



Real-Time Water Quality Deployment Report

Paddy's Pond at Outlet

September 20, 2022 to November 2, 2022



Government of Newfoundland & Labrador
Department of Environment and Climate Change
Water Resources Management Division
St. John's, NL, A1B 4J6 Canada

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General

The Department of Environment and Climate Change, Water Resources Management Division staff monitor water quality in real-time at Paddy's Pond at outlet to Three Arm Pond (47.488129N, 52.893809W).



Figure 1: Paddy's Pond at Outlet Real-Time Water Quality Station location

Maintenance and Calibration of Instrument

As part of the Quality Assurance and Quality Control protocol (QAQC), 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.

Upon deployment, a QA/QC Sonde is temporarily deployed *in situ*, adjacent to the Field Sonde. Depending on the degree of difference between each parameter from the Field and QA/QC sondes, a qualitative rank is assigned (See Table 1). The possible ranks, from most to least desirable, are; Excellent, Good, Fair, Marginal, and Poor. A grab sample is also taken for additional confirmation of conditions at deployment and to allow for future modelling studies.

Table 1: Ranking classifications for deployment and removal

| Parameter | Rank | | | | |
|---------------------------------|-----------|----------------|----------------|--------------|--------|
| | Excellent | Good | Fair | Marginal | Poor |
| Temperature (°C) | <=+/-0.2 | >+/-0.2 to 0.5 | >+/-0.5 to 0.8 | >+/-0.8 to 1 | <+/-1 |
| pH (unit) | <=+/-0.2 | >+/-0.2 to 0.5 | >+/-0.5 to 0.8 | >+/-0.8 to 1 | >+/-1 |
| Sp. Conductance (µS/cm) | <=+/-3 | >+/-3 to 10 | >+/-10 to 15 | >+/-15 to 20 | >+/-20 |
| Sp. Conductance > 35 µS/cm (%) | <=+/-3 | >+/-3 to 10 | >+/-10 to 15 | >+/-15 to 20 | >+/-20 |
| Dissolved Oxygen (mg/L) (% Sat) | <=+/-0.3 | >+/-0.3 to 0.5 | >+/-0.5 to 0.8 | >+/-0.8 to 1 | >+/-1 |
| Turbidity <40 NTU (NTU) | <=+/-2 | >+/-2 to 5 | >+/-5 to 8 | >+/-8 to 10 | >+/-10 |
| Turbidity > 40 NTU (%) | <=+/-5 | >+/-5 to 10 | >+/-10 to 15 | >+/-15 to 20 | >+/-20 |

At the end of a deployment period, a freshly cleaned and calibrated QA/QC Sonde is placed *in situ*, adjacent to the Field Sonde. Deployment and removal comparison rankings for the station at Paddy's Pond deployed between September 20 to November 2, 2022 are summarized in Table 2.

Table 2: Qualitative QA/QC comparison rankings for Paddy's Pond at outlet station September 20, 2022 through November 2, 2022.

| Station | Date | Action | Comparison Ranking | | | | |
|------------------------|------------|---------------------------------|--------------------|------|--------------|------------------|-----------|
| | | | Temperature | pH | Conductivity | Dissolved Oxygen | Turbidity |
| Paddy's Pond at Outlet | 2022-09-20 | Deployment | Excellent | Good | Poor | Excellent | Excellent |
| | 2022-09-20 | Grab Sample #2021-1725-00-SI-SP | N/A | Poor | Marginal | N/A | Excellent |
| | 2022-11-02 | Removal | Excellent | Fair | Poor | Good | Excellent |

- On September 20 2022, a real-time water quality monitoring instrument was deployed at the station Paddy's Pond at Outlet. The instrument was deployed for a period of 44 days and was removed on November 2, 2022.
- Upon deployment, sensors ranked 'Excellent' and "Good' against the calibrated QA/QC sonde with exception of conductivity, which ranked 'Poor. This may be the result of inadequate time provided for the sensor to stabilize, stirring up of sediments, calibration error and/or sensor issues. This assumption is supported by a conductivity ranking of 'Marginal', upon comparison with the grab sample (2022-1725-00-SI-SP) and the field sonde.
- Upon deployment, the measured field grab sample pH ranked 'Poor. This most likely attributed to insufficient time provided for the sensor to acclimate to the surrounding

conditions or disturbance of sediment. Conductivity ranked 'Marginal' as discussed above and turbidity ranked 'Excellent' against the field sonde.

- At removal of the instrument, parameter rankings varied between 'Excellent', 'Good' and 'Fair' against the QA/QC sonde with exception of Conductivity which ranked 'Poor'. This ranking was expected given the ranking upon deployment and is indicative of a calibration error or sensor issue.

DATA INTERPRETATION

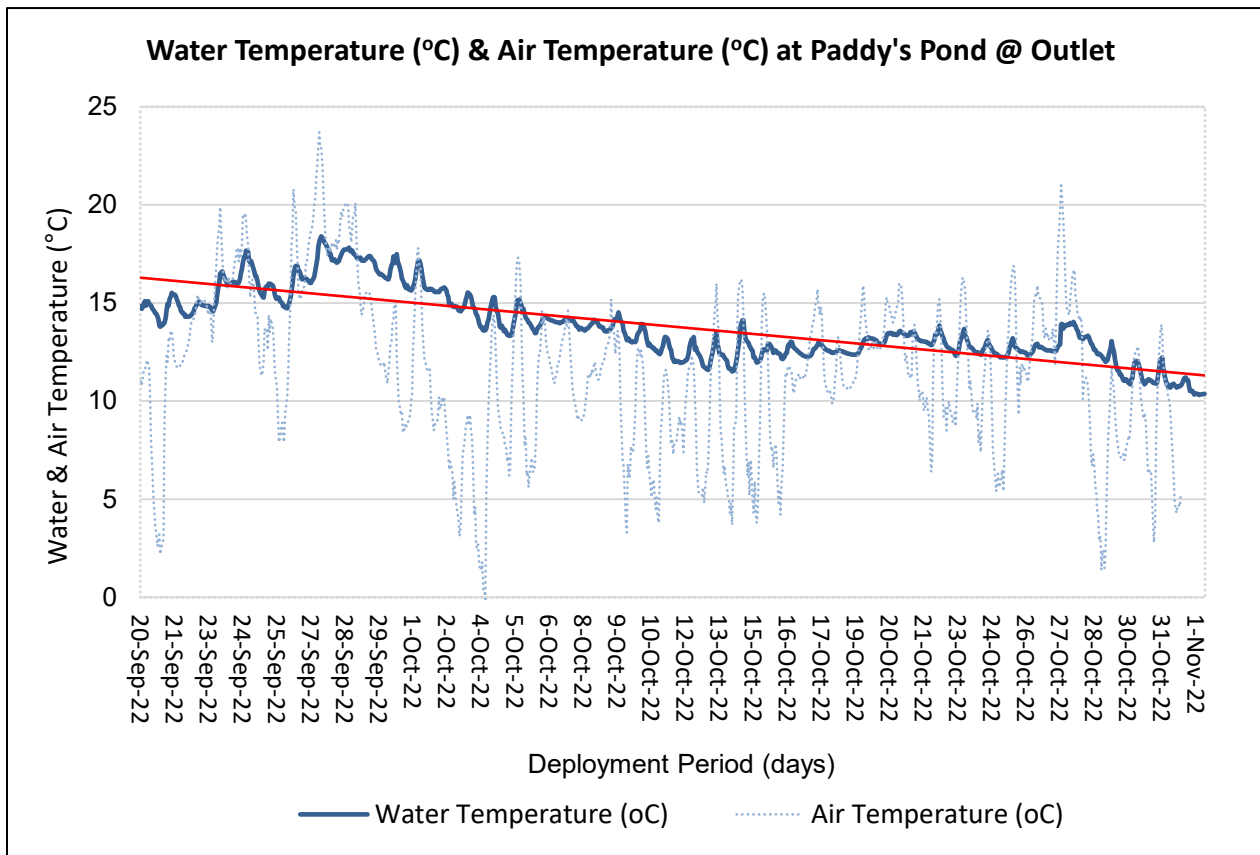
The following graphs and discussion illustrate water quality data obtained hourly from September 20, 2022 through November 2, 2022 at Paddy's Pond at outlet to Three Arm Pond, St. John's, NL.

Stage is not monitored at this station and as such cannot be discussed with respect to other monitored water quality parameters. All data used in the preparation of the graphs and subsequent discussion adhere to this stringent QA/QC protocol.

Mean daily temperature and total precipitation data was obtained from the Department of Environment and Climate Change Canada (ECCC) historical weather data at https://climate.weather.gc.ca/historical_data/search_historic_data_e.html and can be found illustrated in Appendix A. Gaps in available daily data were removed for graphing purposes.

Water Temperature

- Water Temperature is a major factor used to describe water quality. Temperature has major implications on both the ecology and chemistry of a water body, governing processes such as the metabolic rate of aquatic plants and animals and the degree of dissolved oxygen saturation.
- It should be noted that the temperature sensor on any sonde is the most important. All other parameters can be broken down into three groups: temperature dependent, temperature compensated and temperature independent. As the temperature sensor is not isolated from the rest of the sonde, the entire sonde must be at the same temperature before the 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.



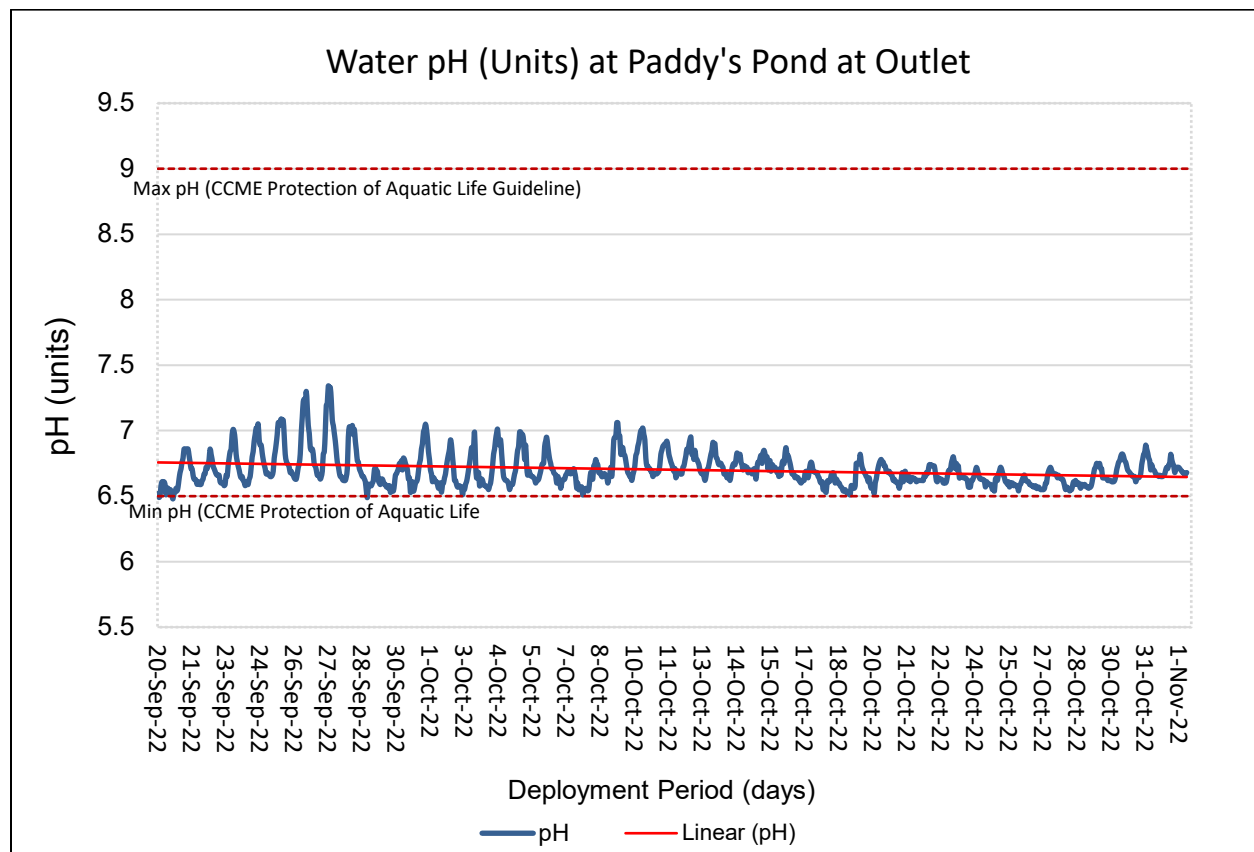
| Mean | Median | Min | Max |
|-------|--------|-------|-------|
| 13.80 | 13.45 | 10.31 | 18.40 |

Figure 2: Water temperature (°C) values at Paddy's Pond at Outlet.

- Over the 44-day deployment period, water temperature fluctuated naturally in correlation to air temperature. The mean temperature was 13.80°C with a median of 13.45°C.
- Minimum water temperature of 10.31°C was observed on November 2, 2022 and a maximum water temperature of 18.40°C was observed on September 27, 2022 (Figure 2).
- Water temperature gradually decreased over the deployment period. This is an expected seasonal trend this time of year due to the onset of winter. (See Figure 7- Appendix A).
- A natural diurnal pattern, with temperatures increasing during the day and decreasing overnight was observed. The magnitude of variation was influenced by daily air temperature fluctuations as well as precipitation events.

pH

- pH is used to give an indication of the acidity or basicity of a solution. A pH of seven (7) denotes a neutral solution while lower values are acidic and higher values are basic. Technically, the pH of a solution indicates the availability of protons to react with molecules dissolved in water. Such reactions can affect how molecules function chemically and metabolically.
- pH values are temperature dependant as well as influenced by photosynthesis and respiration by aquatic organisms. The concentration of dissolved carbon dioxide in the water throughout the day, especially overnight when oxygen production is reduced relative to carbon dioxide levels. Carbon dioxide dissolved in water yields a slightly acidic solution.



| Mean | Median | Min | Max |
|------|--------|------|------|
| 6.70 | 6.67 | 6.48 | 7.34 |

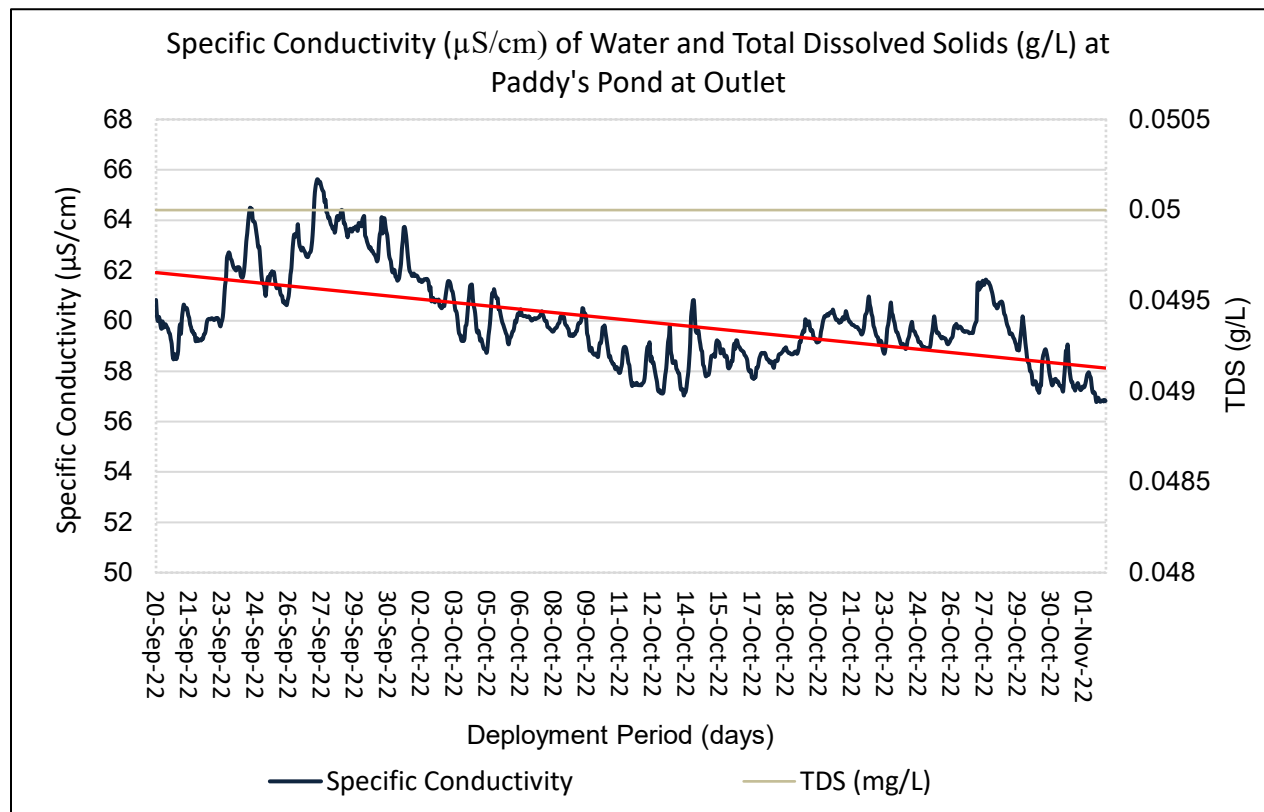
Figure 3: pH (pH units) at Paddy's Pond at outlet from September 20, 2022 through November 2, 2022.

- Throughout the deployment period, pH values were within 6.48 to 7.34 pH units, with a mean unit value of 6.70 and median of 6.67 units (Figure 3).
- A very gradual decrease in pH (Figure 2) was observed over the duration of the deployment period in correlation with a decrease in air and water temperatures.

- The CCME guideline for the protection of aquatic life states the requirement of a minimum pH value of 6.5 and maximum value of 9.0. This guideline provides a basis for the overall health of the waterbody. Paddy's Pond at Outlet pH values decreased slightly below the minimum guideline (to 6.49) on three occasions early in the deployment period. This may be due to the time taken for the pH sensor to acclimate after deployment and the result of the addition of more acidic water during precipitation events such as observed on September 28, 2022 (See Figure 7 – Appendix A).
- Diurnal variation pattern was visible throughout the deployment period. The magnitude of variation correlates to daily water temperature range, length of days and fluctuations in photosynthesis and respiration rates as expected at this time of the year.

Specific Conductivity

- Conductivity relates to the ease of passing an electric charge – or resistance – through a solution. Conductivity is highly influenced by the concentration of dissolved ions in solution: distilled water has zero conductivity (infinite resistance) while salty solutions have high conductivity (low resistance). Specific Conductivity is corrected to 25°C to allow comparison across variable temperatures.



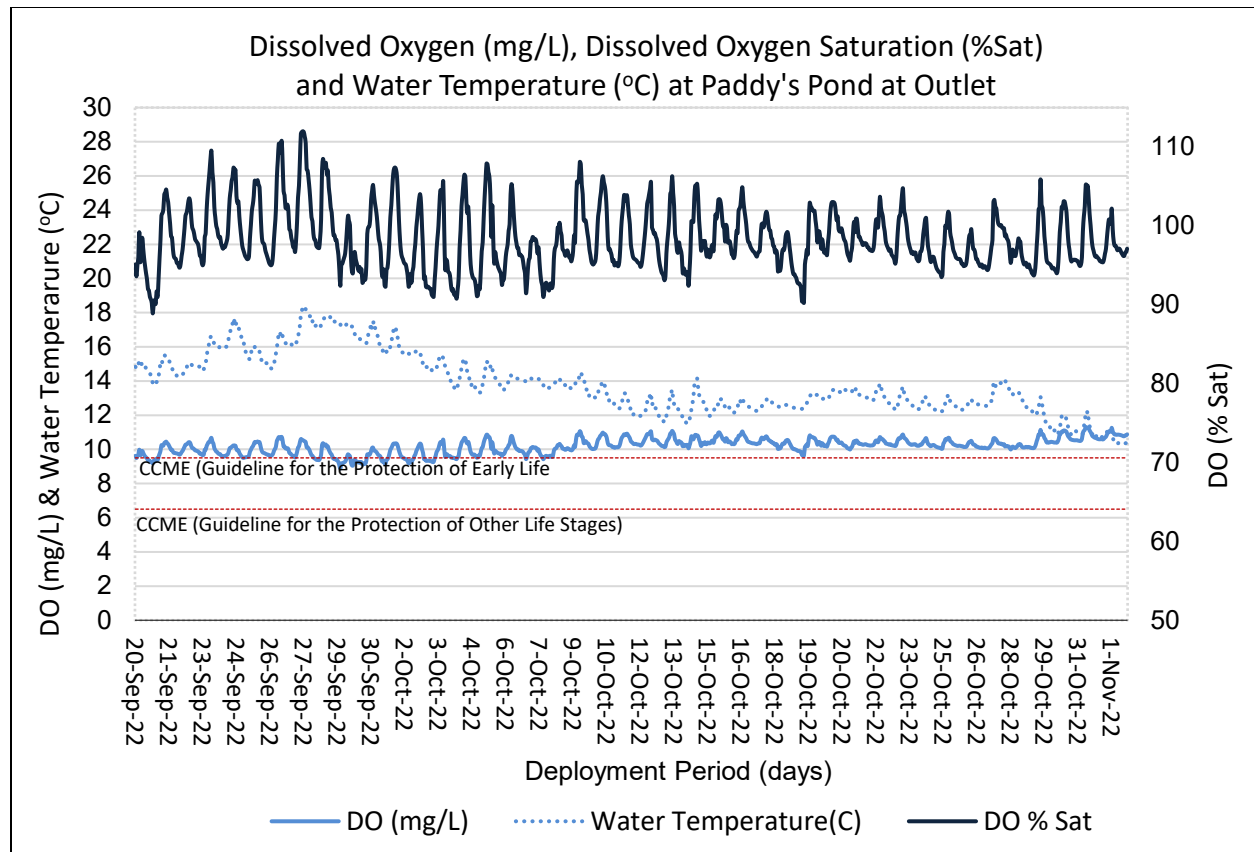
| Mean | Median | Min | Max |
|------|--------|------|------|
| 60.0 | 59.7 | 57.0 | 65.6 |

Figure 4: Specific conductivity ($\mu\text{S}/\text{cm}$) values at Paddy's Pond at Outlet.

- Specific conductivity values fluctuated slightly throughout the deployment. Conductivity increased from the beginning of the deployment period until September 27, 2022 and began to decrease until October 14, 2022. Conductivity then increased until the October 27, 2022 before declining until the end of the deployment period.
- An overall decreasing trend in conductivity was observed throughout the deployment period, as expected, due to seasonal water temperature changes from fall to winter. As temperatures decrease, the passing of electric charge becomes more difficult.
- A maximum conductivity value of 65.6 $\mu\text{S}/\text{cm}$ and a minimum value of 57.0 $\mu\text{S}/\text{cm}$ (Figure 4) was observed. Mean conductivity was 60.0 $\mu\text{S}/\text{cm}$ with a median conductivity value of 59.7 $\mu\text{S}/\text{cm}$.
- Variability in specific conductivity values throughout the deployment period is likely the result of temperature variations and precipitation events (Appendix A – Figure 7). A reduction in conductivity can be expected after rainfall. As the amount of water increases, solids concentration is reduced, decreasing conductivity.
- Given the isolated station location, sources of disturbances that may affect conductivity are considered minimal.
- The calculated Total Dissolved Solids (TDS) value stable at 0.05 g/L throughout the deployment period.

Dissolved Oxygen

- Dissolved oxygen is a metabolic requirement of aquatic plants and animals. The concentration of oxygen in water depends on many factors, especially temperature – the saturation of oxygen in water is inversely proportional to water temperature. Oxygen concentrations also tend to be higher in flowing water compared to still, lake environments. Low oxygen concentrations can give an indication of excessive decomposition of organic matter or the presence of oxidizing materials.



| Parameter | Mean | Median | Min | Max |
|-------------|-------|--------|------|-------|
| DO (mg/L) | 10.18 | 10.23 | 8.87 | 11.30 |
| DO (% Sat) | 98.3 | 97.5 | 88.9 | 112.0 |

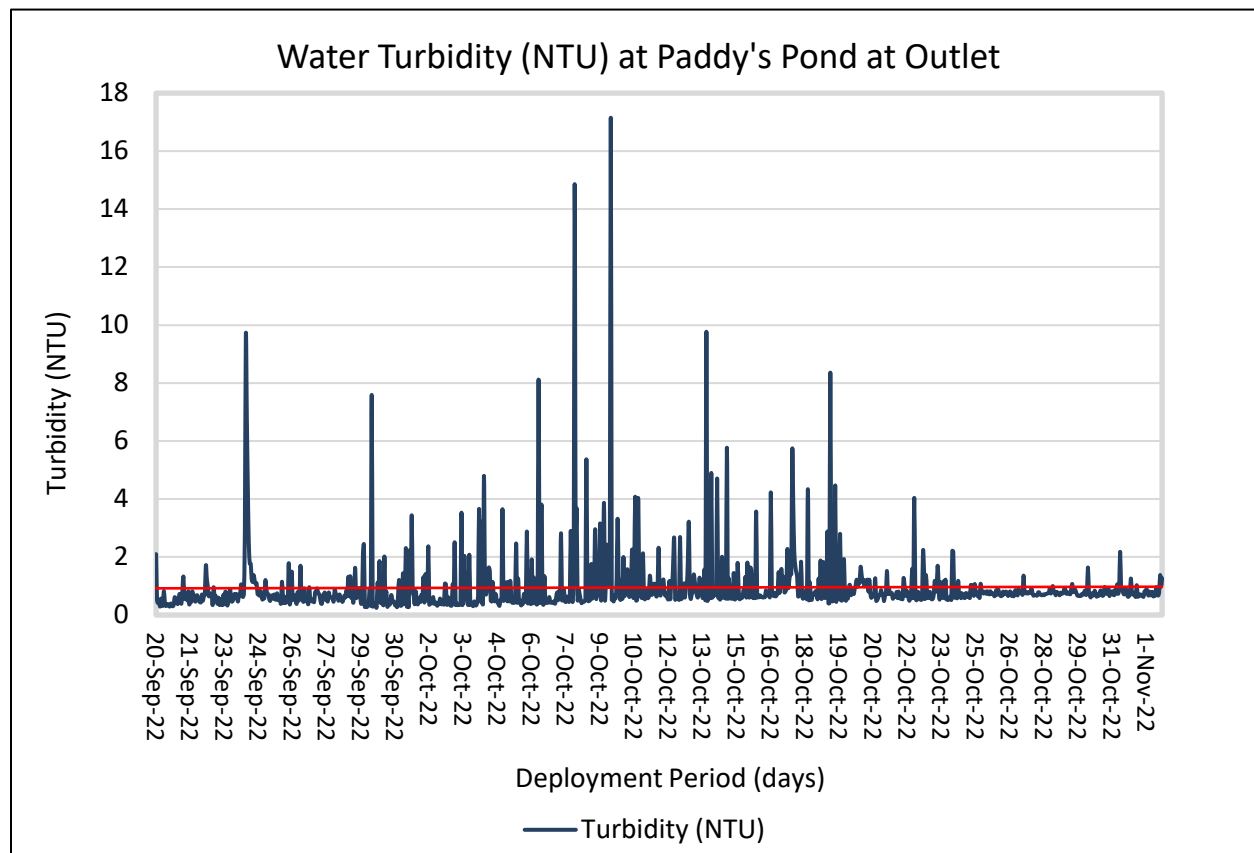
Figure 5: Dissolved Oxygen (mg/L & Percent (%) Saturation) values at Paddy's Pond at Outlet.

- Average dissolved oxygen (DO) concentrations (mg/L) were stable throughout the deployment period. A gradual increase was observed in mid-October, in correlation to a decrease in water temperature. A maximum DO of 11.30 mg/L (112.0 % Sat) to a minimum DO of 8.87 mg/L (88.9 % Sat) were observed.
- Dissolved oxygen (% Saturation) readings of greater than 100% air saturation can occur in ambient water because of the production of pure oxygen by photosynthetically-active organisms and/or because of non-ideal equilibration of dissolved oxygen between the water and the air above it.
- Diurnal variations were observed throughout the deployment period due to temperature ranges from day to night. Variations can be influenced by water depth during deployment as shallow water temperatures will change more rapidly.

- The dissolved oxygen values were predominantly above the CCME Guideline for the Protection of Early Life Stages (9.5 mg/L) and remained above the CCME Guideline for the Protection of Other Life Stages (6.5mg/L) for the entire deployment period.

Turbidity

- Turbidity is typically caused by fine suspended solids such as silt, clay, or organic material. Consistently high levels of turbidity tend to block sunlight penetration into a waterbody, discouraging plant growth. High turbidity can also damage the delicate respiratory organs of aquatic animals and cover spawning areas.



| Mean | Median | Min | Max |
|------|--------|-----|------|
| 0.9 | 0.7 | 0.3 | 17.2 |

Figure 6: Water turbidity (NTU) values at Paddy's Pond at Outlet during deployment period September 20, 2022 through November 2, 2022.

- Turbidity measurements throughout the deployment period indicated very low turbidity. This is consistent with historical data for this location.
- Turbidity values range from 0.3 to 17.2 NTU, with a mean of 0.9 NTU and a median value of 0.7 NTU (Figure 6).

- Turbidity levels were low during the deployment period; however, events above baseline levels did occur. For example, turbidity peaks were observed on October 8th, 2022 (14.96 NTU) and on October 9th, 2022 (17.15 NTU) of which are likely influenced by debris, suspended algae, suspended sediment or siltation due to wave action and precipitation events.

APPENDIX A : MEAN DAILY TEMPERATURE AND TOTAL PRECIPITATION

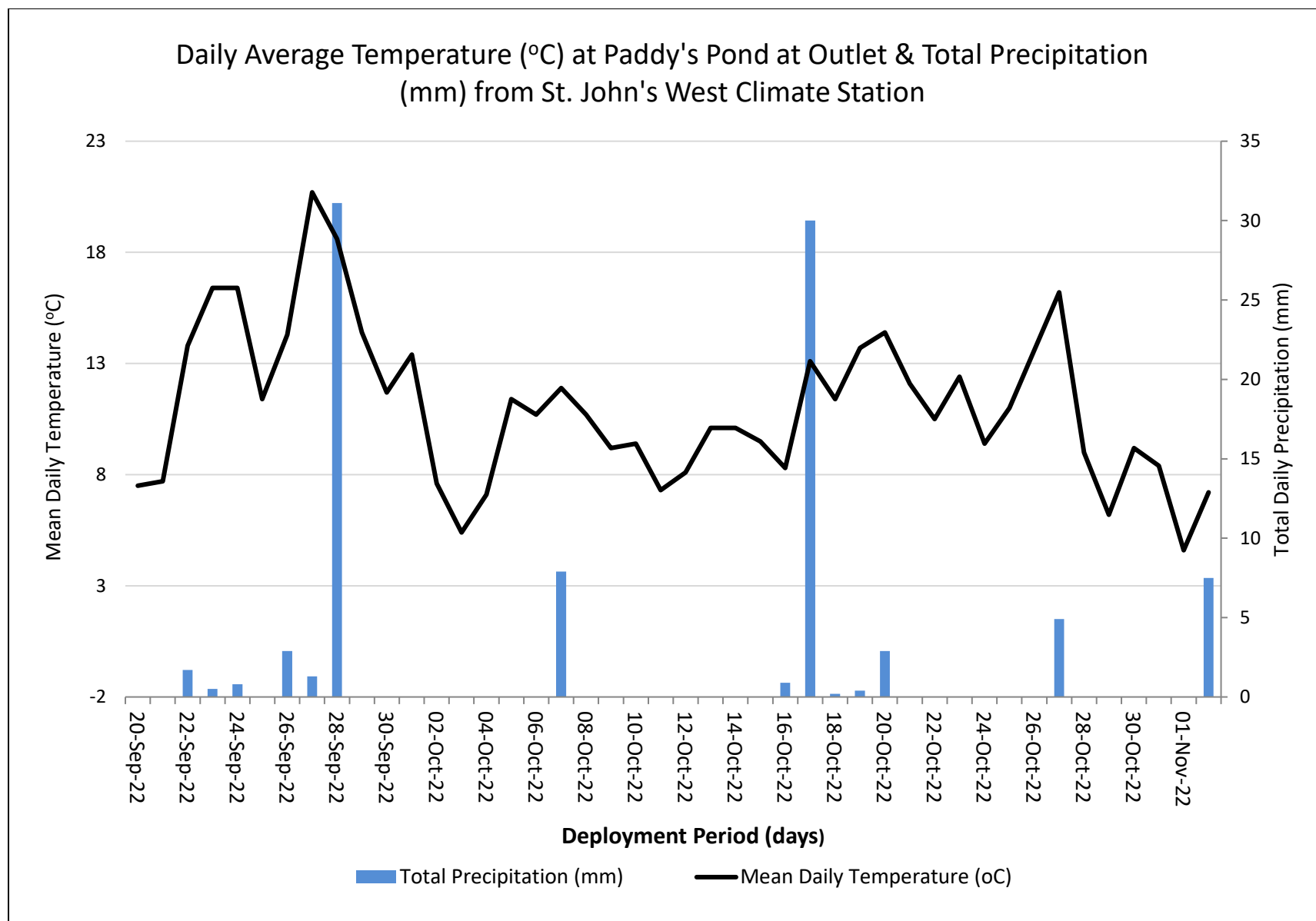


Figure 7: Mean daily air temperature and total precipitation at St. John's West near Paddy's Pond September 20, 2022 to November 2, 2022.

APPENDIX B : QA/QC GRAB SAMPLE FIELD RESULTS



Your P.O. #: 220028978-6
 Site Location: PADDY'S POND @ OUTLET
 Your C.O.C. #: 2022-1725-00-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: 2022/10/26
 Report #: R7357975
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R7801

Received: 2022/09/22, 09:13

Sample Matrix: Water
 # Samples Received: 1

| Analyses | Quantity | Date | | Laboratory Method | Analytical Method |
|--------------------------------------|----------|------------|------------|-------------------|---------------------|
| | | Extracted | Analyzed | | |
| Alkalinity | 1 | N/A | 2022/10/04 | ATL SOP 00142 | SM 23 2320 B |
| Anions (1) | 1 | N/A | 2022/09/30 | CAM SOP-00435 | SM 23 4110 B m |
| Colour | 1 | N/A | 2022/10/11 | ATL SOP 00020 | SM 23 2120C m |
| Organic carbon - Diss (DOC) (2) | 1 | N/A | 2022/10/13 | ATL SOP 00203 | SM 23 5310B m |
| Conductance - water | 1 | N/A | 2022/10/04 | ATL SOP 00004 | SM 23 2510B m |
| Fluoride | 1 | N/A | 2022/10/04 | ATL SOP 00043 | SM 23 4500-F- C m |
| Hardness (calculated as CaCO3) | 1 | N/A | 2022/10/03 | ATL SOP 00048 | Auto Calc |
| Mercury - Total (CVAA,LL) | 1 | 2022/10/03 | 2022/10/03 | ATL SOP 00026 | EPA 245.1 R3 m |
| Metals Water Total MS | 1 | 2022/09/30 | 2022/10/03 | ATL SOP 00058 | EPA 6020B R2 m |
| Nitrogen Ammonia - water | 1 | N/A | 2022/10/21 | ATL SOP 00015 | EPA 350.1 R2 m |
| Nitrogen - Nitrate + Nitrite | 1 | N/A | 2022/10/12 | ATL SOP 00016 | USGS I-2547-11m |
| Nitrogen - Nitrite | 1 | N/A | 2022/10/05 | ATL SOP 00017 | SM 23 4500-NO2- B m |
| Nitrogen - Nitrate (as N) | 1 | N/A | 2022/10/12 | ATL SOP 00018 | ASTM D3867-16 |
| pH (3) | 1 | N/A | 2022/10/04 | ATL SOP 00003 | SM 23 4500-H+ B m |
| Calculated TDS (DW Pkg) | 1 | N/A | 2022/10/05 | N/A | Auto Calc |
| Total Kjeldahl Nitrogen in Water (1) | 1 | 2022/10/13 | 2022/10/13 | CAM SOP-00938 | OMOE E3516 m |
| Organic carbon - Total (TOC) (2) | 1 | N/A | 2022/10/04 | ATL SOP 00203 | SM 23 5310B m |
| Total Phosphorus (Colourimetric) (1) | 1 | 2022/09/29 | 2022/09/29 | CAM SOP-00407 | SM 23 4500-P I |
| Total Suspended Solids | 1 | 2022/09/27 | 2022/09/30 | ATL SOP 00007 | SM 23 2540D m |
| Turbidity | 1 | N/A | 2022/10/04 | 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. #: 220028978-6
Site Location: PADDY'S POND @ OUTLET
Your C.O.C. #: 2022-1725-00-SI-SP

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Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Maryann Comeau, Customer Experience Supervisor/PM
Email: Maryann.COMEAU@bureauveritas.com
Phone# (902)420-0203 Ext:298

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Bureau Veritas Job #: C2R7801
Report Date: 2022/10/26

NL Department of Environment, Climate Change and
Municipalities

Site Location: PADDY'S POND @ OUTLET

Your P.O. #: 220028978-6

Sampler Initials: LB

| Sample Details/Parameters | A | Result | RDL | UNITS | Extracted | Analyzed | By | Batch |
|--|---|--------------------|----------|-------|------------|------------|-----|---------|
| TVL407 PADDY'S POND @ OUTLET | | | | | | | | |
| Sampling Date | | 2022/09/20 09:38 | | | | | | |
| Matrix | | W | | | | | | |
| Sample # | | 2022-1725-00-SI-SP | | | | | | |
| Registration # | | WS-S-0000 | | | | | | |
| RESULTS OF ANALYSES OF WATER | | | | | | | | |
| Calculated Parameters | | | | | | | | |
| Hardness (CaCO3) | - | 8.5 | 1.0 | mg/L | N/A | 2022/10/03 | | 8247885 |
| Nitrate (N) | - | 0.16 | 0.050 | mg/L | N/A | 2022/10/12 | | 8247888 |
| Total dissolved solids (calc., EC) | - | 40 | 1.0 | mg/L | N/A | 2022/10/05 | | 8247646 |
| Inorganics | | | | | | | | |
| Conductivity | - | 72 | 1.0 | uS/cm | N/A | 2022/10/04 | NGI | 8262596 |
| Chloride (Cl-) | - | 15 | 1.0 | mg/L | N/A | 2022/09/30 | LKH | 8257594 |
| Bromide (Br-) | - | ND | 1.0 | mg/L | N/A | 2022/09/30 | LKH | 8257594 |
| Sulphate (SO4) | - | 2.5 | 1.0 | mg/L | N/A | 2022/09/30 | LKH | 8257594 |
| Total Alkalinity (Total as CaCO3) | - | 4.2 | 2.0 | mg/L | N/A | 2022/10/04 | NGI | 8262629 |
| Colour | - | 38 | 5.0 | TCU | N/A | 2022/10/11 | TGO | 8266342 |
| Dissolved Fluoride (F-) | - | ND | 0.10 | mg/L | N/A | 2022/10/04 | NGI | 8262636 |
| Total Kjeldahl Nitrogen (TKN) | - | 0.17 | 0.10 | mg/L | 2022/10/13 | 2022/10/13 | RTY | 8280544 |
| Nitrate + Nitrite (N) | - | 0.16 | 0.050 | mg/L | N/A | 2022/10/12 | TGO | 8268028 |
| Nitrite (N) | - | ND | 0.010 | mg/L | N/A | 2022/10/05 | TGO | 8268029 |
| Nitrogen (Ammonia Nitrogen) | - | ND | 0.050 | mg/L | N/A | 2022/10/21 | TGO | 8298448 |
| Dissolved Organic Carbon (C) | - | 5.5 | 0.50 | mg/L | N/A | 2022/10/13 | RSL | 8278403 |
| Total Organic Carbon (C) | - | 5.9 | 0.50 | mg/L | N/A | 2022/10/04 | RSL | 8260586 |
| pH | - | 6.87 | | pH | N/A | 2022/10/04 | NGI | 8262625 |
| Total Phosphorus | - | 0.011 | 0.004 | mg/L | 2022/09/29 | 2022/09/29 | SSV | 8254459 |
| Total Suspended Solids | - | ND | 1.0 | mg/L | 2022/09/27 | 2022/09/30 | RMK | 8249581 |
| Turbidity | - | 0.45 | 0.10 | NTU | N/A | 2022/10/04 | KMC | 8263127 |
| MERCURY BY COLD VAPOUR AA (WATER) | | | | | | | | |
| Metals | | | | | | | | |
| Total Mercury (Hg) | - | ND | 0.000013 | mg/L | 2022/10/03 | 2022/10/03 | FJO | 8257753 |
| ELEMENTS BY ICP/MS (WATER) | | | | | | | | |
| Metals | | | | | | | | |
| Total Aluminum (Al) | - | 0.071 | 0.0050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Antimony (Sb) | - | ND | 0.0010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Arsenic (As) | - | ND | 0.0010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Barium (Ba) | - | 0.0023 | 0.0010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Boron (B) | - | ND | 0.050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Cadmium (Cd) | - | ND | 0.000010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Calcium (Ca) | - | 2.4 | 0.10 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Chromium (Cr) | - | ND | 0.0010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Copper (Cu) | - | 0.00054 | 0.00050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Iron (Fe) | - | 0.21 | 0.050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Lead (Pb) | - | ND | 0.00050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Magnesium (Mg) | - | 0.61 | 0.10 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |



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Bureau Veritas Job #: C2R7801
Report Date: 2022/10/26

NL Department of Environment, Climate Change and
Municipalities

Site Location: PADDY'S POND @ OUTLET

Your P.O. #: 220028978-6

Sampler Initials: LB

| Sample Details/Parameters | A | Result | RDL | UNITS | Extracted | Analyzed | By | Batch |
|-----------------------------------|---|--------|---------|-------|------------|------------|-----|---------|
| TVL407 PADDY'S POND @ OUTLET | | | | | | | | |
| Sampling Date 2022/09/20 09:38 | | | | | | | | |
| Matrix W | | | | | | | | |
| Sample # 2022-1725-00-SI-SP | | | | | | | | |
| Registration # WS-S-0000 | | | | | | | | |
| ELEMENTS BY ICP/MS (WATER) | | | | | | | | |
| Metals | | | | | | | | |
| Total Manganese (Mn) | - | 0.044 | 0.0020 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Nickel (Ni) | - | ND | 0.0020 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Phosphorus (P) | - | ND | 0.10 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Potassium (K) | - | 0.44 | 0.10 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Selenium (Se) | - | ND | 0.00050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Sodium (Na) | - | 10 | 0.10 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Strontium (Sr) | - | 0.0073 | 0.0020 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Uranium (U) | - | ND | 0.00010 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |
| Total Zinc (Zn) | - | ND | 0.0050 | mg/L | 2022/09/30 | 2022/10/03 | JHY | 8256899 |



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Municipalities
Site Location: PADDY'S POND @ OUTLET
Your P.O. #: 220028978-6
Sampler Initials: LB

GENERAL COMMENTS

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

| | |
|-----------|--------|
| Package 1 | 10.0°C |
|-----------|--------|

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C2R7801
Report Date: 2022/10/26

NL Department of Environment, Climate Change and
Municipalities
Site Location: PADDY'S POND @ OUTLET
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VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

Colleen Acker, B.Sc, Scientific Service Specialist

Janah Rhyno, Metals Supervisor-Bedford

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