods and step changes associated with instrument maintenance.

• Dissolved oxygen remained above the CCME guideline for Other Life Stages (6.5 mg/L) throughout the year. Lower summer values approached the Early Life Stages guideline (9.5 mg/L), consistent with temperature-driven solubility effects.

• Turbidity remained low for most of the year, indicating clear water conditions. Elevated values in June were associated with a documented algal bloom, while minor spikes aligned with precipitation and wind events.

• Grab samples confirmed elevated algal and cyanobacteria activity in June; however, microcystin concentrations were below detection limits.

• Meteorological conditions influenced observed trends, particularly seasonal warming, runoff, and biological productivity.

• A forest fire occurred within the watershed in August 2025. No immediate water quality impacts were observed; however, continued monitoring is recommended to assess potential delayed effects such as increased runoff and nutrient inputs.

• All data presented have undergone QA/QC procedures in accordance with WRMD protocols, and observed variability reflects natural conditions and routine instrument maintenance.

Appendix 1
Grab Sample Results

Your P.O. #: 224006869-3

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1700-00-SI-SP, 2025-1701-00-SI-SP

Report Date: 2025/01/29
Report #: R8478186
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C506907
Received: 2025/01/22, 09:33

Sample Matrix: Drinking Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2025/01/24	ATL SOP 00142	SM 24 2320 B
Anions (1)	2	N/A	2025/01/27	CAM SOP-00435	SM 23 4110 B m
Colour	2	N/A	2025/01/27	ATL SOP 00020	SM 24 2120C m
Organic carbon - Diss (DOC)-Lab Filtered (2)	2	N/A	2025/01/24	ATL SOP 00203	SM 24 5310B m
Conductance - water	2	N/A	2025/01/24	ATL SOP 00004	SM 24 2510B m
Fluoride	2	N/A	2025/01/24	ATL SOP 00043	SM 24 4500-F- C m
Hardness (calculated as CaCO3)	2	N/A	2025/01/23	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	2	2025/01/28	2025/01/28	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	2	2025/01/23	2025/01/23	ATL SOP 00058	EPA 6020B R2 m
Nitrogen Ammonia - water	2	N/A	2025/01/23	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	2	N/A	2025/01/27	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	2	N/A	2025/01/27	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	2	N/A	2025/01/27	ATL SOP 00018	ASTM D3867-16
pH (3)	2	N/A	2025/01/24	ATL SOP 00003	SM 24 4500-H+ B m
Calculated TDS (DW Pkg)	2	N/A	2025/01/27	N/A	Auto Calc
Total Kjeldahl Nitrogen in Water (1)	2	2025/01/24	2025/01/27	CAM SOP-00938	SM 4500-N B m
Organic carbon - Total (TOC) (2)	2	N/A	2025/01/24	ATL SOP 00203	SM 24 5310B m
Total Phosphorus (Colourimetric) (1)	2	2025/01/24	2025/01/28	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	2	2025/01/22	2025/01/23	ATL SOP 00007	SM 24 2540D m
Turbidity	2	N/A	2025/01/27	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.
(3) The APHA Standard Method 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 APHA Standard Method holding time.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Your P.O. #: 224006869-3

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1700-00-SI-SP, 2025-1701-00-SI-SP

Report Date: 2025/01/29
Report #: R8478186
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C506907
Received: 2025/01/22, 09:33

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Alyson Lawrence, B.Sc., Project Manager
Email: alyson.lawrence@bureauveritas.com
Phone# (902) 420-0203

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Bureau Veritas Job #: C506907
Report Date: 2025/01/29

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ANKB53 PADDY'S POND @OUTLET Sampling Date 2025/01/21 09:23 Matrix DR Sample # 2025-1700-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF DRINKING WATER								
Calculated Parameters								
Hardness (CaCO3)	-	8.4	1.0	mg/L	N/A	2025/01/23		9862830
Nitrate (N)	-	0.057	0.050	mg/L	N/A	2025/01/27		9862833
Total dissolved solids (calc., EC)	-	40	1.0	mg/L	N/A	2025/01/27		9862982
Inorganics								
Conductivity	-	72	1.0	uS/cm	N/A	2025/01/24	M2C	9864426
Chloride (Cl-)	-	16	1.0	mg/L	N/A	2025/01/27	VP2	9864588
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/01/27	VP2	9864588
Sulphate (SO4)	-	2.9	1.0	mg/L	N/A	2025/01/27	VP2	9864588
Total Alkalinity (Total as CaCO3)	-	3.9	2.0	mg/L	N/A	2025/01/24	M2C	9864427
Colour	-	41	5.0	TCU	N/A	2025/01/27	EMT	9865089
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/01/24	M2C	9864428
Total Kjeldahl Nitrogen (TKN)	-	0.12	0.10	mg/L	2025/01/24	2025/01/27	RTY	9864660
Nitrate + Nitrite (N)	-	0.057	0.050	mg/L	N/A	2025/01/27	EMT	9864225
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/01/27	EMT	9865087
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/01/23	EMT	9863637
Dissolved Organic Carbon (C)	-	5.6	0.50	mg/L	N/A	2025/01/24	ACK	9863935
Total Organic Carbon (C)	-	6.1	0.50	mg/L	N/A	2025/01/24	ACK	9864551
pH	-	6.71		pH	N/A	2025/01/24	M2C	9864424
Total Phosphorus	-	0.029	0.004	mg/L	2025/01/24	2025/01/28	VKH	9864622
Total Suspended Solids	-	6.4	1.0	mg/L	2025/01/22	2025/01/23	ISM	9863158
Turbidity	-	4.8	0.10	NTU	N/A	2025/01/27	M2C	9865470
MERCURY BY COLD VAPOUR AA (DRINKING WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/01/28	2025/01/28	JEP	9865353
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Aluminum (Al)	-	0.11	0.0050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Barium (Ba)	-	0.0028	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Boron (B)	-	ND	0.050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Calcium (Ca)	-	2.2	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Copper (Cu)	-	0.00070	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Iron (Fe)	-	0.22	0.050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Magnesium (Mg)	-	0.71	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502

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Bureau Veritas Job #: C506907
Report Date: 2025/01/29

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ANKB53 PADDY'S POND @OUTLET Sampling Date 2025/01/21 09:23 Matrix DR Sample # 2025-1700-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Manganese (Mn)	-	0.027	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Potassium (K)	-	0.62	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Sodium (Na)	-	11	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Strontium (Sr)	-	0.0064	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Uranium (U)	-	ND	0.00010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/01/23	2025/01/23	MOA	9863502

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Bureau Veritas Job #: C506907
Report Date: 2025/01/29

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ANKB54 WATERFORD RIVER @KILLBRIDE								
Sampling Date 2025/01/21 12:09								
Matrix DR								
Sample # 2025-1701-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF DRINKING WATER								
Calculated Parameters								
Hardness (CaCO3)	-	49	1.0	mg/L	N/A	2025/01/23		9862830
Nitrate (N)	-	0.96	0.050	mg/L	N/A	2025/01/27		9862833
Total dissolved solids (calc., EC)	-	400	1.0	mg/L	N/A	2025/01/27		9862982
Inorganics								
Conductivity	-	720	1.0	uS/cm	N/A	2025/01/24	M2C	9864426
Chloride (Cl-)	-	210	2.0	mg/L	N/A	2025/01/27	VP2	9864588
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/01/27	VP2	9864588
Sulphate (SO4)	-	17	1.0	mg/L	N/A	2025/01/27	VP2	9864588
Total Alkalinity (Total as CaCO3)	-	11	2.0	mg/L	N/A	2025/01/24	M2C	9864427
Colour	-	19	5.0	TCU	N/A	2025/01/27	EMT	9865089
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/01/24	M2C	9864428
Total Kjeldahl Nitrogen (TKN)	-	ND	0.10	mg/L	2025/01/24	2025/01/27	RTY	9864660
Nitrate + Nitrite (N)	-	0.96	0.050	mg/L	N/A	2025/01/27	EMT	9864225
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/01/27	EMT	9865087
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/01/23	EMT	9863637
Dissolved Organic Carbon (C)	-	3.3	0.50	mg/L	N/A	2025/01/24	ACK	9863935
Total Organic Carbon (C)	-	3.3	0.50	mg/L	N/A	2025/01/24	ACK	9864551
pH	-	7.04		pH	N/A	2025/01/24	M2C	9864424
Total Phosphorus	-	0.029	0.004	mg/L	2025/01/24	2025/01/28	VKH	9864622
Total Suspended Solids	-	1.8	1.0	mg/L	2025/01/22	2025/01/23	ISM	9863158
Turbidity	-	1.8	0.10	NTU	N/A	2025/01/27	M2C	9865468
MERCURY BY COLD VAPOUR AA (DRINKING WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/01/28	2025/01/28	JEP	9865353
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Aluminum (Al)	-	0.13	0.0050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Barium (Ba)	-	0.021	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Boron (B)	-	ND	0.050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Cadmium (Cd)	-	0.000034	0.000010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Calcium (Ca)	-	16	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Copper (Cu)	-	0.0019	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Iron (Fe)	-	0.25	0.050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Magnesium (Mg)	-	2.5	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502

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Bureau Veritas Job #: C506907
Report Date: 2025/01/29

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ANKB54 WATERFORD RIVER @KILLBRIDE								
Sampling Date 2025/01/21 12:09								
Matrix DR								
Sample # 2025-1701-00-SI-SP								
Registration # SA-0000								
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Manganese (Mn)	-	0.13	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Potassium (K)	-	1.9	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Sodium (Na)	-	130	0.10	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Strontium (Sr)	-	0.053	0.0020	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Uranium (U)	-	ND	0.00010	mg/L	2025/01/23	2025/01/23	MOA	9863502
Total Zinc (Zn)	-	0.014	0.0050	mg/L	2025/01/23	2025/01/23	MOA	9863502

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NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

GENERAL COMMENTS

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

Package 1	3.3°C

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C506907
Report Date: 2025/01/29

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-3
Sampler Initials: LB

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Senior Scientific Specialist

Ernlie Publicover, Scientific Specialist

Janah Rhyno, Scientific Specialist

Bureau Veritas Certified by Janah Rhyno, Scientific Specialist

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Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Your P.O. #: 224006869-5

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1706-00-SI-SP, 2025-1707-00-SI-SP

Report Date: 2025/06/10
Report #: R8554554
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C560500
Received: 2025/05/27, 10:40

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2025/06/02	ATL SOP 00142	SM 24 2320 B
Anions (1)	2	N/A	2025/06/03	CAM SOP-00435	SM 24 4110 B m
Colour	2	N/A	2025/06/09	ATL SOP 00020	SM 24 2120C m
Organic carbon - Diss (DOC)-Lab Filtered (2)	2	N/A	2025/05/30	ATL SOP 00203	SM 24 5310B m
Conductance - water	2	N/A	2025/06/02	ATL SOP 00004	SM 24 2510B m
Fluoride	2	N/A	2025/06/02	ATL SOP 00043	SM 24 4500-F- C m
Hardness (calculated as CaCO3)	1	N/A	2025/05/29	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2025/05/30	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	2	2025/06/03	2025/06/03	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	2	2025/05/29	2025/05/29	ATL SOP 00058	EPA 6020B R2 m
Nitrogen Ammonia - water	2	N/A	2025/06/03	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	2	N/A	2025/06/09	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	2	N/A	2025/06/09	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	2	N/A	2025/06/10	ATL SOP 00018	ASTM D3867-16
pH (3)	2	N/A	2025/06/02	ATL SOP 00003	SM 24 4500-H+ B m
Calculated TDS (DW Pkg)	2	N/A	2025/06/03	N/A	Auto Calc
Total Kjeldahl Nitrogen - calculated	1	2025/05/28	2025/06/10	Auto Calc	Auto Calc
Total Kjeldahl Nitrogen - calculated	1	2025/05/28	2025/06/06	Auto Calc	Auto Calc
Nitrogen - Total	2	N/A	2025/06/03	ATL SOP-00208	ASTM D8083 m
Organic carbon - Total (TOC) (2)	1	N/A	2025/05/30	ATL SOP 00203	SM 24 5310B m
Organic carbon - Total (TOC) (2)	1	N/A	2025/06/02	ATL SOP 00203	SM 24 5310B m
Total Phosphorus (Colourimetric) (1)	2	2025/05/30	2025/06/03	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	2	2025/05/29	2025/06/03	ATL SOP 00007	SM 24 2540D m
Turbidity	2	N/A	2025/06/05	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.
(3) The APHA Standard Method 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 APHA Standard Method holding time.

Your P.O. #: 224006869-5

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1706-00-SI-SP, 2025-1707-00-SI-SP

Report Date: 2025/06/10
Report #: R8554554
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C560500
Received: 2025/05/27, 10:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Alyson Lawrence, Project Manager
Email: alyson.lawrence@bureauveritas.com
Phone# (902)440-8951

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Bureau Veritas Job #: C560500
Report Date: 2025/06/10

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARFR94 PADDY'S POND @OUTLET								
Sampling Date 2025/05/26 11:14								
Matrix W								
Sample # 2025-1706-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	12	1.0	mg/L	N/A	2025/05/29		9936699
Total Kjeldahl Nitrogen (TKN)	-	0.12	0.10	mg/L	N/A	2025/06/10		9936750
Nitrate (N)	-	ND	0.050	mg/L	N/A	2025/06/10		9936703
Total dissolved solids (calc., EC)	-	78	1.0	mg/L	N/A	2025/06/03		9936749
Inorganics								
Conductivity	-	140	1.0	uS/cm	N/A	2025/06/02	M2C	9940084
Chloride (Cl-)	-	36	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Dup.Chloride (Cl-)	-	36	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Dup.Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Sulphate (SO4)	-	3.6	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Dup.Sulphate (SO4)	-	3.8	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Total Alkalinity (Total as CaCO3)	-	3.9	2.0	mg/L	N/A	2025/06/02	M2C	9940085
Colour	-	16	5.0	TCU	N/A	2025/06/09	MCN	9944843
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/06/02	M2C	9940086
Nitrate + Nitrite (N)	-	ND	0.050	mg/L	N/A	2025/06/09	MCN	9944812
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/06/09	MCN	9944842
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/06/03	MCN	9940691
Total Nitrogen (N)	-	0.12	0.10	mg/L	N/A	2025/06/03	SSI	9940845
Dissolved Organic Carbon (C)	-	3.8	0.50	mg/L	N/A	2025/05/30	SSI	9938764
Total Organic Carbon (C)	-	4.0	0.50	mg/L	N/A	2025/05/30	SSI	9938931
pH	-	6.68		pH	N/A	2025/06/02	M2C	9940076
Total Phosphorus	-	0.014	0.004	mg/L	2025/05/30	2025/06/03	VKH	9939227
Total Suspended Solids	-	5.2	1.0	mg/L	2025/05/29	2025/06/03	DME	9937572
Turbidity	-	1.5	0.10	NTU	N/A	2025/06/05	M2C	9942226
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/06/03	2025/06/03	JEP	9940305
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.068	0.0050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Barium (Ba)	-	0.0049	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Boron (B)	-	ND	0.050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Calcium (Ca)	-	3.2	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Copper (Cu)	-	0.00052	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C560500
Report Date: 2025/06/10

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARFR94 PADDY'S POND @OUTLET Sampling Date 2025/05/26 11:14 Matrix W Sample # 2025-1706-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Iron (Fe)	-	0.13	0.050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Magnesium (Mg)	-	0.89	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Manganese (Mn)	-	0.039	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Potassium (K)	-	0.63	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Sodium (Na)	-	21	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Strontium (Sr)	-	0.010	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Uranium (U)	-	ND	0.00010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/05/29	2025/05/29	MTZ	9937574

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Bureau Veritas Job #: C560500
Report Date: 2025/06/10

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARFR95 WATERFORD RIVER @KILLBRIDE								
Sampling Date 2025/05/26 13:53								
Matrix W								
Sample # 2025-1707-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	58	1.0	mg/L	N/A	2025/05/30		9936699
Total Kjeldahl Nitrogen (TKN)	-	0.20	0.10	mg/L	N/A	2025/06/06		9936750
Nitrate (N)	-	0.74	0.050	mg/L	N/A	2025/06/10		9936703
Total dissolved solids (calc., EC)	-	500	1.0	mg/L	N/A	2025/06/03		9936749
Inorganics								
Conductivity	-	910	1.0	uS/cm	N/A	2025/06/02	M2C	9940084
Chloride (Cl-)	-	250	2.0	mg/L	N/A	2025/06/03	VP2	9941022
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Sulphate (SO4)	-	20	1.0	mg/L	N/A	2025/06/03	VP2	9941022
Total Alkalinity (Total as CaCO3)	-	14	2.0	mg/L	N/A	2025/06/02	M2C	9940085
Colour	-	12	5.0	TCU	N/A	2025/06/09	MCN	9944843
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/06/02	M2C	9940086
Nitrate + Nitrite (N)	-	0.74	0.050	mg/L	N/A	2025/06/09	MCN	9944812
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/06/09	MCN	9944842
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/06/03	MCN	9940691
Total Nitrogen (N)	-	0.86	0.10	mg/L	N/A	2025/06/03	SSI	9940845
Dissolved Organic Carbon (C)	-	2.5	0.50	mg/L	N/A	2025/05/30	SSI	9938764
Total Organic Carbon (C)	-	2.7	0.50	mg/L	N/A	2025/06/02	SSI	9938766
pH	-	7.42		pH	N/A	2025/06/02	M2C	9940076
Total Phosphorus	-	0.007	0.004	mg/L	2025/05/30	2025/06/03	VKH	9939227
Total Suspended Solids	-	2.0	1.0	mg/L	2025/05/29	2025/06/03	DME	9937572
Turbidity	-	0.79	0.10	NTU	N/A	2025/06/05	M2C	9942226
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/06/03	2025/06/03	JEP	9940305
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.043	0.0050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Barium (Ba)	-	0.024	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Boron (B)	-	ND	0.050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Cadmium (Cd)	-	0.000024	0.000010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Calcium (Ca)	-	18	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Copper (Cu)	-	0.0014	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Iron (Fe)	-	0.13	0.050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Magnesium (Mg)	-	2.8	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574

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Bureau Veritas Job #: C560500
Report Date: 2025/06/10

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARFR95 WATERFORD RIVER @KILLBRIDE Sampling Date 2025/05/26 13:53 Matrix W Sample # 2025-1707-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	0.10	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Potassium (K)	-	1.7	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Sodium (Na)	-	140	0.10	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Strontium (Sr)	-	0.072	0.0020	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Uranium (U)	-	ND	0.00010	mg/L	2025/05/29	2025/05/29	MTZ	9937574
Total Zinc (Zn)	-	0.0094	0.0050	mg/L	2025/05/29	2025/05/29	MTZ	9937574

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NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

GENERAL COMMENTS

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

Package 1	7.9°C

Results relate only to the items tested.

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Bureau Veritas Job #: C560500
Report Date: 2025/06/10

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869-5
Sampler Initials: LB

VALIDATION SIGNATURE PAGE

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

Colleen Acker, B.Sc, Scientific Service Specialist

Louise Harding, Scientific Specialist

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Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Your P.O. #: 224006869
Your C.O.C. #: N/A, 2025-1726-00-SI-SP

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Report Date: 2025/12/09
Report #: R8665314
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C5E7990
Received: 2025/11/21, 09:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2025/12/03	ATL SOP 00142	SM 24 2320 B
Anions (1)	1	N/A	2025/11/27	CAM SOP-00435	SM 24 4110 B m
Colour	1	N/A	2025/12/05	ATL SOP 00020	SM 24 2120C m
Organic carbon - Diss (DOC)-Lab Filtered (2)	1	N/A	2025/12/03	ATL SOP 00203	SM 24 5310B m
Conductance - water	1	N/A	2025/12/03	ATL SOP 00004	SM 24 2510B m
Fluoride	1	N/A	2025/12/03	ATL SOP 00043	SM 24 4500-F- C m
Hardness (calculated as CaCO3)	1	N/A	2025/11/26	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	1	2025/12/04	2025/12/04	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	1	2025/11/25	2025/11/25	ATL SOP 00058	EPA 6020B R2 m
Nitrogen Ammonia - water	1	N/A	2025/12/04	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	1	N/A	2025/12/05	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	1	N/A	2025/12/05	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	1	N/A	2025/12/05	ATL SOP 00018	ASTM D3867-16
pH (3)	1	N/A	2025/12/03	ATL SOP 00003	SM 24 4500-H+ B m
Calculated TDS (DW Pkg)	1	N/A	2025/12/04	N/A	Auto Calc
Total Kjeldahl Nitrogen - calculated	1	2025/11/21	2025/12/04	Auto Calc	Auto Calc
Nitrogen - Total	1	N/A	2025/12/01	ATL SOP-00208	ASTM D8083 m
Organic carbon - Total (TOC) (2)	1	N/A	2025/12/04	ATL SOP 00203	SM 24 5310B m
Total Phosphorus Low Level Colourimetric (1)	1	2025/11/26	2025/12/05	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	1	2025/11/26	2025/11/27	ATL SOP 00007	SM 24 2540D m
Turbidity	1	N/A	2025/12/08	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.
(3) The APHA Standard Method 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 APHA Standard Method holding time.

Your P.O. #: 224006869
Your C.O.C. #: N/A, 2025-1726-00-SI-SP

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Report Date: 2025/12/09
Report #: R8665314
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C5E7990
Received: 2025/11/21, 09:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Gemarie Balatico, Project Manager
Email: Gemarie.Balatico@bureauveritas.com
Phone# (902)440-8951

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Bureau Veritas Job #: C5E7990
Report Date: 2025/12/09

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AXPE36 PADDY'S POND @OUTLET								
Sampling Date 2025/11/20 11:38								
Matrix W								
Sample # 2025-1726-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	10	1.0	mg/L	N/A	2025/11/26		A059382
Total Kjeldahl Nitrogen (TKN)	-	0.27	0.10	mg/L	N/A	2025/12/04		A059128
Nitrate (N)	-	ND	0.050	mg/L	N/A	2025/12/05		A059567
Total dissolved solids (calc., EC)	-	65	1.0	mg/L	N/A	2025/12/04		A059127
Inorganics								
Conductivity	-	120	1.0	uS/cm	N/A	2025/12/03	J1A	A066313
Chloride (Cl-)	-	28	1.0	mg/L	N/A	2025/11/27	VP2	A061382
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/11/27	VP2	A061382
Sulphate (SO4)	-	3.0	1.0	mg/L	N/A	2025/11/27	VP2	A061382
Total Alkalinity (Total as CaCO3)	-	3.8	2.0	mg/L	N/A	2025/12/03	J1A	A066315
Colour	-	13	5.0	TCU	N/A	2025/12/05	M2C	A067935
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/12/03	J1A	A066316
Nitrate + Nitrite (N)	-	ND	0.050	mg/L	N/A	2025/12/05	MCN	A068066
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/12/05	MCN	A068067
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/12/04	MCN	A066810
Total Nitrogen (N)	-	0.27	0.10	mg/L	N/A	2025/12/01	S6S	A064644
Dissolved Organic Carbon (C)	-	3.2	0.50	mg/L	N/A	2025/12/03	S6S	A065367
Total Organic Carbon (C)	-	3.5	0.50	mg/L	N/A	2025/12/04	S6S	A067113
pH	-	6.58		pH	N/A	2025/12/03	J1A	A066310
Total Phosphorus	-	0.071	0.004	mg/L	2025/11/26	2025/12/05	VKH	A062634
Total Suspended Solids	-	1.6	1.0	mg/L	2025/11/26	2025/11/27	RD4	A062148
Turbidity	-	0.97	0.10	NTU	N/A	2025/12/08	J1A	A068497
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/12/04	2025/12/04	JEP	A066590
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.039	0.0050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Barium (Ba)	-	0.0031	0.0010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Boron (B)	-	ND	0.050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Calcium (Ca)	-	2.7	0.10	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Copper (Cu)	-	0.0048	0.00050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Iron (Fe)	-	0.076	0.050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Lead (Pb)	-	0.00077	0.00050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Magnesium (Mg)	-	0.86	0.10	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Manganese (Mn)	-	0.018	0.0020	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Potassium (K)	-	0.65	0.10	mg/L	2025/11/25	2025/11/25	MTZ	A060843

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Bureau Veritas Job #: C5E7990
Report Date: 2025/12/09

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AXPE36 PADDY'S POND @OUTLET								
Sampling Date 2025/11/20 11:38								
Matrix W								
Sample # 2025-1726-00-SI-SP								
Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Sodium (Na)	-	18	0.10	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Strontium (Sr)	-	0.0086	0.0020	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Uranium (U)	-	ND	0.00010	mg/L	2025/11/25	2025/11/25	MTZ	A060843
Total Zinc (Zn)	-	0.0080	0.0050	mg/L	2025/11/25	2025/11/25	MTZ	A060843

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NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

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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Bureau Veritas Job #: C5E7990
Report Date: 2025/12/09

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

VALIDATION SIGNATURE PAGE

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

Ernlie Publicover, Scientific Specialist

Louise Harding, Scientific Specialist

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Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Your P.O. #: 224006869

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1712-00-SI-SP, 2025-1713-00-SI-SP

Report Date: 2025/07/23
Report #: R8581029
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C581695
Received: 2025/07/09, 09:35

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2025/07/18	ATL SOP 00142	SM 24 2320 B
Anions (1)	2	N/A	2025/07/14	CAM SOP-00435	SM 24 4110 B m
Colour	1	N/A	2025/07/15	ATL SOP 00020	SM 24 2120C m
Colour	1	N/A	2025/07/16	ATL SOP 00020	SM 24 2120C m
Organic carbon - Diss (DOC)-Lab Filtered (2)	2	N/A	2025/07/22	ATL SOP 00203	SM 24 5310B m
Conductance - water	2	N/A	2025/07/18	ATL SOP 00004	SM 24 2510B m
Fluoride	2	N/A	2025/07/18	ATL SOP 00043	SM 24 4500-F- C m
Hardness (calculated as CaCO3)	2	N/A	2025/07/14	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	2	2025/07/17	2025/07/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	2	2025/07/10	2025/07/11	ATL SOP 00058	EPA 6020B R2 m
Nitrogen Ammonia - water	2	N/A	2025/07/17	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	1	N/A	2025/07/15	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite	1	N/A	2025/07/16	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	1	N/A	2025/07/15	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrite	1	N/A	2025/07/16	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	1	N/A	2025/07/15	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N)	1	N/A	2025/07/16	ATL SOP 00018	ASTM D3867-16
pH (3)	2	N/A	2025/07/18	ATL SOP 00003	SM 24 4500-H+ B m
Calculated TDS (DW Pkg)	2	N/A	2025/07/19	N/A	Auto Calc
Total Kjeldahl Nitrogen - calculated	1	2025/07/09	2025/07/16	Auto Calc	Auto Calc
Total Kjeldahl Nitrogen - calculated	1	2025/07/09	2025/07/18	Auto Calc	Auto Calc
Nitrogen - Total	2	N/A	2025/07/16	ATL SOP-00208	ASTM D8083 m
Organic carbon - Total (TOC) (2)	2	N/A	2025/07/21	ATL SOP 00203	SM 24 5310B m
Total Phosphorus (Colourimetric) (1)	2	2025/07/15	2025/07/16	CAM SOP-00407	SM 24 4500-P I
Total Suspended Solids	2	2025/07/15	2025/07/16	ATL SOP 00007	SM 24 2540D m
Turbidity	2	N/A	2025/07/21	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Your P.O. #: 224006869

Attention: Robert Richard Harvey

NL Department of Environment, Climate Change and Municipalities
Water Resources
PO Box 8700
St. John's, NL
CANADA A1B 4J6

Your C.O.C. #: N/A, 2025-1712-00-SI-SP, 2025-1713-00-SI-SP

Report Date: 2025/07/23
Report #: R8581029
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C581695

Received: 2025/07/09, 09:35

(3) The APHA Standard Method 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 APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Alyson Lawrence, Project Manager
Email: alyson.lawrence@bureauveritas.com
Phone# (902)440-8951

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Bureau Veritas Job #: C581695
Report Date: 2025/07/23

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ASTN06 PADDY'S POND @ OUTLET								
Sampling Date 2025/07/08 08:29								
Matrix W								
Sample # 2025-1712-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	12	1.0	mg/L	N/A	2025/07/14		9966320
Total Kjeldahl Nitrogen (TKN)	-	0.23	0.10	mg/L	N/A	2025/07/18		9966081
Nitrate (N)	-	ND	0.050	mg/L	N/A	2025/07/15		9966366
Total dissolved solids (calc., EC)	-	76	1.0	mg/L	N/A	2025/07/19		9966080
Inorganics								
Conductivity	-	140	1.0	uS/cm	N/A	2025/07/18	M2C	9971887
Chloride (Cl-)	-	34	1.0	mg/L	N/A	2025/07/14	RSU	9968573
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/07/14	RSU	9968573
Sulphate (SO4)	-	3.9	1.0	mg/L	N/A	2025/07/14	RSU	9968573
Total Alkalinity (Total as CaCO3)	-	5.0	2.0	mg/L	N/A	2025/07/18	M2C	9971888
Colour	-	17	5.0	TCU	N/A	2025/07/15	EMT	9969536
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/07/18	M2C	9971889
Nitrate + Nitrite (N)	-	ND	0.050	mg/L	N/A	2025/07/15	EMT	9969539
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/07/15	MCN	9969541
Nitrogen (Ammonia Nitrogen)	-	0.12	0.050	mg/L	N/A	2025/07/17	MCN	9971510
Total Nitrogen (N)	-	0.29	0.10	mg/L	N/A	2025/07/16	S6S	9970031
Dissolved Organic Carbon (C)	-	4.0	0.50	mg/L	N/A	2025/07/22	S6S	9974477
Total Organic Carbon (C)	-	4.2	0.50	mg/L	N/A	2025/07/21	S6S	9973563
pH	-	6.88		pH	N/A	2025/07/18	M2C	9971884
Total Phosphorus	-	ND	0.004	mg/L	2025/07/15	2025/07/16	VKH	9969996
Total Suspended Solids	-	1.8	1.0	mg/L	2025/07/15	2025/07/16	RD4	9969506
Turbidity	-	0.91	0.10	NTU	N/A	2025/07/21	KMC	9973236
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/07/17	2025/07/17	JEP	9970661
Dup.Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/07/17	2025/07/17	JEP	9970661
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.017	0.0050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Aluminum (Al)	-	0.015	0.0050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Arsenic (As)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Barium (Ba)	-	0.0034	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Barium (Ba)	-	0.0035	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Boron (B)	-	ND	0.050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Boron (B)	-	ND	0.050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Cadmium (Cd)	-	0.000013	0.000010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Calcium (Ca)	-	3.4	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Calcium (Ca)	-	3.4	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215

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Bureau Veritas Job #: C581695
Report Date: 2025/07/23

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ASTN06 PADDY'S POND @ OUTLET Sampling Date 2025/07/08 08:29 Matrix W Sample # 2025-1712-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Dup.Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Copper (Cu)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Copper (Cu)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Iron (Fe)	-	ND	0.050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Iron (Fe)	-	ND	0.050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Lead (Pb)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Magnesium (Mg)	-	0.88	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Magnesium (Mg)	-	0.89	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Manganese (Mn)	-	0.35	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Manganese (Mn)	-	0.36	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Phosphorus (P)	-	ND	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Potassium (K)	-	0.58	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Potassium (K)	-	0.60	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Selenium (Se)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Sodium (Na)	-	19	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Sodium (Na)	-	20	0.10	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Strontium (Sr)	-	0.011	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Strontium (Sr)	-	0.012	0.0020	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Uranium (U)	-	ND	0.00010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Uranium (U)	-	ND	0.00010	mg/L	2025/07/10	2025/07/11	MOA	9967215
Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/07/10	2025/07/11	MOA	9967215
Dup.Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/07/10	2025/07/11	MOA	9967215

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Bureau Veritas Job #: C581695
Report Date: 2025/07/23

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ASTN07 WATERFORD RIVER @ KILBRIDE								
Sampling Date 2025/07/08 12:09								
Matrix W								
Sample # 2025-1713-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	62	1.0	mg/L	N/A	2025/07/14		9966320
Total Kjeldahl Nitrogen (TKN)	-	0.13	0.10	mg/L	N/A	2025/07/16		9966081
Nitrate (N)	-	0.66	0.050	mg/L	N/A	2025/07/16		9966366
Total dissolved solids (calc., EC)	-	520	1.0	mg/L	N/A	2025/07/19		9966080
Inorganics								
Conductivity	-	940	1.0	uS/cm	N/A	2025/07/18	M2C	9971887
Dup.Conductivity	-	940	1.0	uS/cm	N/A	2025/07/18	M2C	9971887
Chloride (Cl-)	-	260	2.0	mg/L	N/A	2025/07/14	RSU	9968573
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/07/14	RSU	9968573
Sulphate (SO4)	-	20	1.0	mg/L	N/A	2025/07/14	RSU	9968573
Total Alkalinity (Total as CaCO3)	-	20	2.0	mg/L	N/A	2025/07/18	M2C	9971888
Dup.Total Alkalinity (Total as CaCO3)	-	20	2.0	mg/L	N/A	2025/07/18	M2C	9971888
Colour	-	15	5.0	TCU	N/A	2025/07/16	EMT	9969930
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/07/18	M2C	9971889
Dup.Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/07/18	M2C	9971889
Nitrate + Nitrite (N)	-	0.66	0.050	mg/L	N/A	2025/07/16	EMT	9969932
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/07/16	EMT	9969934
Nitrogen (Ammonia Nitrogen)	-	0.11	0.050	mg/L	N/A	2025/07/17	MCN	9971510
Total Nitrogen (N)	-	0.81	0.10	mg/L	N/A	2025/07/16	S6S	9970031
Dissolved Organic Carbon (C)	-	2.8	0.50	mg/L	N/A	2025/07/22	S6S	9974477
Total Organic Carbon (C)	-	3.2	0.50	mg/L	N/A	2025/07/21	S6S	9973563
pH	-	7.22		pH	N/A	2025/07/18	M2C	9971884
Dup.pH	-	7.34		pH	N/A	2025/07/18	M2C	9971884
Total Phosphorus	-	0.019	0.004	mg/L	2025/07/15	2025/07/16	VKH	9969996
Total Suspended Solids	-	2.8	1.0	mg/L	2025/07/15	2025/07/16	RD4	9969506
Turbidity	-	1.5	0.10	NTU	N/A	2025/07/21	KMC	9973236
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/07/17	2025/07/17	JEP	9970661
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.047	0.0050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Barium (Ba)	-	0.032	0.0010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Boron (B)	-	ND	0.050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Cadmium (Cd)	-	0.000024	0.000010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Calcium (Ca)	-	20	0.10	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Copper (Cu)	-	0.010	0.00050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Iron (Fe)	-	0.18	0.050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Magnesium (Mg)	-	2.7	0.10	mg/L	2025/07/10	2025/07/11	MTZ	9967226

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Bureau Veritas Job #: C581695
Report Date: 2025/07/23

NL Department of Environment, Climate Change and Municipalities
Your P.O. #: 224006869
Sampler Initials: LB

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ASTN07 WATERFORD RIVER @ KILBRIDE								
Sampling Date 2025/07/08 12:09								
Matrix W								
Sample # 2025-1713-00-SI-SP								
Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	0.086	0.0020	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Potassium (K)	-	1.8	0.10	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Sodium (Na)	-	140	0.10	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Strontium (Sr)	-	0.079	0.0020	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Uranium (U)	-	ND	0.00010	mg/L	2025/07/10	2025/07/11	MTZ	9967226
Total Zinc (Zn)	-	0.0098	0.0050	mg/L	2025/07/10	2025/07/11	MTZ	9967226

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Your P.O. #: 224006869
Sampler Initials: LB

GENERAL COMMENTS

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

Package 1	4.3°C
Package 2	-0.4°C
Package 3	-1.4°C
Package 4	-1.4°C
Package 5	0.9°C
Package 6	0.6°C
Package 7	0.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C581695
Report Date: 2025/07/23

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VALIDATION SIGNATURE PAGE

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

Ernlie Publicover, Scientific Specialist

Louise Harding, 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 Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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