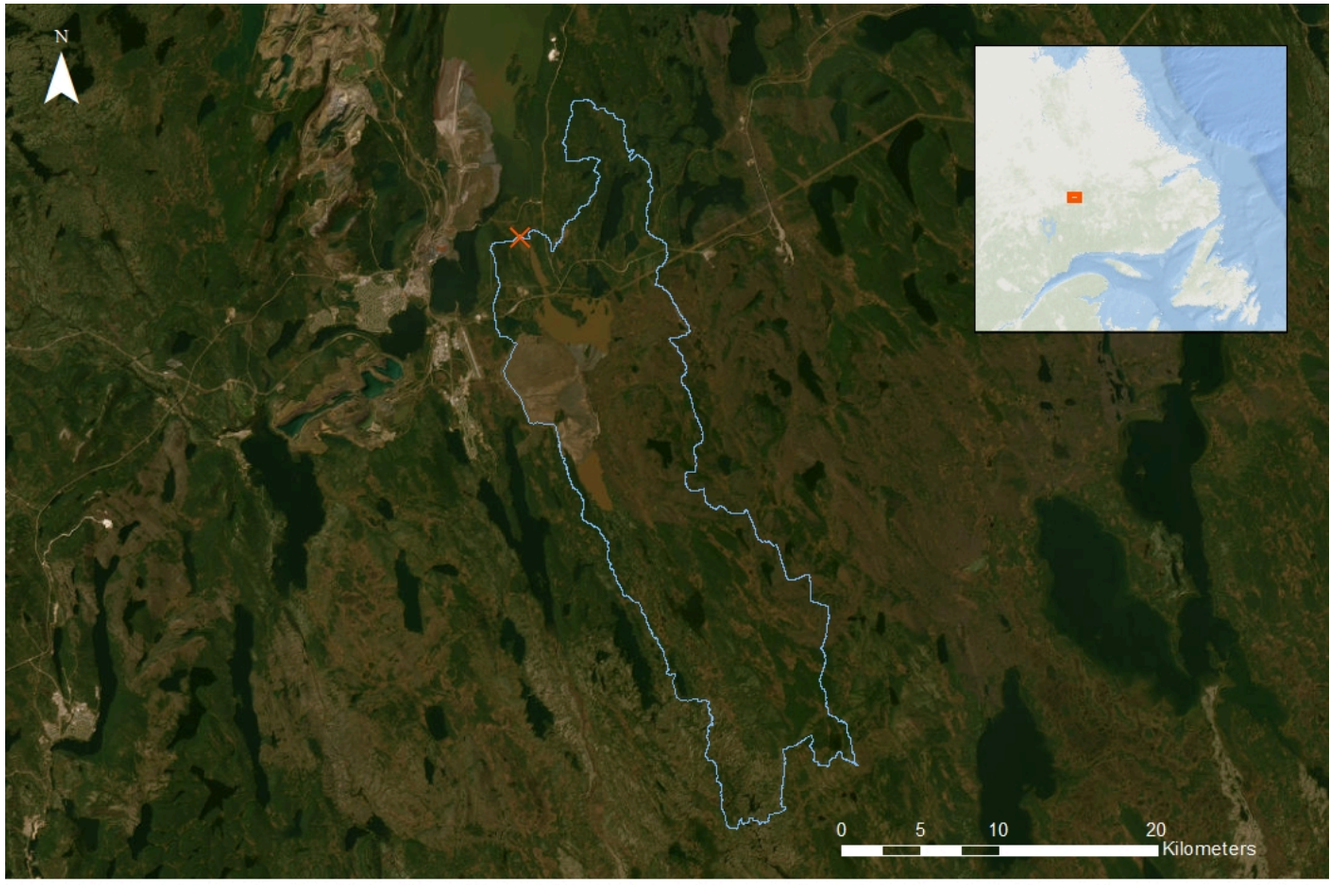
Real Time Water Quality Deployment Report
Flora Creek below Trans Labrador Highway
NF03OA0022

2024-09-18 to 2024-10-17

Government of Newfoundland & Labrador
Department of Environment & Climate Change
Water Resources Management Division

Flora Creek below Trans Labrador Highway



Tacora Resources - Flora Creek below Trans-Labrador Highway
NF03OA0022

The Water Resources Management Division (WRMD), in partnership with Tacora Resources Inc. and Environment and Climate Change Canada (ECCC), maintains a real-time water quality and water quantity monitoring station at Flora Creek, downstream of the mine's tailings disposal area in Flora Lake. The real-time station allows for assessment and management of the water body. The purpose of this real-time station is to monitor, process, and publish hydrometric (water quantity) and real-time water quality data at the station.
The watershed is outlined in the figure to the left in light blue.

On September 18th, 2024, a clean and calibrated real-time water quality monitoring instrument was deployed at the station Flora Creek below TLH.
The instrument was deployed for a period of 29 days and was removed on October 17th, 2024. This was the second and final deployment for 2024.

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. Water Survey Canada operates the hydrometric component of this station. Due to differences in protocols, Water Survey Canada hydrometric data is quality controlled on a less frequent basis than water quality data. The hydrometric data shown in this report is provisional and has not undergone quality control checks. Corrected hydrometric data can be obtained at https://wateroffice.ec.gc.ca/ or upon request to Water Survey Canada.

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.

QAQC Rankings

Parameter	Deployment Ranks	Removal Ranks	Grab Sample Ranks
Dissolved Oxygen (mg/l)	Excellent	Excellent	
pH	Excellent	Good	Good
Specific Conductivity (µS/cm)	Excellent	Excellent	Excellent
Temperature ('C)	Excellent	Excellent	
Turbidity (NTU)	Excellent	Excellent	Excellent

At deployment and removal, when compared to the QA/QC sonde, all parameters ranked either 'good' or 'excellent'.

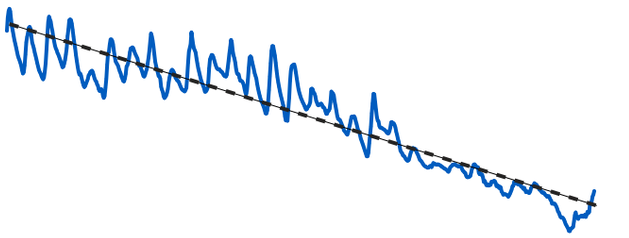
Water Temperature

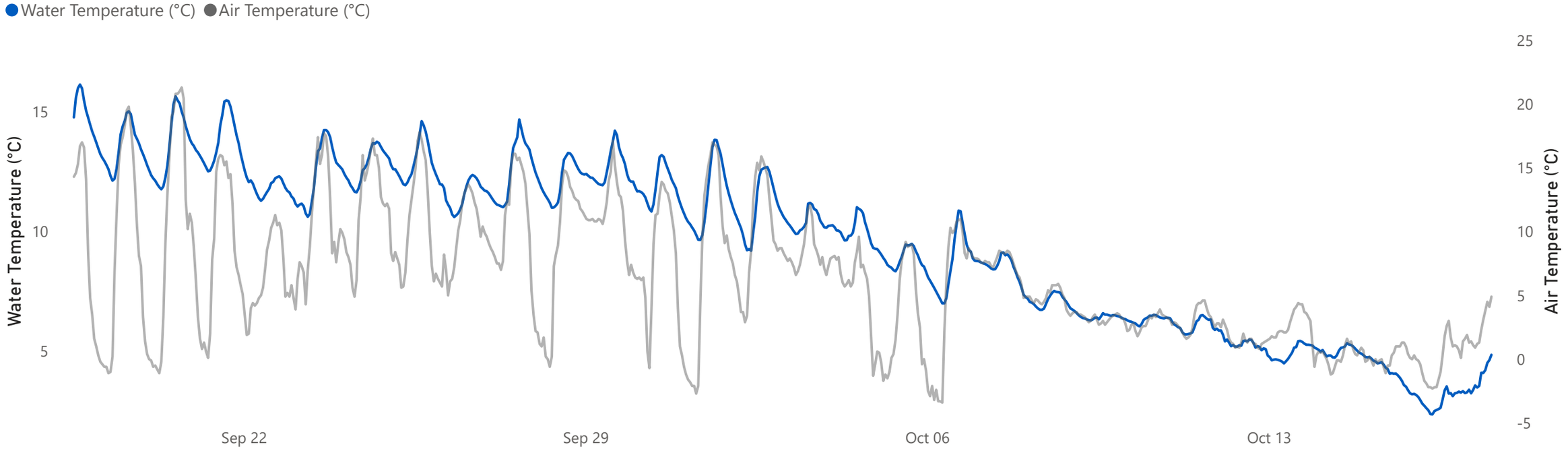
9.58	10.39	2.36	16.15
Average (°C)	Median (°C)	Minimum (°C)	Maximum (°C)

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 data for this deployment was collected from 2024-09-18 until 2024-10-17. The minimum water temperature, 2.36°C, occurred on 2024-10-16. The maximum water temperature, 16.15°C, occurred on 2024-09-18. Water temperature usually falls overnight and rises during the day. Water temperature declined during this deployment period, as expected. It correlated with decreasing ambient air temperature.

Water Temperature Trendline



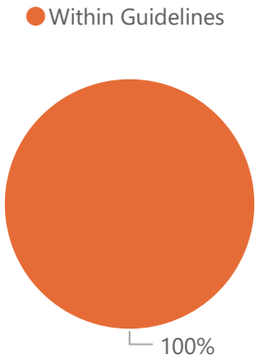


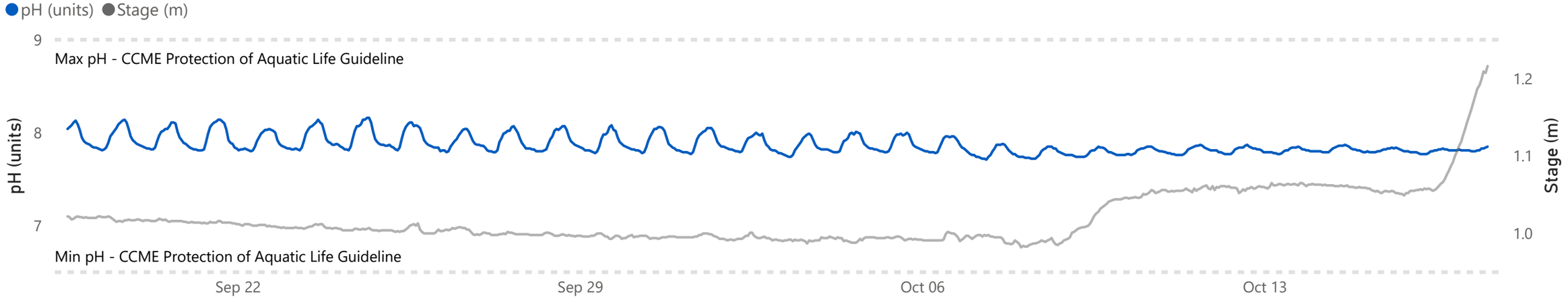
pH

7.87	7.84	7.71	8.16
Average pH	Median pH	Minimum pH	Maximum pH

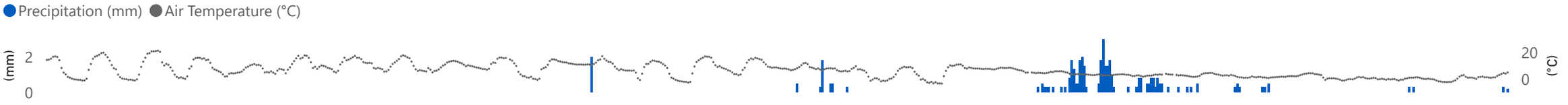
pH relates to the free hydrogen ions in water and it is a measure of acidity in water. A pH of 7 indicates a neutral pH, below 7 is considered acidic, and above 7 is considered basic. The Canadian Council of Ministers of the Environment (CCME) Freshwater Aquatic Life guideline provides a basis by which 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.

pH data for this deployment was collected from 2024-09-18 until 2024-10-17. The minimum pH, 7.71 pH units, occurred on 2024-10-07. The maximum pH, 8.16 pH units, occurred on 2024-09-24. Daily fluctuations are common due to changes in temperature and photosynthesizing of aquatic plants. pH was stable throughout this deployment period. All values during the deployment are within the CCME guidelines for the Protection of Aquatic Life (between 6.5 and 9 pH units).





Climate data from Moosehead Lake



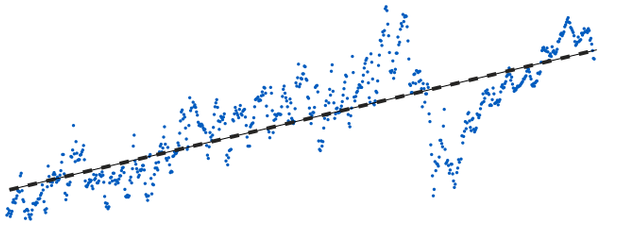
Specific Conductivity

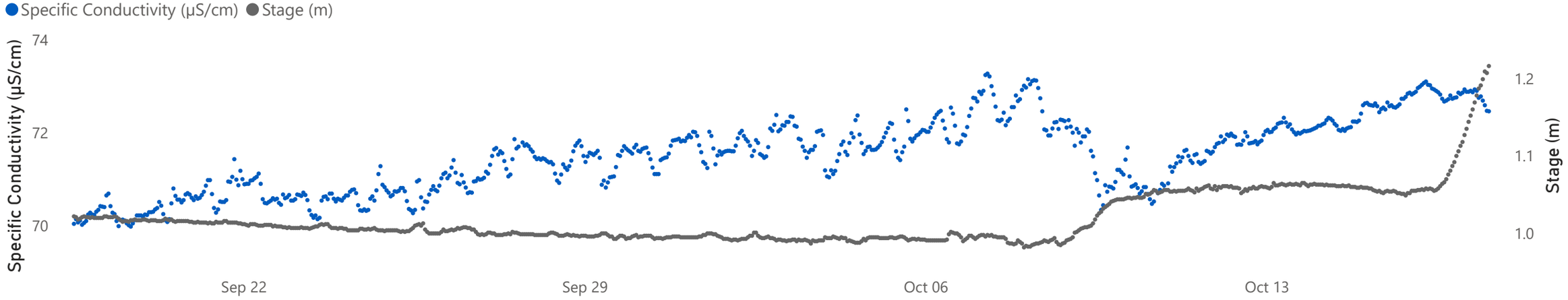
71.52	71.59	69.98	73.27
Average µS/cm	Median µS/cm	Minumum µS/cm	Maximum µS/cm

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.

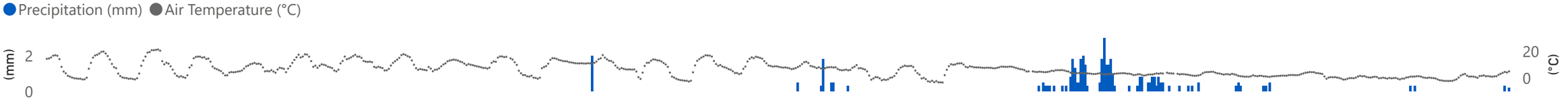
Specific conductance data for this deployment was collected from 2024-09-18until 2024-10-17. The minimum specific conductance, 69.98 µS/cm, occurred on 2024-09-19. The maximum specific conductance, 73.27 µS/cm, occurred on 2024-10-07. Precipitation and specific conductivity are correlated. During a precipitation event, the amount of water in the creek increases, this dilutes the solids that are present, decreasing the conductivity. Specific conductivity increased steadily until there was a decrease during the first week of October due to a rise in stage from precipitation. It then increased steadily until the last day of the deployment period, when a rise in stage caused it to decrease. The cause of this rise in stage is unknown.

Specific Conductivity Trendline





Climate data from Moosehead Lake

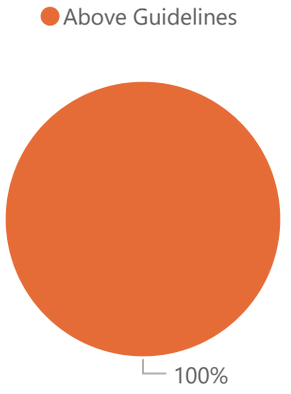


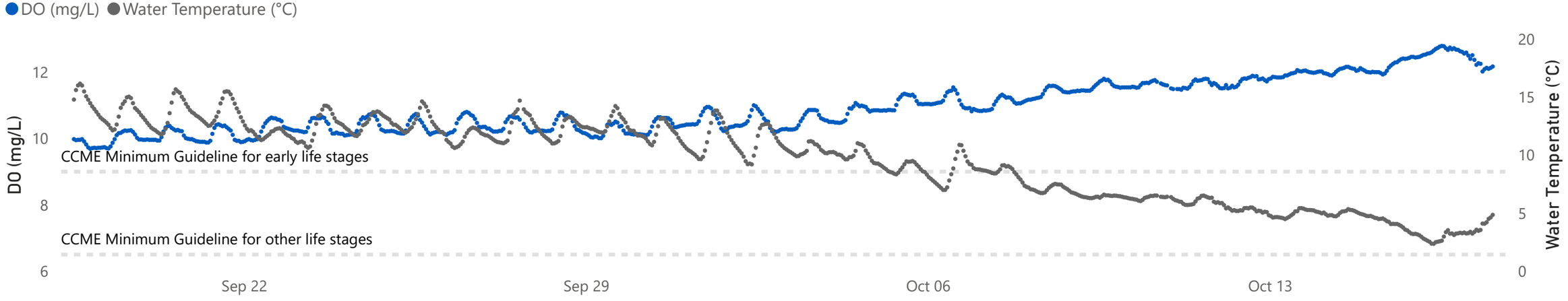
Dissolved Oxygen Concentration and Saturation

10.92	10.71	9.69	12.79
Average (mg/L)	Median (mg/L)	Minimum (mg/L)	Maximum (mg/L)

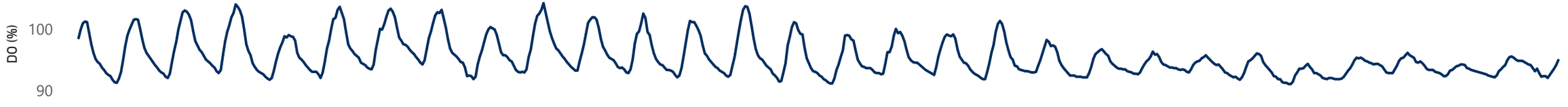
Dissolved oxygen (DO) in water is crucial for aquatic life. The CCME (Canadian Council of Ministers of the Environment) Freshwater Aquatic Life guidelines provide a basis by which to judge the overall health of waterways. The minimum guideline for early life stages in cold water is 9.5 mg/L and the minimum 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.

DO data for this deployment was collected from 2024-09-18until2024-10-17. The minimum DO reading, 9.69mg/L, occurred on 2024-09-18. The maximum DO reading,12.79 mg/L, occurred on2024-10-16. Dissolved oxygen content fluctuates diurnally and displays an inverse relationship to water temperature. Dissolved oxygen increased during this deployment period, as is expected with decreasing water temperature in the fall season. All values were above the minimum CCME Guideline for the Protection of Other Life Stages for Cold Water Biota of 6.5 mg/l and the minimum CCME Guideline for the Protection of Early Life Stage for Cold Water Biota value of 9.5 mg/l.





Percent Saturation (%)



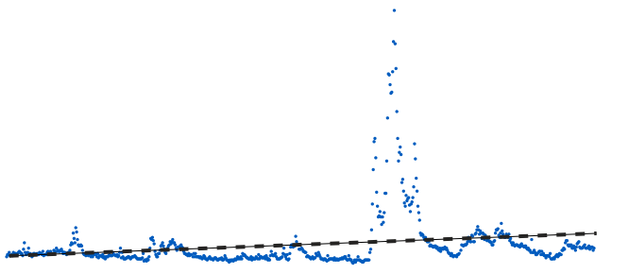
Turbidity

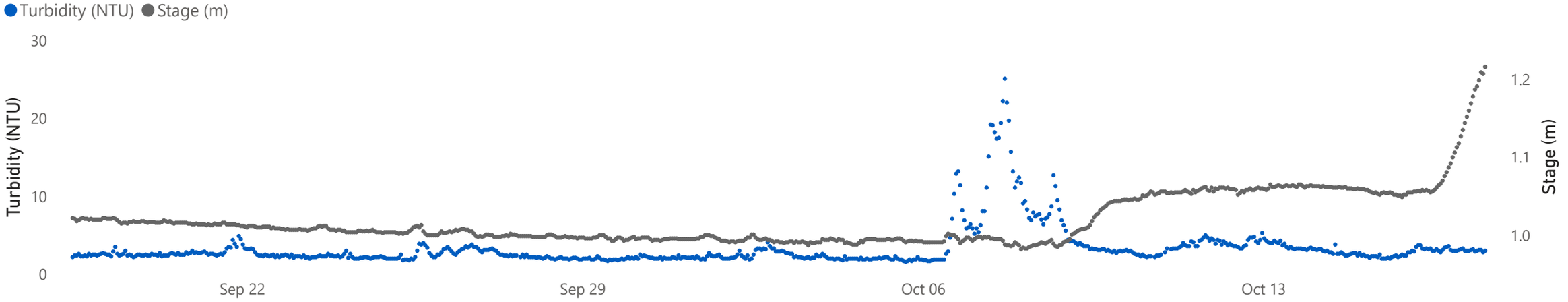
3.33	2.50	1.60	25.10
Average (NTU)	Median (NTU)	Minimum (NTU)	Maximum (NTU)

Increases in turbidity (cloudiness) are often caused by increased runoff during precipitation events. Runoff carries silt and other debris into the waterbody. Turbid conditions can prevent light from reaching plants, negatively impact benthic habitats, and clog or damage fish gills and equipment.

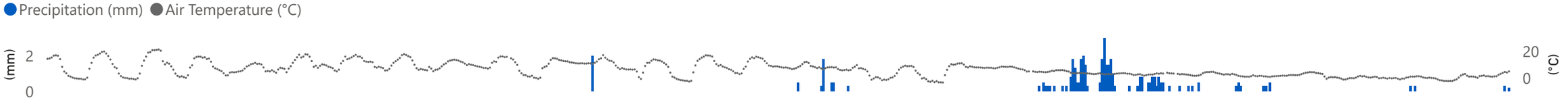
Turbidity data for this deployment was collected from 2024-09-18 until 2024-10-17. The minimum turbidity was 1.60 NTUs. The maximum turbidity, 25.10 NTUs, occurred on 10/7/2024 4:30:00 PM. Turbidity values were relatively stable thought this deployment period with increases noted in early October. Other spikes occur infrequently and for short period of times, sometimes related to precipitation.

Turbidity Trendline





Climate data from Moosehead Lake

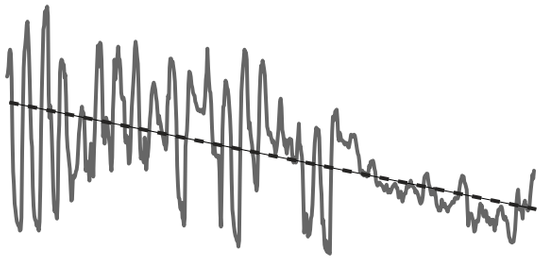


Meteorological and Hydrometric Data

*Climate data obtained from Moosehead Lake

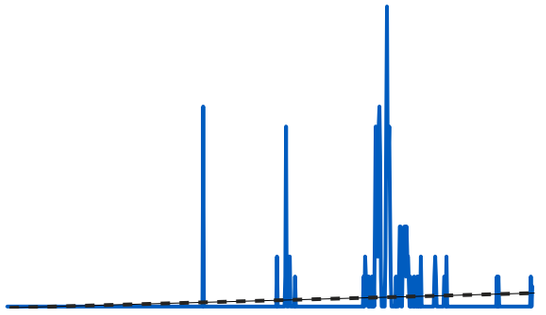
Newfoundland Labrador

Air Temperature Trendline

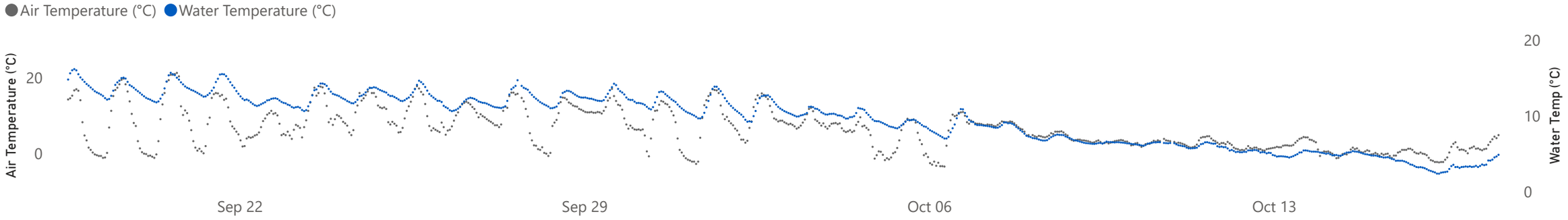


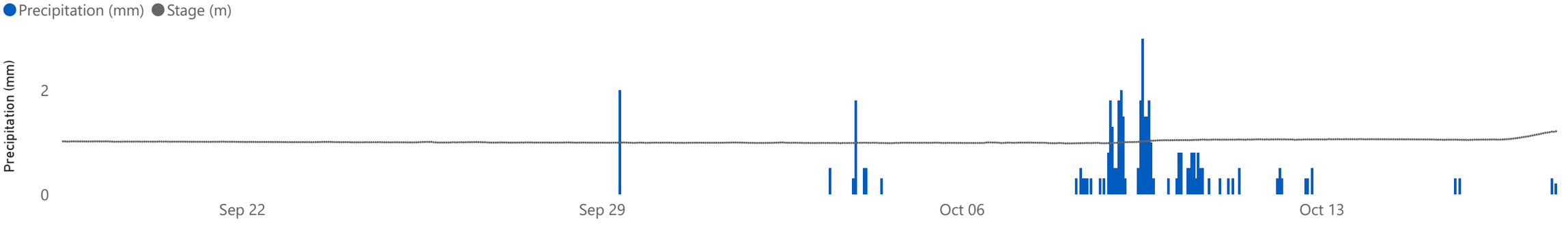
6.39	5.85
Average (°C)	Median (°C)
-3.40	21.30
Minimum (°C)	Maximum (°C)

Precipitation Trendline

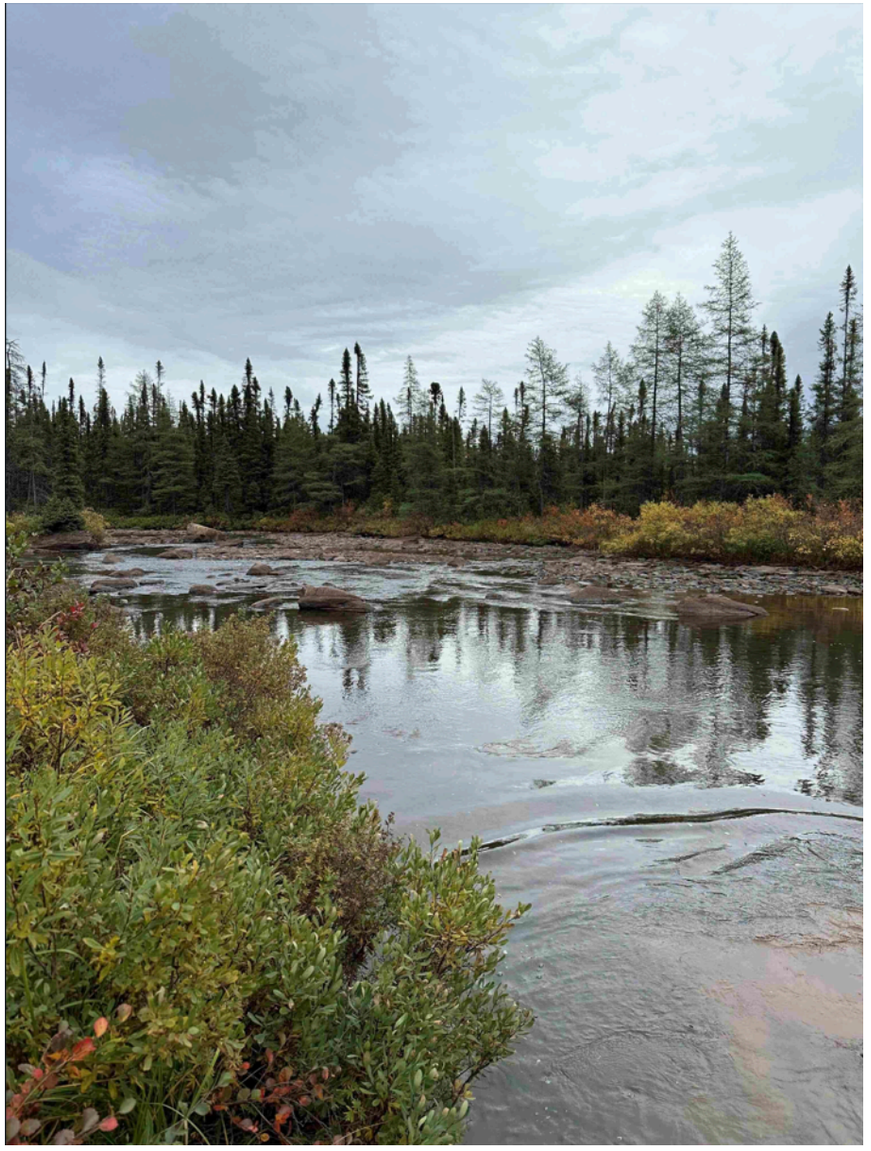


0.06	0.00
Average (mm/hr)	Median (mm/hr)
0.00	3.00
Minimum (mm/hr)	Maximum (mm/hr)





Conclusions



- A clean and calibrated instrument was deployed at the Flora Creek below TLH water quality monitoring station on September 18, 2024 and removed on October 17, 2024. This was the second and final deployment for 2024.
- In most cases, weather related events or increases/decreases in water level explain parameter fluctuations. All values recorded were within ranges as suggested by the CCME Guidelines for the Protection of Aquatic Life for pH and dissolved oxygen.
- Water temperature corresponded with ambient air temperatures, ranging between 2.36 and 16.15^{o}C.
- pH values were all within the recommended CCME Guidelines for the Protection of Aquatic Life. pH ranged between 7.71 and 8.16.
- Specific conductivity increased gradually over the course of the deployment period, with decreases noted when stage began to rise. Values ranged from 69.98 to 73.27 µs/cm.
- Dissolved oxygen values were above the minimum CCME Guideline for the Protection of Aquatic Life for Cold Water Biota at Other Life Stages of 6.5 mg/l and the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota at Early Life Stages of 9.5 mg/l.
- Turbidity values were relatively stable with some spikes noted in early October. Values ranged from 1.60 to 25.10 NTU.
- Stage was stable until the middle of October, when two larger increases are noted.
- With the exception of water quantity data (stage), all data used in the preparation of the graphs and subsequent discussion adhere to this stringent QA/QC protocol. Water Survey of Canada is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

Appendix 1
Grab Sample Results

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW77 FLORA CREEK								
Sampling Date 2024/09/18 11:40								
Matrix W								
Sample # 2024-6328-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	34	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	0.15	0.050	mg/L	N/A	2024/10/04		9657686
Total dissolved solids (calc., EC)	-	39	1.0	mg/L	N/A	2024/10/04		9657883
Inorganics								
Conductivity	-	70	1.0	uS/cm	N/A	2024/10/03	M2C	9676559
Chloride (Cl-)	-	ND	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Sulphate (SO4)	-	2.3	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Total Alkalinity (Total as CaCO3)	-	30	2.0	mg/L	N/A	2024/10/03	M2C	9676565
Colour	-	ND	5.0	TCU	N/A	2024/10/03	EMT	9675742
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/03	M2C	9676571
Total Kjeldahl Nitrogen (TKN)	-	0.12	0.10	mg/L	2024/10/07	2024/10/08	RTY	9686180
Nitrate + Nitrite (N)	-	0.15	0.050	mg/L	N/A	2024/10/03	EMT	9675749
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/10/03	EMT	9675754
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2024/10/04	MCN	9678625
Dissolved Organic Carbon (C)	-	1.7	0.50	mg/L	N/A	2024/09/27	ACK	9666822
Dup.Dissolved Organic Carbon (C)	-	1.7	0.50	mg/L	N/A	2024/09/27	ACK	9666822
Total Organic Carbon (C)	-	3.3	0.50	mg/L	N/A	2024/09/27	ACK	9666813
pH	-	7.73		pH	N/A	2024/10/03	M2C	9676539
Total Phosphorus	-	ND	0.004	mg/L	2024/10/07	2024/10/07	VKH	9686226
Total Suspended Solids	-	ND	1.0	mg/L	2024/09/24	2024/09/26	DME	9658234
Turbidity	-	1.7	0.10	NTU	N/A	2024/10/03	M2C	9676644
Dup.Turbidity	-	1.7	0.10	NTU	N/A	2024/10/03	M2C	9676644
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2024/10/04	2024/10/04	JEP	9679119
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.0052	0.0050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Barium (Ba)	-	0.0018	0.0010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Boron (B)	-	ND	0.050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Cadmium (Cd)	-	0.000047	0.000010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Calcium (Ca)	-	7.5	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Copper (Cu)	-	ND	0.00050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Iron (Fe)	-	ND	0.050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Magnesium (Mg)	-	3.6	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW77 FLORA CREEK Sampling Date 2024/09/18 11:40 Matrix W Sample # 2024-6328-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	0.029	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Potassium (K)	-	0.85	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Sodium (Na)	-	0.85	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Strontium (Sr)	-	0.0070	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Uranium (U)	-	ND	0.00010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/09/25	2024/09/25	MTZ	9660650

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC49 FLORA CREEK Sampling Date 2024/10/17 14:45 Matrix W Sample # 2024-6340-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	32	1.0	mg/L	N/A	2024/10/24		9715376
Nitrate (N)	-	0.13	0.050	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	39	1.0	mg/L	N/A	2024/10/29		9715598
Inorganics								
Conductivity	-	71	1.0	uS/cm	N/A	2024/10/28	M2C	9728543
Dup.Conductivity	-	71	1.0	uS/cm	N/A	2024/10/28	M2C	9728543
Chloride (Cl-)	-	ND	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Sulphate (SO4)	-	2.8	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Total Alkalinity (Total as CaCO3)	-	30	2.0	mg/L	N/A	2024/10/28	M2C	9728548
Dup.Total Alkalinity (Total as CaCO3)	-	31	2.0	mg/L	N/A	2024/10/28	M2C	9728548
Colour	-	ND	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/28	M2C	9728552
Dup.Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/28	M2C	9728552
Total Kjeldahl Nitrogen (TKN)	-	ND	0.10	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	0.13	0.050	mg/L	N/A	2024/10/28	EMT	9724127
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/10/28	EMT	9724129
Nitrogen (Ammonia Nitrogen)	-	0.066	0.050	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	1.8	0.50	mg/L	N/A	2024/10/28	ACK	9724814
Total Organic Carbon (C)	-	2.1	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	7.64		pH	N/A	2024/10/28	M2C	9728532
Dup.pH	-	7.67		pH	N/A	2024/10/28	M2C	9728532
Total Phosphorus	-	ND	0.004	mg/L	2024/10/29	2024/10/30	VKH	9731383
Total Suspended Solids	-	ND	1.0	mg/L	2024/10/23	2024/10/25	ISM	9718367
Turbidity	-	1.8	0.10	NTU	N/A	2024/10/28	S6S	9728012
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2024/10/28	2024/10/28	JEP	9724619
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	ND	0.0050	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Barium (Ba)	-	0.0019	0.0010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Boron (B)	-	ND	0.050	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Calcium (Ca)	-	7.2	0.10	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Copper (Cu)	-	ND	0.00050	mg/L	2024/10/23	2024/10/23	MTZ	9718635

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC49 FLORA CREEK Sampling Date 2024/10/17 14:45 Matrix W Sample # 2024-6340-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Iron (Fe)	-	ND	0.050	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Magnesium (Mg)	-	3.5	0.10	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Manganese (Mn)	-	0.037	0.0020	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Potassium (K)	-	0.78	0.10	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Sodium (Na)	-	0.81	0.10	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Strontium (Sr)	-	0.0061	0.0020	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Uranium (U)	-	ND	0.00010	mg/L	2024/10/23	2024/10/23	MTZ	9718635
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/10/23	2024/10/23	MTZ	9718635

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