Real-Time Water Quality Deployment Report

Iron Ore Company of Canada
Labrador West Network

September 17 to
October 17, 2024

Newfoundland Labrador

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

Contents

General

- The Water Resources Management Division, in partnership with the Iron Ore Company of Canada (IOC) and Environment and Climate Change Canada (ECCC), maintain a network of real-time water quality (RTWQ) and water quantity stations in Labrador West.
- There are two stations located on Wabush Lake; the official name of each station is *Wabush Lake at Dolomite Road* and *Wabush Lake at Lake Outlet*, hereafter referred to as the Dolomite Road station and the Julienne Narrows station.
- These stations are situated upstream (Dolomite Road) and downstream (Julienne Narrows) of the IOC tailings disposal area in Wabush Lake.
- On June 8th, 2016, an additional station was commissioned under this agreement. This station is located at *Dumbell Stream above Dumbell Lake*, hereafter referred to as Dumbell Stream.
- On June 12th, 2017, a new station was commissioned under this agreement. This station is located at *Pumphouse Stream above Drum Lake*, hereafter referred to as Pumphouse Stream.
- On November 19th, 2023, a new station was commissioned under this agreement. This station is located at an *Unnamed Tributary above Fraggle Rock Lake* hereafter referred to as Fraggle Rock.
- Water Resources Management Division staff monitor the real-time graphs regularly. They will inform IOC of any significant water quality events by email notification and by monthly deployment reports.
- Between September 17th and 19th, clean and calibrated real-time water quality-monitoring instruments were deployed at the IOC stations. The instruments were deployed between 27-29 days at each station. The instruments were removed between October 16th and 17th. Data was not available for the last week of deployment at Julienne Narrows.

Figure 1: RTWQ Monitoring Stations in Labrador West

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 each deployment period. The procedure is based on the approach used by the United States Geological Survey.

  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 (Table 1).

Table 1: Ranking classifications for deployment and removal

	Rank				
Parameter	**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

- 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. Because 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.
- Deployment and removal comparison rankings for the IOC water quality stations deployed between September 17-19 and October 16-17 are summarized in Table 2.

Table 2: QA/QC comparison rankings for IOC stations between September 17-19 and October 16-17.

Station	Date	Action	Comparison Ranking				
			Temperature	pH	Conductivity	Dissolved Oxygen	Turbidity
Julienne Narrows	Sept 18, 2024	Deployment	Excellent	Excellent	Excellent	Good	Excellent
	Oct 17, 2024	Removal	N/A	N/A	N/A	N/A	N/A
Dolomite Road	Sept 17, 2024	Deployment	Excellent	Good	Excellent	Excellent	Excellent
	Oct 16, 2024	Removal	Good	Fair	Excellent	Good	Excellent
Dumbell Stream	Sept 17, 2024	Deployment	Excellent	Excellent	Excellent	Excellent	Excellent
	Oct 16, 2024	Removal	Excellent	Good	Excellent	Good	Excellent
Pumphouse Stream	Sept 19, 2024	Deployment	Excellent	Excellent	Excellent	Excellent	Excellent
	Oct 16, 2024	Removal	Excellent	Excellent	Excellent	Fair	Good
Fraggle Rock	Sept 18, 2024	Deployment	Excellent	Excellent	Excellent	Excellent	Excellent
	Oct 17, 2024	Removal	Excellent	Excellent	Excellent	Good	Excellent

- There are a few circumstances which may cause less than ideal QA/QC rankings to be obtained. These include: 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 or more of the sensors.

Deployment

- All parameters at all stations ranked either 'excellent' or 'good'.

Removal

- At Julienne Narrows, data was not available for the field instrument, therefore, parameters could not be ranked.
- At Dolomite Road, pH ranked 'fair'. The field instrument recorded 7.64, while the QA/QC instrument recorded 7.03. A grab sample taken at the time of removal measured 7.62 for pH. When the field instrument is compared to this value, the ranking is 'excellent'.
- At Pumphouse Stream, dissolved oxygen ranked 'fair', the field instrument read a value of 12.63 mg/l, while the QA/QC instrument read a value of 12.00 mg/l.
- Parameters at all other stations ranked either 'good' or 'excellent'.

Data Interpretation

- The following graphs and discussion illustrate water quality-related events from September 17-19 to October 16-17, 2024, at the IOC RTWQ monitoring stations in Labrador West.
- With the exception of water quantity data (Stage and Flow), all data used in the preparation of the graphs and subsequent discussion below adhere to this stringent QA/QC protocol. Water Survey of Canada is responsible for QA/QC of water quantity data except for Fraggle Rock which is maintained by WRMD. Corrected data can be obtained upon request.

Wabush Lake Network

- Water temperature ranged from 4.90 to 15.50°C at Dolomite Road, and 9.10 to 15.50°C at Julienne Narrows during this deployment period (Figure 2).
- Overall, water temperature decreased over the course of this deployment period, as temperatures cooled into the fall. Water temperature corresponded to increases/decreases in ambient air temperature trends (Figure 2).

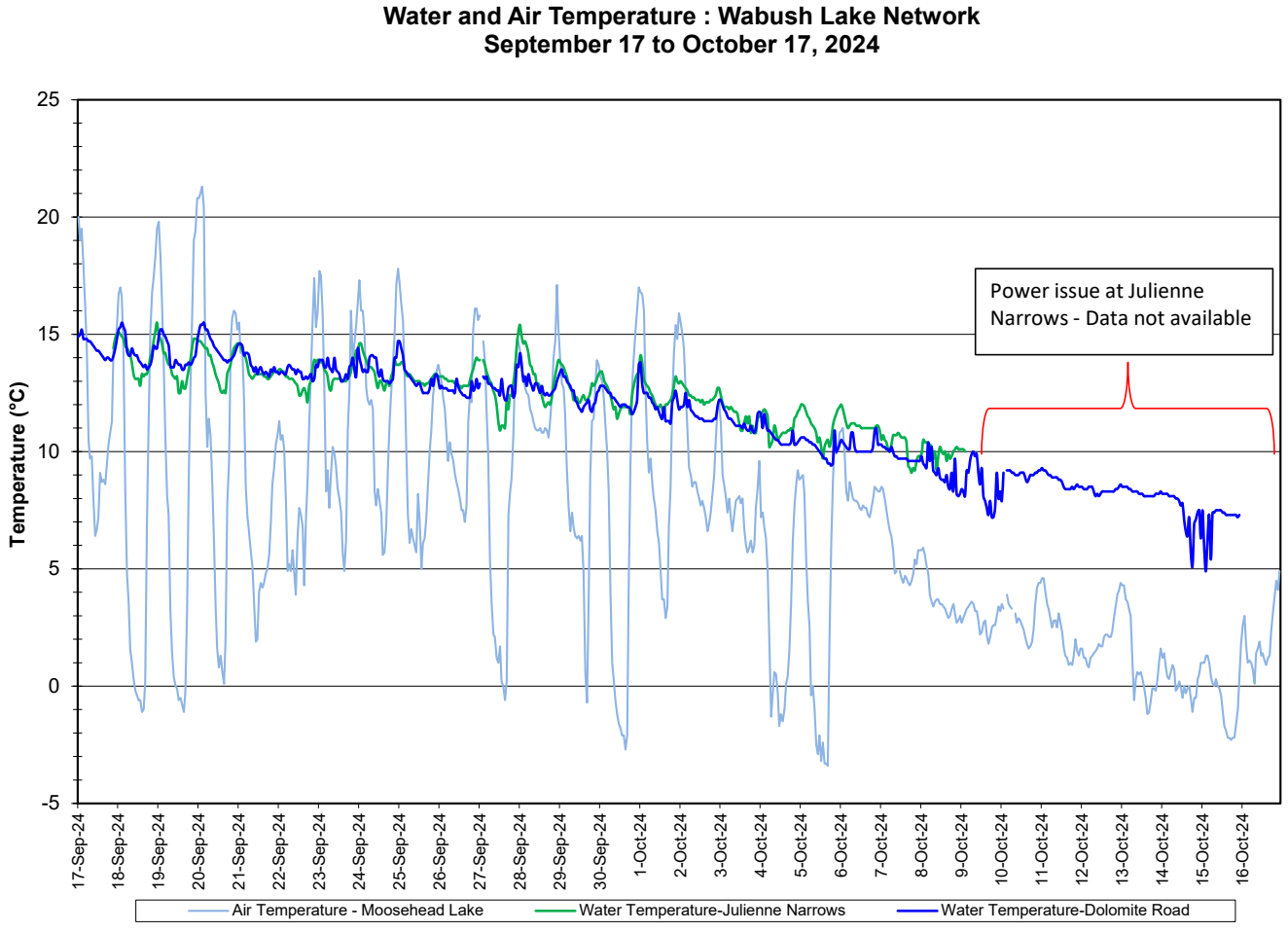

Figure 2: Water and Air Temperature – Wabush Lake Network

(Weather data collected from climate station near Moosehead Lake)

- pH ranges from 7.45 to 8.69 pH units at Dolomite Road and, 7.95 to 8.40 pH units at Julienne Narrows, throughout the deployment period (Figure 3). The median pH is 8.31 and 8.08, respectively.
- All values at Dolomite Road and Julienne Narrows during the deployment are within the CCME Guidelines for the Protection of Aquatic Life (between 6.5 and 9 pH units). pH fluctuates slightly throughout the day and night. There is a sudden decrease in pH at Dolomite Road during the first week of deployment, this corresponds with an increase in stage at that time.
- Water Survey Canada operates the hydrometric components of these stations. 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.

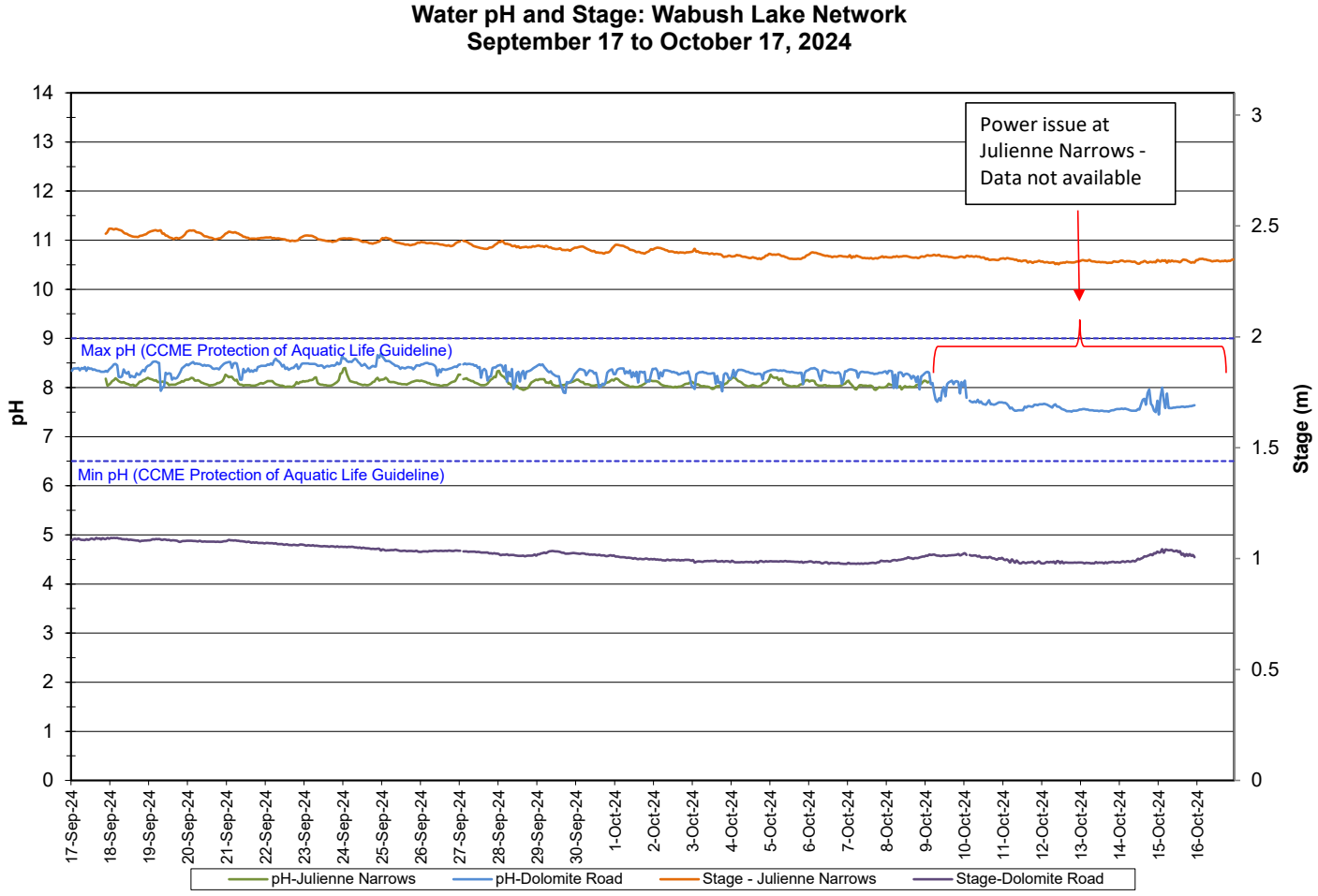

Figure 3: Water pH and Stage – Wabush Lake Network

- Specific conductivity ranged from 73.9 to 156.3 µs/cm at Dolomite Road and from 101.9 to 121.8 at Julienne Narrows throughout the deployment period (Figure 4).
- Specific conductivity at Dolomite Road fluctuates greatly as stage decreases. During the later portion of the deployment period, conductivity decreases significantly as stage rises from numerous periods of precipitation.
- 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.

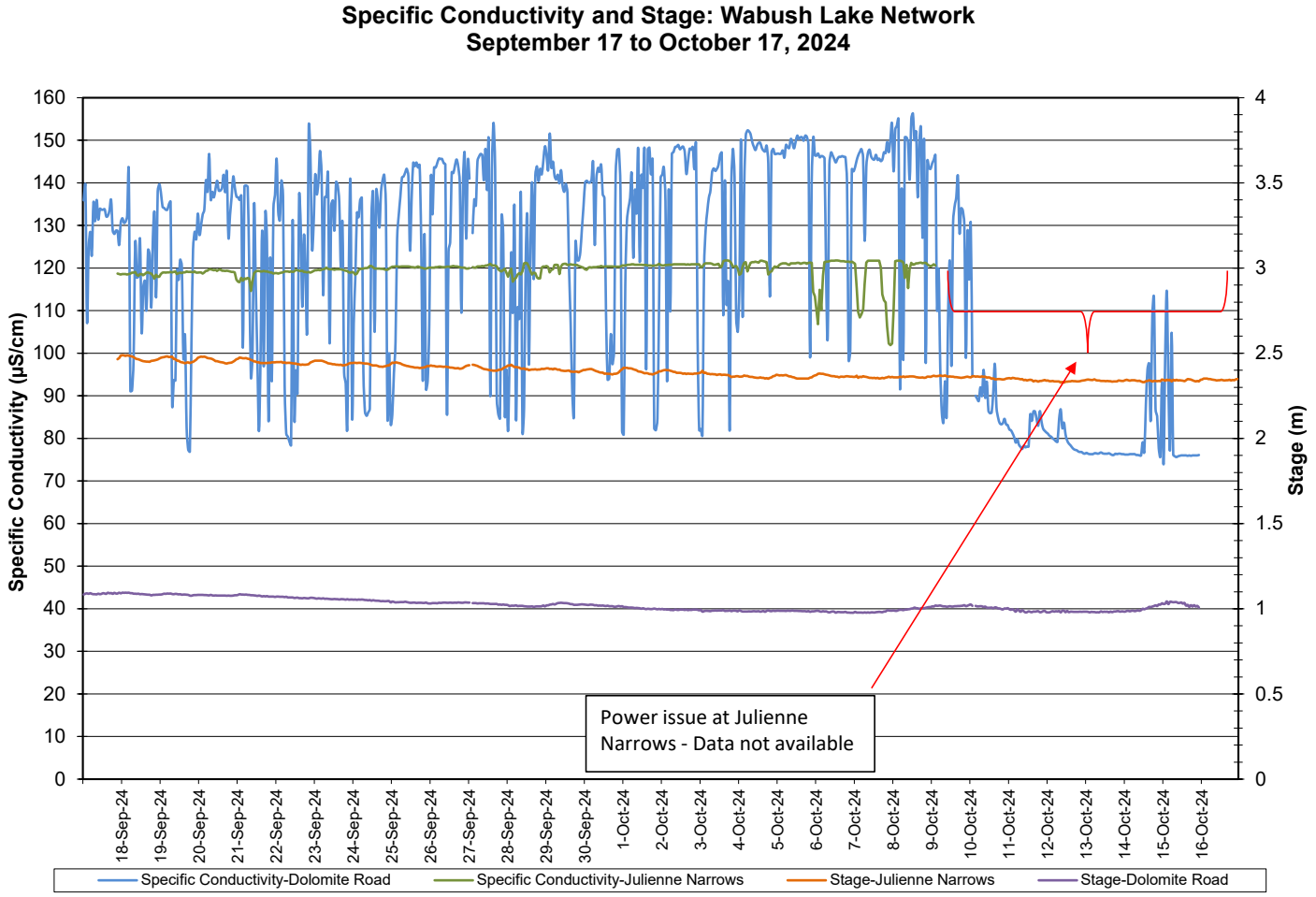

Figure 4: Specific Conductivity and Stage – Wabush Lake Network

- At the Dolomite Road station, the saturation of dissolved oxygen ranged from 81.3 to 111.1% while the dissolved oxygen content ranged from 9.71 to 12.06 mg/l with a median value of 10.53 mg/l (Figure 5).
- At the Julienne Narrows station, the saturation of dissolved oxygen ranged from 94.2 to 112.1% while the dissolved oxygen content ranged from 10.03 to 11.42 mg/l with a median value of 10.55 mg/l (Figure 5).
- All values recorded at Julienne Narrows and Dolomite Road were above the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Other Life Stages of 6.5 mg/l and Early Life Stages of 9.5 mg/l. The guidelines are indicated in blue on Figure 5.
- Dissolved oxygen increased slightly at Julienne Narrows and Dolomite. It can be noted that levels decreased at dolomite road during the last week of deployment.

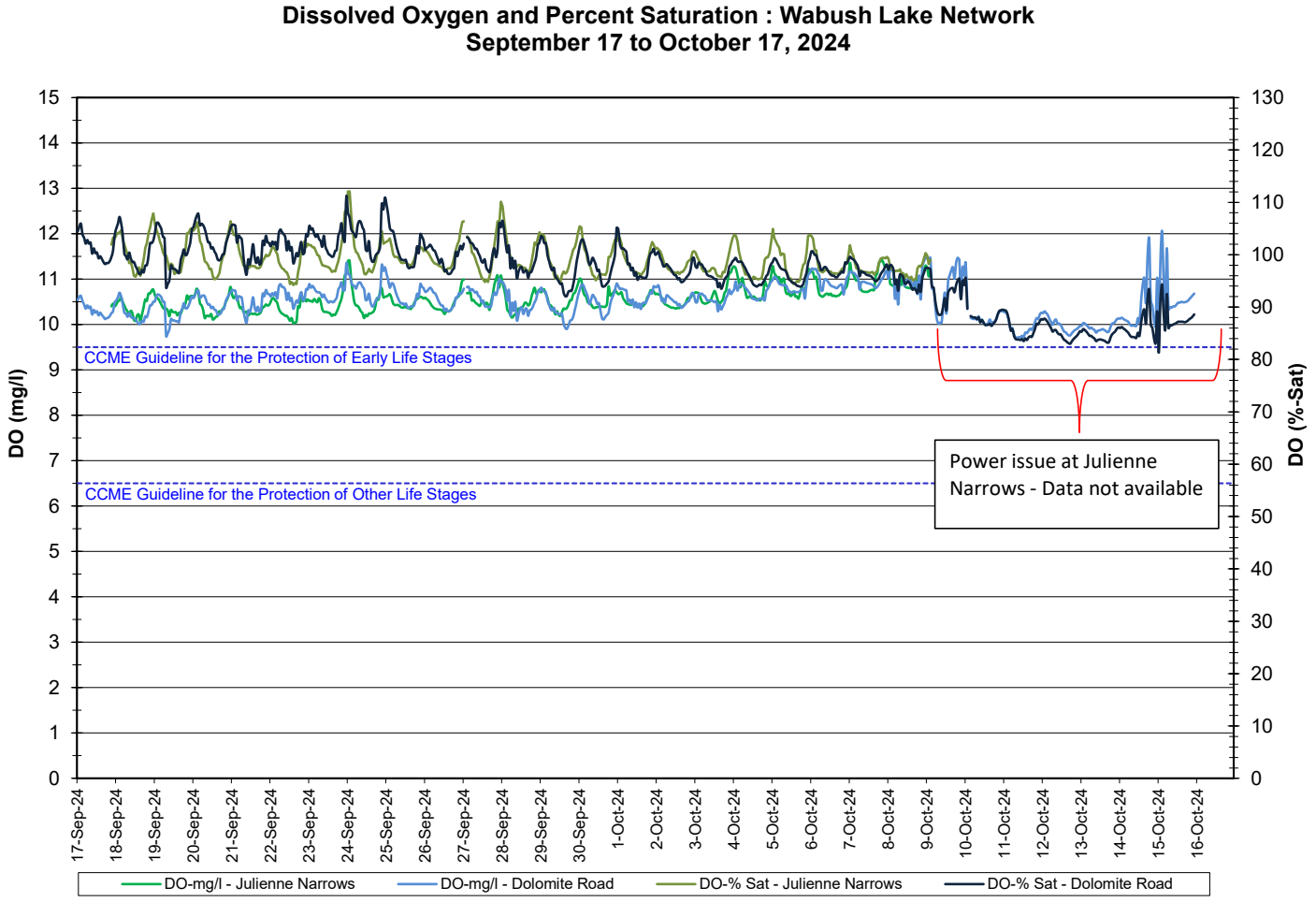

Figure 5: Dissolved Oxygen and Percent Saturation – Wabush Lake Network

- At the Dolomite Road station, turbidity values ranged between 1.4 and 46.1 NTU (Figure 6). Spikes in turbidity occurred infrequently and for short periods of time.

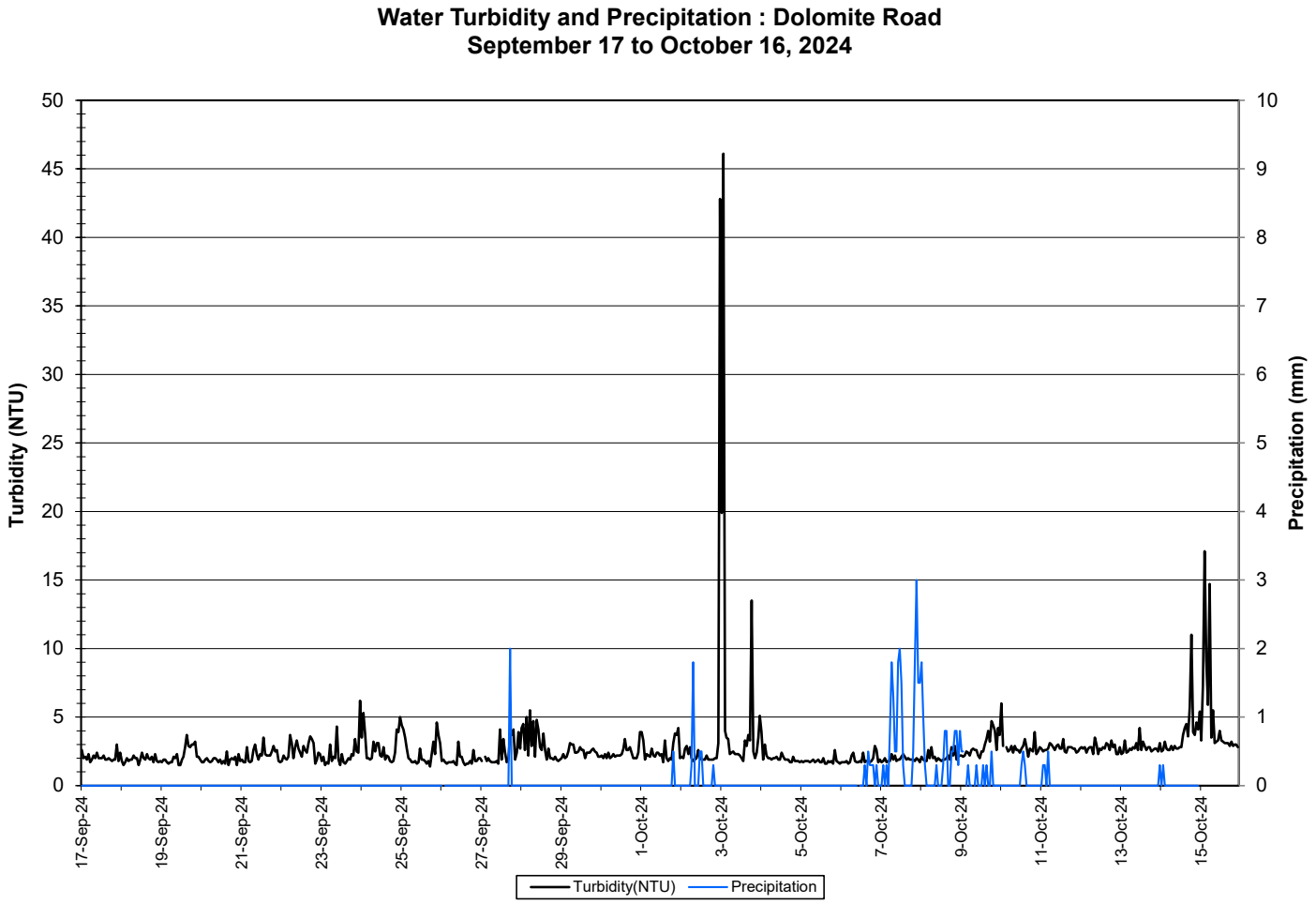

Figure 6: Turbidity and Precipitation – Dolomite Road

(Weather data collected from climate station near Moosehead Lake)

- At the Julienne Narrows station, turbidity values ranged between 0.9 and 76.1 NTU (Figure 7). The median was 1.3 NTU, indicating low background values, with spikes noted for short periods of time.

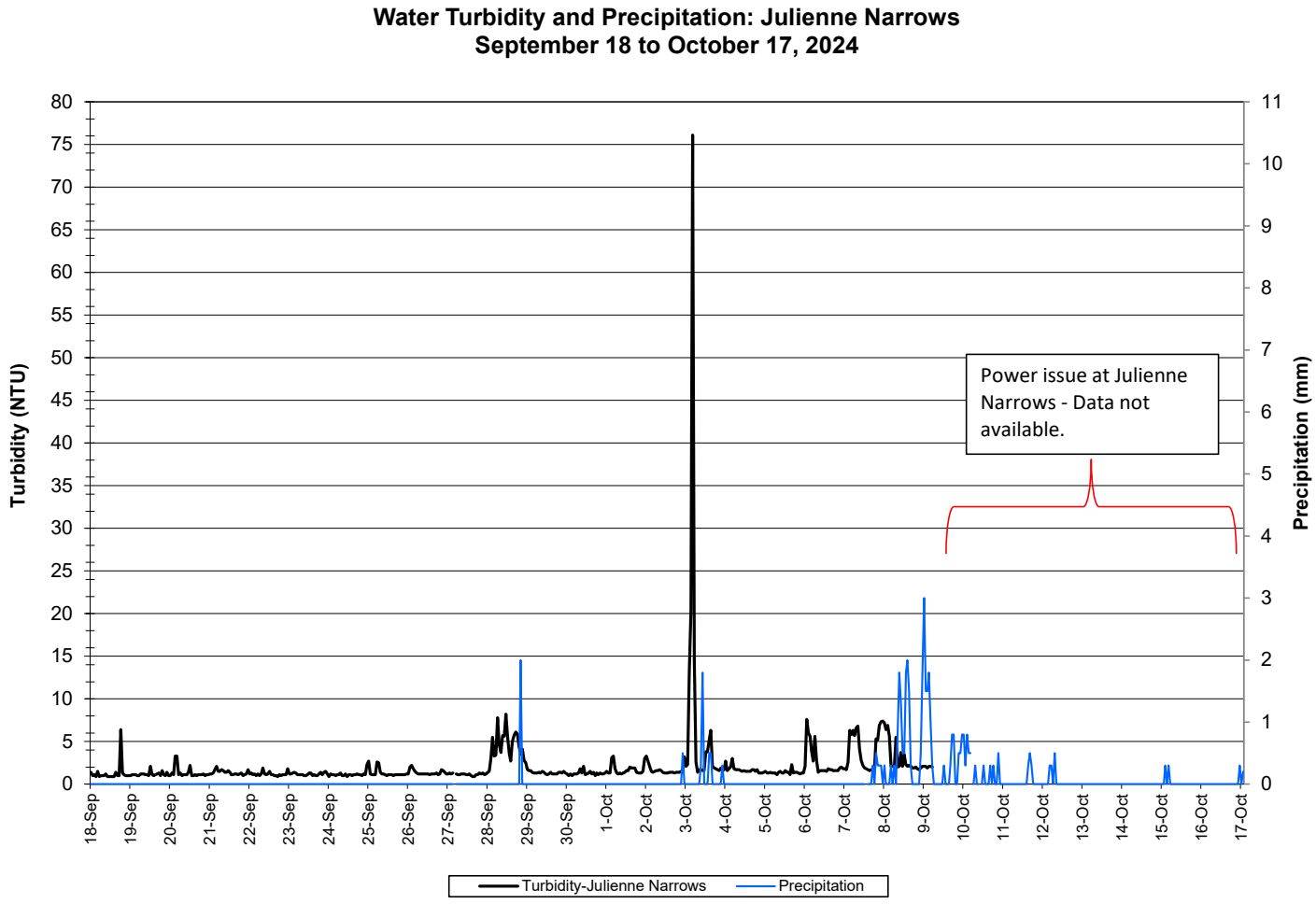

Figure 7: Turbidity and Precipitation – Julienne Narrows

(Weather data collected from climate station near Moosehead Lake)

- Stage and precipitation are graphed below to show the relationship between rainfall and water level at Dolomite Road and Julienne Narrows (Figure 8). Stage decreased slightly during this deployment period at both stations.
- Water Survey Canada operates the hydrometric components of these stations. 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.

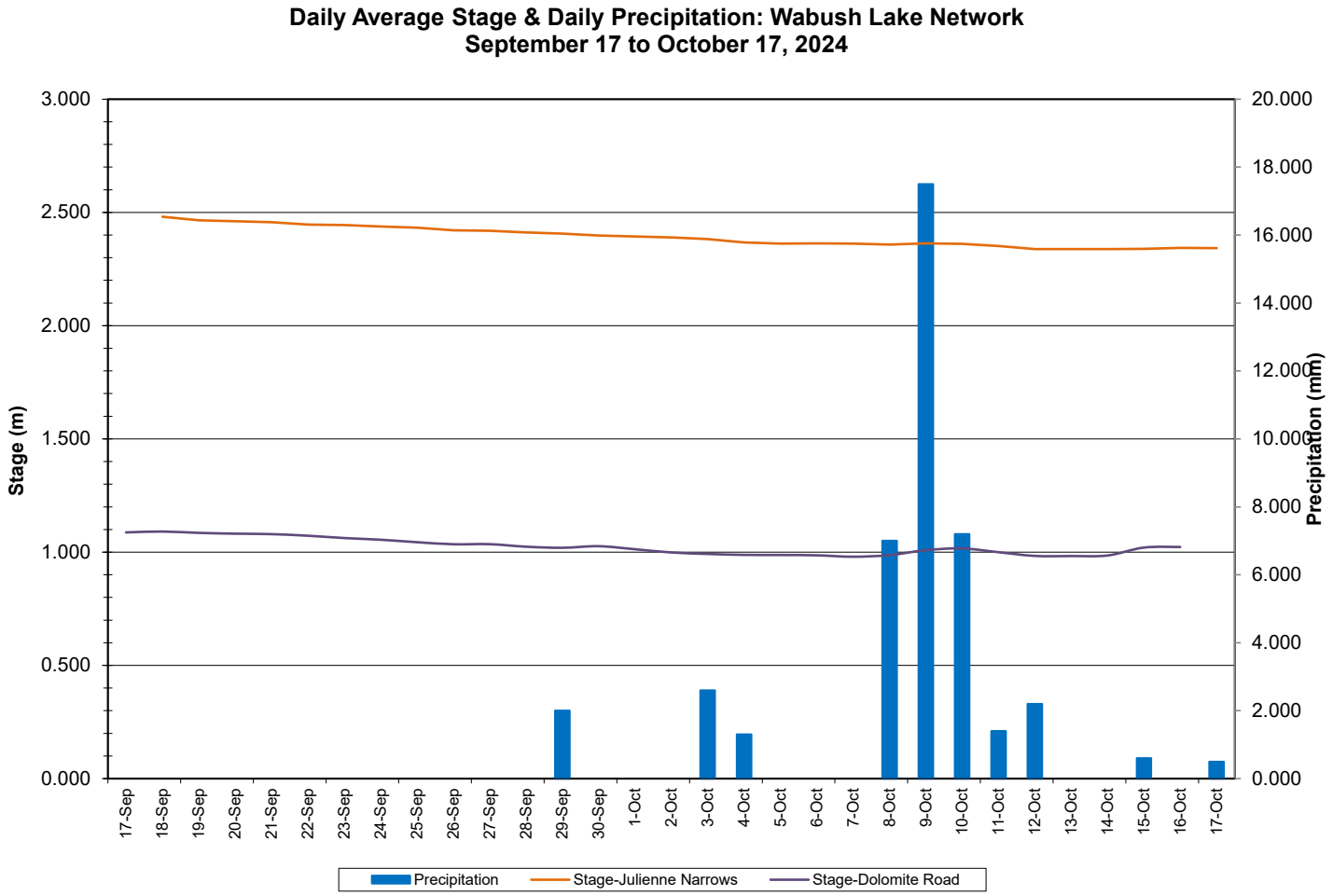

Figure 8: Stage and Precipitation – Wabush Lake Network

(Weather data collected at climate station located near Moosehead Lake)

Dumbell Stream

- Water temperature ranged from 1.67 to 5.86ºC during this deployment period (Figure 9).
- Water temperature decreased during the later portion of this deployment period, as air temperature cooled into Fall. Water temperature at Dumbell Stream is typically much lower than other stations (Figure 9).

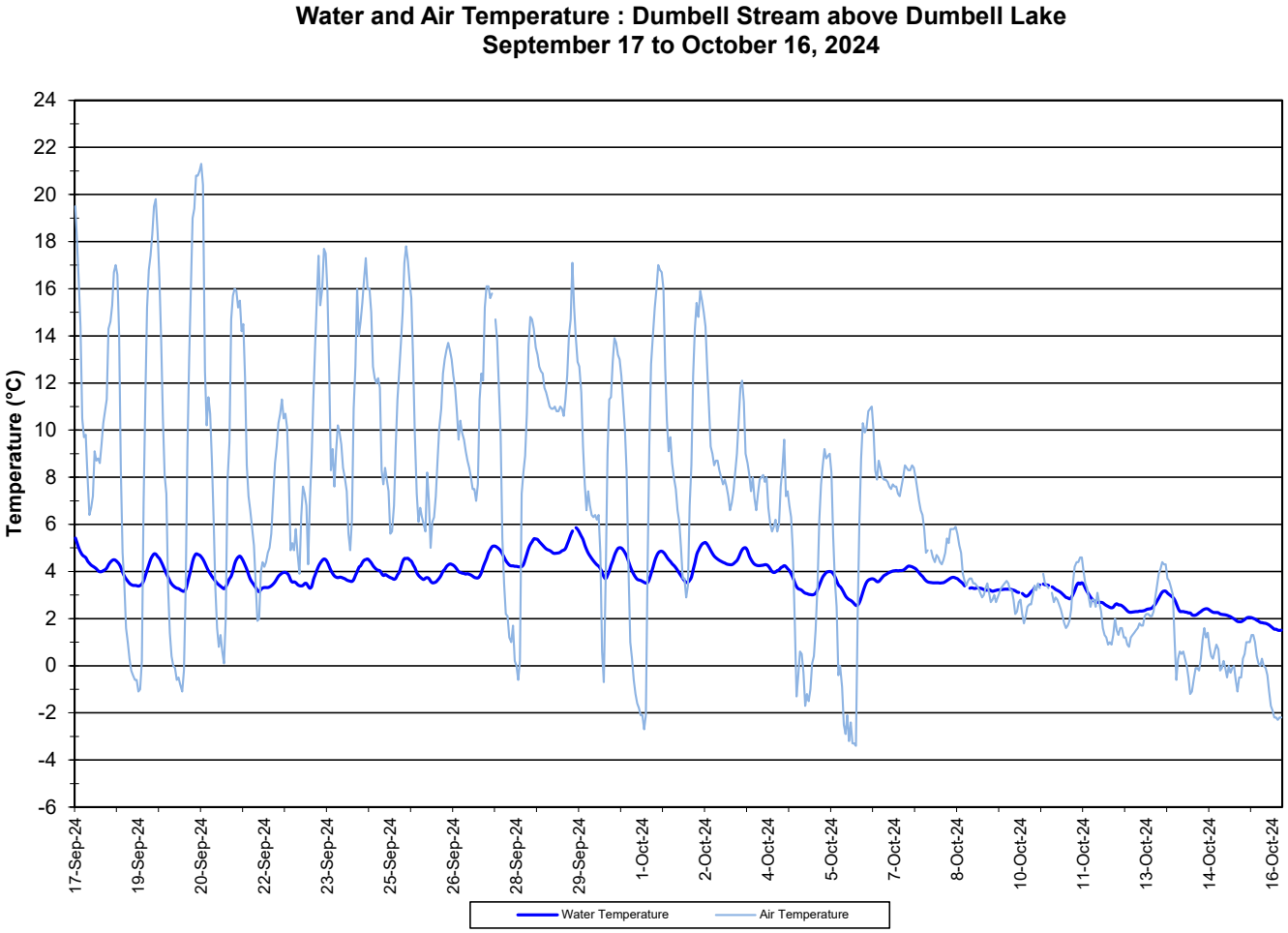

Figure 9: Water and Air Temperature – Dumbell Stream

(Weather data collected from climate station near Moosehead Lake)

- pH ranged from 7.55 to 7.83 pH units (Figure 10). The median pH was 7.75.
- All values are within the CCME Guidelines for the Protection of Aquatic Life (between 6.5 and 9 pH units). pH fluctuates slightly throughout the day and night. There is a decrease in pH mid October when there is a decrease in stage as well. This is unusual and the stage decrease will be investigated further with WSC.
- Water Survey Canada operates the hydrometric components of these stations. 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.

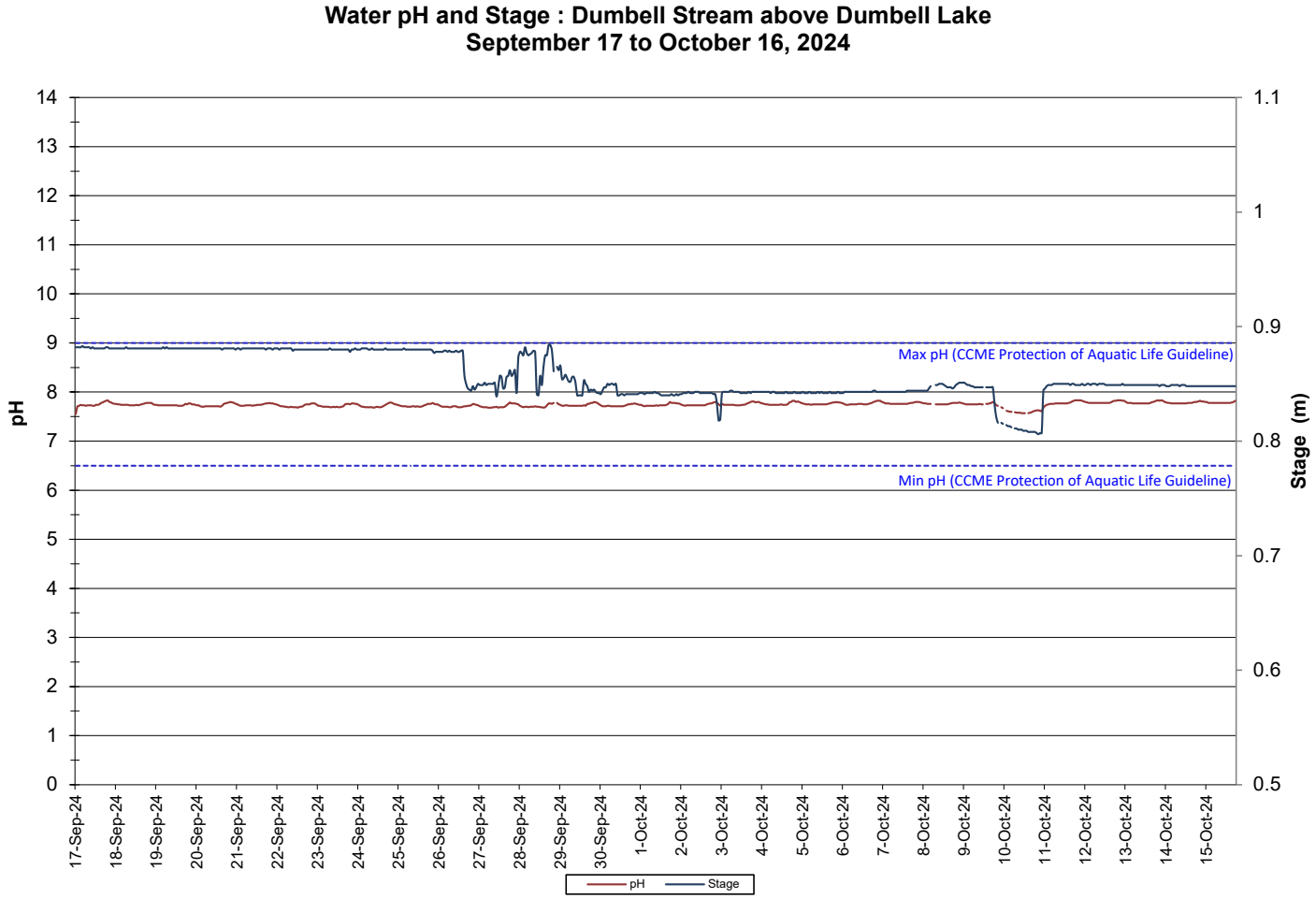

Figure 10: Water pH and Stage – Dumbell Stream

- Specific conductivity ranged from 165.8 to 313.1 µs/cm, throughout the deployment period (Figure 11).
- Specific conductivity increased significantly at the end of September. There were a few decreases during the remainder of the deployment period which correspond with fluctuations in stage. The observed trend is unusual and will be investigated further with WSC to ensure validity.
- Water Survey Canada operates the hydrometric components of these stations. 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.

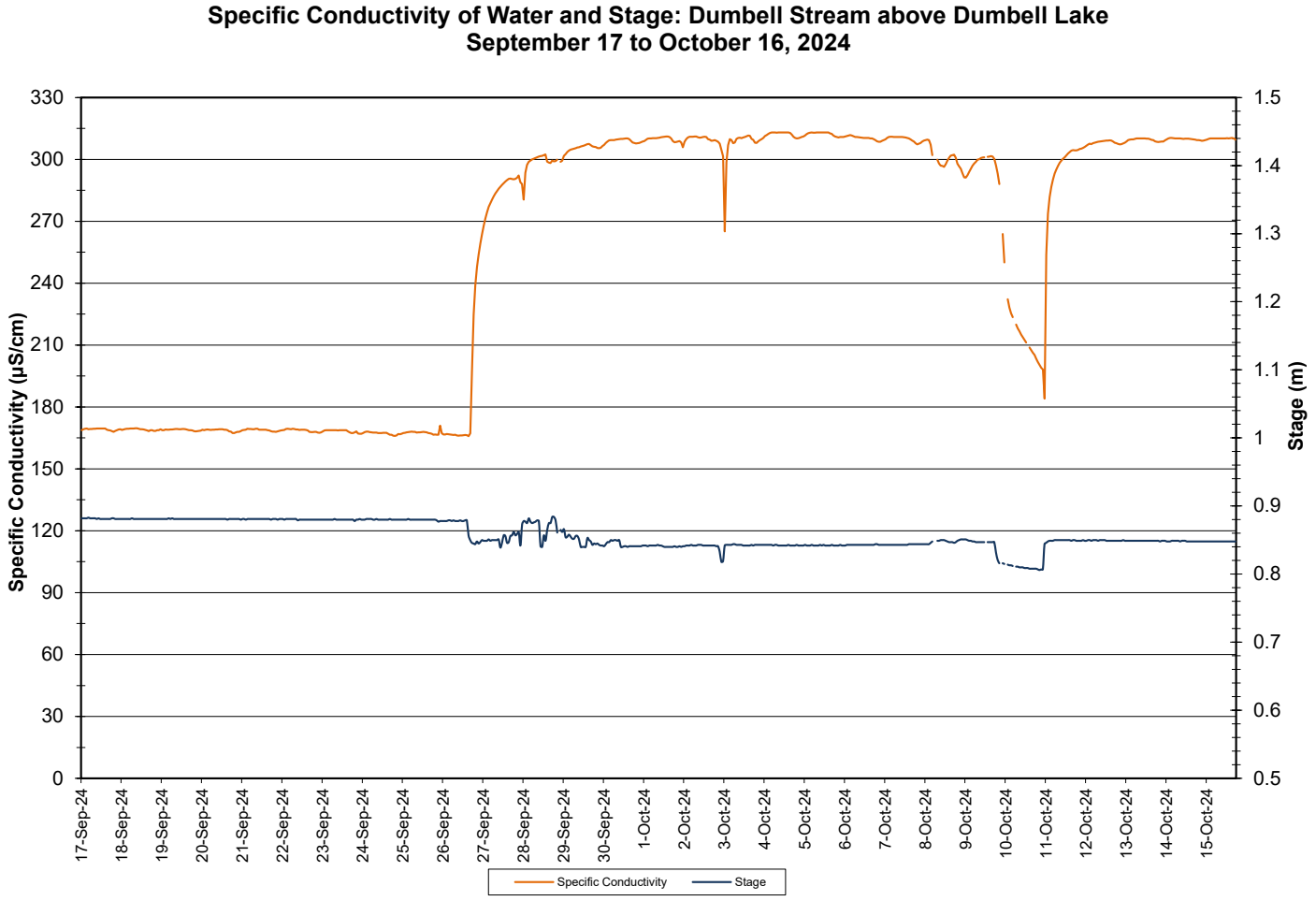

Figure 11: Specific Conductivity and Stage – Dumbell Stream

(Weather data collected from climate station near Moosehead Lake)

- The saturation of dissolved oxygen ranged from 91.2% to 96.9% while the dissolved oxygen content ranged from 11.80 to 13.19 mg/l with a median value of 12.54 mg/l (Figure 12).
- All values recorded at Dumbell Stream were above the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Other Life Stages of 6.5 mg/l, and the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Early Life Stages of 9.5 mg/. The guidelines are indicated in blue on Figure 12.
- Overall, dissolved oxygen increased slightly during the later portion of the deployment period. This is expected as water temperatures cool into Fall. Dissolved oxygen fluctuated daily with decreases observed at night.

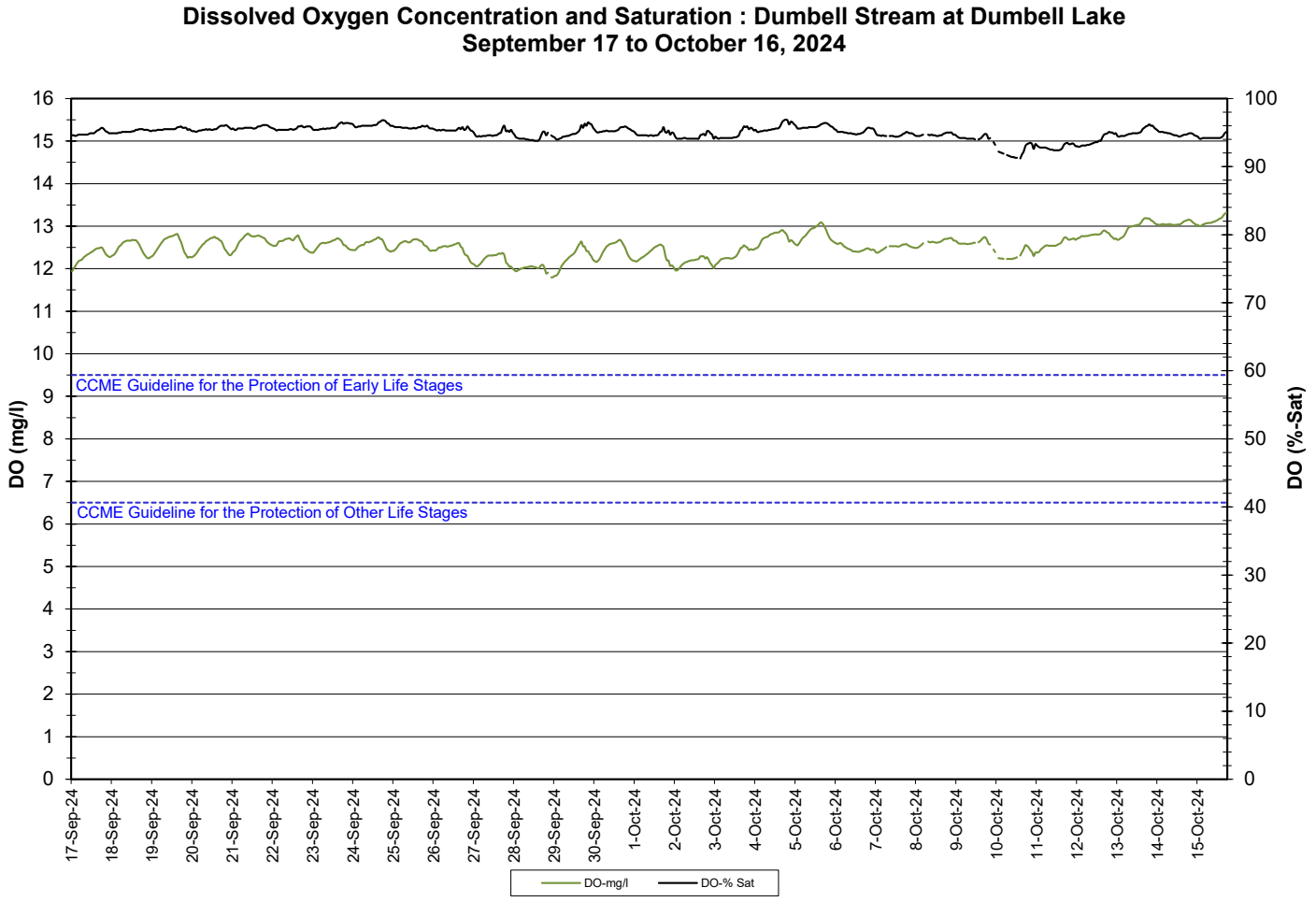

Figure 12: Dissolved Oxygen – Dumbell Stream

- Turbidity values ranged between 0.3 and 11.9 NTU throughout the deployment period (Figure 13). Turbidity levels at this station are generally low. Some spikes occur during precipitation events.

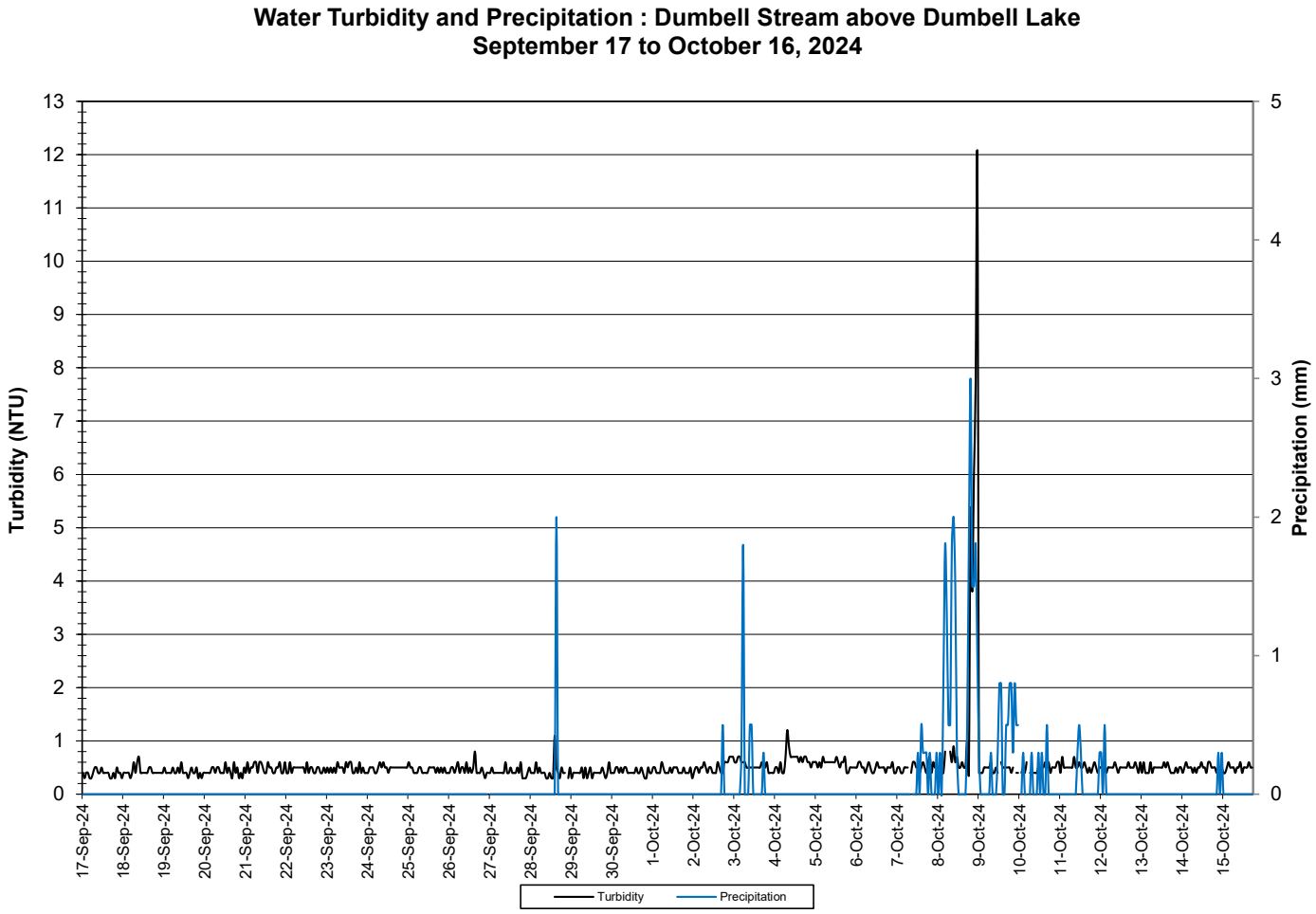

Figure 13: Turbidity and Precipitation – Dumbell Stream

(Weather data collected from climate station near Moosehead Lake)

- Stage and precipitation are graphed below to show the relationship between rainfall and water level at Dumbell Stream (Figure 14). Stage decreased overall during this deployment period.
- As in Figure 10 and 11, stage values do not appear to be valid as stage decreased after significant precipitation was added to the system. This is unusual and will be investigated further with WSC.
- Water Survey Canada operates the hydrometric components of these stations. 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.

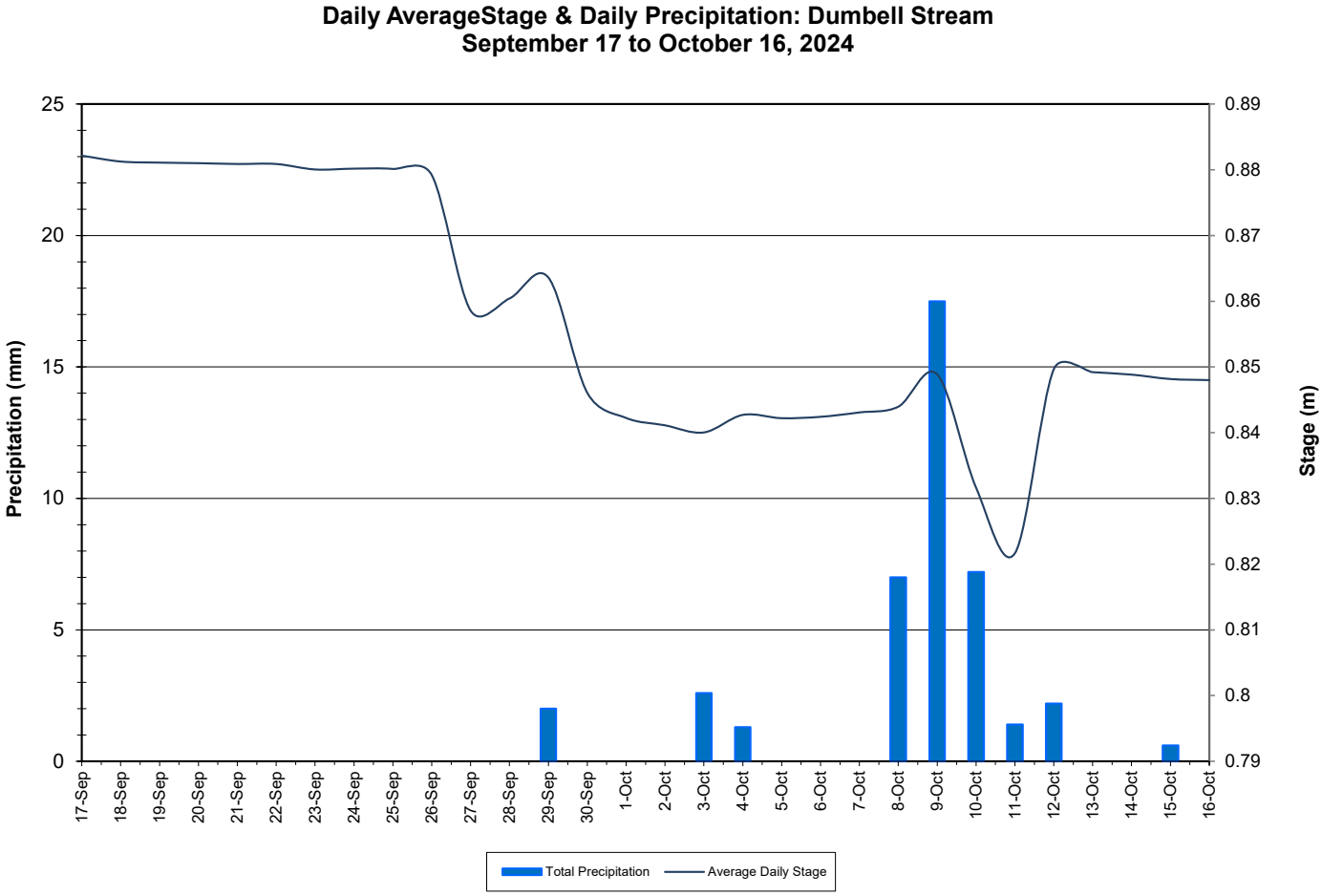

Figure 14: Stage and Precipitation – Dumbell Stream

(Weather data collected from climate station near Moosehead Lake)

Pumphouse Stream

- Water temperature ranged from 1.00 to 14.20°C during this deployment period (Figure 15).
- Fluctuations in water temperature corresponded with increases and decreases in ambient air temperature. (Figure 15). Water temperature decreased over the course of this deployment period, as expected as Fall approaches.

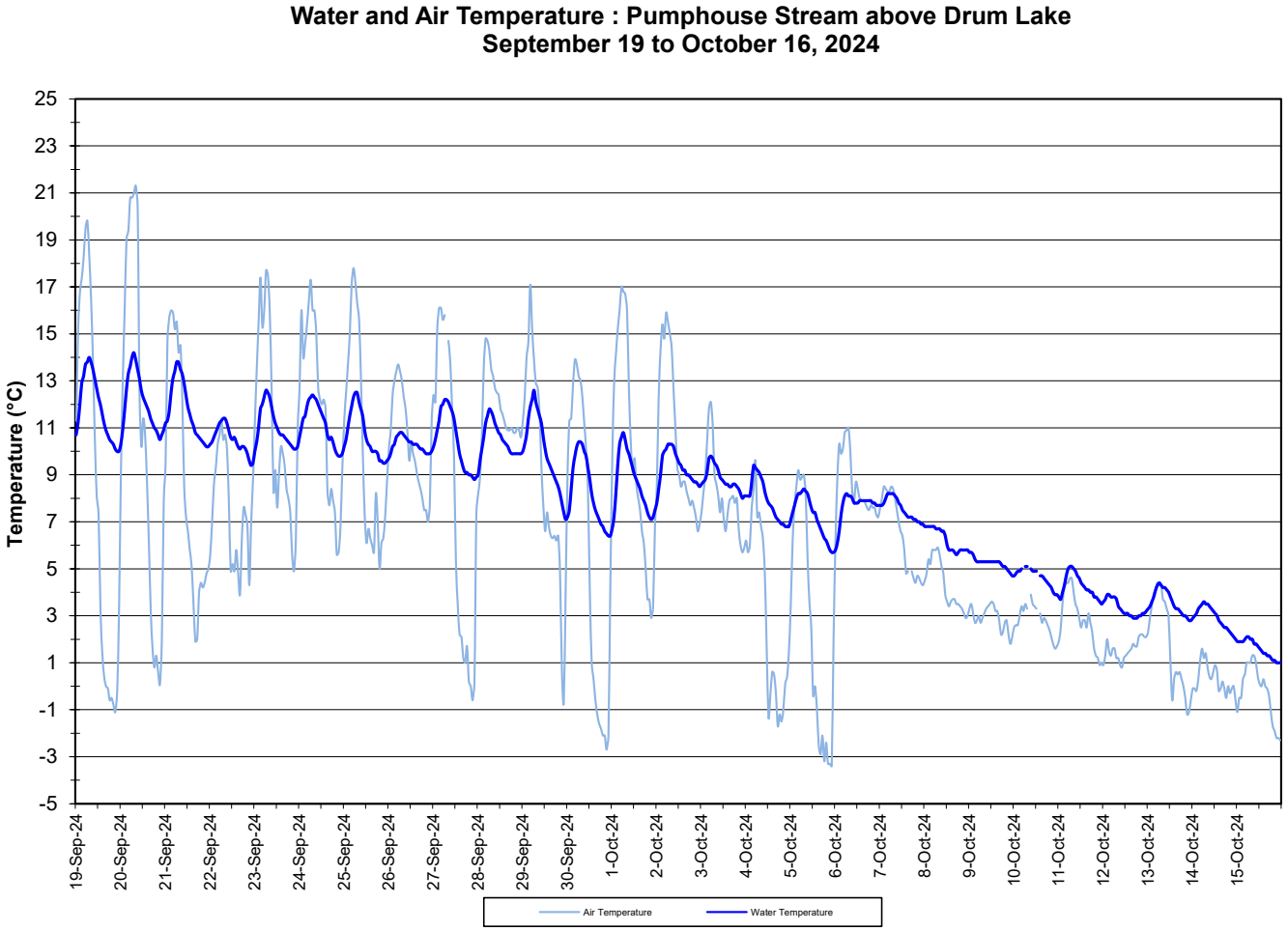

Figure 15: Water and Air Temperature – Pumphouse Stream

(Weather data collected from climate station near Moosehead Lake)

- pH ranged from 7.47 to 7.80 pH units (Figure 16). The median pH was 7.64.
- There are noticeable decreases in pH, corresponding with increases in stage. They are identified on the graph in red.
- All values during the deployment are within the CCME Guidelines for the Protection of Aquatic Life (between 6.5 and 9 pH units).
- Water Survey Canada operates the hydrometric components of these stations. 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.

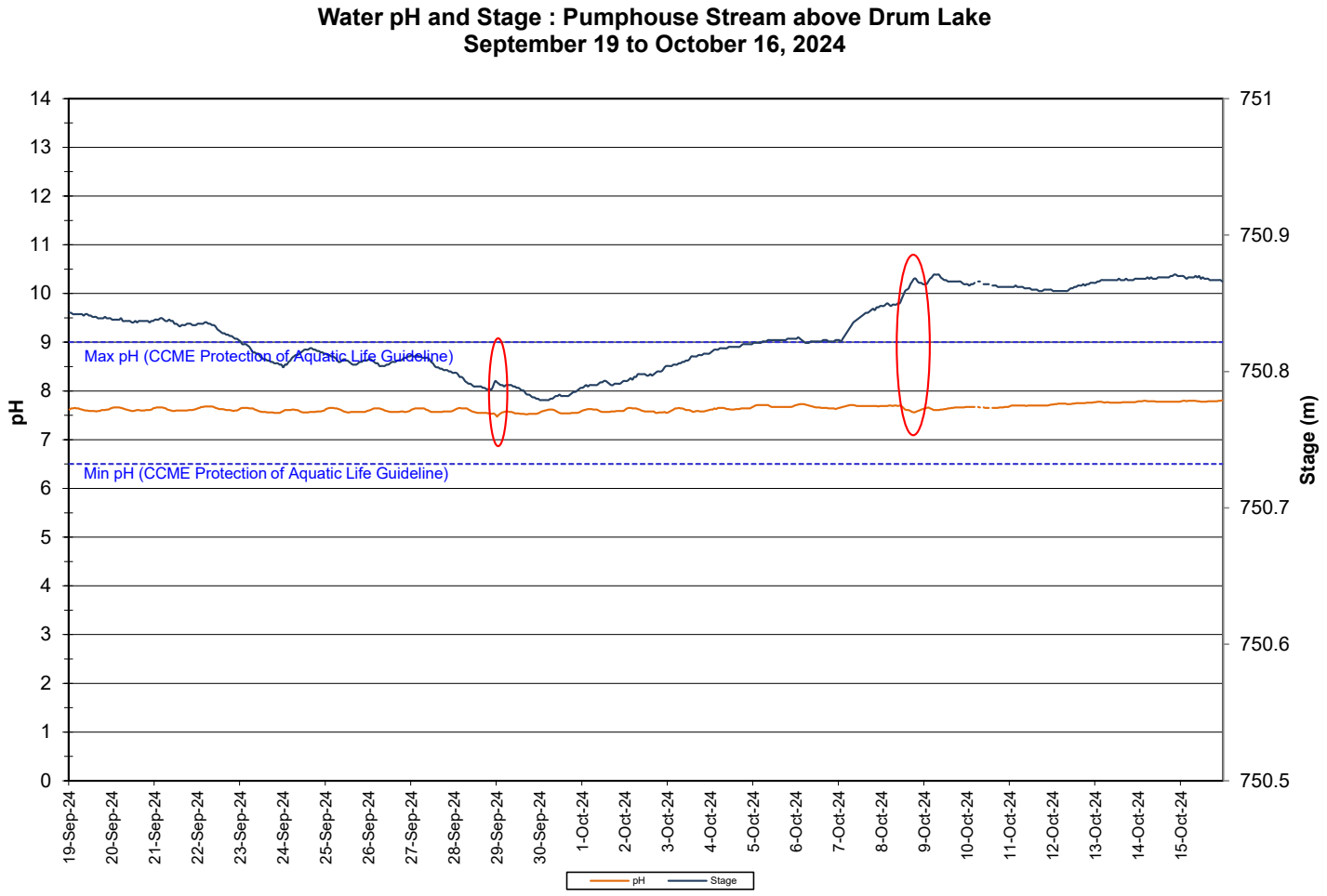

Figure 16: Water pH and Stage – Pumphouse Stream

- Specific conductivity ranged from 624.9 to 699.7 µs/cm, throughout the deployment period (Figure 17).
- The majority of sudden decreases in specific conductivity correspond to sudden increases in stage. As more water is added to the system from precipitation, the solids in the water are diluted, decreasing conductivity. Some correlations are identified on the graph in red.
- Water Survey Canada operates the hydrometric components of these stations. 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.

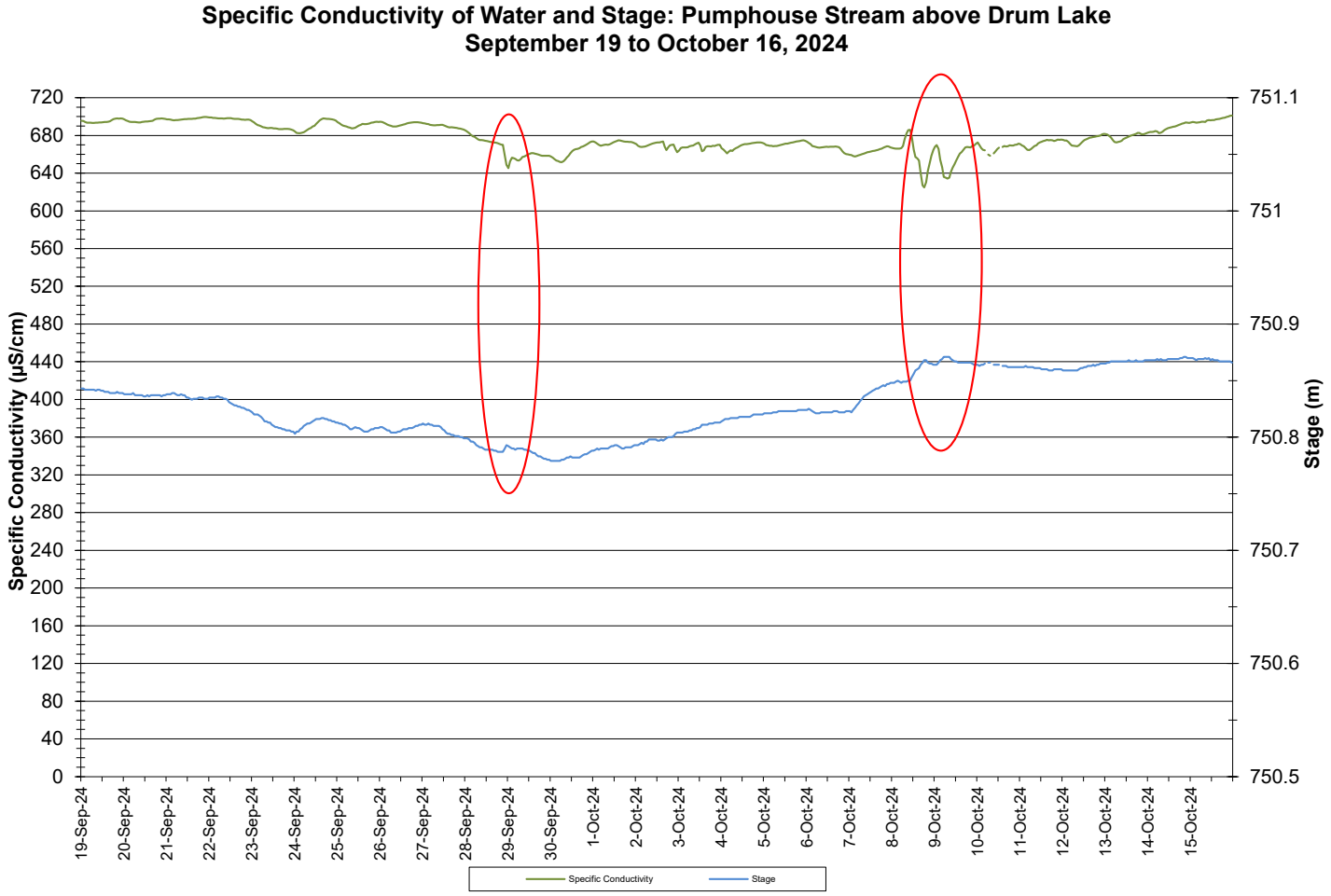

Figure 17: Specific Conductivity and Stage – Pumphouse Stream

(Weather data collected from climate station near Moosehead Lake)

- The saturation of dissolved oxygen ranged from 76.9 to 91.3% while the dissolved oxygen ranged from 8.51 to 12.52 mg/l with a median value of 9.77 mg/l (Figure 18).
- Dissolved oxygen increased during this deployment period, correlating to decreasing water temperatures into Fall.
- All values recorded at Pumphouse Stream were above the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Other Life Stages of 6.5 mg/l, while most values were above CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Early Life Stages of 9.5 mg/. The guidelines are indicated in blue on Figure 18.

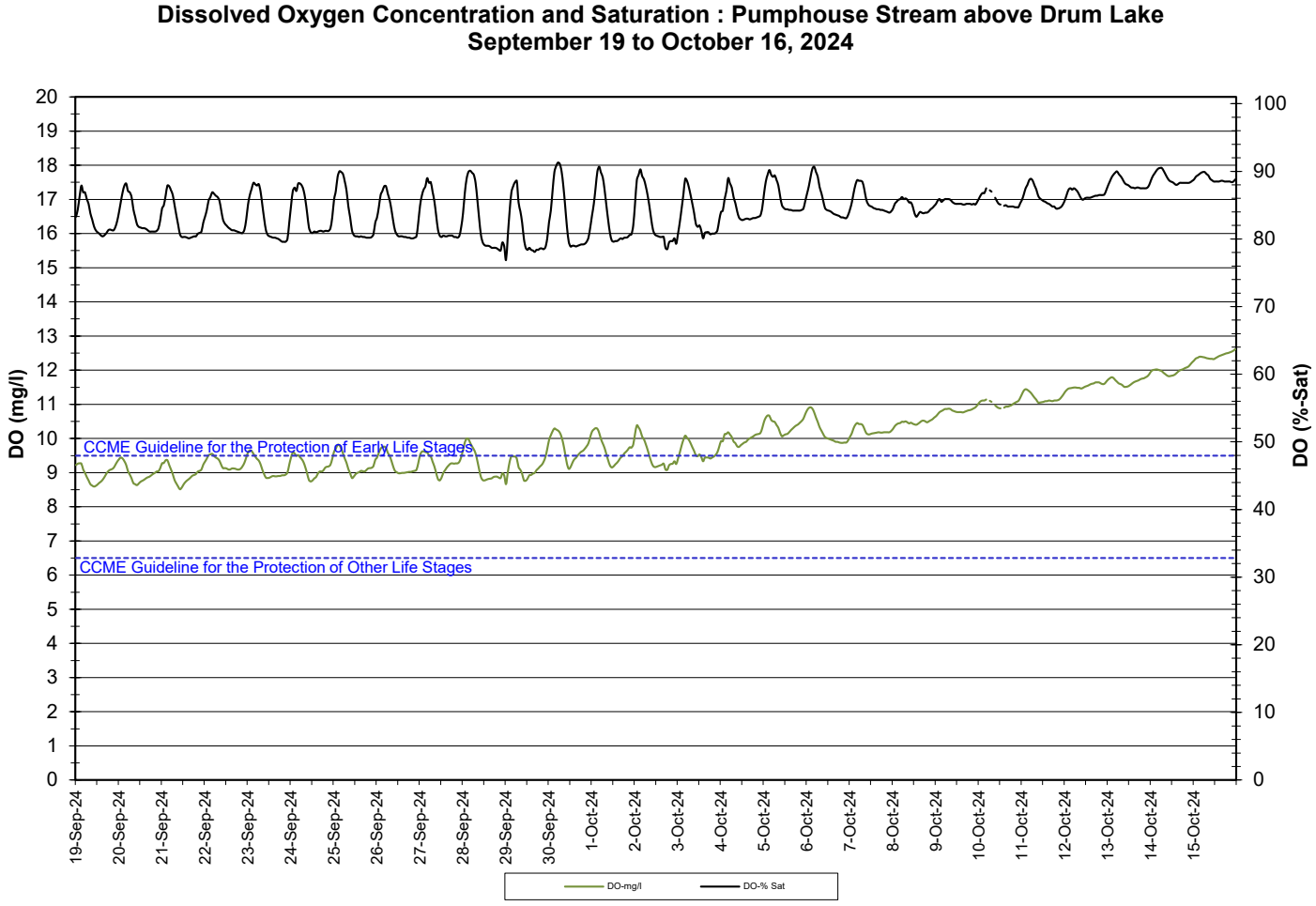

Figure 18: Dissolved Oxygen – Pumphouse Stream

- Turbidity values range from 0.7 NTU to 5.0 NTU throughout the deployment period (Figure 19). The median value was 1.4 NTU, indicating moderate background turbidity levels.
- Turbidity spikes occur infrequently and for short periods of time, sometimes corresponding with precipitation events at the time.

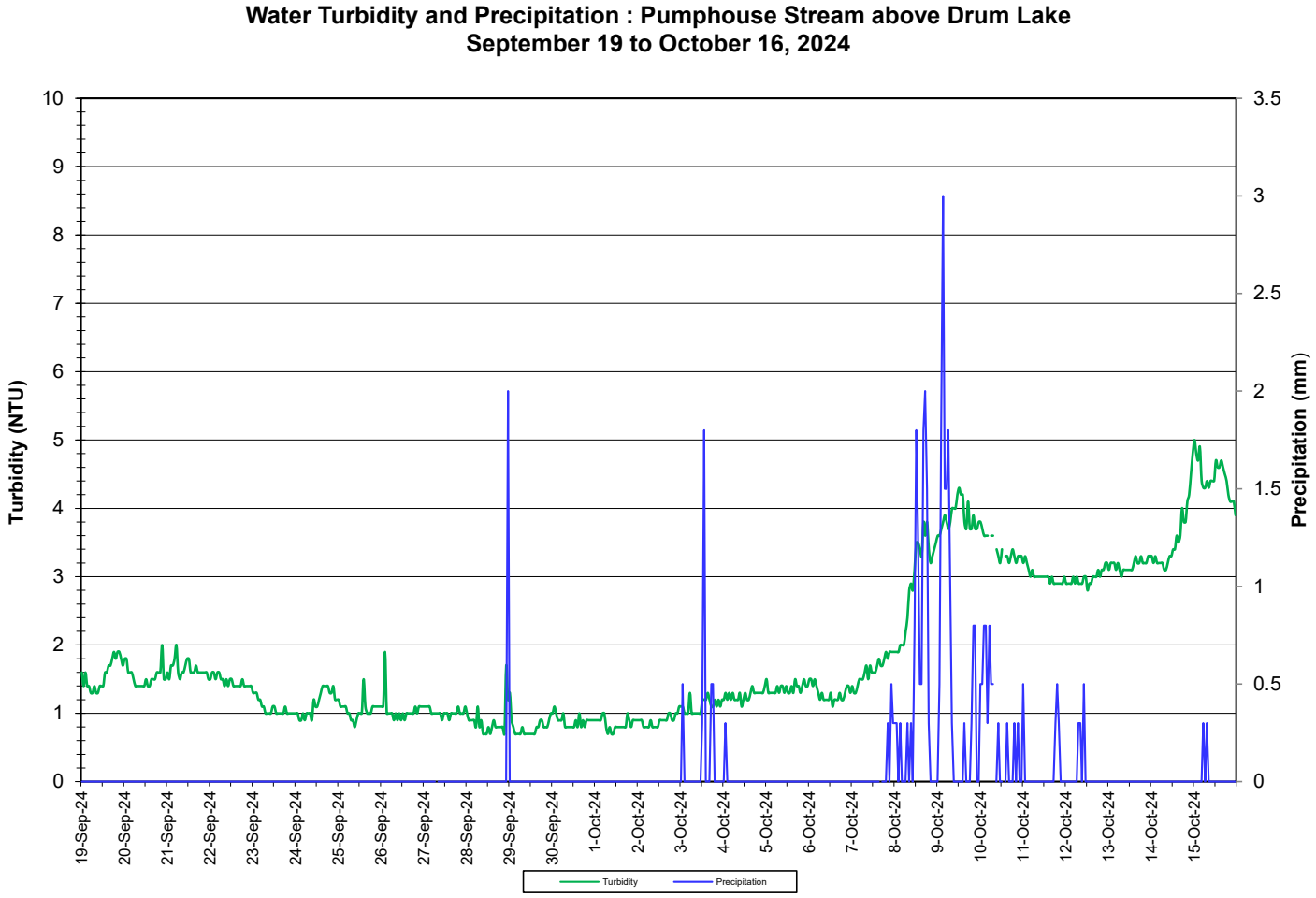

Figure 19: Turbidity and Precipitation – Pumphouse Stream

(Weather data collected from climate station near Moosehead Lake)

- Stage and precipitation are graphed below to show the relationship between rainfall and water level at Pumphouse Stream (Figure 20).
- Stage decreased during the first few weeks of the deployment period. It then increased slightly for the remainder of the deployment. Stage increases after precipitation events.
- Water Survey Canada operates the hydrometric components of these stations. 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.

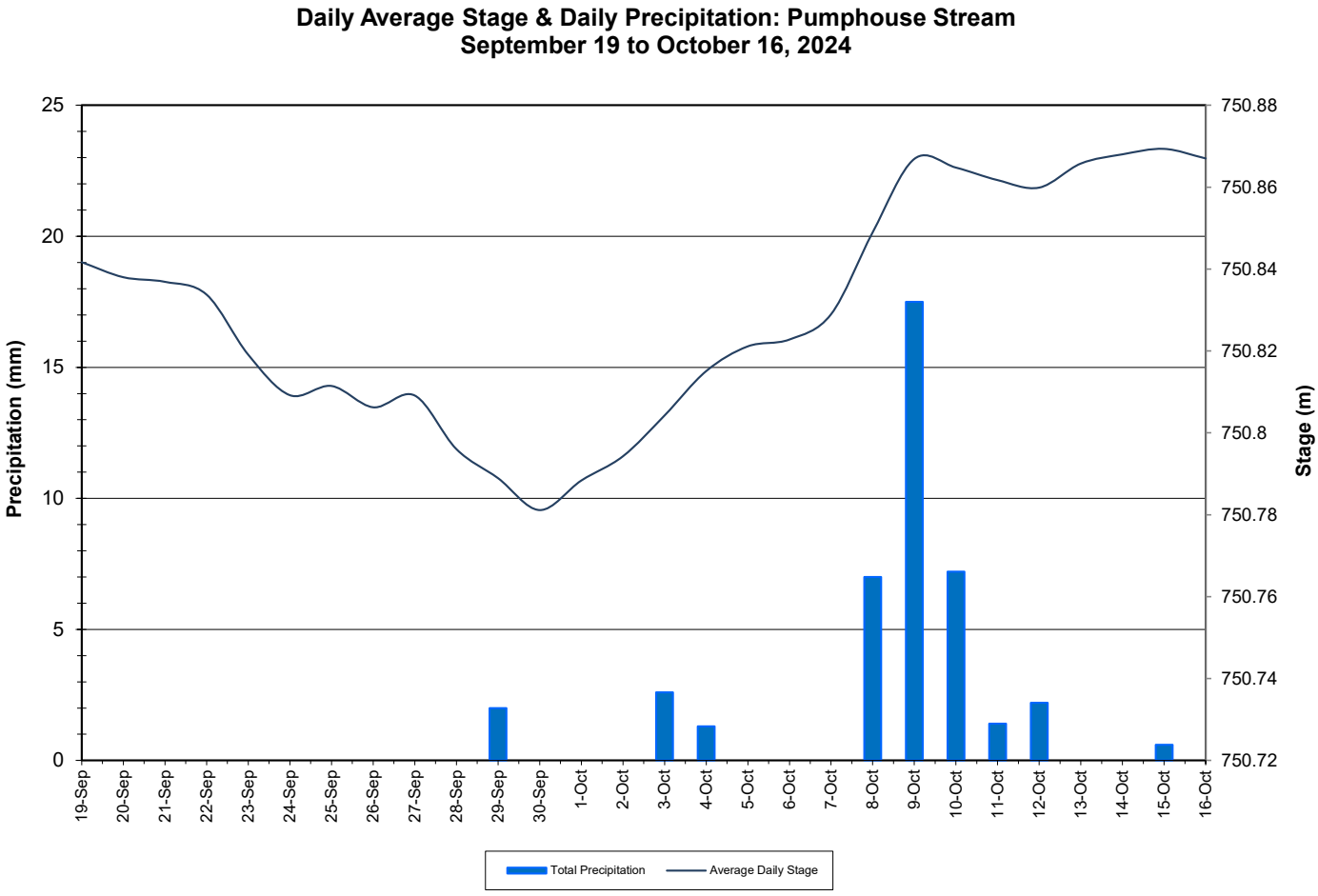

Figure 20: Stage and Precipitation – Pumphouse Stream

(Weather data collected from climate station near Moosehead Lake)

Fraggle Rock

- Water temperature ranged from 1.96 to 13.62°C during this deployment period (Figure 21).
- Fluctuations in water temperature corresponded with increases and decreases in ambient air temperature. (Figure 21). Water temperature decreased over the course of this deployment period as Fall approached.

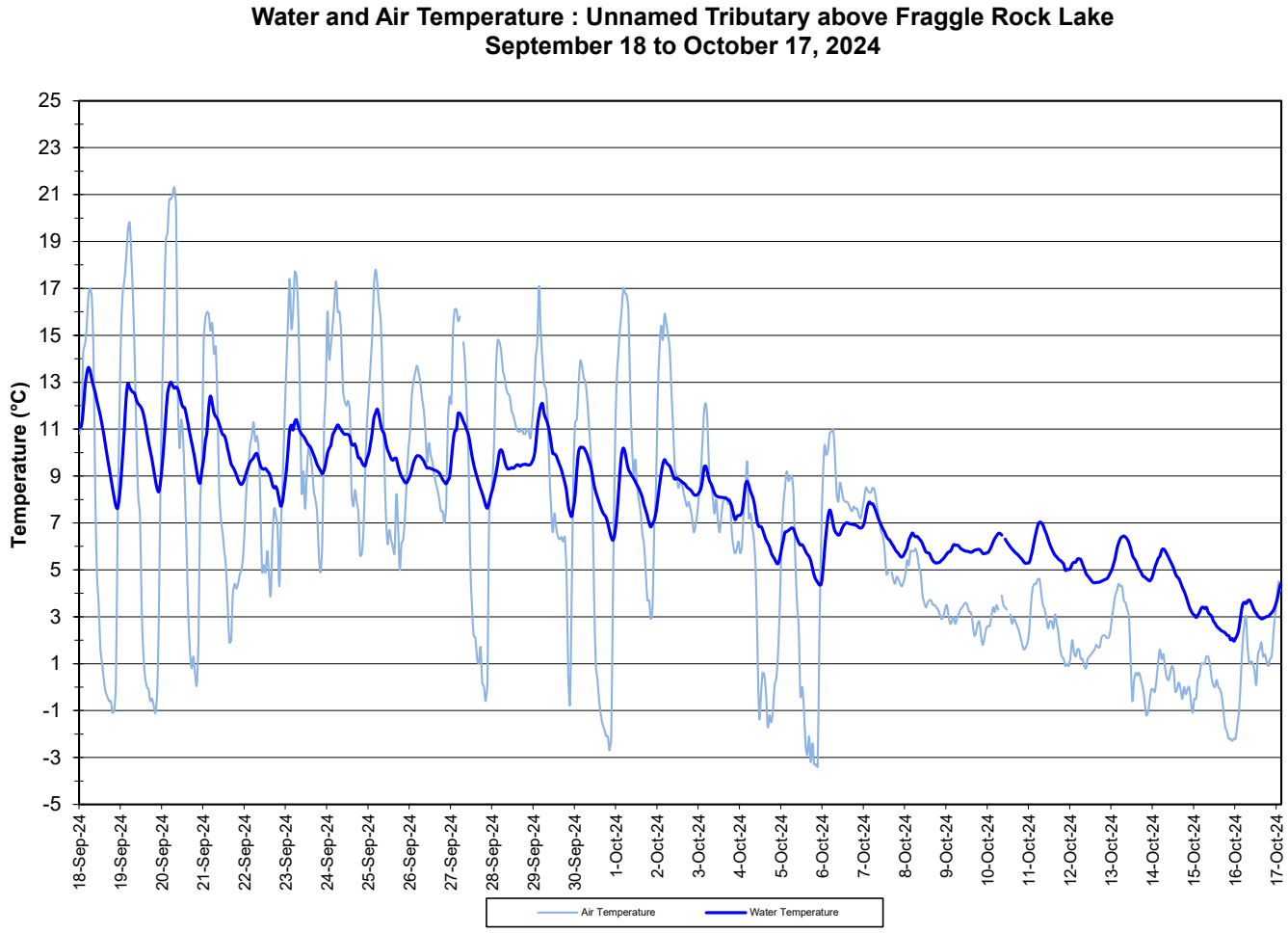

Figure 21: Water and Air Temperature – Fraggle Rock

(Weather data collected from climate station near Moosehead Lake)

- pH ranged from 7.76 to 8.17 pH units (Figure 22). The median pH was 8.04.
- All values during the deployment are within the CCME Guidelines for the Protection of Aquatic Life (between 6.5 and 9 pH units).
- Water Resources Management Division hydrometric data is quality controlled on a less frequent basis than water quality data due to differences in protocols. The hydrometric data shown in this report is provisional and has not undergone quality control checks.

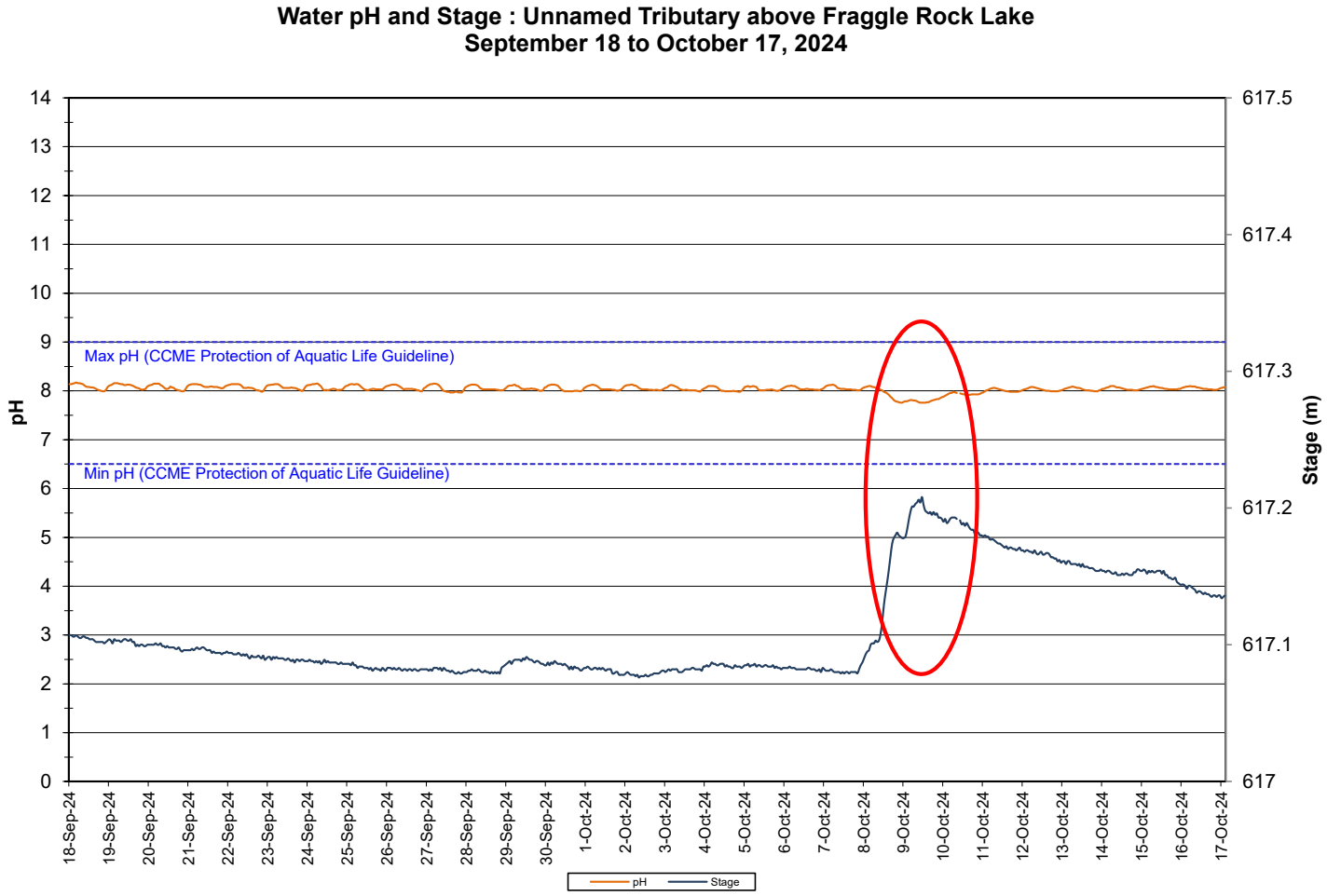

Figure 22: Water pH and Stage – Fraggle Rock

- Specific conductivity ranged from 129.6 to 198.6 µs/cm, throughout the deployment period (Figure 23).
- Sudden decreases in specific conductivity correspond with sudden increases in stage. As more water is added to the system from precipitation, the solids in the water are diluted, decreasing conductivity. Some correlations are identified on the graph in red.
- Water Resources Management Division hydrometric data is quality controlled on a less frequent basis than water quality data due to differences in protocols. The hydrometric data shown in this report is provisional and has not undergone quality control checks.

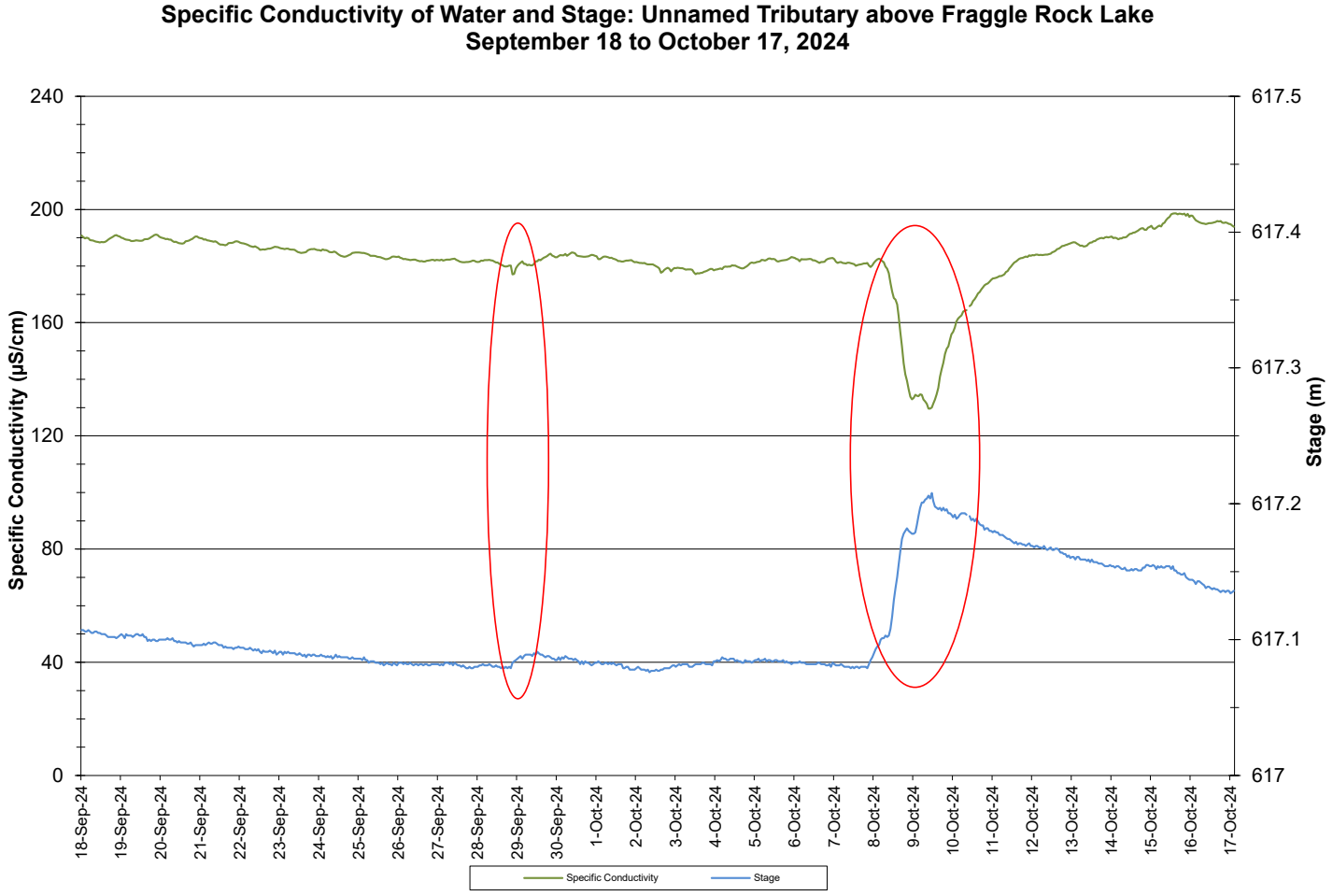

Figure 23: Specific Conductivity and Stage – Fraggle Rock

(Weather data collected from climate station near Moosehead Lake)

- The saturation of dissolved oxygen ranged from 93.1 to 100.4% while the dissolved oxygen ranged from 10.16 to 13.25 mg/l with a median value of 11.48 mg/l (Figure 24).
- Dissolved oxygen increased during the later portion of the deployment period, due to decreasing water temperatures into the Fall.
- All values recorded at Fraggle Rock were above the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Other Life Stages of 6.5 mg/l and the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota of Early Life Stages of 9.5 mg/. The guidelines are indicated in blue on Figure 24.

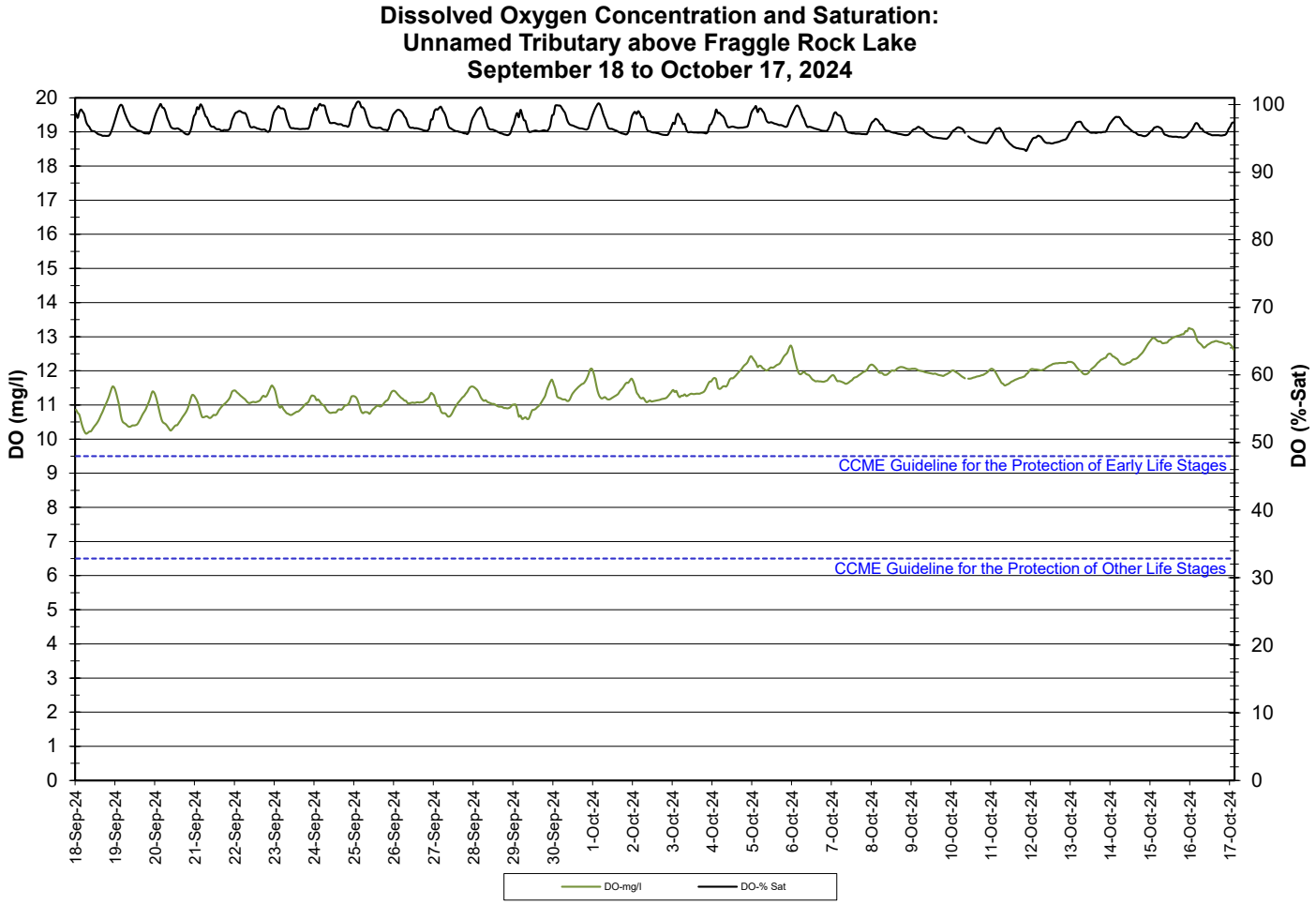

Figure 24: Dissolved Oxygen – Fraggle Rock

- Turbidity values range from 0.1 NTU to 3.7 NTU throughout the deployment period (Figure 25). Turbidity was low during this deployment period. Some small spikes can be noted during precipitation events.

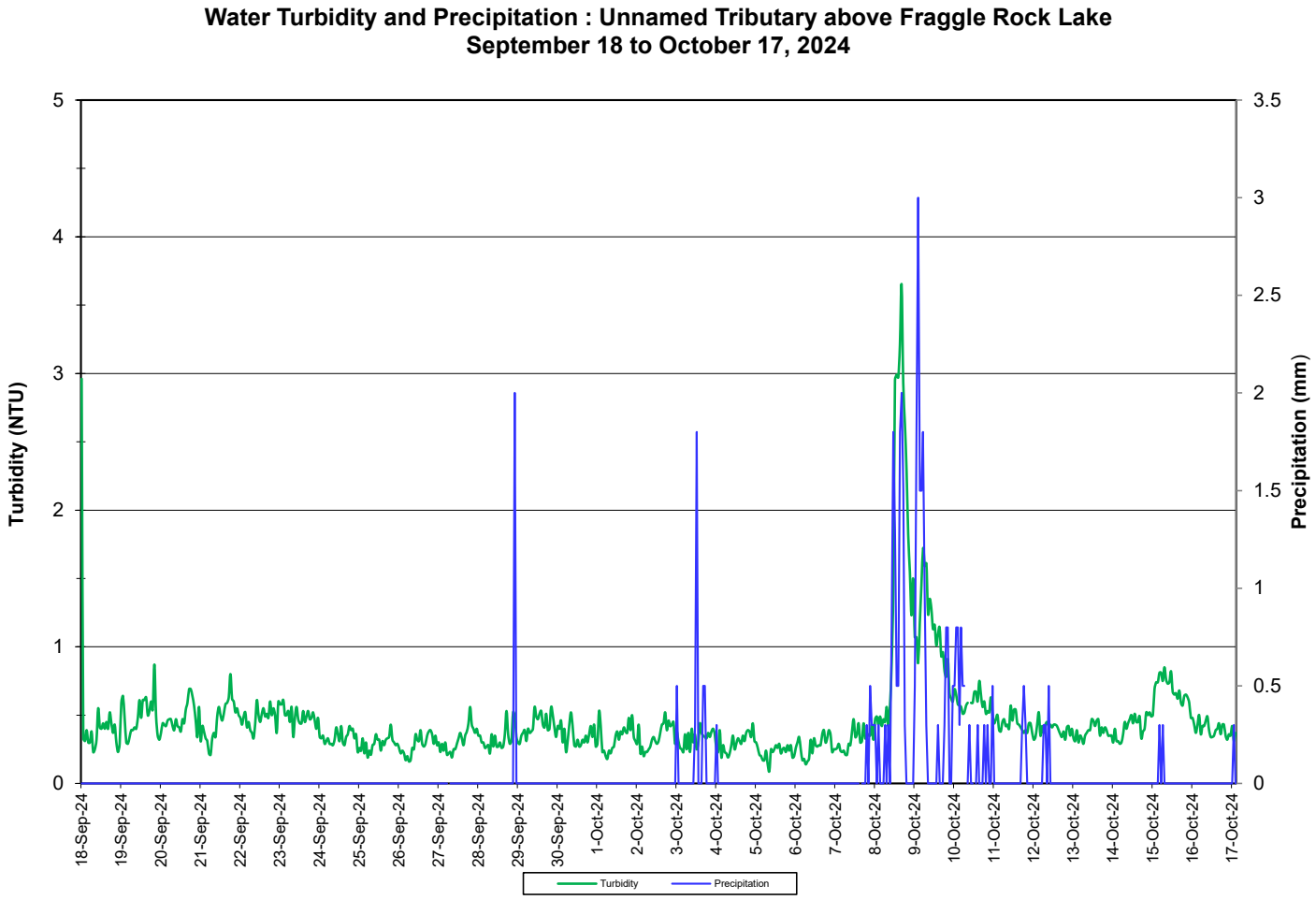

Figure 25: Turbidity and Precipitation – Fraggle Rock

(Weather data collected from climate station near Moosehead Lake)

- Stage and precipitation are graphed below to show the relationship between rainfall and water level at Fraggle Rock (Figure 26).
- Stage decreased slightly until the second week of October, it then increased during the later portion of this deployment period, due to precipitation events.
- Water Resources Management Division hydrometric data is quality controlled on a less frequent basis than water quality data due to differences in protocols. The hydrometric data shown in this report is provisional and has not undergone quality control checks.

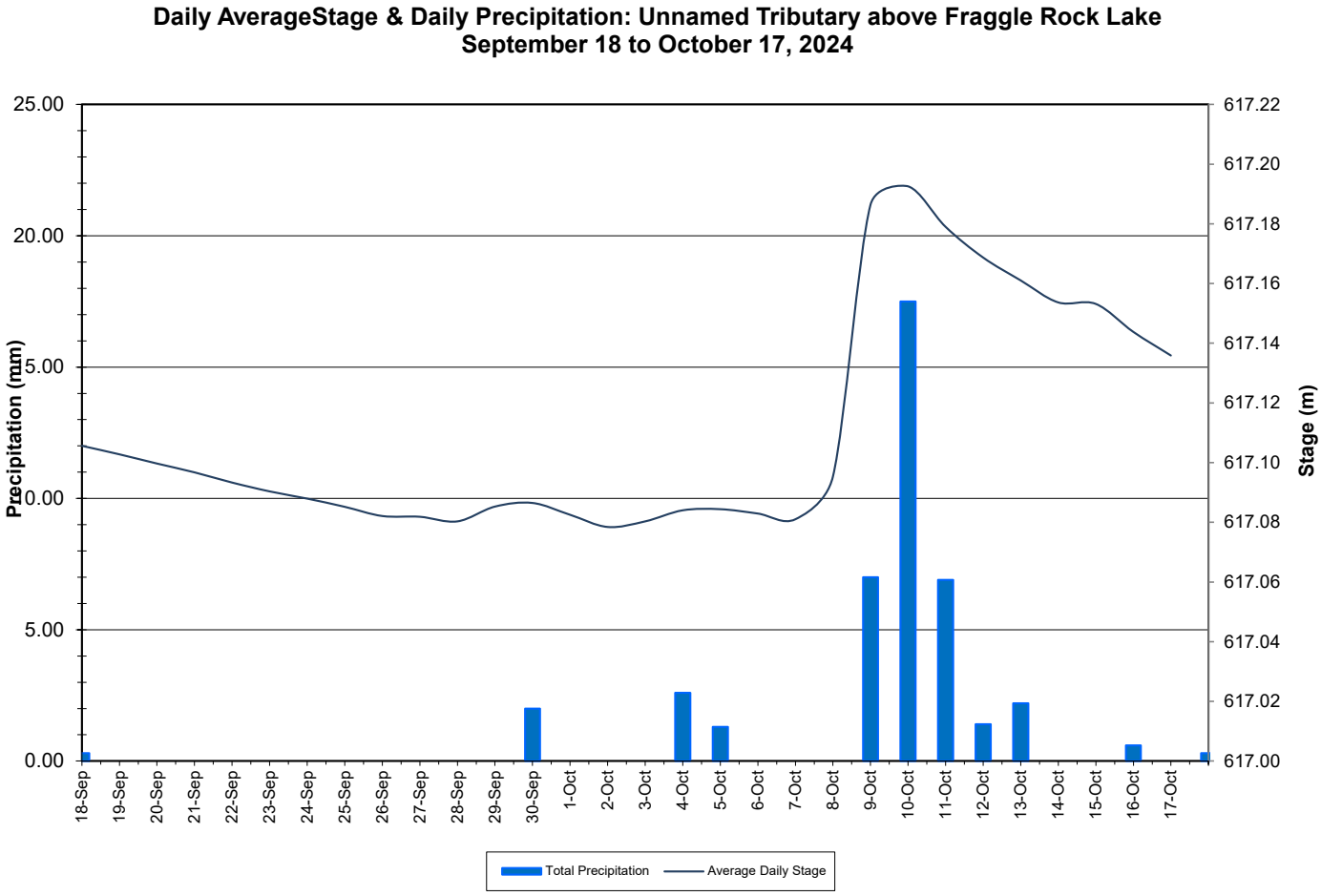

Figure 26: Stage and Precipitation – Fraggle Rock

(Weather data collected from climate station near Moosehead Lake)

Conclusions

- Instruments were deployed between September 17th and 19th, 2024 and removed by October 17th, 2024. This was the third deployment for Dolomite Road, Dumbell Stream and Pumphouse Stream This was the second deployment for Julienne Narrows or Fraggle Rock. Instruments were removed for the winter season at the end of this deployment period.
- In most cases, precipitation events or increases/decreases in water level could be used to explain the data fluctuations. Most 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 air temperature at all stations. Temperature ranged between 1.00 and 15.50°C at these stations during deployment.
- All pH values were within the recommended CCME Guidelines for the Protection of Aquatic Life. pH ranged between 7.28 and 8.69. Fluctuations were noted between day and night.
- Specific conductivity ranged from 73.9 µs/cm to 156.3 µs/cm at the Dolomite Road, 101.9 µs/cm to 121.8 µs/cm at Julienne Narrows, 165.8 µs/cm to 313.1 µs/cm at Dumbell Stream and 624.9 µs/cm to 699.7 µs/cm at Pumphouse Stream and 129.6 µs/cm to 198.6 µs/cm at Fraggle Rock.
- At all stations 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. When dissolved oxygen values are compared to the CCME Guideline for the Protection of Aquatic Life for Cold Water Biota at Early Life Stages of 9.5 mg/L, all stations were above the guideline throughout the deployment with the exception of Pumphouse Stream where values were below the guideline for half the deployment.
- Turbidity at Dolomite Road ranged from 1.4 to 46.1 NTU, 0.9 to 76.1 at Julienne Narrows, 0.3 to 11.9 NTU at Dumbell Stream, 0.7 to 5.0 NTU at Pumphouse Stream, and 0.1 to 3.7 NTU at Fraggle Rock.
- Overall, stage at Dolomite Road and Julienne Narrows decreased, while stage at Pumphouse Stream and Fraggle Rock increased during this deployment period. Dumbell Stream showed an abnormal decrease in stage after significant rainfall, indicating there may be issues with the hydrometric equipment at this location. This will be passed along to WSC for investigation.
- Water Survey Canada operates the hydrometric component of certain stations. 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 for certain stations 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. For stations that are solely operated by the Water Resources Management Division, hydrometric data is quality controlled on a less frequent basis than water quality data due to differences in protocols. The hydrometric data shown in this report for Fraggle Rock is provisional and has not undergone quality control checks.

Prepared by:
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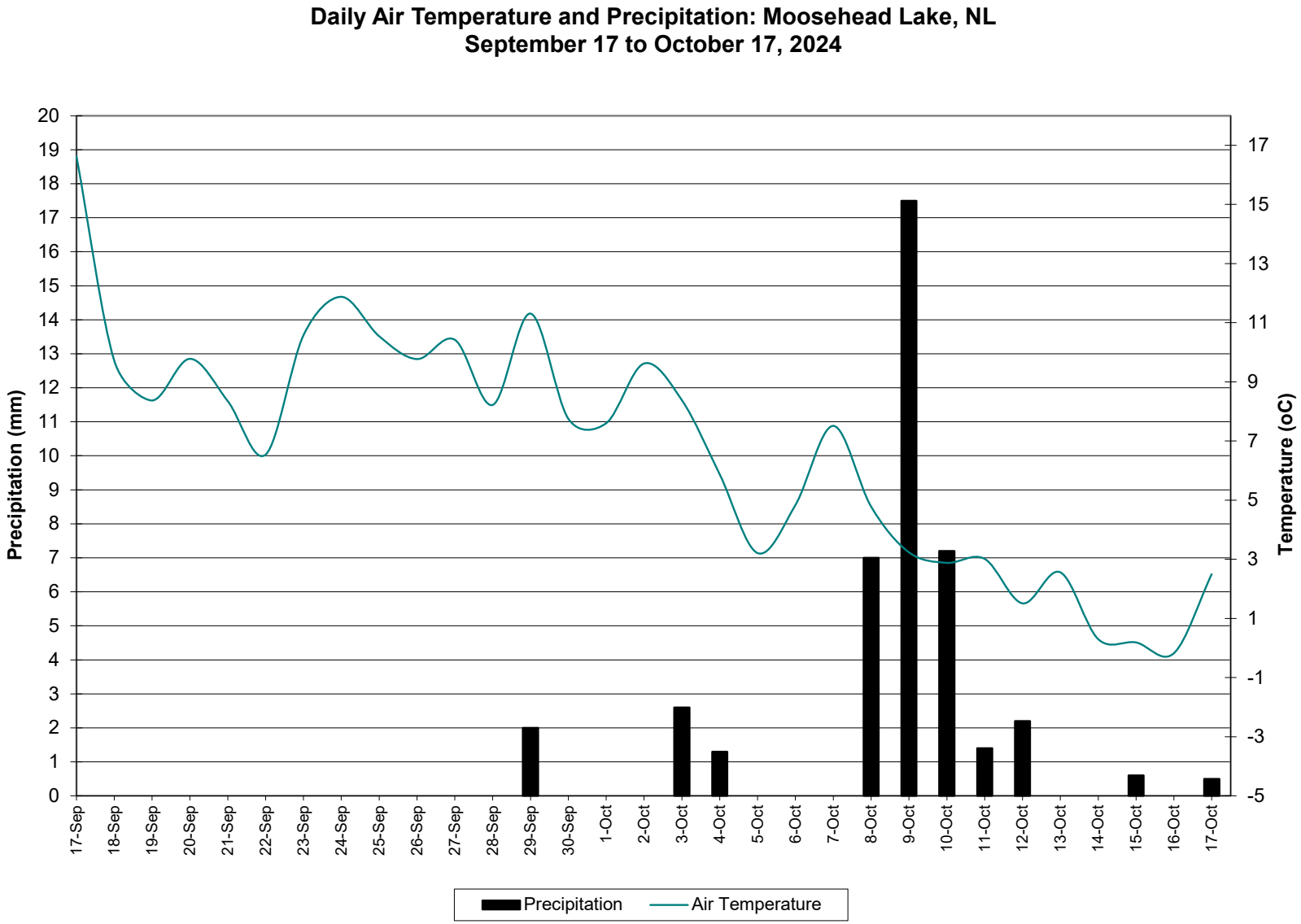
Department of Environment and Climate Change
Water Resources Management Division
Phone:709.896.7981

Appendix 1


Daily Air Temperature and Precipitation: Moosehead Lake, NL
September 17 to October 17, 2024
Precipitation (mm)
Temperature (oC)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
-5
-3
-1
1
3
5
7
9
11
13
15
17
17-Sep
18-Sep
19-Sep
20-Sep
21-Sep
22-Sep
23-Sep
24-Sep
25-Sep
26-Sep
27-Sep
28-Sep
29-Sep
30-Sep
1-Oct
2-Oct
3-Oct
4-Oct
5-Oct
6-Oct
7-Oct
8-Oct
9-Oct
10-Oct
11-Oct
12-Oct
13-Oct
14-Oct
15-Oct
16-Oct
17-Oct
Precipitation
Air Temperature

Appendix 2
QA/QC Grab Sample Results

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW74 DOLOMTE ROAD								
Sampling Date 2024/09/17 15:20								
Matrix W								
Sample # 2024-6325-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	65	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	0.39	0.050	mg/L	N/A	2024/09/30		9657686
Total dissolved solids (calc., EC)	-	73	1.0	mg/L	N/A	2024/10/04		9657883
Inorganics								
Conductivity	-	130	1.0	uS/cm	N/A	2024/10/03	M2C	9676559
Chloride (Cl-)	-	1.7	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)	-	2.9	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Total Alkalinity (Total as CaCO3)	-	68	2.0	mg/L	N/A	2024/10/03	M2C	9676565
Colour	-	13	5.0	TCU	N/A	2024/09/30	EMT	9666773
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/03	M2C	9676571
Total Kjeldahl Nitrogen (TKN)	-	0.19	0.10	mg/L	2024/10/07	2024/10/08	RTY	9686180
Nitrate + Nitrite (N)	-	0.39	0.050	mg/L	N/A	2024/09/30	EMT	9666778
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/09/30	EMT	9666780
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2024/10/01	MCN	9672988
Dissolved Organic Carbon (C)	-	3.1	0.50	mg/L	N/A	2024/09/27	ACK	9667097
Total Organic Carbon (C)	-	3.3	0.50	mg/L	N/A	2024/09/27	ACK	9666813
pH	-	8.01		pH	N/A	2024/10/03	M2C	9676539
Total Phosphorus	-	0.008	0.004	mg/L	2024/10/07	2024/10/07	VKH	9686226
Total Suspended Solids	-	5.6	2.0	mg/L	2024/09/24	2024/09/26	DME	9658234
Turbidity	-	3.6	0.10	NTU	N/A	2024/10/04	M2C	9681454
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2024/10/04	2024/10/04	JEP	9679119
Dup.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)	-	0.039	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)	-	0.0086	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)	-	ND	0.000010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Calcium (Ca)	-	13	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)	-	0.00092	0.00050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Iron (Fe)	-	0.26	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)	-	7.9	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650

(1) POTENTIAL EXCEEDANCE FOR PARAMETER

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW74 DOLOMTE ROAD Sampling Date 2024/09/17 15:20 Matrix W Sample # 2024-6325-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	0.14(1)	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)	-	1.4	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)	-	1.4	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Strontium (Sr)	-	0.019	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Uranium (U)	-	0.00014	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

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW78 JULIENNE NARROWS								
Sampling Date 2024/09/18 12:50								
Matrix W								
Sample # 2024-6329-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	59	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	0.56	0.050	mg/L	N/A	2024/09/30		9657686
Total dissolved solids (calc., EC)	-	66	1.0	mg/L	N/A	2024/10/04		9657883
Inorganics								
Conductivity	-	120	1.0	uS/cm	N/A	2024/10/03	M2C	9676559
Chloride (Cl-)	-	1.6	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)	-	2.2	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Total Alkalinity (Total as CaCO3)	-	52	2.0	mg/L	N/A	2024/10/03	M2C	9676565
Colour	-	8.9	5.0	TCU	N/A	2024/09/30	EMT	9666773
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/03	M2C	9676571
Total Kjeldahl Nitrogen (TKN)	-	0.13	0.10	mg/L	2024/10/07	2024/10/08	RTY	9686180
Nitrate + Nitrite (N)	-	0.56	0.050	mg/L	N/A	2024/09/30	EMT	9666778
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/09/30	EMT	9666780
Nitrogen (Ammonia Nitrogen)	-	0.061	0.050	mg/L	N/A	2024/10/03	MCN	9678625
Dup.Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2024/10/03	MCN	9678625
Dissolved Organic Carbon (C)	-	2.7	0.50	mg/L	N/A	2024/09/27	ACK	9667097
Total Organic Carbon (C)	-	2.8	0.50	mg/L	N/A	2024/09/27	ACK	9666813
pH	-	7.97		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	-	1.0	1.0	mg/L	2024/09/24	2024/09/26	DME	9658234
Turbidity	-	1.1	0.10	NTU	N/A	2024/10/04	M2C	9681454
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)	-	0.0090	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)	-	0.0017	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)	-	ND	0.000010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Calcium (Ca)	-	14	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)	-	5.9	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Manganese (Mn)	-	0.0075	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW78 JULIENNE NARROWS Sampling Date 2024/09/18 12:50 Matrix W Sample # 2024-6329-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
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)	-	1.2	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)	-	1.5	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Strontium (Sr)	-	0.018	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Uranium (U)	-	0.00013	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

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW75 DUMBELL STREAM								
Sampling Date 2024/09/17 17:00								
Matrix W								
Sample # 2024-6326-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	75	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	8.7	0.25	mg/L	N/A	2024/09/30		9657686
Total dissolved solids (calc., EC)	-	91	1.0	mg/L	N/A	2024/10/07		9657883
Inorganics								
Conductivity	-	160	1.0	uS/cm	N/A	2024/10/04	M2C	9681468
Chloride (Cl-)	-	1.5	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Dup.Chloride (Cl-)	-	1.5	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Dup.Bromide (Br-)	-	ND	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Sulphate (SO4)	-	5.7	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Dup.Sulphate (SO4)	-	5.4	1.0	mg/L	N/A	2024/09/26	LKH	9663095
Total Alkalinity (Total as CaCO3)	-	38	2.0	mg/L	N/A	2024/10/04	M2C	9681470
Colour	-	ND	5.0	TCU	N/A	2024/09/30	EMT	9666773
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/04	M2C	9681471
Total Kjeldahl Nitrogen (TKN)	-	ND(2)	0.50	mg/L	2024/10/07	2024/10/09	RTY	9686180
Nitrate + Nitrite (N)	-	8.7	0.25	mg/L	N/A	2024/09/30	EMT	9666778
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/09/30	EMT	9666780
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2024/10/01	MCN	9672988
Dissolved Organic Carbon (C)	-	ND	0.50	mg/L	N/A	2024/09/27	ACK	9667097
Total Organic Carbon (C)	-	1.0	0.50	mg/L	N/A	2024/09/27	ACK	9666813
pH	-	7.68		pH	N/A	2024/10/04	M2C	9681464
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	-	0.18	0.10	NTU	N/A	2024/10/04	M2C	9681454
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)	-	ND	0.0050	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Barium (Ba)	-	0.0029	0.0010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Boron (B)	-	ND	0.050	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Calcium (Ca)	-	17	0.10	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Copper (Cu)	-	ND	0.00050	mg/L	2024/09/25	2024/09/26	MOA	9660342

(2) Due to a high concentration of NOx, the sample required dilution. The detection limit was adjusted accordingly.

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW75 DUMBELL STREAM Sampling Date 2024/09/17 17:00 Matrix W Sample # 2024-6326-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Iron (Fe)	-	ND	0.050	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Magnesium (Mg)	-	7.9	0.10	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Manganese (Mn)	-	ND	0.0020	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Potassium (K)	-	1.3	0.10	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Sodium (Na)	-	0.84	0.10	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Strontium (Sr)	-	0.020	0.0020	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Uranium (U)	-	ND	0.00010	mg/L	2024/09/25	2024/09/26	MOA	9660342
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/09/25	2024/09/26	MOA	9660342

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW79 PUMPHOUSE STREAM								
Sampling Date 2024/09/19 09:00								
Matrix W								
Sample # 2024-6330-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	260	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	43	2.5	mg/L	N/A	2024/09/30		9657686
Total dissolved solids (calc., EC)	-	380	1.0	mg/L	N/A	2024/10/04		9657883
Inorganics								
Conductivity	-	690	1.0	uS/cm	N/A	2024/10/03	M2C	9676559
Chloride (Cl-)	-	7.3	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)	-	41	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Total Alkalinity (Total as CaCO3)	-	98	2.0	mg/L	N/A	2024/10/03	M2C	9676565
Colour	-	ND	5.0	TCU	N/A	2024/09/30	EMT	9666773
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/03	M2C	9676571
Total Kjeldahl Nitrogen (TKN)	-	14(3)	2.5	mg/L	2024/10/07	2024/10/09	RTY	9686180
Nitrate + Nitrite (N)	-	43	2.5	mg/L	N/A	2024/09/30	EMT	9666778
Nitrite (N)	-	0.43	0.010	mg/L	N/A	2024/09/30	EMT	9666780
Nitrogen (Ammonia Nitrogen)	-	16(3)	0.50	mg/L	N/A	2024/10/04	MCN	9678625
Dissolved Organic Carbon (C)	-	0.87	0.50	mg/L	N/A	2024/09/27	ACK	9667097
Total Organic Carbon (C)	-	0.97	0.50	mg/L	N/A	2024/09/27	ACK	9666821
pH	-	7.95		pH	N/A	2024/10/03	M2C	9676539
Total Phosphorus	-	0.008	0.004	mg/L	2024/10/07	2024/10/07	VKH	9686226
Total Suspended Solids	-	1.4	1.0	mg/L	2024/09/24	2024/09/26	DME	9658234
Turbidity	-	2.5	0.10	NTU	N/A	2024/10/04	M2C	9681445
Dup.Turbidity	-	2.4	0.10	NTU	N/A	2024/10/04	M2C	9681445
MERCURY BY COLD VAPOUR AA (WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2024/10/07	2024/10/07	JEP	9681702
Dup.Total Mercury (Hg)	-	ND	0.000013	mg/L	2024/10/07	2024/10/07	JEP	9681702
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Aluminum (Al)	-	0.046	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)	-	0.022	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)	-	ND	0.000010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Calcium (Ca)	-	61	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)	-	0.0015	0.00050	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Iron (Fe)	-	0.15	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

(3) TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW79 PUMPHOUSE STREAM Sampling Date 2024/09/19 09:00 Matrix W Sample # 2024-6330-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Magnesium (Mg)	-	25	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Manganese (Mn)	-	0.090	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)	-	3.7	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)	-	2.5	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Strontium (Sr)	-	0.14	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Uranium (U)	-	0.00059	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

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW76 FRAGGLE ROCK								
Sampling Date 2024/09/18 10:35								
Matrix W								
Sample # 2024-6327-00-SI-SP								
Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	100	1.0	mg/L	N/A	2024/09/26		9657681
Nitrate (N)	-	1.2	0.050	mg/L	N/A	2024/09/30		9657686
Total dissolved solids (calc., EC)	-	110	1.0	mg/L	N/A	2024/10/04		9657883
Inorganics								
Conductivity	-	190	1.0	uS/cm	N/A	2024/10/03	M2C	9676559
Chloride (Cl-)	-	1.7	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)	-	6.6	1.0	mg/L	N/A	2024/09/26	LKH	9663093
Total Alkalinity (Total as CaCO3)	-	84	2.0	mg/L	N/A	2024/10/03	M2C	9676565
Colour	-	8.4	5.0	TCU	N/A	2024/09/30	EMT	9666773
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/03	M2C	9676571
Total Kjeldahl Nitrogen (TKN)	-	0.17	0.10	mg/L	2024/10/07	2024/10/08	RTY	9686180
Nitrate + Nitrite (N)	-	1.2	0.050	mg/L	N/A	2024/09/30	EMT	9666778
Nitrite (N)	-	ND	0.010	mg/L	N/A	2024/09/30	EMT	9666780
Nitrogen (Ammonia Nitrogen)	-	0.058	0.050	mg/L	N/A	2024/10/04	MCN	9678625
Dissolved Organic Carbon (C)	-	2.4	0.50	mg/L	N/A	2024/09/26	ACK	9663631
Total Organic Carbon (C)	-	2.7	0.50	mg/L	N/A	2024/09/27	ACK	9664073
pH	-	8.14		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	-	3.6	2.0	mg/L	2024/09/24	2024/09/26	DME	9658234
Turbidity	-	0.79	0.10	NTU	N/A	2024/10/04	M2C	9681445
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)	-	0.013	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)	-	0.0062	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)	-	ND	0.000010	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Calcium (Ca)	-	19	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)	-	0.063	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)	-	13	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Manganese (Mn)	-	0.024	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

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ADSW76 FRAGGLE ROCK Sampling Date 2024/09/18 10:35 Matrix W Sample # 2024-6327-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Potassium (K)	-	1.4	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)	-	1.1	0.10	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Strontium (Sr)	-	0.017	0.0020	mg/L	2024/09/25	2024/09/25	MTZ	9660650
Total Uranium (U)	-	0.00021	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

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC46 DOLOMITE ROAD Sampling Date 2024/10/16 14:15 Matrix W Sample # 2024-6337-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	35	1.0	mg/L	N/A	2024/10/25		9715376
Nitrate (N)	-	0.094	0.050	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	43	1.0	mg/L	N/A	2024/10/28		9715598
Inorganics								
Conductivity	-	76	1.0	uS/cm	N/A	2024/10/25	M2C	9724060
Chloride (Cl-)	-	1.4	1.0	mg/L	N/A	2024/10/28	LKH	9726212
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2024/10/28	LKH	9726212
Sulphate (SO4)	-	2.0	1.0	mg/L	N/A	2024/10/28	LKH	9726212
Total Alkalinity (Total as CaCO3)	-	33	2.0	mg/L	N/A	2024/10/25	M2C	9724063
Colour	-	17	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/25	M2C	9724065
Total Kjeldahl Nitrogen (TKN)	-	0.15	0.10	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	0.094	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)	-	0.094	0.050	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	3.7	0.50	mg/L	N/A	2024/10/28	ACK	9724814
Total Organic Carbon (C)	-	4.2	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	7.62		pH	N/A	2024/10/25	M2C	9724049
Total Phosphorus	-	ND	0.004	mg/L	2024/10/29	2024/10/30	VKH	9731383
Total Suspended Solids	-	2.6	1.0	mg/L	2024/10/23	2024/10/25	RD4	9718187
Turbidity	-	3.0	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)	-	0.015	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Barium (Ba)	-	0.0082	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Boron (B)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Calcium (Ca)	-	7.8	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Copper (Cu)	-	0.00065	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Iron (Fe)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Magnesium (Mg)	-	3.7	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Manganese (Mn)	-	0.067	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Bureau Veritas Job #: C4X0433
Report Date: 2024/10/31

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC46 DOLOMITE ROAD Sampling Date 2024/10/16 14:15 Matrix W Sample # 2024-6337-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Potassium (K)	-	0.97	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Sodium (Na)	-	1.1	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Strontium (Sr)	-	0.015	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Uranium (U)	-	ND	0.00010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC48 JULIENNE NARROWS Sampling Date 2024/10/17 14:00 Matrix W Sample # 2024-6339-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	61	1.0	mg/L	N/A	2024/10/25		9715376
Nitrate (N)	-	0.59	0.050	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	68	1.0	mg/L	N/A	2024/10/28		9715598
Inorganics								
Conductivity	-	120	1.0	uS/cm	N/A	2024/10/25	M2C	9724060
Chloride (Cl-)	-	1.5	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)	-	2.5	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Total Alkalinity (Total as CaCO3)	-	59	2.0	mg/L	N/A	2024/10/25	M2C	9724063
Colour	-	11	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/25	M2C	9724065
Total Kjeldahl Nitrogen (TKN)	-	0.11	0.10	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	0.59	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)	-	ND	0.050	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	2.7	0.50	mg/L	N/A	2024/10/25	ACK	9722458
Total Organic Carbon (C)	-	3.1	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	7.94		pH	N/A	2024/10/25	M2C	9724049
Total Phosphorus	-	ND	0.004	mg/L	2024/10/29	2024/10/30	VKH	9731383
Total Suspended Solids	-	2.6	1.0	mg/L	2024/10/23	2024/10/25	ISM	9718367
Turbidity	-	1.5	0.10	NTU	N/A	2024/10/28	M2C	9728055
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)	-	0.021	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Barium (Ba)	-	0.0019	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Boron (B)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Calcium (Ca)	-	14	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Copper (Cu)	-	0.00079	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Iron (Fe)	-	0.064	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Magnesium (Mg)	-	6.2	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Manganese (Mn)	-	0.026	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Bureau Veritas Job #: C4X0433
Report Date: 2024/10/31

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC48 JULIENNE NARROWS Sampling Date 2024/10/17 14:00 Matrix W Sample # 2024-6339-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Potassium (K)	-	1.2	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Sodium (Na)	-	1.6	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Strontium (Sr)	-	0.018	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Uranium (U)	-	0.00013	0.00010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC45 DUMBELL STREAM Sampling Date 2024/10/16 11:00 Matrix W Sample # 2024-6336-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	140	1.0	mg/L	N/A	2024/10/25		9715376
Nitrate (N)	-	18	1.0	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	170	1.0	mg/L	N/A	2024/10/28		9715598
Inorganics								
Conductivity	-	300	1.0	uS/cm	N/A	2024/10/25	M2C	9724060
Chloride (Cl-)	-	3.0	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)	-	15	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Total Alkalinity (Total as CaCO3)	-	46	2.0	mg/L	N/A	2024/10/25	M2C	9724063
Colour	-	ND	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/25	M2C	9724065
Total Kjeldahl Nitrogen (TKN)	-	0.70	0.50	mg/L	2024/10/30	2024/10/30	RTY	9733572
Dup.Total Kjeldahl Nitrogen (TKN)	-	0.98	0.50	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	18	1.0	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)	-	0.11	0.050	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	ND	0.50	mg/L	N/A	2024/10/28	ACK	9724814
Total Organic Carbon (C)	-	0.69	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	7.78		pH	N/A	2024/10/25	M2C	9724049
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	RD4	9718187
Turbidity	-	0.19	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	2024/10/24	2024/10/24	MOA	9721142
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Barium (Ba)	-	0.0068	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Boron (B)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Calcium (Ca)	-	31	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Copper (Cu)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Iron (Fe)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Magnesium (Mg)	-	14	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC45 DUMBELL STREAM Sampling Date 2024/10/16 11:00 Matrix W Sample # 2024-6336-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Potassium (K)	-	2.1	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Sodium (Na)	-	1.4	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Strontium (Sr)	-	0.039	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Uranium (U)	-	ND	0.00010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC44 PUMPHOUSE STREAM Sampling Date 2024/10/16 09:30 Matrix W Sample # 2024-6335-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	250	1.0	mg/L	N/A	2024/10/25		9715376
Nitrate (N)	-	37	2.5	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	370	1.0	mg/L	N/A	2024/10/28		9715598
Inorganics								
Conductivity	-	670	1.0	uS/cm	N/A	2024/10/25	M2C	9724060
Chloride (Cl-)	-	7.7	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)	-	43	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Total Alkalinity (Total as CaCO3)	-	100	2.0	mg/L	N/A	2024/10/25	M2C	9724063
Colour	-	ND	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/25	M2C	9724065
Total Kjeldahl Nitrogen (TKN)	-	18	5.0	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	37	2.5	mg/L	N/A	2024/10/28	EMT	9724127
Nitrite (N)	-	0.34	0.010	mg/L	N/A	2024/10/28	EMT	9724129
Nitrogen (Ammonia Nitrogen)	-	15	0.50	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	1.1	0.50	mg/L	N/A	2024/10/25	ACK	9722458
Total Organic Carbon (C)	-	1.6	0.50	mg/L	N/A	2024/10/25	ACK	9722446
Dup.Total Organic Carbon (C)	-	1.4	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	7.89		pH	N/A	2024/10/25	M2C	9724049
Total Phosphorus	-	0.010	0.004	mg/L	2024/10/29	2024/10/30	VKH	9731383
Total Suspended Solids	-	8.0	1.0	mg/L	2024/10/23	2024/10/25	RD4	9718187
Turbidity	-	9.4	0.10	NTU	N/A	2024/10/28	M2C	9728029
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)	-	0.12	0.0050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Barium (Ba)	-	0.021	0.0010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Boron (B)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Calcium (Ca)	-	61	0.10	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Copper (Cu)	-	0.0030	0.00050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Iron (Fe)	-	0.39	0.050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Magnesium (Mg)	-	25	0.10	mg/L	2024/10/24	2024/10/24	MTZ	9721132

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Bureau Veritas Job #: C4X0433
Report Date: 2024/10/31

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

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC44 PUMPHOUSE STREAM Sampling Date 2024/10/16 09:30 Matrix W Sample # 2024-6335-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Manganese (Mn)	-	0.28	0.0020	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Potassium (K)	-	3.6	0.10	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Sodium (Na)	-	2.6	0.10	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Strontium (Sr)	-	0.16	0.0020	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Uranium (U)	-	0.00066	0.00010	mg/L	2024/10/24	2024/10/24	MTZ	9721132
Total Zinc (Zn)	-	0.0054	0.0050	mg/L	2024/10/24	2024/10/24	MTZ	9721132

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC47 FRAGGLE ROCK Sampling Date 2024/10/17 13:10 Matrix W Sample # 2024-6338-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF WATER								
Calculated Parameters								
Hardness (CaCO3)	-	100	1.0	mg/L	N/A	2024/10/25		9715376
Nitrate (N)	-	1.1	0.050	mg/L	N/A	2024/10/29		9715387
Total dissolved solids (calc., EC)	-	110	1.0	mg/L	N/A	2024/10/28		9715598
Inorganics								
Conductivity	-	190	1.0	uS/cm	N/A	2024/10/25	M2C	9724060
Chloride (Cl-)	-	1.7	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)	-	7.7	1.0	mg/L	N/A	2024/10/25	LKH	9723571
Total Alkalinity (Total as CaCO3)	-	83	2.0	mg/L	N/A	2024/10/25	M2C	9724063
Colour	-	11	5.0	TCU	N/A	2024/10/28	EMT	9724125
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2024/10/25	M2C	9724065
Total Kjeldahl Nitrogen (TKN)	-	0.16	0.10	mg/L	2024/10/30	2024/10/30	RTY	9733572
Nitrate + Nitrite (N)	-	1.1	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)	-	ND	0.050	mg/L	N/A	2024/10/28	MCN	9727911
Dissolved Organic Carbon (C)	-	2.8	0.50	mg/L	N/A	2024/10/28	ACK	9724814
Total Organic Carbon (C)	-	3.5	0.50	mg/L	N/A	2024/10/25	ACK	9722446
pH	-	8.06		pH	N/A	2024/10/25	M2C	9724049
Total Phosphorus	-	ND	0.004	mg/L	2024/10/29	2024/10/30	VKH	9731383
Total Suspended Solids	-	1.0	1.0	mg/L	2024/10/23	2024/10/25	ISM	9718367
Turbidity	-	0.96	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)	-	0.012	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Antimony (Sb)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Arsenic (As)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Barium (Ba)	-	0.0054	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Boron (B)	-	ND	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Calcium (Ca)	-	18	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Chromium (Cr)	-	ND	0.0010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Copper (Cu)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Iron (Fe)	-	0.066	0.050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Lead (Pb)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Magnesium (Mg)	-	13	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Manganese (Mn)	-	0.062	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142

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Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
AGMC47 FRAGGLE ROCK Sampling Date 2024/10/17 13:10 Matrix W Sample # 2024-6338-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (WATER)								
Metals								
Total Nickel (Ni)	-	ND	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Phosphorus (P)	-	ND	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Potassium (K)	-	1.3	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Selenium (Se)	-	ND	0.00050	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Sodium (Na)	-	1.2	0.10	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Strontium (Sr)	-	0.017	0.0020	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Uranium (U)	-	0.00022	0.00010	mg/L	2024/10/24	2024/10/24	MOA	9721142
Total Zinc (Zn)	-	ND	0.0050	mg/L	2024/10/24	2024/10/24	MOA	9721142

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