

APPENDIX A

Kerr Wood Leidal Hydrology Report



Technical Memorandum

DATE: November 23, 2023

TO: Amy Peters, RPBio, PAg, ASCT, Water Quality and Resource Coordinator
City of Abbotsford

FROM: Cassia Armstrong

RE: 2022 - 2023 AMWSC Bevan Environmental
Our File 510.205-300

1. Introduction

This memorandum describes station maintenance and flow measurements performed during the 2022 - 2023 monitoring program at Downes Creek, Fishtrap Creek and Horn Creek in the City of Abbotsford (COA). The monitoring program ran from May 1, 2022 - April 30, 2023 and included:

- Continuous data collection of water levels and estimated calculated flows, posted on FlowWorks.
- Weekly data review for quality control and quality assurance.
- Monthly site visits and offset checks.
- Performance of flow measurements.
- Development of a stage-discharge relationship that is applicable during low to mid-high flow periods.

2. Flow Monitoring

Water level is measured every minute at the Horn Creek and Fishtrap Creek stations and transmitted to the COA SCADA system, which forwards the data via FTP to FlowWorks. The Downes Creek station measures the water level every 5 minutes and uploads the data to FlowWorks via cellular telemetry. KWL visited the site monthly to perform offset checks which were updated in FlowWorks by KWL and emailed to the COA to be updated in their SCADA system.

Enclosures A (Downes Creek), B (Fishtrap Creek), and C (Horn Creek) contain the following record of work done at both hydrometric stations:

- Site Visit Record
- Flow Measurement Record
- Stage-Discharge Curve
- Annual Flow Data Graph
- Site Visit Photos

Please note that when sensor data is not available, the value recorded in FlowWorks for stage and discharge is null.



2.1. Stage-Discharge Relationships

Stage-discharge relationships (SDRs) are determined by measuring flows at known water levels. Measured flows are calculated by measuring the depths and velocities of the stream and applying the velocity-area method. At least five measurements at different flow magnitudes should be conducted to construct a reliable stage-discharge relationship. Once a stage-discharge relationship has been developed, at least two measurements should be taken every year to maintain the relationship and confirm that the established relationship remains valid.

Kerr Wood Leidal Associates Ltd. (KWL) uses the method of maximum likelihood to develop stage-discharge curves. Flow measurements are assigned an accuracy value based on hydrometric standards published by the BC Ministry of Environment. Maximizing the probability of the observed measurements generates a power law curve and the equation for that curve becomes the rating curve to calculate discharge.

2.2. Quality Control and Quality Assurance

Confidence in the recorded monitoring data is improved by frequently measuring the offset between the staff gauge and the logger data. This offset represents the difference between the depth recorded by the pressure transducer (PT) and the actual depth on the staff gauge. The offset can be affected by factors including sensor drift, physical movement of the sensor, or impact from debris movement.

Monthly maintenance visits are scheduled to measure offsets, clean instruments, and ensure that the station equipment is functioning properly. The data is reviewed weekly on FlowWorks to determine if a station visit outside of the regular maintenance schedule is needed.

2.3. Downes Creek

On April 23, 2019, Downes Creek hydrometric station was installed at 32438 Downes Rd (49.074416 / -122.326560). The primary function of the site is to ensure flow in the stream does not go below 10% of established baseline flows to protect aquatic life. KWL staff continue to aim for a complete range of flow measurements with special focus placed on the lower end of the stage-discharge relationship to monitor changes in the flow pattern at low flows and confirm what the baseline flows are at the site.

The Downes Creek hydrometric station was installed on the south side of Downes Rd at the most downstream culvert inlet of a double culvert crossing. This was the best location of the nearby options considered in 2019, described in the memorandum for the first year's program.

Historically, the stage-discharge relationship at this site has been stable. As discussed in prior reports, incidents of stage fluctuations have occurred where no rainfall has been documented. These events are generally brief, returning to baseline within a short period. In general, stage fluctuations have been attributed to the presence of overgrowing vegetation, beaver activity, and backwatering conditions upstream of the station.

KWL staff collected one flow measurement using the FlowTracker2 Acoustic Doppler Velocimeter (ADV). The flow measured on June 14, 2022 was 0.082 m³/s at a stage of 0.278 m. Field staff did not observe any changes to the controls at the creek throughout the 2022 summer and fall seasons. In this reporting period, the lowest flow in the summer months was 0.060 m³/s on July 22, 2022.

From review of the data record as well as field observations, it appears that a shift in the flow pattern occurred on December 24, 2022, triggered by a rainfall event. It is suspected that this rainfall event is when a change occurred downstream of the site, such as sediment or debris buildup that may have introduced a backwatering and slow drainage effect at the site. The stage shift following this event slowly



drains through the winter and spring, returning to baseline by the end of the reporting period. To correct for this shift, an interpolated offset with a peak of 0.097m was applied to the stage for calculating discharge. The resulting discharge is consistent with field observations, however, all reported discharge following December 24, 2022 should be considered "estimated" at all stages and is represented in the hydrograph as "Estimated Effective Discharge", see appendix. Further flow measurements are needed to confirm whether the changes to the stage-discharge relationship have persisted into the 2023-24 reporting period.

KWL believes that the rating curve may require re-development for a full range of flow measurements. It is recommended that five flow measurements be collected at a range of low, middle, and high stages, with emphasis on low and baseflows to develop the low end of the rating curve in line with project goals.

2.4. Fishtrap Creek

On January 7, 2021, KWL staff installed the Fishtrap hydrometric monitoring station at a location 200 m west of Mt. Lehman Rd on the Marshall Road Extension Rd (49.038982 / -122.380786). The site is slightly downstream (10 m) from a newly constructed double box culverted bridge. A staff gauge and pressure transducer (PT) are mounted to the downstream side of a large round culvert. The monitoring station has been powered from a nearby power pole and connected to the SCADA system since June 2021.

The primary objective of the monitoring station is to act as a trigger to augment creek baseflows if discharge gets below 11 L/s for an extended period until the creek is established enough to maintain aquatic life. However as outlined in last year's report, the 2020 construction of a road and dual-box culvert created unfavourable flow monitoring conditions in this reach of Fishtrap Creek. These conditions include and are not limited to the following:

- Large pooling body of water at gauging and sensor location.
- Deep, standing water.
- Very soft mucky streambed.
- Heavy grasses present throughout stream.
- Minimal gradient contributing to slow moving and backwatering conditions.
- Presence of beaver activity.
- Downstream area inundated with fallen debris and small braided channels.
- No suitable cross-section location for flow measurements.

On June 10, 2022, KWL staff met with Amy Peters (COA) at Fishtrap Creek to thoroughly communicate the site challenges, understand COA data priorities and options to address site challenges and meet COA data objectives. It was determined from this meeting that the monitoring station at Fishtrap Creek would operate as a water level site going forward. KWL would continue regular QA/QC and site maintenance visits but would no longer aim to complete flow measurements. The City of Abbotsford communicated they would run the mitigation pumps during the summer months to meet their environmental guidelines to provide adequate baseflow for the survival of aquatic life.

In this reporting period, the lowest stage recorded was 0.0203 m on October 20, 2022 (drought conditions, 0 mm rain recorded at local rain gauges in the week prior). The highest stage recorded was 2.124 m on December 28, 2022 (total of 105-138 mm rainfall recorded at nearby rain gauges in week prior). Staff observed very slow-moving conditions at both low and high stages during regular maintenance visits. The stage at Fishtrap Hydrometric Station will generally increase during rainfall events, however, drainage is difficult to predict due to the conditions listed above. There is no clear baseline stage at this station.



It is recommended that Fishtrap Hydrometric Station continues to operate as a level site only due to the continued unfavourable flow monitoring conditions. It is also recommended that mitigation pumps continue to be turned on during summer months and may also need to be turned on outside of summer months if conditions are unseasonably dry to meet environmental guidelines.

It is possible that this site could be used to monitor for high water conditions. Some nearby residents expressed an interest in this when they approached KWL field staff while they were conducting site monitoring. Some setup would be required to correlate creek water levels with key high water elevations.

2.5. Horn Creek

KWL has monitored Horn Creek since 2014. In previous years the COA requested a stage-discharge relationship be developed for very low flows to identify when Horn Creek flows are below 25 L/s as the COA is required to activate flow augmentation wells to maintain flows above this threshold.

In the 2022/23 program, KWL staff obtained two flow measurements with a concentration on the lower section of the stage-discharge relationship. All measurements were performed using a FlowTracker 2 Acoustic Doppler Velocimeter (ADV).

Based on field observations and data review KWL staff hypothesized that there might be potential shifting and movement of sediment in the creek in low flow conditions. KWL staff therefore strategically obtained measurements when the stage-discharge data indicated that flow was near the 25 L/s threshold. Two flow measurements supported that the flow rate did not go below the required threshold during this reporting period. The results for the two flow measurements obtained are shown in Table 1 below.

Table 1: Flow Measurements Obtained

Date	Stage	Discharge
June 14, 2022	0.699 m	61 L/s
October 12, 2022	0.677 m	36 L/s

As previously communicated in past annual reports, Horn Creek has active sediment movement and erosion during storm events. During this reporting period, there was some shifting with sediment both depositing and eroding away at different times. The subtle shifts can have a significant impact on the low end of the rating curve, as demonstrated by the significant difference between the two measurements obtained in this reporting period. In prioritizing the project objective of focusing accuracy at the low end of the curve, the curve fit of the rating curve at mid and high-flow measurements from past reporting periods is compromised to improve the accuracy of the curve at the low end. Overall, no major shifting has been identified during the reporting period, and one discharge equation is being submitted for the entire period. Field staff did observe some changes to the flow patterns in the spring of 2023 that may indicate a regime change and the need for an update to the stage-discharge relationship.

It is recommended that 5 flow measurements be completed next year with the same primary focus on the low end. One or two of those flow measurements should be collected at the mid to high range to increase confidence in the overall SDR. Communication between COA and KWL staff should continue during low flow periods to provide input into the operation of flow augmentation pump when warranted. In 2023/24, KWL staff will continue to monitor shifts to the channel.



3. Recommendations and Closing

KWL recommends the following steps be taken in 2023/24:

- Continue to perform monthly offset checks and weekly data reviews.
- If data analysis is to be performed using the 2022/23 Bevan flow record, the 'Final Stage' and 'Final Discharge' FlowWorks channels should be used because these have been corrected for all offsets and data errors that occurred due to sensor shifts.
- At Downes Creek:
 - re-develop rating curve with five flow measurements to investigate the impact of identified shift at all stages.
- At Fishtrap Creek:
 - continue to monitor water level at the location and monitor upstream and downstream beaver dams, and subsequent sediment and vegetation accumulation downstream of station.
- For Horn Creek:
 - at the beginning of the fish season, verify the 2022/23 low flow relationship;
 - continue communicating between COA and KWL staff during low flow periods to provide input into operation of flow augmentation pump when warranted; and
 - complete minimum five flow measurements to develop a comprehensive stage-discharge relationship.



Closure

We trust that this memorandum has provided useful information. Should you have any questions, please do not hesitate to contact the undersigned.

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:

Reviewed by:

Cassia Armstrong
Hydrometric Technician

Caroline Gort, P.Eng.
Technical Reviewer

CJA/cg/mib

Encl.: A – Downes Creek Monitoring Records
B – Fishtrap Creek Monitoring Records
C – Horn Creek Monitoring Records

Statement of Limitations

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Revision History

Revision #	Date	Status	Revision Description	Author
0	November 23, 2023	Final		CJA





Missing Data Summary

Station	Period (yyyy-mm-dd at hh:mm, time in PST, 24h format)	Reason
Fishtrap Creek	• 2022-05-21 at 19:55 to 2022-05-30 at 07:56 • 2022-08-17 at 05:55 to 2022-08-18 at 11:56 • 2022-11-01 at 07:55 to 2022-11-02 at 18:56 • 2022-11-25 at 04:55 to 2022-11-28 at 08:56 • 2023-01-05 at 06:55 to 2023-01-05 at 07:56 • 2023-01-29 at 04:55 to 2023-01-30 at 09:56 • 2023-02-10 at 12:55 to 2023-02-12 at 02:56	SCADA not communicating with FlowWorks
	• 2022-04-15 at 02:48 to 2022-05-10 at 13:34 • 2022-11-13 at 18:18 to 2022-12-05 at 21:40 • 2023-03-07 at 02:26 to 2023-03-29 at 08:48 • 2023-04-12 at 04:19 to 2023-04-21 at 15:05	Flatline resolved by power cycling station
Horn Creek	• 2022-05-21 at 19:55 to 2022-05-30 at 07:56 • 2022-08-17 at 05:55 to 2022-08-18 at 11:56 • 2022-11-01 at 07:55 to 2022-11-02 at 18:56 • 2022-11-25 at 04:55 to 2022-11-28 at 08:56 • 2023-01-05 at 06:55 to 2023-01-05 at 07:56 • 2023-01-29 at 04:55 to 2023-01-30 at 09:56 • 2023-02-10 at 12:55 to 2023-02-12 at 02:56	SCADA not communicating with FlowWorks



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Enclosure A

Downes Creek Flow Station



Downes Creek - May 2022 - April 2023

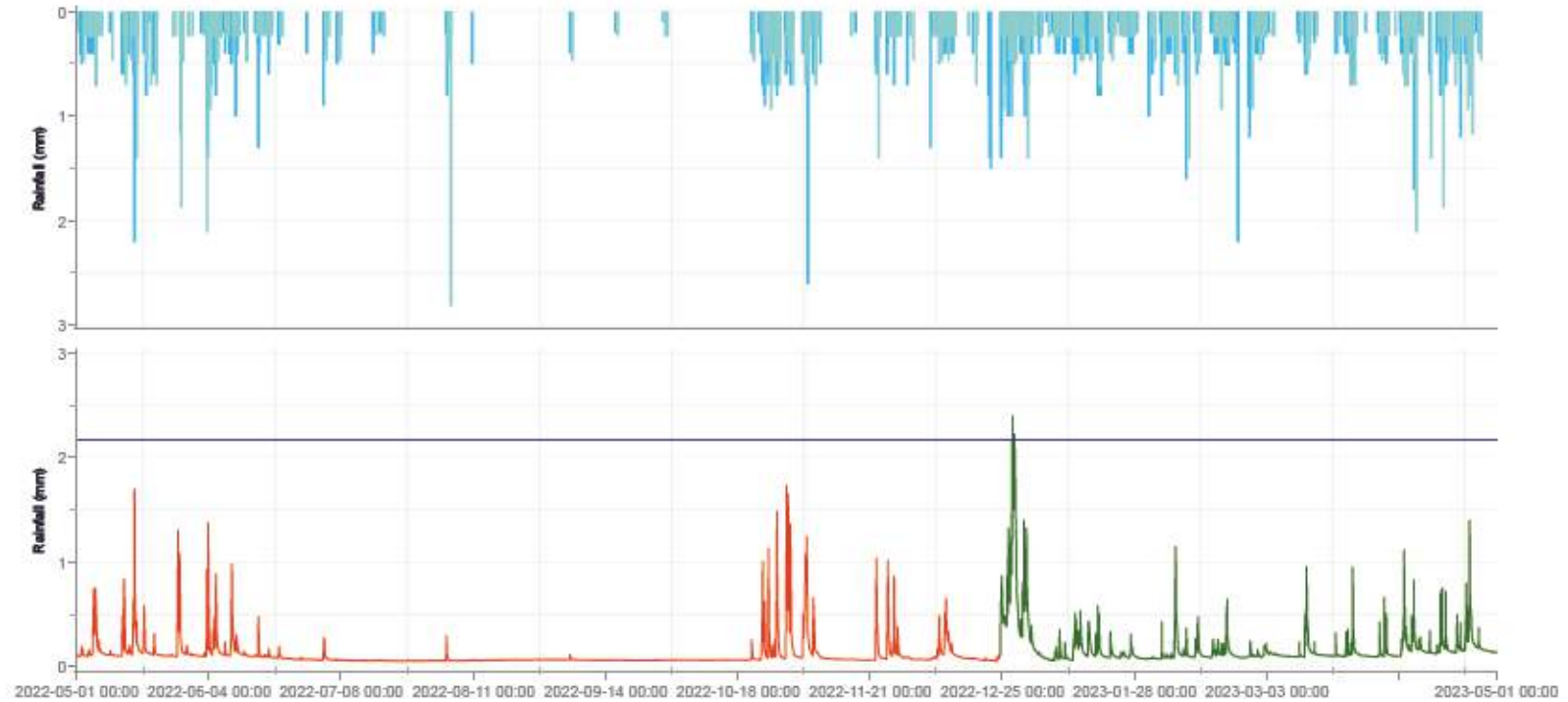
Date	Time PST	Staff Gauge Reading	Data Logger Reading	Offset	Discharge Measurement	Photos	Desiccant	Battery	Comments
	(24hh:mm)	(m)	(m)	(m)	(m ³ /s)				
May 31, 2022	15:50	0.279	0.262	0.017		Yes	OK	OK	
Jun 14, 2022	10:00	0.278	0.259	0.019	0.0815 / 0.0784	Yes	OK	OK	2x ADV flow measurements
Jul 22, 2022	16:30	0.236	0.221	0.015		Yes	Changed	OK	Had to clear blackberry bushes to access site
Aug 17, 2022	12:20	0.248	0.229	0.019		Yes	OK	OK	
Oct 12, 2022	7:40	0.248	0.225	0.023		Yes	OK	OK	
Oct 13, 2022	8:15	N/A	0.245	N/A		Yes	Changed	Changed	
Dec 01, 2022	8:30	0.260	0.238	0.022		Yes	OK	OK	Snow on ground
Dec 15, 2022	13:00	0.254	0.241	0.013		Yes	OK	Changed	
Jan 18, 2023	14:40	0.438	0.421	0.017		Yes	OK	OK	
Feb 23, 2023	15:25	0.331	0.314	0.017		Yes	OK	Changed	
Mar 30, 2023	16:15	0.306	0.290	0.016		Yes	OK	OK	
Apr 26, 2023	10:55	0.350	0.333	0.017		Yes	OK	OK	

Abby MacLure Rain / Downes Creek / Mt Lehman Elementary Rain Gauge

Start Date: 2022-05-01 00:00

End Date: 2023-04-30 23:59

Abby MacLure Rain / Rainfall (mm) Mt Lehman Elementary Rain Gauge / Rainfall (mm) Downes Creek / Estimated Effective Discharge (m3/s) Downes Creek / Final Discharge (m3/s)
Downes Creek / Upper Confidence Limit (m3/s)





Site Photographs – Downes Creek



Photo 1: Upstream at Downes Creek
May 31, 2022



Photo 2: Upstream at Downes Creek
Jul 22, 2022



Photo 3: Upstream at Downes Creek
Jan 13, 2023



Photo 4: Upstream at Downes Creek
Apr 26, 2023



Photo 5: Downstream at Downes Creek
May 31, 2022



Photo 6: Downstream at Downes Creek
Jul 22, 2022



Site Photographs – Downes Creek



Photo 7: Downstream at Downes Creek
Jan 13, 2023



Photo 8: Downstream at Downes Creek
Apr 26, 2023



Photo 9: Staff Gauge at Downes Creek
May 31, 2022



Photo 10: Staff Gauge at Downes Creek
Jul 22, 2022



Photo 11: Staff Gauge at Downes Creek
Jan 13, 2023

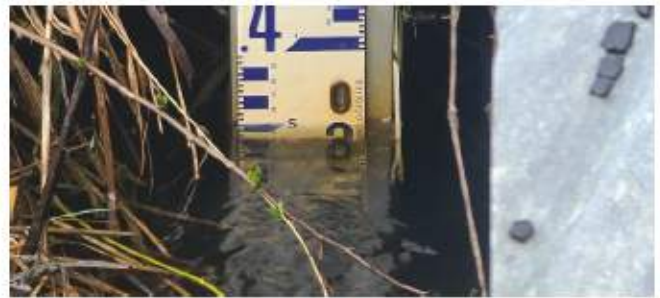


Photo 12: Staff Gauge at Downes Creek
Apr 26, 2023

Flow Measurement Record

Downes Creek

Date:	Jun 14, 2022				
Flow Meter Model:	Sontek ADV Flowtracker2	Sensor:	0.259	m	at 10:00 AM PST
Measurement Start Time:	10:00 AM	PST	Staff Gauge:	0.278	m at 10:00 AM
Measurement End Time:	10:30 AM	PST		0.278	m at 10:30 AM
Total Width:	2.60	m	Average Velocity:	0.349	m/s
Total Area:	0.23	m ²	Total Discharge:	0.082	m ³ /s

X (m)	Width (m)	Average Velocity (m/s)	Average Depth (m)	Area (m ²)	Discharge (m ³ /s)	Field Notes
0.000						Right Bank
0.200	0.15	0.23	0.060	0.01	0.002	
0.300	0.10	0.33	0.080	0.01	0.003	
0.400	0.10	0.41	0.080	0.01	0.003	
0.500	0.10	0.40	0.080	0.01	0.003	
0.600	0.10	0.35	0.080	0.01	0.003	
0.700	0.10	0.04	0.110	0.01	0.000	
0.800	0.10	0.49	0.100	0.01	0.005	
0.900	0.10	0.27	0.130	0.01	0.004	
1.000	0.10	0.40	0.130	0.01	0.005	
1.100	0.10	0.41	0.120	0.01	0.005	
1.200	0.10	0.57	0.120	0.01	0.007	
1.300	0.10	0.58	0.120	0.01	0.007	
1.400	0.10	0.56	0.110	0.01	0.006	
1.500	0.10	0.29	0.130	0.01	0.004	
1.600	0.10	0.40	0.120	0.01	0.005	
1.700	0.10	0.47	0.120	0.01	0.006	
1.800	0.10	0.37	0.110	0.01	0.004	
1.900	0.10	0.26	0.100	0.01	0.003	
2.000	0.10	0.38	0.090	0.01	0.003	
2.100	0.10	0.18	0.080	0.01	0.001	
2.200	0.10	0.22	0.070	0.01	0.002	
2.300	0.10	0.13	0.060	0.01	0.001	
2.400	0.15	0.05	0.070	0.01	0.001	
2.600						Left Bank

Measurement Performed By:	S. Lehky	Data Reviewed By:	D. Chernick
Measurement Recorded By:	S. Lehky	Review Date:	Oct 19, 2023



Staff Gauge



Cross-Section

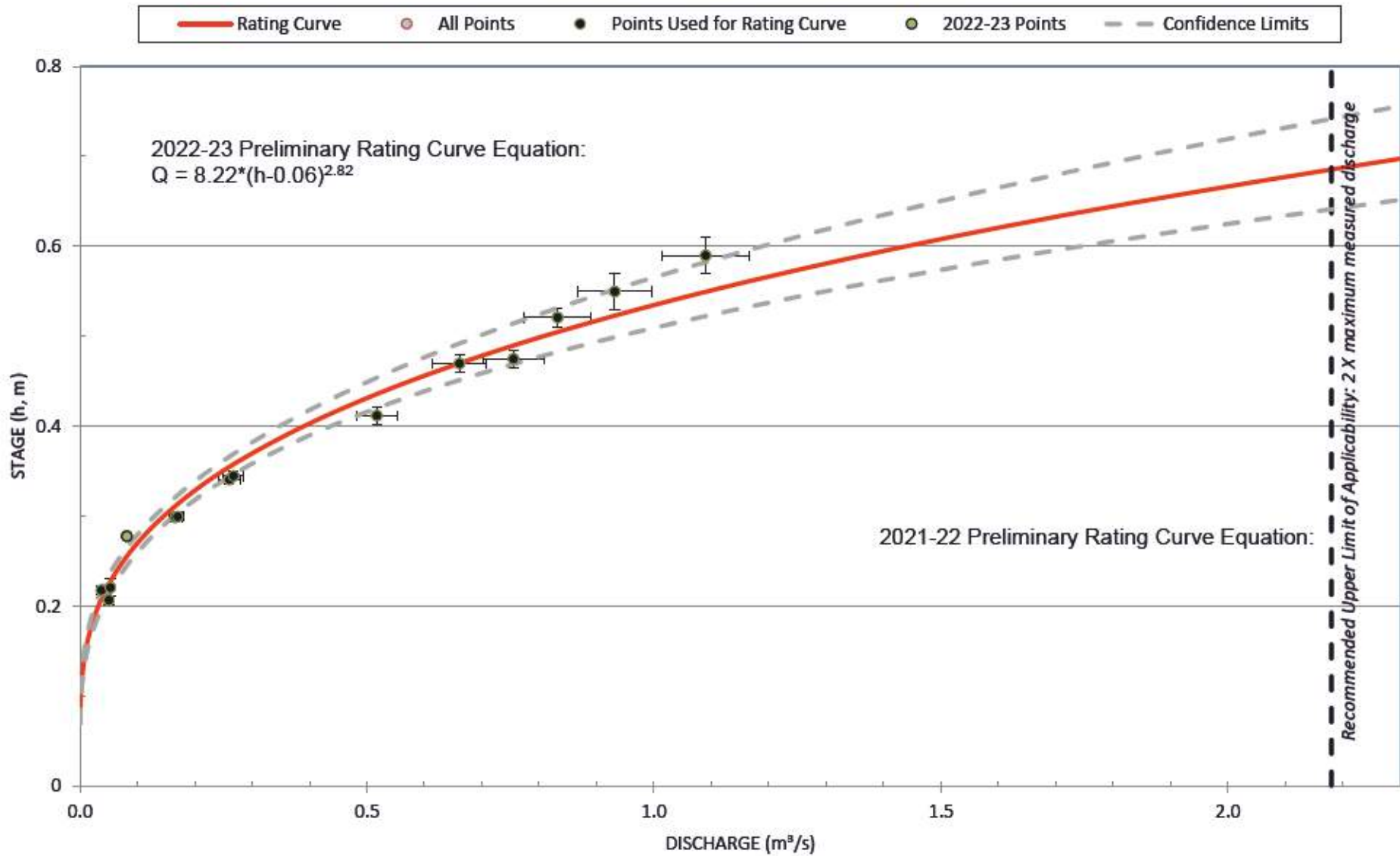


Upstream View



Downstream View

Downes Creek
2022-23 Preliminary Stage Discharge Curve
(Estimated by Method of Maximum Likelihood)





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Enclosure B

Fishtrap Creek Flow Station



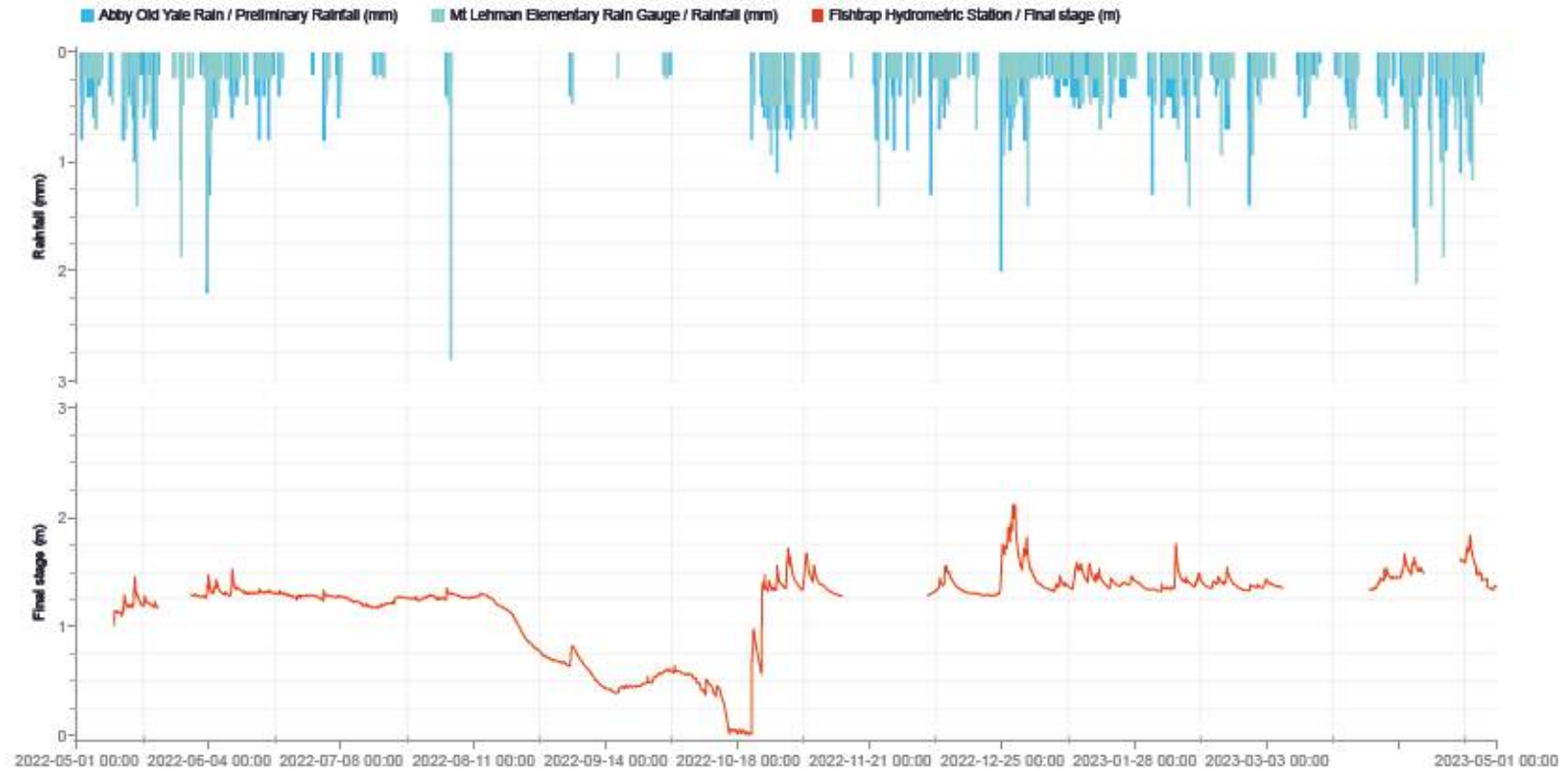
Fishtrap Creek - May 2022 - April 2023

Date	Time PST	Staff Gauge Reading	Data Logger Reading	Offset	Discharge Measurement	Photos	Desiccant	Comments
	(24hh:mm)	(m)	(m)	(m)	(m ³ /s)			
May 31, 2022	12:40	1.298	1.260	0.038		Yes	OK	
Dec 15, 2022	13:40	1.394	1.313	0.081		Yes	Changed	
Jan 18, 2023	15:25	1.508	1.483	0.023		Yes	OK	water is over top of the SG culvert
Feb 23, 2023	11:45	1.365	1.388	-0.003		Yes	Changed	
Mar 30, 2023	15:35	1.361	1.392	-0.031		Yes	OK	Property owner DS of site asked about flooding issues on their property
Apr 26, 2023	9:35	1.488	1.538	-0.052		Yes	OK	

Abby Old Yale Rain / Fishtrap Hydrometric Station / Mt Lehman Elementary Rain Gauge

Start Date: 2022-05-01 00:00

End Date: 2023-04-30 23:59





Site Photographs – Fishtrap Creek



Photo 1: Upstream at Fishtrap Creek
May 31, 2022



Photo 2: Upstream at Fishtrap Creek
Dec 15, 2022



Photo 3: Upstream at Fishtrap Creek
Feb 23, 2023



Photo 4: Upstream at Fishtrap Creek
Apr 26, 2023



Photo 5: Downstream at Fishtrap Creek
May 31, 2022



Photo 6: Downstream at Fishtrap Creek
Dec 15, 2022



Site Photographs – Fishtrap Creek



Photo 7: Downstream at Fishtrap Creek
Feb 23, 2023



Photo 8: Downstream at Fishtrap Creek
Apr 26, 2023



Photo 9: Staff Gauge at Fishtrap Creek
May 31, 2022



Photo 10: Staff Gauge at Fishtrap Creek
Dec 15, 2022



Photo 11: Staff Gauge at Fishtrap Creek
Feb 23, 2023



Photo 12: Staff Gauge at Fishtrap Creek
Apr 26, 2023



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Enclosure C

Horn Creek Flow Station



Horn Creek - May 2022 - April 2023

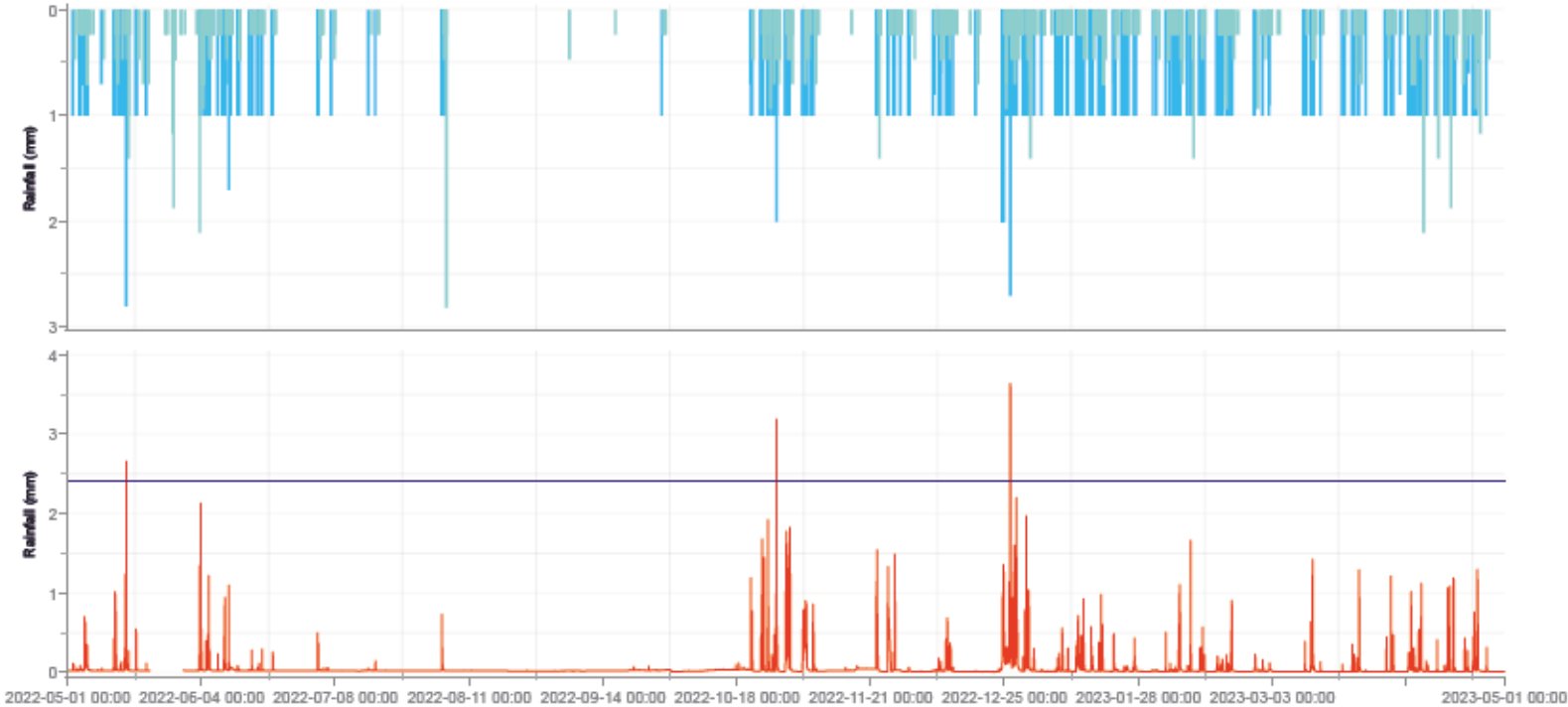
Date	Time PST	Staff Gauge Reading	Sensor Reading	Offset	Discharge Measurement	Photos	Desiccant	Comments
	(24hh:mm)	(m)	(m)	(m)	(m ³ /s)			
May 31, 2022	15:15	0.667	0.066	0.601		Yes	OK	Cleared debris and sediment from stilling well
Jun 14, 2022	8:30	0.669	0.067	0.602	0.0610 / 0.0602	Yes	OK	2x ADV flow measurements
Jul 22, 2022	16:00	0.669	0.069	0.600		Yes	OK	Human activity at site- garbage and rocks piled in creek
Aug 17, 2022	12:45	0.664	0.071	0.593		Yes	OK	
Oct 12, 2022	7:55	0.677	0.083	0.594	0.0365 / 0.0353	Yes	OK	2x ADV flow measurements
Dec 01, 2022	9:15	0.664	0.059	0.605		Yes	OK	Air temperature freezing, recent snow on ground
Dec 15, 2022	14:15	0.657	0.055	0.602				
Jan 18, 2023	14:45	0.692	0.093	0.599		Yes	OK	
Feb 23, 2023	14:35	0.655	0.059	0.596		Yes	OK	Cleared debris and sediment from stilling well
Mar 30, 2023	16:45	0.652	0.056	0.596		Yes	OK	Cleared sediment from stilling well
Apr 26, 2023	11:25	0.669	0.073	0.596		Yes	OK	Cleared sediment from stilling well

Abby City Hall Rain / Horn Creek Flow Station / Mt Lehman Elementary Rain Gauge

Start Date: 2022-05-01 00:00

End Date: 2023-04-30 23:59

- Abby City Hall Rain / Preliminary Rainfall (mm)
- Mt Lehman Elementary Rain Gauge / Rainfall (mm)
- Horn Creek Flow Station / Final Discharge (m3/s)
- Horn Creek Flow Station / Upper Confidence Limit (m3/s)





Site Photographs – Horn Creek



Photo 1: Upstream at Horn Creek
May 31, 2022



Photo 2: Upstream at Horn Creek
Aug 17, 2022



Photo 3: Upstream at Horn Creek
Jan 18, 2023



Photo 4: Upstream at Horn Creek
Apr 26, 2023



Photo 5: Downstream at Horn Creek
May 31, 2022



Photo 6: Downstream at Horn Creek
Aug 17, 2022



Site Photographs – Horn Creek



Photo 7: Downstream at Horn Creek
Jan 18, 2023



Photo 8: Downstream at Horn Creek
Apr 26, 2023



Photo 9: Staff Gauge at Horn Creek
May 31, 2022



Photo 10: Staff Gauge at Horn Creek
Aug 17, 2022



Photo 11: Staff Gauge at Horn Creek
Jan 18, 2023



Photo 12: Staff Gauge at Horn Creek
Apr 26, 2023

Flow Measurement Record

Horn Creek

Date:	Jun 14, 2022				
Flow Meter Model:	Sontek ADV Flowtracker2		Sensor:	0.067	m at 8:45 AM PST
Measurement Start Time:	8:45 AM PST			0.669	m at 8:45 AM
Measurement End Time:	9:15 AM PST		Staff Gauge:	0.668	m at 9:15 AM
Total Width:	4.20 m		Average Velocity:	0.121 m/s	
Total Area:	0.50 m ²		Total Discharge:	0.061 m ³ /s	

X (m)	Width (m)	Average Velocity (m/s)	Average Depth (m)	Area (m ²)	Discharge (m ³ /s)	Field Notes
0.000						Right Bank
0.200	0.20	0.04	0.100	0.02	0.001	
0.400	0.20	0.11	0.100	0.02	0.002	
0.600	0.20	0.10	0.100	0.02	0.002	
0.800	0.20	0.11	0.100	0.02	0.002	
1.000	0.20	0.12	0.120	0.02	0.003	
1.200	0.20	0.13	0.120	0.02	0.003	
1.400	0.20	0.11	0.140	0.03	0.003	
1.600	0.20	0.11	0.120	0.02	0.003	
1.800	0.20	0.17	0.120	0.02	0.004	
2.000	0.20	0.11	0.120	0.02	0.003	
2.200	0.20	0.13	0.140	0.03	0.004	
2.400	0.20	0.17	0.150	0.03	0.005	
2.600	0.20	0.16	0.150	0.03	0.005	
2.800	0.20	0.17	0.140	0.03	0.005	
3.000	0.20	0.17	0.160	0.03	0.005	
3.200	0.20	0.13	0.140	0.03	0.004	
3.400	0.20	0.14	0.160	0.03	0.004	
3.600	0.20	0.11	0.100	0.02	0.002	
3.800	0.20	0.05	0.120	0.02	0.001	
4.000	0.20	0.00	0.120	0.02	0.000	
4.200						Left Bank

Measurement Performed By:	S. Lehky	Data Reviewed By:	D. Chernick
Measurement Recorded By:	S. Lehky	Review Date:	10-18-2023



Staff Gauge



Cross Section



Upstream View



Sensor

Flow Measurement Record

Horn Creek

Date:	Oct 12, 2022				
Flow Meter Model:	Sontek ADV Flowtracker2	Sensor:	0.083	m	at 8:05 AM PST
Measurement Start Time:	8:15 AM	PST		0.677	m at 8:05 AM
Measurement End Time:	8:35 AM	PST	Staff Gauge:	0.677	m at 8:35 AM
Total Width:	4.10	m	Average Velocity:	0.069	m/s
Total Area:	0.53	m ²	Total Discharge:	0.036	m ³ /s

X (m)	Width (m)	Average Velocity (m/s)	Average Depth (m)	Area (m ²)	Discharge (m ³ /s)	Field Notes
0.000						Right Bank
0.200	0.20	0.05	0.110	0.02	0.001	
0.400	0.20	0.06	0.120	0.02	0.001	
0.600	0.20	0.07	0.120	0.02	0.002	
0.800	0.20	0.05	0.110	0.02	0.001	
1.000	0.20	0.04	0.130	0.03	0.001	
1.200	0.20	0.08	0.140	0.03	0.002	
1.400	0.20	0.10	0.150	0.03	0.003	
1.600	0.20	0.07	0.140	0.03	0.002	
1.800	0.20	0.09	0.120	0.02	0.002	
2.000	0.20	0.05	0.120	0.02	0.001	
2.200	0.20	0.07	0.150	0.03	0.002	
2.400	0.20	0.11	0.160	0.03	0.003	
2.600	0.20	0.08	0.180	0.04	0.003	
2.800	0.20	0.09	0.160	0.03	0.003	
3.000	0.20	0.08	0.160	0.03	0.003	
3.200	0.20	0.07	0.130	0.03	0.002	
3.400	0.20	0.09	0.120	0.02	0.002	
3.600	0.20	0.08	0.120	0.02	0.002	
3.800	0.20	0.02	0.120	0.02	0.000	
4.000	0.15	0.00	0.110	0.02	0.000	
4.100						Left Bank

Measurement Performed By:	S. Lehy	Data Reviewed By:	D. Chernick
Measurement Recorded By:	S. Lehy	Review Date:	10-18-2023



Staff Gauge



X-Section

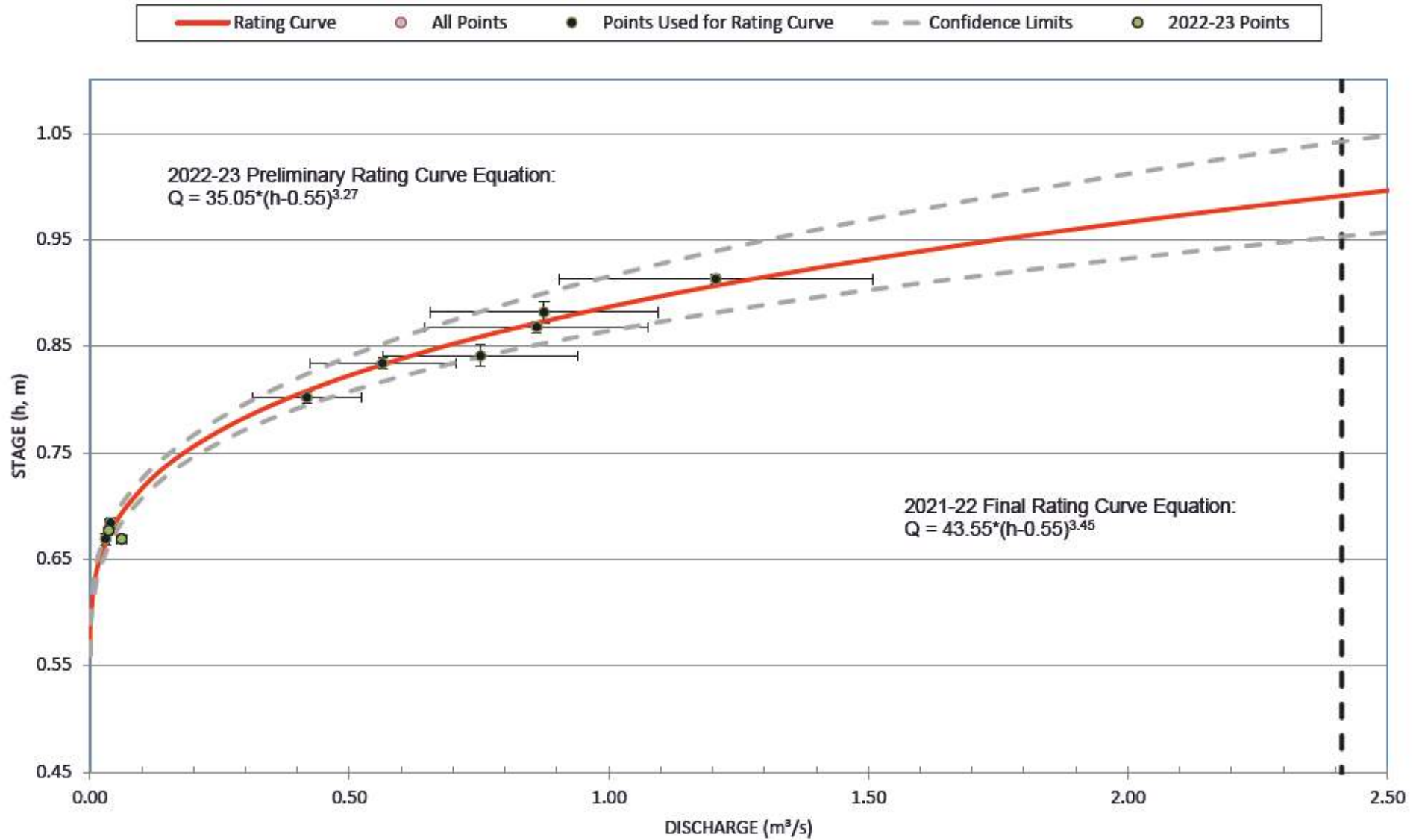


Upstream View



Downstream View

Horn Creek
2022-23 Preliminary Stage Discharge Curve
(Estimated by Method of Maximum Likelihood)



APPENDIX B

Horn Creek Flow Monitoring Site Event Log

Horn Creek flow monitoring site event log

Item	Date	Description	Notes
1	2011-09-22	Voltage & flow in Historian	$Q = 0.00654 * (H3 - 548.5)^{2.106}$; where Q in L/s, H3 in mm
2	Apr-13	Flow available to Flowworks	
3	2013-07-22	Level in Historian	
4	2014-01-09	Flow Calculation clarified	$Q = 0.00654 * (H3 - 427.85)^{2.106}$; where Q in L/s, H3 in mm
5	2014-04-15	Flow sensor downstream removed	
6	Apr-14	Flow sensor relocated	Better location to improve flow accuracy
7	2014-05-22	Flow Calculation revised	$Q = 0.13 * (\text{level} + 0.89)^{13.94}$; where Q in m ³ /s, level in m
8	2014-05-26	Level available to Flowworks	
9	2014-10-20	Heavy rain damaged flow sensor	Flow sensor to be rebuilt
10	2014-11-07	flow sensor rebuilt	
11	2015-05-06	Flow Calculation revised	$Q = (17.71 * (\text{Raw level} + 0.413 - 0.283)^{4.22}) * 1000$; where Q=L/s, level/offset in m
12	2015-06-12	Flow Calculation revised	$Q = (17.71 * (\text{Raw level} + 0.419 - 0.283)^{4.22}) * 1000$; where Q=L/s, level/offset in m
13	2015-08-29	Windstorm damaged the flow sensor	Flow sensor to be rebuilt
14	2015-11-23	Flow sensor restored	
15	2015-12-18	Battery failed intermittently	Loss level and flow data intermittently
16	2016-01-20	Hydro power connected to flow sensor	
17	2017-02-28	Flow Calculation revised	$Q = 16.35 * (\text{Raw level} + 0.45 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
18	2/29/2017	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.36 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
19	2017-03-14	Flow data corrected in Historian	Flow data in Historian between Aug 26, 2014 and May 6, 2015 were re-populated by the preliminary flow from Flowworks which was based on $Q = 16.35 * (\text{Raw level} + \text{offset} + 0.45)$ with various offsets
20	2017-05-12	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.356 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
21	2017-07-18	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.36 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
22	2017-09-05	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.419 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
23	2017-09-22	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.364 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
24	2017-11-17	Level Sensor Failed	Level Sensor Failed, readings became erratic
25	2017-12-27	Ice Storm, Power Lost. Flow Calc initialized to offset of 0.45m	$Q = 16.35 * (\text{Raw level} + 0.45 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
26	2018-04-25	New Level Sensor Installed	
27	2018-05-01	Flow Calculation revised for offset	$Q = 16.35 * (\text{Raw level} + 0.36 - 0.450) ^{2.14} * 1000$; where Q=L/s, level/offset in m
28	2018-08-16	Flow formula changed to provide more accurate low flow calculation	For $h < 0.65$, $Q = 20.53 * (h - 0.47) ^{2.53}$; For $h \geq 0.65$, $Q = 78.89 * (h - 0.31) ^{4.81}$; where $h = \text{Raw level} + 0.349$, Q=L/s, $h = \text{Raw level} + \text{KWL offset}$ in meters
29	2019-03-22	KWL Offset Updated	New offset = 0.384m.
30	2019-05-15	KWL Cleaned Sediment and Debris	Cleaned around sensor. Caused sensor reading to drop by 4cm. Flow didn't change, so offset will be updated at a later date

Item	Date	Decription	Notes
31	2019-05-29	KWL Offset Updated	New offset = 0.436m
32	2019-06-07	Storm even impacted sensor	Sensor buried under large amount of sediment. Stilling well full of sediment.
33	2019-06-11	Sensor relocated	Due to storm event 6/7/2019, to facilitate cleaning KWL had to uninstall and reinstall this part of the site. Stilling well reinstalled slightly angled downstream and closer to the bank.
34	2019-06-17	Flow formula changed, offset updated	For $h < 0.65$, $Q = 6.23 * (h - 0.5) ^ 2.2$ For $h > 0.65$, $Q = 78.89 * (h - 0.31) ^ 4.81$ Where $h = \text{Raw Level} + \text{KWL Offset in Meters}$. New offset = 0.4594m
35	2019-07-10	Storm event	
36	2019-07-25	Sensor relocated closer to the water surface to mitigate sediment issues.	
37	2019-07-31	KWL Offset Updated, Flow formula changed	New offset = 0.601m. Resulted in higher than actual flows, so KWL shifted the stage elevation for high flow calculation. For $h < 0.73$, $Q = 6.23 * (h - 0.54) ^ 2.2$ For $h > 0.73$, $Q = 78.89 * (h - 0.31) ^ 4.81$
38	2019-12-02	KWL Offset Updated	New offset = 0.580m.
39	2019-12-11	KWL Offset Updated	Offset updated to 0.564m first, then KWL corrected offset and Offset updated to 0.581m
40	2020-12-08	Calculation changed	$Q = 16.16(A - 0.641)^{1.75}$
41	2021-07-21	KWL Offset Updated	Offset updated from 0.601m to 0.670m
42	2021-12-20	Calculation changed, KWL Offset updated	$Q = 27.36(A - 0.590)^{2.73}$ New Offset = 0.621 (advised to add 0.020 to current offset)
43	2022-01-31	KWL Offset Updated	New Offset = 0.602 (advised to remove 0.019 from current offset)
44	2022-07-06	Calculation Changed	$Q = 27.36 * (A - 0.570)^{2.73}$
45	2023-04-30	No changes in Year 12	

APPENDIX C

Raw Stream Flow Data

Site	Sample Date (d/mmm/yy)	Total Discharge (m3/sec)	Staff Gauge Height (m)	Staff Gauge Height (m) - Start	Rod depth @ staff gauge (m)	Staff Gauge Height (m) - End	Start Time	End Time	Uncertainty (%)
B-01	18-May-2022	0.0043	0.269	0.268	0.09	0.270	12:15	12:30	11.4
B-01	15-Jun-2022	*	0.21	0.21	0.05	*	16:40	*	*
B-01 redo*	16-Jun-2022	0.0051	0.22	0.22	0.05	0.22	8:21	8:45	12.39
B-01	13-July-22	0.0039		*	*	*	16:30	17:10	7.13
B-01	18-Aug-2022	0.0044					11:00	11:40	4.92
B-01	11-Oct-2022	0.0021					11:30	12:08	12.6
B-01	27-Oct-2022	0.0182	0.305	0.3	0.09	0.31	9:35	10:11	10.15
B-01	24-Jan-23	0.004	0.388	0.388	0.1	0.388	12:50	13:35	18.47
B-01	24-Apr-23	0.0024	0.105	0.11	0.09	0.1	12:38	13:12	11.18
B-02	18-May-2022	0.0189	0.265	0.265	0.269	0.264	8:45	9:45	39.3
B-02	13-July-22	0.0105	0.241	0.23	0.25	0.252	15:15	16:00	16.11
B-02	11-Oct-2022	0.0075	0.353	0.353	0.16	0.353	13:00	13:50	36.6
B-02	25-Oct-2022	0.0099	0.235	0.25	0.25	0.22	14:49	15:37	26.72
B-02	24-Jan-23	0.001	0.259	0.259	0.16	0.259	11:30	12:15	22.6
B0-2	21-Apr-23	0.0043	0.250	0.249	0.21	0.25	10:05	10:55	9.11
D-01	17-May-2022	0.1642	0.265	0.264	0.068	0.266	11:15	12:05	5.3
D-01	15-Jun-2022	0.0956	0.258	0.261	0.04	0.255	9:15	10:15	6.82
D-01	13-Jul-2022	0.032	0.228	0.228	0.03	0.228	8:30	9:30	14.01
D-01	16-Aug-2022	0.0417	0.224	0.224	0.05	0.224	3:21	4:03	10.95
D-01	6-Oct-2022	0.047	0.289	0.289	0.03	0.289	16:55	17:31	5.8
D-01	31-Oct-2022	0.2325	0.336	0.336	0.11	0.336	4:27	4:50	4.02
D-01	26-Jan-23	0.0447	0.392	0.392	0.2	0.392	9:31	10:09	13.62
D-01	24-Apr-23	0.1225	0.270	0.27	0.11	0.27	12:06	12:50	9.74
D-02	17-May-2022	0.033	0.414	0.414	0.152	0.414	12:15	13:00	6.1
D-02	15-Jun-2022	0.0325	0.410	0.41	0.16	0.41	10:30	11:05	6.23
D-02	13-Jul-2022	0.0201	0.380	NR	0.12	0.38	9:45	10:20	13.01
D-02	6-Oct-2022	0.0261	0.361	0.361	0.17	0.361	17:49	18:17	6
D-02	26-Jan-23	0.0171	0.449	0.449	0.2	0.449	14:47	15:25	10.35
D-02	24-Apr-23	-0.001	0.120	0.12	0.15	0.12	10:45	11:35	103.8

Site	Sample Date (d/mmm/yy)	Total Discharge (m3/sec)	Staff Gauge Height (m)	Staff Gauge Height (m) - Start	Rod depth @ staff gauge (m)	Staff Gauge Height (m) - End	Start Time	End Time	Uncertainty (%)
D-03	17-May-2022	0.0039	0.063	0.063	0.03	0.063	14:33	15:25	19.2
D-03	13-Jul-2022	0.0024	0.067	0.068	0.04	0.065	11:45	12:20	15.5
D-03	6-Oct-2022	0.0034	0.089	0.089	0.04	0.089	14:42	15:11	32.7
D-03	26-Jan-23	0.0027	0.154	0.154	0.01	0.154	12:00	12:43	41.41
D-03	24-Apr-23	0.0044	0.113	0.100	0.09	0.125	16:54	17:29	28.28
D-04	17-May-2022	0.0015	0.167	0.166	0.098	0.168	15:56	16:40	16.2
D-04	13-Jul-2022	0.2666	0.168	0.172	0.13	0.164	13:05	13:35	8.65
D-04	6-Oct-2022	0.0471	0.235	0.235	0.2	0.235	15:34	16:30	4.2
D-04	26-Jan-23	0.0034	0.155	0.155	0.02	0.155	13:20	13:57	38.57
F-01	18-May-2022	0.11	0.672	0.672	0.61	0.672	16:00	16:47	8.4
F-01	16-Jun-2022	0.0037	0.475	0.47	39.2	0.48	11:30	12:34	4.51
F-01	14-Jul-2022	0.0015	0.385	0.385	0.3	0.385	12:40	13:20	36.77
F-01	17-Aug-2022	0.0067	0.342	0.342	0.28	0.342	16:30	17:03	25%
F-01	6-Oct-2022	0.0051	0.362	0.362	0.18	0.362	13:45	14:15	55%
F-01	1-Nov-2022	0.0577	0.846	0.846	0.79	0.846	3:51	16:18	9.95
F-01	24-Jan-23	0.1829	0.659	0.659	0.59	0.659	14:05	14:51	6.99
F-01	24-Apr-23	0.232	0.915	0.92	1.15	0.91	15:36	16:25	5.4
F-02	18-May-2022	0.5066	0.572	0.572	not recorded	0.572	14:45	15:45	5.9
F-02	16-Jun-2022	**	0.691	0.691	0.89		10:50	11:30	
F-02	14-Jul-2022	0.0082	0.598	0.598	NR	0.598	14:00	15:29	97
F-02	17-Aug-2022	0.0088	0.580	0.58	0.27	0.58	17:15	17:49	39.05
F-02	6-Oct-2022	Dry	NA	NA	NA	NA	11:48	NA	NA
F-02	1-Nov-2022	NA	NA	NA	NA	NA			
F-02	24-Jan-23	NA	0.732	0.732	0.99	0.732	NA	NA	Na
F-02	24-Apr-23	-		-	-	-	-	-	-
F-04	18-May-2022	/	0.893	0.893	/	/	/	/	
F-04	14-Jul-2022	0.1327	0.412	0.412	0.3	0.412	16:00	17:00	3.15

Site	Sample Date (d/mmm/yy)	Total Discharge (m3/sec)	Staff Guage Height (m)	Staff Guage Height (m) - Start	Rod depth @ staff gauge (m)	Staff Guage Height (m) - End	Start Time	End Time	Uncertainty (%)
F-04	6-Oct-2022	No flow	0.459	0.459	NA	Na	11:00	NA	NA
F-04	24-Jan-23	0.4876	0.910	0.91	0.91	0.91	12:15	12:45	3.79
H-01	18-May-2022	0.012	0.145	0.146	0.059	0.144	11:10	11:45	6.5
H-01	15-Jun-2022	0.0071	0.129	0.128	0.05	0.13	15:30	16:15	14.11
H-01	14-Jul-2022	0.0049	0.132	0.132	0.05	0.132	10:00	10:45	17.6
H-01	19-Aug-2022	0.0044	0.110	0.11	0.03	0.11	13:00	13:41	16.6
H-01	6-Oct-2022	0.001	0.298	0.298	0.07	0.298	15:09	15:45	50
H-01	26-Oct-2022	0.0024	0.150	0.15	0.02	0.15	15:00	15:44	36.89
H-01	25-Jan-23	0.0035	0.140	0.14	0.07	0.14	15:58	16:37	51.2
H-01	21-Apr-23	0.0253	0.185	0.2	0.12	0.17	15:04	15:37	19.97
H-02	17-May-2022	0.066	0.668	0.668	0.374	0.668	18:23	19:00	4.3
H-02	15-Jun-2022	0.0674	0.670	0.669	0.45	0.67	12:50	13:50	5.09
H-02	13-July-22	0.063	0.665	0.664	0.35	0.666	14:21	15:01	5.55
H-02	18-Aug-2022	0.00514	0.662	0.662	0.33	0.662	11:50	12:40	5.11
H-02	11-Oct-2022	0.0456	0.781	0.781	0.38	0.781	9:40	10:15	3.4
H-02	25-Oct-2022	0.0688	0.658	0.655	0.52	0.66	16:29	17:14	13.13
H-02	24-Jan-23	0.0457	0.668	0.668	0.3	0.668	10:30	11:13	11.52
H-02	21-Apr-23	0.0804	0.770	0.77	0.445	0.77	11:13	12:06	9.39
H-03	18-May-2022	0.0459	0.219	0.23	0.04	0.208	10:30	11:01	4.6
H-03	15-Jun-2022	0.0157	0.179	0.179	0.02	0.179	14:45	15:30	5.77
H-03	14-Jul-2022	0.0103	0.177	0.176	0.03	0.178	9:15	9:50	15.04
H-03	17-Aug-2022	0.0104	0.187	0.187	0.04	0.187	19:15	20:00	5.08
H-03	6-Oct-2022	0.0073	0.170	0.17	0.05	0.17	16:00	16:35	6.3
H-03	26-Oct-2022	0.0054	0.170	0.17	0.02	0.17	13:54	14:43	18.37
H-03	25-Jan-23	0.0099	0.241	0.241	0.1	0.241	15:15	15:49	43.3
H-03	21-Apr-23	0.0075	0.260	0.27	0.15	0.25	13:39	14:14	13.38
W-01	18-May-2022	0.1138	0.236	0.235	0.265	0.236	13:00	13:45	2.9
W-01	16-Jun-2022	0.104	0.216	0.208	0.23	0.224	9:15	10:10	6.26
W-01	14-Jul-2022	0.0477	0.180	0.178	0.16	0.181	11:15	11:55	9
W-01	19-Aug-2022	0.0203	0.159	0.159	0.16	0.159	15:07	15:36	3.88
W-01	11-Oct-2022	0.0342	0.254	0.254	0.19	0.254	13:00	13:37	2.9
W-01	1-Nov-2022	0.1838	0.340	0.34	0.37	0.34	17:44	18:08	4.97
W-01	24-Jan-23	0.134	0.426	0.426	0.78	0.426	15:33	16:11	2.81

Site	Sample Date (d/mmm/yy)	Total Discharge (m3/sec)	Staff Gauge Height (m)	Staff Gauge Height (m) - Start	Rod depth @ staff gauge (m)	Staff Gauge Height (m) - End	Start Time	End Time	Uncertainty (%)
W-01	24-Apr-23	0.125	0.750	0.75	0.88	0.75	13:44	14:27	3.2
WT-01	18-May-2022	0.0997	NA	NA	NA	NA	17:31	18:15	7.8
WT-01	14-Jul-2022	0.0008	0.180	0.18	(new location)	0.18	17:20	18:00	17
WT-01	6-Oct-2022	Dry		NA	NA	NA	12:20	NA	NA
WT-01	24-Jan-23	0.0505	0.335	0.335	0.2	0.335	12:48	13:29	19.1
Wetland Staff Gauge	17-May-2022			0.122			12:51		
Wetland Staff Gauge	16-Jun-2022			0.108			10:00		
Wetland Staff Gauge	13-Jul-2022			0.999			10:36		
Wetland Staff Gauge	16-Aug-2022			1.02			NA		
Wetland Staff Gauge	6-Oct-2022			0.255			16:45		
Wetland Staff Gauge	25-Jan-23			0.101			NA		
Wetland Staff Gauge	24-Apr-23			0.103			NA		

NA - Not available

Site	Sample Date (d/mmm/yy)	Control	Comments
B-01	18-May-2022	Control fines, 3m ds from stg	
B-01	15-Jun-2022	*	
B-01 redo*	16-Jun-2022	control fines, 40 m ds of stg	*Took slightly upstream from where typically take measurements because flow was so low/pooling made it impossible to take an accurate measurement. Generally, water levels are very low here and water was barely even registering on staff gauge line/staff gauge is in mud
B-01	13-July-22	Control fines, 30 m ds stg	
B-01	18-Aug-2022	Control fines, 3m ds from stg	staff gauge no longer in water. creek too dry
B-01	11-Oct-2022	Control fines, 3m ds from stg	Staff Gauge is resting above water line during low flow
B-01	27-Oct-2022		
B-01	24-Jan-23		
B-01	24-Apr-23		
B-02	18-May-2022	Control LWD, 0.6m ds Of stg	
B-02	13-July-22	Control LWD, 0.6m ds Of stg	
B-02	11-Oct-2022		
B-02	25-Oct-2022		
B-02	24-Jan-23		
B0-2	21-Apr-23		
D-01	17-May-2022	control gravel, 1m ds from stg	
D-01	15-Jun-2022	control gravel, 1m ds from stg	
D-01	13-Jul-2022	control gravel, 1m ds from stg	
D-01	16-Aug-2022	control gravel, 1m ds from stg	
D-01	6-Oct-2022	control gravel, 1m ds from stg	
D-01	31-Oct-2022		
D-01	26-Jan-23		
D-01	24-Apr-23		
D-02	17-May-2022	Control fines, gravel, 2m ds from stg	
D-02	15-Jun-2022		
D-02	13-Jul-2022	Control fines, gravel, 2m ds from stg	Estimate because ruler is rusted and intervals are illegible
D-02	6-Oct-2022		
D-02	26-Jan-23		
D-02	24-Apr-23		

Site	Sample Date (d/mmm/yy)	Control	Comments
D-03	17-May-2022	Control gravel, 3m ds from stg	
D-03	13-Jul-2022	Control gravel, 3m ds from stg	
D-03	6-Oct-2022		
D-03	26-Jan-23		
D-03	24-Apr-23		
D-04	17-May-2022	Control cobble, 0.3m ds from stg	
D-04	13-Jul-2022	Control cobble, 0.3m ds from stg	
D-04	6-Oct-2022		
D-04	26-Jan-23		
F-01	18-May-2022	control cobble, gravel, 5m ds from stg	
F-01	16-Jun-2022	control cobble, gravel, 5m ds from stg	
F-01	14-Jul-2022	control cobble, gravel, 5m ds from stg	
F-01	17-Aug-2022	control cobble, gravel, 5m ds from stg	
F-01	6-Oct-2022	control cobble, gravel, 5m ds from stg	
F-01	1-Nov-2022		
F-01	24-Jan-23		
F-01	24-Apr-23		sampled ~6m upstream due to unsafe water depth at sampling location
F-02	18-May-2022	control fines	
F-02	16-Jun-2022		**walked as far upstream from typical sampling site as we could until we reached bridge/culvert (app 20 m) and as far downstream as could until reach debris blocking channel (app 5 m) and middle of channel was too deep to conduct sampling
F-02	14-Jul-2022	control fines	
F-02	17-Aug-2022	control fines	
F-02	6-Oct-2022	control fines	creek was dry where staff gauge is located
F-02	1-Nov-2022		Water too deep
F-02	24-Jan-23		Too deep to measure flow
F-02	24-Apr-23	-	water too deep
F-04	18-May-2022		Too deep to measure
F-04	14-Jul-2022	Control 10m down from st. Gravel and fines	

Site	Sample Date (d/mmm/yy)	Control	Comments
F-04	6-Oct-2022		Because F-02 was dry
F-04	24-Jan-23		
H-01	18-May-2022	Control coble, 2m ds stg	
H-01	15-Jun-2022	Control gravel, 0.2m ds stg	started sprinkling
H-01	14-Jul-2022	Control gravel, 0.2m ds stg	
H-01	19-Aug-2022	Control coble, 2m ds stg	
H-01	6-Oct-2022	Control coble, 2m ds stg	
H-01	26-Oct-2022		
H-01	25-Jan-23		
H-01	21-Apr-23		
H-02	17-May-2022	control gravel, 2m ds of stg	
H-02	15-Jun-2022	control gravel, 2m ds of stg	
H-02	13-July-22	control gravel, 2m ds of stg	
H-02	18-Aug-2022	control gravel, 2m ds of stg	
H-02	11-Oct-2022	control gravel, 2m ds of stg	
H-02	25-Oct-2022		
H-02	24-Jan-23		
H-02	21-Apr-23		
H-03	18-May-2022	Control gravel, 2m ds from stg	
H-03	15-Jun-2022	Control gravel, 2m ds from stg	
H-03	14-Jul-2022	Control gravel, 2m ds from stg	
H-03	17-Aug-2022	Control gravel, 2m ds from stg	
H-03	6-Oct-2022	Control gravel, 2m ds from stg	
H-03	26-Oct-2022		
H-03	25-Jan-23		
H-03	21-Apr-23		
W-01	18-May-2022	control fines, at stg	
W-01	16-Jun-2022	control fines, 2m ds of stg	
W-01	14-Jul-2022	control fines, 2m ds of stg	
W-01	19-Aug-2022	control fines, at stg	
W-01	11-Oct-2022	control fines, at stg	
W-01	1-Nov-2022		
W-01	24-Jan-23		

Site	Sample Date (d/mmm/yy)	Control	Comments
W-01	24-Apr-23		
WT-01	18-May-2022		staff gauge and pipe knocked over
WT-01	14-Jul-2022	control gravel	Had to take 20 m us from original stg location/original site because flow was too low elsewhere.
WT-01	6-Oct-2022		creek was dry where staff gauge is located
WT-01	24-Jan-23		
Wetland Staff Gauge	17-May-2022		
Wetland Staff Gauge	16-Jun-2022		
Wetland Staff Gauge	13-Jul-2022		
Wetland Staff Gauge	16-Aug-2022		
Wetland Staff Gauge	6-Oct-2022		
Wetland Staff Gauge	25-Jan-23		
Wetland Staff Gauge	24-Apr-23		

NA - Not available

APPENDIX D

Compiled Year 12 Water Quality Data

Parameter	UNITS	RDL	ATH836	AVD812	AXE944	AZP519	BCY928	BFS351	BHW405
			2022-05-18 12:15	2022-06-15 16:50	2022-07-13 16:30	2022-08-15	2022-09-27	2022-10-27	2022-11-28 12:15
			B-01	B-01	B-01	B-01	B-01	B-01	B-01
pH	pH	N/A	7.03	7.42	7.13	7.80	7.01	6.33	6.47
Total Ammonia (N)	mg/L	0.015	0.091	0.099	0.056	<0.015	0.031	0.054	0.043
Total Phosphorus (P)	mg/L	0.0030	0.043	0.027	0.083	0.016	0.032	0.037	0.021
Nitrate plus Nitrite (N)	mg/L	0.0020	0.727	1.54	2.73	2.93	3.66	0.535	0.129
Nitrate (N)	mg/L	0.0020	0.714	1.52	2.71	2.93	3.65	0.529	0.126
Nitrite (N)	mg/L	0.0020	0.0131	0.0175	0.0175	0.0021	0.0045	0.0057	0.0036
Total Hardness (CaCO3)	mg/L	0.50	31.4	68.6	76.5	123	62.5	80.4	66.2
Dissolved Fluoride (F)	mg/L	0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	224	61.7	1300	57.7	95.3	133	107
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.71	<0.50
Total Arsenic (As)	ug/L	0.10	0.70	0.67	0.92	0.66	0.31	0.6	1.01
Total Barium (Ba)	ug/L	1.0	16.5	26.1	25.8	13.0	14.4	60.9	69.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.027	0.024	0.048	0.024	0.033	0.422	0.31
Total Chromium (Cr)	ug/L	1.0	1.8	1.3	5.3	1.7	2.8	1.1	1.1
Total Cobalt (Co)	ug/L	0.20	0.31	0.63	0.78	<0.20	0.26	2.35	2.06
Total Copper (Cu)	ug/L	0.50	6.29	2.2	3.94	<0.50	0.69	7.14	4.23
Total Iron (Fe)	ug/L	10	632	802	2020	159	523	259	683
Total Lead (Pb)	ug/L	0.20	2.83	1.97	4.04	0.38	0.7	2.13	1.65
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	61.5	229	144	13.4	111	229	337
Total Mercury (Hg)	ug/L	0.0019	0.0021	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	1.3	1.8	2.9	8.2	1.2	5.6	3
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	0.13	0.36	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	4090	8860	13300	14700	10500	5710	3420
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	0.021	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	81.3	202	213	192	219	214	166
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	ATH836	AVD812	AXE944	AZP519	BCY928	BFS351	BHW405
			2022-05-18 12:15	2022-06-15 16:50	2022-07-13 16:30	2022-08-15	2022-09-27	2022-10-27	2022-11-28 12:15
			B-01	B-01	B-01	B-01	B-01	B-01	B-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	8.1	<5.0	59.5	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	30.1	12.6	14.7	<5.0	6.1	249	186
Total Zirconium (Zr)	ug/L	0.10	0.34	0.18	0.19	<0.10	<0.10	0.14	0.18
Total Calcium (Ca)	mg/L	0.050	9.43	19.4	21	32.7	18.1	25.1	20.7
Total Magnesium (Mg)	mg/L	0.050	1.91	4.86	5.86	10.1	4.20	4.32	3.55
Total Potassium (K)	mg/L	0.050	0.834	1.26	1.02	1.46	1.10	2.21	2.04
Total Sodium (Na)	mg/L	0.050	10.6	17.0	14.1	9.39	13.6	21.5	142
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	3.4	4.3	<3.0	22.8	<3.0
Temperature	°C	--	11.0	12.3	12.7	13.9	12.6	10.7	4.0
Dissolved Oxygen	%	--	56.7	55.6	37.9	72.9	68.0	48.3	37.8
Dissolved Oxygen	mg/L	--	6.21	5.88	4.02	7.55	7.19	5.32	7.94
Specific Conductance	uS/cm	--	132.7	270.3	233.8	374.6	248.7	238.7	727.3
Salinity	psu	--	0.08	0.13	0.11	0.07	0.12	0.11	0.35
pH	pH Units	--	6.44	6.57	6.00	7.16	5.88	5.88	6.15
Turbidity	NTU	--	6.35	3.42	2.90	1.41	2.72	1.27	2.3

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BJT203	BKV688	BMP531	BOD903	BOD912	BPJ740	ATF552
			2022-12-24 03:34	2023-01-25 12:50	2023-02-28 13:08	2023-03-28 12:30	2023-03-28 12:35	2023-04-25 15:30	2022-05-17 18:49
			B-01	B-01	B-01	B-01	B-01 Dup	B-01	B-02
pH	pH	N/A	6.88	6.71	6.61	6.93	7.12	6.85	7.89
Total Ammonia (N)	mg/L	0.015	0.038	0.18	0.43	0.21	0.21	0.097	0.052
Total Phosphorus (P)	mg/L	0.0030	0.057	0.027	0.044	0.055	0.024	0.036	0.0098
Nitrate plus Nitrite (N)	mg/L	0.0020	1.10	0.703	0.366	0.764	0.720	0.981	1.6
Nitrate (N)	mg/L	0.0020	1.09	0.692	0.349	0.753	0.710	0.969	1.59
Nitrite (N)	mg/L	0.0020	0.0067	0.0117	0.0168	0.011	0.0106	0.0122	0.0064
Total Hardness (CaCO3)	mg/L	0.50	62.5	37.7	47.7	78.4	74.7	57.2	99.3
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	619	95.7	602	60.9	69.8	132	38.9
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.99	0.85	0.48	0.63	0.69	1.03	0.62
Total Barium (Ba)	ug/L	1.0	34.7	25.4	67.1	35.8	35.2	25.6	17.5
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<100	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.174	0.054	0.33	0.054	0.053	0.036	<0.010
Total Chromium (Cr)	ug/L	1.0	2.9	1.1	4.9	1.2	1.3	2.2	2.0
Total Cobalt (Co)	ug/L	0.20	0.85	0.66	1.53	1.08	1.06	0.54	<0.20
Total Copper (Cu)	ug/L	0.50	5.22	5.47	6.2	2.92	3.0	5.22	0.8
Total Iron (Fe)	ug/L	10	1120	790	2060	1090	1060	825	458
Total Lead (Pb)	ug/L	0.20	4.33	2.85	3.17	3.27	3.42	3.77	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	115	136	209	303	290	123	100
Total Mercury (Hg)	ug/L	0.0019	0.002	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	2.4	1.6	2.7	2.8	2.9	3.4	<1.0
Total Selenium (Se)	ug/L	0.10	0.13	<0.10	<0.20	<0.10	<0.10	<0.10	0.17
Total Silicon (Si)	ug/L	100	7380	4910	3150	8870	8200	6320	9940
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	147	97.5	133	206	205	157	149
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BJT203	BKV688	BMP531	BOD903	BOD912	BPJ740	ATF552
			2022-12-24 03:34	2023-01-25 12:50	2023-02-28 13:08	2023-03-28 12:30	2023-03-28 12:35	2023-04-25 15:30	2022-05-17 18:49
			B-01	B-01	B-01	B-01	B-01 Dup	B-01	B-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	26	<5.0	25	<5.0	<5.0	5.3	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	56.4	40.9	103	26.6	25.3	23.4	<5.0
Total Zirconium (Zr)	ug/L	0.10	0.32	0.21	0.59	0.17	0.18	0.24	<0.10
Total Calcium (Ca)	mg/L	0.050	17.9	11.1	15.1	22.7	21.3	16.9	27.5
Total Magnesium (Mg)	mg/L	0.050	4.33	2.39	2.40	5.27	5.20	3.65	7.46
Total Potassium (K)	mg/L	0.050	1.48	1.03	1.80	1.47	1.42	1.09	1.44
Total Sodium (Na)	mg/L	0.050	51	38.3	435	38.3	42.0	22.1	10.9
Total Sulphur (S)	mg/L	3.0	3	<3.0	<6.0	<3.0	<3.0	<3.0	4.6
Temperature	°C	--	5.48	7.1	3.99	8.0	--	10.7	11.2
Dissolved Oxygen	%	--	70.6	49.5	93.1	40.6	--	60.2	94.9
Dissolved Oxygen	mg/L	--	8.89	6.01	12.09	4.77	--	6.72	10.41
Specific Conductance	uS/cm	--	402	264.3	253.2	391.2	--	260	270.4
Salinity	psu	--	NA	0.14	1.3	0.19	--	NA	0.13
pH	pH Units	--	6.64	6.87	6.61	6.42	--	6.40	7.39
Turbidity	NTU	--	21.5	3.70	22.1	5.80	--	3.76	2.72

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AVD813	AXE945	AZP520	BCY929	BFS352	BFS353	BHW406
			2022-06-15 13:25	2022-07-13 15:23	2022-08-15	2022-09-27	2022-10-27	2022-10-27	2022-11-28 11:46
			B-02	B-02	B-02	B-02	B-02	B-02 Dup	B-02
pH	pH	N/A	8.03	7.88	8.03	8.00	7.20	7.28	7.17
Total Ammonia (N)	mg/L	0.015	0.037	0.032	0.022	0.024	0.065	0.061	0.02
Total Phosphorus (P)	mg/L	0.0030	0.012	0.0092	0.016	0.014	0.015	0.015	0.0087
Nitrate plus Nitrite (N)	mg/L	0.0020	1.66	1.77	1.76	1.65	1.53	1.56	0.944
Nitrate (N)	mg/L	0.0020	1.65	1.76	1.75	1.64	1.52	1.55	0.94
Nitrite (N)	mg/L	0.0020	0.0085	0.0092	0.0082	0.0081	0.0091	0.0095	0.0035
Total Hardness (CaCO3)	mg/L	0.50	110	115	109	121	104	109	96.5
Dissolved Fluoride (F)	mg/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	25.3	31.3	112	55.0	81.3	65.6	60.6
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.63	0.69	0.87	0.80	0.61	0.65	0.65
Total Barium (Ba)	ug/L	1.0	18	16.8	16.3	16.2	19.2	20	31.9
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.011	0.029
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	0.52	<0.50	0.56	<0.50	0.9	0.89	1.21
Total Iron (Fe)	ug/L	10	417	311	356	368	459	451	331
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	104	89.4	87	94.6	150	155	89.8
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.20	0.21	0.2	0.20	0.2	0.18	0.11
Total Silicon (Si)	ug/L	100	11000	12500	13100	11900	10100	10600	7080
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	172	168	164	175	151	155	154
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AVD813	AXE945	AZP520	BCY929	BFS352	BFS353	BHW406
			2022-06-15 13:25	2022-07-13 15:23	2022-08-15	2022-09-27	2022-10-27	2022-10-27	2022-11-28 11:46
			B-02	B-02	B-02	B-02	B-02	B-02 Dup	B-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	5.4	5.5	15.8
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	30.8	31.9	29.9	33.2	29.1	30.6	27.6
Total Magnesium (Mg)	mg/L	0.050	8.13	8.51	8.36	9.15	7.67	8.01	6.73
Total Potassium (K)	mg/L	0.050	1.58	1.61	1.56	1.69	1.7	1.76	1.91
Total Sodium (Na)	mg/L	0.050	11.2	10.9	10.1	10.3	10.5	11.1	118
Total Sulphur (S)	mg/L	3.0	4.7	4.8	6.2	5.0	5.5	5.9	4.3
Temperature	°C	--	12.4	14.6	15.0	14.2	10.5	10.5	5.0
Dissolved Oxygen	%	--	77.2	65.2	92.4	85.4	90.8	90.5	91.9
Dissolved Oxygen	mg/L	--	8.25	6.63	8.84	8.7	10.1	10.7	11.72
Specific Conductance	uS/cm	--	310.6	299.4	428.2	326.3	272.4	274.4	710.4
Salinity	psu	--	0.15	0.14	0.07	0.16	0.13	0.13	0.35
pH	pH Units	--	7.61	7.72	7.80	NV	7.47	7.46	7.48
Turbidity	NTU	--	2.81	4.04	4.37	2.91	4.00	4.01	1.50

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BJT204	BKV687	BKV685	BMP532	BOD904	BPJ741	ATF549
			2022-12-24 02:17	2023-01-25 10:50	2023-01-25 10:59	2023-02-28 13:45	2023-03-28 12:02	2023-04-25 14:45	2022-05-17 11:30
			B-02	B-02	B-02 Dup	B-02	B-02	B-02	D-01
pH	pH	N/A	7.35	7.40	7.57	6.66	7.69	7.52	7.52
Total Ammonia (N)	mg/L	0.015	0.030	0.085	0.11	0.42	0.038	0.034	<0.015
Total Phosphorus (P)	mg/L	0.0030	0.012	0.017	0.013	0.064	0.0093	0.026	0.012
Nitrate plus Nitrite (N)	mg/L	0.0020	1.39	1.28	1.30	0.624	1.54	1.4	0.974
Nitrate (N)	mg/L	0.0020	1.38	1.27	1.29	0.589	1.54	1.4	0.97
Nitrite (N)	mg/L	0.0020	0.0046	0.0135	0.0132	0.0358	0.0076	0.0021	0.0042
Total Hardness (CaCO3)	mg/L	0.50	90.9	77.3	78.4	89.7	111	94.9	82.8
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	104	47.6	39.2	1140	31.2	63.8	35.7
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.72	0.58	0.54	0.74	0.49	0.78	0.85
Total Barium (Ba)	ug/L	1.0	22.7	18.3	17.9	90.3	18.3	18.1	14.9
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<100	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.026	0.015	0.013	0.158	0.011	0.014	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	3.6	<1.0	6.5	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	0.99	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	1.05	1.34	1.26	5.9	<0.50	1.42	0.9
Total Iron (Fe)	ug/L	10	377	462	446	2070	410	791	308
Total Lead (Pb)	ug/L	0.20	0.2	0.26	0.24	2.27	<0.20	0.25	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	89.2	110	108	181	117	103	62.5
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	0.0026	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<2.0	<1.0	5.8	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	2.7	<1.0	24.1	<1.0
Total Selenium (Se)	ug/L	0.10	0.13	0.11	0.11	<0.20	0.17	0.21	0.17
Total Silicon (Si)	ug/L	100	9390	7620	7880	6070	10500	9210	7700
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	150	120	120	199	162	141	124
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BJT204	BKV687	BKV685	BMP532	BOD904	BPJ741	ATF549
			2022-12-24 02:17	2023-01-25 10:50	2023-01-25 10:59	2023-02-28 13:45	2023-03-28 12:02	2023-04-25 14:45	2022-05-17 11:30
			B-02	B-02	B-02 Dup	B-02	B-02	B-02	D-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	5.1	<5.0	<5.0	51	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	10.2	9.9	9.3	69	<5.0	6.5	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	0.42	0.73	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	25.9	21.6	22.1	27	30.9	26.8	22.2
Total Magnesium (Mg)	mg/L	0.050	6.35	5.68	5.63	5.39	8.23	6.79	6.65
Total Potassium (K)	mg/L	0.050	1.56	1.23	1.22	2.08	1.46	1.33	1.48
Total Sodium (Na)	mg/L	0.050	26.5	19.7	19.7	677	13.3	15.9	11.3
Total Sulphur (S)	mg/L	3.0	4.5	3.8	3.1	<6.0	4.9	4	4.2
Temperature	°C	--	6.09	7.7	--	5.13	8.3	11.1	10.9
Dissolved Oxygen	%	--	93.6	102.5	--	111.4	92.7	NV	96.2
Dissolved Oxygen	mg/L	--	11.62	12.21	--	13.9	10.87	NV	10.63
Specific Conductance	uS/cm	--	305	253.7	--	363.3	301.7	297	236.8
Salinity	psu	--	NA	0.13	--	1.91	0.14	NA	0.11
pH	pH Units	--	7.59	7.72	--	7.30	7.59	7.57	NV
Turbidity	NTU	--	2.40	2.50	--	34.0	1.50	2.39	3.26

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AVD814	AXE941	AZP522	BCY931	BGB944	BHW408	BHW413
			2022-06-15 09:30	2022-07-13 09:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 14:51	2022-11-28 14:51
			D-01	D-01	D-01	D-01	D-01	D-01	D-01 Dup
pH	pH	N/A	8.12	7.96	8.05	8.14	7.46	7.39	7.41
Total Ammonia (N)	mg/L	0.015	0.017	0.019	0.022	0.017	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	0.016	0.015	0.035	0.022	0.023	0.0099	0.0098
Nitrate plus Nitrite (N)	mg/L	0.0020	1.05	1.18	1.09	1.02	1.34	1.12	1.13
Nitrate (N)	mg/L	0.0020	1.05	1.18	1.09	1.02	1.33	1.12	1.12
Nitrite (N)	mg/L	0.0020	0.0041	0.003	0.0028	<0.0020	0.0027	0.0034	0.0032
Total Hardness (CaCO3)	mg/L	0.50	102	105	115	117	98.2	89.2	86.6
Dissolved Fluoride (F)	mg/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	47.2	41.3	225	46.6	95.3	44	37.9
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	1	1.13	1.95	1.59	1.2	0.58	0.56
Total Barium (Ba)	ug/L	1.0	16.7	15.1	17.7	14.3	19.6	19.1	18.4
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	0.018	0.012	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	0.64	0.51	1.35	<0.50	1.33	0.96	0.93
Total Iron (Fe)	ug/L	10	370	298	785	431	441	179	171
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	85.5	85.5	151	118	75.2	35.4	34.3
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.22	0.26	0.26	0.26	0.24	0.16	0.17
Total Silicon (Si)	ug/L	100	9620	11500	14000	11900	9150	7690	7440
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	159	147	162	160	147	136	129
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AVD814	AXE941	AZP522	BCY931	BGB944	BHW408	BHW413
			2022-06-15 09:30	2022-07-13 09:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 14:51	2022-11-28 14:51
			D-01	D-01	D-01	D-01	D-01	D-01	D-01 Dup
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	8.8	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	27.1	27.6	29.6	30.4	26.9	24.3	23.6
Total Magnesium (Mg)	mg/L	0.050	8.33	8.84	9.93	9.87	7.57	6.96	6.7
Total Potassium (K)	mg/L	0.050	1.60	1.55	1.74	1.67	2.23	2.13	2.06
Total Sodium (Na)	mg/L	0.050	12.6	10.9	10.4	9.81	11.3	32.8	31.9
Total Sulphur (S)	mg/L	3.0	5.5	5.3	7.1	5.3	8.8	6.5	6.3
Temperature	°C	--	12.0	13.4	17.4	14.4	9.4	5.4	--
Dissolved Oxygen	%	--	92.6	90.4	77.2	85.5	93.0	92.8	--
Dissolved Oxygen	mg/L	--	9.97	9.44	7.41	8.72	10.65	11.72	--
Specific Conductance	uS/cm	--	292.4	280.1	435.7	323.5	252.4	291.4	--
Salinity	psu	--	0.14	0.13	0.21	0.16	0.12	0.14	--
pH	pH Units	--	7.37	7.60	7.61	7.70	7.35	7.52	--
Turbidity	NTU	--	4.01	4.60	2.71	3.03	2.30	0.70	--

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BJT206	BKV692	BMP534	BOD905	BPJ743	ATF550	AVD815
			2022-12-24 12:16	2023-01-25 02:15	2023-02-28 11:30	2023-03-28 10:08	2023-04-25 16:43	2022-05-17 12:20	2022-06-15 10:30
			D-01	D-01	D-01	D-01	D-01	D-02	D-02
pH	pH	N/A	7.11	7.57	7.18	7.85	7.47	7.87	8.14
Total Ammonia (N)	mg/L	0.015	0.018	<0.015	0.060	<0.015	<0.015	0.017	0.026
Total Phosphorus (P)	mg/L	0.0030	0.014	0.0092	0.011	0.011	0.011	0.017	0.019
Nitrate plus Nitrite (N)	mg/L	0.0020	2.19	1.28	1.31	1.28	1.23	0.795	0.792
Nitrate (N)	mg/L	0.0020	2.19	1.27	1.30	1.28	1.23	0.792	0.788
Nitrite (N)	mg/L	0.0020	0.0054	0.0046	0.011	0.0021	0.0031	0.003	0.0042
Total Hardness (CaCO3)	mg/L	0.50	74.9	79.8	113	82.2	68.9	107	121
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Total Aluminum (Al)	ug/L	3.0	112	31.7	74.6	46.6	78.2	40.9	39.6
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.54	0.51	0.55	0.45	0.51	1.77	1.89
Total Barium (Ba)	ug/L	1.0	27.3	19.9	45.7	17.5	17.7	12.4	13.7
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.015	<0.010	0.018	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	1.12	0.84	0.74	0.72	1.13	<0.50	<0.50
Total Iron (Fe)	ug/L	10	224	182	272	193	285	547	554
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	38.2	34.9	58.1	30.1	24.6	156	207
Total Mercury (Hg)	ug/L	0.0019	0.0062	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.16	0.14	0.16	0.18	0.14	0.22	0.25
Total Silicon (Si)	ug/L	100	6350	7430	8120	7350	5920	10500	11800
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	134	127	222	127	111	150	174
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BJT206	BKV692	BMP534	BOD905	BPJ743	ATF550	AVD815
			2022-12-24 12:16	2023-01-25 02:15	2023-02-28 11:30	2023-03-28 10:08	2023-04-25 16:43	2022-05-17 12:20	2022-06-15 10:30
			D-01	D-01	D-01	D-01	D-01	D-02	D-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	21.6	21.8	31.5	22.2	19.4	27.8	31.8
Total Magnesium (Mg)	mg/L	0.050	5.12	6.14	8.37	6.47	5	9.1	10.1
Total Potassium (K)	mg/L	0.050	2.13	1.78	2.32	1.49	1.48	1.19	1.28
Total Sodium (Na)	mg/L	0.050	24.6	16.3	246	15.1	13.2	8.97	9.71
Total Sulphur (S)	mg/L	3.0	5.5	4.8	5.6	5.5	4.3	3.6	3.9
Temperature	°C	--	5.43	7.9	4.69	6.7	11.7	12.4	12.9
Dissolved Oxygen	%	--	99.7	101.4	110	103.5	103.9	88.8	84.2
Dissolved Oxygen	mg/L	--	12.5	12.04	14.07	12.6	11.4	9.52	8.9
Specific Conductance	uS/cm	--	282	251.2	158.1	266.1	232	266.4	315.5
Salinity	psu	--	NA	0.12	0.79	0.13	NA	0.13	0.15
pH	pH Units	--	7.51	7.63	7.62	7.42	7.45	NV	7.32
Turbidity	NTU	--	1.80	3.50	3.40	1.50	1.76	3.25	2.63

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AXE942	AZP523	BCY932	BGB945	BHW409	BKV684	BMP535
			2022-07-13 10:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 15:00	2023-01-25 02:47	2023-02-28 11:49
			D-02	D-02	D-02	D-02	D-02	D-02	D-02
pH	pH	N/A	7.89	8.01	8.12	7.72	7.57	7.55	7.67
Total Ammonia (N)	mg/L	0.015	0.028	0.022	0.045	0.02	0.018	0.016	0.026
Total Phosphorus (P)	mg/L	0.0030	0.016	0.022	0.023	0.019	0.0097	0.017	0.033
Nitrate plus Nitrite (N)	mg/L	0.0020	0.79	0.790	0.785	0.841	0.837	0.817	0.902
Nitrate (N)	mg/L	0.0020	0.786	0.786	0.783	0.838	0.833	0.813	0.899
Nitrite (N)	mg/L	0.0020	0.0041	0.0034	0.0027	0.0029	0.0033	0.0046	0.0031
Total Hardness (CaCO3)	mg/L	0.50	125	125	126	114	115	107	114
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	36.3	76.7	48.3	51.1	19.1	16.8	164
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	1.87	2.41	2.34	1.88	1.09	1.2	2.03
Total Barium (Ba)	ug/L	1.0	13.8	14.8	14.7	13.9	12.2	11.8	16.2
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.22	0.50
Total Iron (Fe)	ug/L	10	469	640	695	547	304	332	990
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	207	204	219	173	138	126	207
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0
Total Selenium (Se)	ug/L	0.10	0.24	0.28	0.26	0.24	0.23	0.23	0.24
Total Silicon (Si)	ug/L	100	13300	14900	12900	11800	11400	11400	11600
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	173	181	179	162	158	143	163
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AXE942	AZP523	BCY932	BGB945	BHW409	BKV684	BMP535
			2022-07-13 10:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 15:00	2023-01-25 02:47	2023-02-28 11:49
			D-02	D-02	D-02	D-02	D-02	D-02	D-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.4
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	33.3	32.4	33.1	30.3	30.2	27.7	29.6
Total Magnesium (Mg)	mg/L	0.050	10.2	10.6	10.5	9.39	9.6	9.17	9.70
Total Potassium (K)	mg/L	0.050	1.32	1.50	1.53	1.73	1.69	1.6	1.63
Total Sodium (Na)	mg/L	0.050	10.1	10.4	10.1	9.43	18	9.48	28.7
Total Sulphur (S)	mg/L	3.0	3.3	4.9	4.3	4.4	4.7	3.9	4.8
Temperature	°C	--	13.5	17.1	14.7	9.0	5.6	9.00	5.08
Dissolved Oxygen	%	--	87.2	78.8	76.9	77.7	79.3	86.6	100.6
Dissolved Oxygen	mg/L	--	9.04	7.63	7.8	8.94	9.96	9.99	12.7
Specific Conductance	uS/cm	--	304.7	490.6	334.4	277.7	272.6	253.1	398
Salinity	psu	--	0.15	0.24	0.16	0.13	0.13	0.13	0.19
pH	pH Units	--	7.39	7.43	NV	7.11	7.34	7.36	7.47
Turbidity	NTU	--	4.43	6.32	3.60	0.61	0.60	1.30	5.40

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BOD906	BPJ744	ATH840	ATH837	AVF134	AXH208	AZP524
			2023-03-28 10:11	2023-04-25 16:34	2022-05-18 17:10	2022-05-18 17:10	2022-06-16 12:12	2022-07-14 13:00	2022-08-15
			D-02	D-02	F-01	F-01 Dup	F-01	F-01	F-01
pH	pH	N/A	7.90	7.27	7.55	7.54	7.90	8.02	8.10
Total Ammonia (N)	mg/L	0.015	0.038	0.097	0.076	0.073	0.054	0.026	0.027
Total Phosphorus (P)	mg/L	0.0030	0.018	0.095	0.028	0.028	0.026	0.026	0.018
Nitrate plus Nitrite (N)	mg/L	0.0020	0.755	0.127	0.685	0.692	0.656	0.449	0.335
Nitrate (N)	mg/L	0.0020	0.752	0.124	0.671	0.679	0.641	0.437	0.327
Nitrite (N)	mg/L	0.0020	0.0025	0.0027	0.0135	0.0131	0.0142	0.0123	0.0083
Total Hardness (CaCO3)	mg/L	0.50	113	88	69.6	67.6	110	130	127
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.056	0.055
Total Aluminum (Al)	ug/L	3.0	35.2	2950	146	147	70.9	80.9	41.3
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	1.58	9.22	1.34	1.29	1.88	2.6	2.22
Total Barium (Ba)	ug/L	1.0	12.9	53.8	15.4	15.1	20	22.2	20.9
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	0.104	<0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	7.5	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	3.07	<0.20	<0.20	<0.20	0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.50	8.28	2.36	2.37	2.02	1.35	1.21
Total Iron (Fe)	ug/L	10	645	9240	564	566	860	919	408
Total Lead (Pb)	ug/L	0.20	<0.20	2.2	<0.20	<0.20	<0.20	0.39	0.52
Total Lithium (Li)	ug/L	2.0	<2.0	2.2	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	265	1360	115	115	169	249	83.3
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	0.0028	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	1.1
Total Nickel (Ni)	ug/L	1.0	<1.0	6.5	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.23	0.39	0.11	0.11	0.15	0.15	<0.10
Total Silicon (Si)	ug/L	100	11500	13500	4290	4120	7050	7850	9150
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	148	109	107	103	177	183	183
Total Thallium (Tl)	ug/L	0.010	<0.010	0.016	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BOD906	BPJ744	ATH840	ATH837	AVF134	AXH208	AZP524
			2023-03-28 10:11	2023-04-25 16:34	2022-05-18 17:10	2022-05-18 17:10	2022-06-16 12:12	2022-07-14 13:00	2022-08-15
			D-02	D-02	F-01	F-01 Dup	F-01	F-01	F-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	125	5.9	6.1	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	0.16	<0.10	<0.10	<0.10	0.16	0.15
Total Vanadium (V)	ug/L	5.0	<5.0	9.9	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	36.8	5.7	5.6	6.2	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	0.51	0.78	<0.10	0.11	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	29.8	22.5	19.6	19.0	30.1	34.6	33
Total Magnesium (Mg)	mg/L	0.050	9.30	7.71	5.03	4.92	8.37	10.6	10.9
Total Potassium (K)	mg/L	0.050	1.4	1.57	1.36	1.34	1.91	2.02	2.17
Total Sodium (Na)	mg/L	0.050	9.62	9.61	10.0	9.84	15.8	17.4	15.2
Total Sulphur (S)	mg/L	3.0	4.2	3.9	4.0	4.0	5.4	5.7	4.6
Temperature	°C	--	7.9	11.9	12.1	12.1	14.4	19.5	22.4
Dissolved Oxygen	%	--	92.3	58.3	83.3	83.3	80.1	81.7	57.3
Dissolved Oxygen	mg/L	--	10.78	6.34	9.0	9.0	8.18	7.49	4.96
Specific Conductance	uS/cm	--	270.7	212	198.5	198.5	304.3	359.1	534
Salinity	psu	--	0.13	NA	0.09	0.09	0.15	0.17	0.07
pH	pH Units	--	7.24	6.82	7.38	7.38	7.47	7.88	7.72
Turbidity	NTU	--	2.30	26.1	4.92	4.92	5.51	5.16	2.74

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AZP527	BDB698	BGB946	BHW410	BJT207	BKT723	BMP536
			2022-08-15	2022-09-28	2022-11-01	2022-11-28 11:15	2022-12-29 11:46	2023-01-24 14:05	2023-02-28 10:59
			F-01 Dup	F-01	F-01	F-01	F-01	F-01	F-01
pH	pH	N/A	7.24	8.11	7.30	7.25	7.02	7.37	7.34
Total Ammonia (N)	mg/L	0.015	<0.015	0.024	0.041	0.052	0.038	0.14	0.12
Total Phosphorus (P)	mg/L	0.0030	0.0082	0.076	0.027	0.022	0.018	0.030	0.012
Nitrate plus Nitrite (N)	mg/L	0.0020	2.80	0.202	1.89	1.15	2.21	1.14	1.11
Nitrate (N)	mg/L	0.0020	2.80	0.194	1.87	1.14	2.20	1.12	1.09
Nitrite (N)	mg/L	0.0020	<0.0020	0.0078	0.0139	0.0099	0.0078	0.0263	0.0151
Total Hardness (CaCO3)	mg/L	0.50	106	120	87.5	74.1	103	85.9	122
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	15.3	128	78.9	124	101	238	93.8
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.44	2.71	1.2	0.94	0.75	1.39	0.58
Total Barium (Ba)	ug/L	1.0	13.6	22.6	19.9	24.8	33.4	27.1	47.5
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	0.021	0.019	0.015	0.018
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	0.25	<0.20	<0.20	<0.20	0.21	<0.20
Total Copper (Cu)	ug/L	0.50	0.66	1.1	2.57	2.41	1.97	2.56	1.38
Total Iron (Fe)	ug/L	10	79	1220	287	339	331	563	499
Total Lead (Pb)	ug/L	0.20	<0.20	0.38	<0.20	<0.20	<0.20	0.32	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	12.7	260	72.3	70.8	97	118	171
Total Mercury (Hg)	ug/L	0.0019	0.0024	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.22	0.11	0.18	0.12	0.13	0.1	0.12
Total Silicon (Si)	ug/L	100	12000	8240	4510	3700	4960	4940	5470
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	159	151	135	118	192	145	249
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AZP527	BDB698	BGB946	BHW410	BJT207	BKT723	BMP536
			2022-08-15	2022-09-28	2022-11-01	2022-11-28 11:15	2022-12-29 11:46	2023-01-24 14:05	2023-02-28 10:59
			F-01 Dup	F-01	F-01	F-01	F-01	F-01	F-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	5.2	<5.0	5.2	<5.0	17.9	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	0.16	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	5.2	10.2	9.9	11.7	9.8
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	0.12	0.23	0.28	<0.10
Total Calcium (Ca)	mg/L	0.050	30.1	31.9	25.6	21.5	30	24.3	34.8
Total Magnesium (Mg)	mg/L	0.050	7.44	9.89	5.72	4.96	6.74	6.1	8.51
Total Potassium (K)	mg/L	0.050	1.71	1.92	2.05	1.85	2.07	1.59	3.34
Total Sodium (Na)	mg/L	0.050	19.5	11.9	10.1	90.9	42.7	50	248
Total Sulphur (S)	mg/L	3.0	5.2	5.6	11.5	6.5	6.5	4.2	6.2
Temperature	°C	--	--	15.7	10.9	5.8	5.79	7.2	4.86
Dissolved Oxygen	%	--	--	77.2	84.9	86.8	90.2	93.7	100.3
Dissolved Oxygen	mg/L	--	--	7.62	9.39	10.85	11.25	11.29	12.79
Specific Conductance	uS/cm	--	--	337.5	237	525.7	426	465.9	165.2
Salinity	psu	--	--	0.16	0.11	0.25	NA	0.22	0.83
pH	pH Units	--	--	NV	7.36	7.21	7.21	7.09	7.49
Turbidity	NTU	--	--	7.7	2.57	4.1	2.7	11.1	4.3

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BMP549	BOD907	BPJ745	ATH841	AVF136	AVF131	AXH209
			2023-02-28 10:53	2023-03-28 09:40	2023-04-25 14:13	2022-05-18 15:00	2022-06-16 11:02	2022-06-16 11:20	2022-07-14 14:30
			F-01 Dup	F-01	F-01	F-02	F-02	F-02 Dup	F-02
pH	pH	N/A	7.26	7.95	7.60	7.45	7.69	7.64	7.53
Total Ammonia (N)	mg/L	0.015	0.12	0.034	0.028	<0.015	0.031	0.031	0.12
Total Phosphorus (P)	mg/L	0.0030	0.014	0.033	0.057	0.025	0.027	0.027	0.059
Nitrate plus Nitrite (N)	mg/L	0.0020	1.08	1.07	1.43	0.126	0.122	0.109	0.0274
Nitrate (N)	mg/L	0.0020	1.06	1.05	1.43	0.122	0.118	0.104	0.0199
Nitrite (N)	mg/L	0.0020	0.014	0.0132	0.0083	0.0032	0.0045	0.005	0.0075
Total Hardness (CaCO3)	mg/L	0.50	124	111	96.3	57.5	75.4	71.6	92.9
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.078
Total Aluminum (Al)	ug/L	3.0	94.6	175	91.3	97.1	26.4	24.1	41.9
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.64	1.12	0.93	0.52	0.82	0.79	3.19
Total Barium (Ba)	ug/L	1.0	49.5	25.0	22.4	15.3	18.8	17.7	53.7
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.019	0.014	0.01	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	0.26	<0.20	<0.20	0.23	0.2	1.58
Total Copper (Cu)	ug/L	0.50	1.41	2.09	2.34	1.76	0.84	0.79	0.66
Total Iron (Fe)	ug/L	10	520	846	469	443	730	691	4910
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	175	190	125	33.5	191	180	3930
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	0.0022	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	1.2
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	7.9	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.12	0.17	0.14	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	5630	5680	5400	2710	4530	4290	5320
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	255	171	153	89.8	126	124	155
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BMP549	BOD907	BPJ745	ATH841	AVF136	AVF131	AXH209
			2023-02-28 10:53	2023-03-28 09:40	2023-04-25 14:13	2022-05-18 15:00	2022-06-16 11:02	2022-06-16 11:20	2022-07-14 14:30
			F-01 Dup	F-01	F-01	F-02	F-02	F-02 Dup	F-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	5.1	7.2	<5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	9.9	6.1	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	0.1	0.11	0.1	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	35.5	30.6	27.5	16.3	21.4	20.4	26.0
Total Magnesium (Mg)	mg/L	0.050	8.70	8.35	6.71	4.04	5.32	5.01	6.8
Total Potassium (K)	mg/L	0.050	3.51	2.01	1.77	0.796	1.43	1.37	1.28
Total Sodium (Na)	mg/L	0.050	256	27.6	19	10.6	12.6	11.9	17.4
Total Sulphur (S)	mg/L	3.0	6.1	6.8	6	<3.0	<3.0	<3.0	<3.0
Temperature	°C	--	--	7.2	11.4	11.7	14.4	--	16.8
Dissolved Oxygen	%	--	--	100	NV	60.1	50.0	--	8.4
Dissolved Oxygen	mg/L	--	--	12.09	NV	6.23	5.07	--	0.81
Specific Conductance	uS/cm	--	--	380.3	303	103	221.2	--	297
Salinity	psu	--	--	0.18	NA	0.05	0.11	--	0.14
pH	pH Units	--	--	7.35	7.3	6.89	6.99	--	6.87
Turbidity	NTU	--	--	3.9	4.04	2.99	4.6	--	12.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AZP525	BDB699	BGB947	BHW411	BJT208	BKT724	BMP537
			2022-08-15	2022-09-28	2022-11-01	2022-11-28 09:54	2022-12-29 09:30	2023-01-24 11:06	2023-02-28 10:00
			F-02	F-02	F-02	F-02	F-02	F-02	F-02
pH	pH	N/A	7.80	7.46	6.75	6.96	6.83	7.23	6.97
Total Ammonia (N)	mg/L	0.015	0.068	0.095	<0.015	0.029	<0.015	0.085	0.053
Total Phosphorus (P)	mg/L	0.0030	0.012	0.078	0.015	0.011	0.010	0.027	0.014
Nitrate plus Nitrite (N)	mg/L	0.0020	0.0196	0.106	0.563	0.702	1.59	0.966	0.84
Nitrate (N)	mg/L	0.0020	0.0144	0.104	0.559	0.699	1.58	0.952	0.834
Nitrite (N)	mg/L	0.0020	0.0052	0.0021	0.0039	0.0038	0.0065	0.0138	0.0053
Total Hardness (CaCO3)	mg/L	0.50	91	44.5	40.3	57.5	58	66.1	96.1
Dissolved Fluoride (F)	mg/L	0.050	0.064	0.054	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	15.8	531	47.5	71.2	105	488	134
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	1.38	1.44	0.46	0.28	0.46	0.41	0.2
Total Barium (Ba)	ug/L	1.0	24.8	21.9	20.8	26	27.8	34.6	47
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.011	0.024	0.01	0.013	0.011	0.031	0.027
Total Chromium (Cr)	ug/L	1.0	<1.0	1.3	<1.0	<1.0	<1.0	1.1	4.8
Total Cobalt (Co)	ug/L	0.20	0.44	0.72	<0.20	<0.20	<0.20	0.48	0.22
Total Copper (Cu)	ug/L	0.50	0.53	2.63	1.99	1.8	1.75	2.77	1.65
Total Iron (Fe)	ug/L	10	1840	2300	202	192	207	709	367
Total Lead (Pb)	ug/L	0.20	<0.20	0.82	<0.20	<0.20	<0.20	0.40	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	1150	521	22.8	19.3	11.8	48	49.7
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	1.1	<1.0	<1.0	<1.0	1.2	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	6030	4500	2360	3130	3450	5340	3980
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	151	65.4	60.7	82.8	98.6	124	181
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AZP525	BDB699	BGB947	BHW411	BJT208	BKT724	BMP537
			2022-08-15	2022-09-28	2022-11-01	2022-11-28 09:54	2022-12-29 09:30	2023-01-24 11:06	2023-02-28 10:00
			F-02	F-02	F-02	F-02	F-02	F-02	F-02
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	24.2	<5.0	<5.0	<5.0	16.5	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	12.2	17.8	13.9	12.4	25.9	20.3
Total Zirconium (Zr)	ug/L	0.10	<0.10	0.1	<0.10	<0.10	0.1	0.23	0.12
Total Calcium (Ca)	mg/L	0.050	25.4	12.5	12.2	16.6	17.2	21.1	27.8
Total Magnesium (Mg)	mg/L	0.050	6.7	3.22	2.4	3.91	3.64	4.84	6.45
Total Potassium (K)	mg/L	0.050	1.33	1.4	1.55	1.85	1.9	1.82	2.25
Total Sodium (Na)	mg/L	0.050	18.5	7.56	6.05	44.7	46.9	36.8	200
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	6.2	5.2	4.1	4.3	4.4
Temperature	°C	--	18.6	14.7	9.8	4.1	3.55	5.5	1.82
Dissolved Oxygen	%	--	14.8	56.7	34	58.6	69.6	60.9	71.4
Dissolved Oxygen	mg/L	--	1.37	5.74	3.87	7.55	8.55	7.66	9.85
Specific Conductance	uS/cm	--	429.1	159.1	121.6	300.8`	362	331.4	133.2
Salinity	psu	--	0.21	0.08	0.06	0.14	NA	0.16	0.66
pH	pH Units	--	6.87	NV	6.52	7.93	6.78	6.54	7.05
Turbidity	NTU	--	6.25	11.3	4.13	3.1	3.5	10.4	5.7

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BOD908	BPJ746	BPJ748			BDB482	BDB695
			2023-03-28 08:45	2023-04-25 13:14	2023-04-25 13:35	2022-07-14 18:22	2022-08-17 12:50	2022-09-28	2022-09-28
			F-02	F-02	F-02 Dup	F-03	F-03	F-03	F-03 Dup
pH	pH	N/A	7.58	7.27	7.15	--	--	7.83	7.92
Total Ammonia (N)	mg/L	0.015	0.018	<0.015	<0.015	--	--	0.13	0.14
Total Phosphorus (P)	mg/L	0.0030	0.0093	0.012	0.011	--	--	0.037	0.092
Nitrate plus Nitrite (N)	mg/L	0.0020	0.407	0.53	0.53			0.113	0.203
Nitrate (N)	mg/L	0.0020	0.407	0.527	0.528	--	--	0.106	0.195
Nitrite (N)	mg/L	0.0020	<0.0020	0.0028	0.0021	--	--	0.0067	0.0082
Total Hardness (CaCO3)	mg/L	0.50	69.1	53	52.1	--	--	102	107
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	--	--	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	31.8	45.8	49.3	--	--	59.4	103
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	--	--	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.30	0.34	0.34	--	--	0.94	1.17
Total Barium (Ba)	ug/L	1.0	23.0	16.6	16.7	--	--	29.2	34.4
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	--	--	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	--	--	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	--	--	0.03	0.036
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	--	--	0.98	1.12
Total Copper (Cu)	ug/L	0.50	1.34	1.63	1.61	--	--	0.77	1.43
Total Iron (Fe)	ug/L	10	227	198	199	--	--	649	705
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	--	--	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	--	--	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	45.3	23	23	--	--	7080	7400
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	--	--	<0.019 (1)	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	--	--	1.8	1.8
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	--	--	3.1	3.4
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	--	--	0.16	0.17
Total Silicon (Si)	ug/L	100	2430	1950	1930	--	--	8900	9030
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	--	--	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	109	83.1	82.2	--	--	126	128
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	--	--	<0.010	<0.010

Parameter	UNITS	RDL	BOD908	BPJ746	BPJ748			BDB482	BDB695
			2023-03-28 08:45	2023-04-25 13:14	2023-04-25 13:35	2022-07-14 18:22	2022-08-17 12:50	2022-09-28	2022-09-28
			F-02	F-02	F-02 Dup	F-03	F-03	F-03	F-03 Dup
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	--	--	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	--	--	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	--	--	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	--	--	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	6.9	5.4	5.5	--	--	7.3	11
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	--	--	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	19.6	15.4	15.1	--	--	27.3	28.5
Total Magnesium (Mg)	mg/L	0.050	4.92	3.53	3.51	--	--	8.32	8.77
Total Potassium (K)	mg/L	0.050	1.42	1.07	1.08	--	--	3.41	6.74
Total Sodium (Na)	mg/L	0.050	29.0	13.4	13.4	--	--	9.48	9.77
Total Sulphur (S)	mg/L	3.0	3.9	3.2	3.2	--	--	8.9	10.3
Temperature	°C	--	6	11.6	11.6	20.2	15.1	12.1	--
Dissolved Oxygen	%	--	66.1	86.9	83.3	60.1	75.3	78.6	--
Dissolved Oxygen	mg/L	--	8.08	9.49	9.10	5.43	76.2	8.44	--
Specific Conductance	uS/cm	--	296.1	187	137	231.5	435.9	327.2	--
Salinity	psu	--	0.14	NA	NA	0.11	0.21	0.16	--
pH	pH Units	--	6.87	6.94	6.93	6.68	6.84	NV	--
Turbidity	NTU	--	3.3	2.56	2.66	2.94	9.07	5.05	--

RDL = Reportable Detection Limit

Parameter	UNITS	RDL				BDB483	BFS354	ATH834	AVF130
			2022-11-01	2022-07-14	2022-08-17	2022-09-28	2022-10-27	2022-05-18 16:55	2022-06-16 11:45
			F-03	F-04	F-04	F-04	F-04	FOF	FOF
pH	pH	N/A	--	--	--	7.33	6.72	7.59	7.49
Total Ammonia (N)	mg/L	0.015	--	--	--	0.019	<0.015	0.066	0.085
Total Phosphorus (P)	mg/L	0.0030	--	--	--	0.020	0.052	0.03	0.036
Nitrate plus Nitrite (N)	mg/L	0.0020				2.65	0.437	0.57	0.352
Nitrate (N)	mg/L	0.0020	--	--	--	2.65	0.433	0.558	0.341
Nitrite (N)	mg/L	0.0020	--	--	--	0.0056	0.0037	0.0119	0.0103
Total Hardness (CaCO3)	mg/L	0.50	--	--	--	87.6	77.5	60.3	76.9
Dissolved Fluoride (F)	mg/L	0.050	--	--	--	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	--	--	--	144	238	129	49.0
Total Antimony (Sb)	ug/L	0.50	--	--	--	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	--	--	--	0.52	0.74	1.15	1.85
Total Barium (Ba)	ug/L	1.0	--	--	--	14.5	28	13.8	24.5
Total Beryllium (Be)	ug/L	0.10	--	--	--	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	--	--	--	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	--	--	--	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	--	--	--	0.014	0.021	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	--	--	--	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	--	--	--	0.37	0.26	<0.20	0.32
Total Copper (Cu)	ug/L	0.50	--	--	--	1.26	2.87	2.65	1.92
Total Iron (Fe)	ug/L	10	--	--	--	485	834	718	1660
Total Lead (Pb)	ug/L	0.20	--	--	--	<0.20	0.24	0.45	0.27
Total Lithium (Li)	ug/L	2.0	--	--	--	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	--	--	--	460	105	70.7	368
Total Mercury (Hg)	ug/L	0.0019	--	--	--	<0.019 (1)	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	--	--	--	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	--	--	--	<1.0	1.6	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	--	--	--	0.19	0.1	<0.10	<0.10
Total Silicon (Si)	ug/L	100	--	--	--	8010	4520	3520	5420
Total Silver (Ag)	ug/L	0.020	--	--	--	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	--	--	--	151	122	93.3	135
Total Thallium (Tl)	ug/L	0.010	--	--	--	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL				BDB483	BFS354	ATH834	AVF130
			2022-11-01	2022-07-14	2022-08-17	2022-09-28	2022-10-27	2022-05-18 16:55	2022-06-16 11:45
			F-03	F-04	F-04	F-04	F-04	FOF	FOF
Total Tin (Sn)	ug/L	5.0	--	--	--	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	--	--	--	6.2	9.8	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	--	--	--	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	--	--	--	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	--	--	--	<5.0	16.2	6.8	13.7
Total Zirconium (Zr)	ug/L	0.10	--	--	--	<0.10	0.1	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	--	--	--	24.2	22.1	16.9	21.7
Total Magnesium (Mg)	mg/L	0.050	--	--	--	6.61	5.46	4.36	5.51
Total Potassium (K)	mg/L	0.050	--	--	--	3.39	5.06	1.19	1.35
Total Sodium (Na)	mg/L	0.050	--	--	--	7.27	12	10.1	13.6
Total Sulphur (S)	mg/L	3.0	--	--	--	6.6	16.7	3.5	3.1
Temperature	°C	--	9.7	13.9	12.8	11.1	9.8	13.1	14.8
Dissolved Oxygen	%	--	72.8	44.9	72.5	23.2	64	79.5	38.8
Dissolved Oxygen	mg/L	--	8.34	4.56	7.65	2.43	7.23	8.39	3.91
Specific Conductance	uS/cm	--	123.2	268	235.7	249.4	240.9	188	237.4
Salinity	psu	--	0.06	0.13	0.20	0.12	0.11	0.09	0.11
pH	pH Units	--	6.6	6.68	6.25	6.21	6.09	7.15	6.63
Turbidity	NTU	--	7.45	4.66	3.48	4.64	9.77	5.22	5.16

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AXH202	AZP526	BDB484	BGB940	BHW412	BJT231	BKT721
			2022-07-14 13:45	2022-08-15	2022-09-28	2022-11-01	2022-11-28 10:59	2022-12-29 11:30	2023-01-24 01:40
			FOF	FOF	FOF	FOF	FOF	FOF	FOF
pH	pH	N/A	7.64	7.81	7.84	6.87	7.00	6.78	7.40
Total Ammonia (N)	mg/L	0.015	0.13	0.077	0.32	0.041	0.054	0.068	0.23
Total Phosphorus (P)	mg/L	0.0030	0.018	0.021	0.03	0.026	0.017	0.021	0.032
Nitrate plus Nitrite (N)	mg/L	0.0020	0.252	0.0796	0.0222	0.630	0.987	1.55	1.09
Nitrate (N)	mg/L	0.0020	0.24	0.0611	0.0154	0.62	0.977	1.54	1.06
Nitrite (N)	mg/L	0.0020	0.0115	0.0185	0.0068	0.0097	0.0096	0.0126	0.0318
Total Hardness (CaCO3)	mg/L	0.50	118	106	112	43.6	72.9	62.3	78
Dissolved Fluoride (F)	mg/L	0.050	0.059	0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	45.7	19.6	19.2	75.0	119	146	504
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	2.59	2.72	1.87	1.16	0.78	1.12	0.98
Total Barium (Ba)	ug/L	1.0	28.2	30.8	31.8	15	25.8	31.1	39.9
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	0.02	0.027	0.035
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	1.5
Total Cobalt (Co)	ug/L	0.20	0.39	0.29	0.27	<0.20	<0.20	0.2	0.47
Total Copper (Cu)	ug/L	0.50	1.00	0.71	<0.50	2.33	2.81	2.1	3.95
Total Iron (Fe)	ug/L	10	2220	2280	1990	323	417	418	1070
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	0.28	<0.20	0.74
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	639	677	340	25.4	37.7	89	107
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	1.3
Total Selenium (Se)	ug/L	0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	7110	8790	6100	2730	3880	3740	5420
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	180	169	149	67.1	111	108	132
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AXH202	AZP526	BDB484	BGB940	BHW412	BJT231	BKT721
			2022-07-14 13:45	2022-08-15	2022-09-28	2022-11-01	2022-11-28 10:59	2022-12-29 11:30	2023-01-24 01:40
			FOF	FOF	FOF	FOF	FOF	FOF	FOF
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	5.8	5.2	21.7
Total Uranium (U)	ug/L	0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	9.7	10.7	15.5	9.4	14.3	15.9	31
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	0.14	0.12	0.27
Total Calcium (Ca)	mg/L	0.050	31.5	28.5	30.2	12.8	21.3	18.6	23.4
Total Magnesium (Mg)	mg/L	0.050	9.69	8.37	9	2.84	4.79	3.84	5.17
Total Potassium (K)	mg/L	0.050	1.77	1.48	2.05	1.73	2.01	1.8	1.63
Total Sodium (Na)	mg/L	0.050	18.6	16	13.1	6.25	71.9	57	67.5
Total Sulphur (S)	mg/L	3.0	4.1	3.9	4.7	4.2	6.8	4.2	4.1
Temperature	°C	--	18.7	19.8	15.2	9.9	5.3	3.55	6.8
Dissolved Oxygen	%	--	18.1	11.5	3.5	40.4	57.3	53.5	59.7
Dissolved Oxygen	mg/L	--	1.67	1.02	0.35	4.52	7.22	7.09	7.37
Specific Conductance	uS/cm	--	338.8	337.8	336.3	124.9	419.8	413	561.8
Salinity	psu	--	0.16	0.07	0.16	0.06	0.2	NA	0.27
pH	pH Units	--	6.97	6.95	NV	6.68	6.93	6.61	6.56
Turbidity	NTU	--	9.26	8.95	11.8	1.77	4.3	4.8	15.9

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BMP548	BOD911	BPJ747	ATH833	AVD809	AXH204	AZP516
			2023-02-28 10:30	2023-03-28 09:20	2023-04-25 18:13	2022-05-18 10:52	2022-06-15 15:15	2022-07-14 10:00	2022-08-15
			FOF	FOF	FOF	H-01	H-01	H-01	H-01
pH	pH	N/A	7.00	7.39	7.24	7.06	7.28	7.04	7.15
Total Ammonia (N)	mg/L	0.015	0.097	0.045	0.024	0.056	<0.015	0.020	<0.015
Total Phosphorus (P)	mg/L	0.0030	0.018	0.033	0.027	0.024	0.011	0.0099	0.012
Nitrate plus Nitrite (N)	mg/L	0.0020	0.857	0.444	0.643	2.33	3.07	2.93	2.77
Nitrate (N)	mg/L	0.0020	0.847	0.439	0.638	2.32	3.07	2.93	2.77
Nitrite (N)	mg/L	0.0020	0.0094	0.0051	0.0054	0.0059	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO3)	mg/L	0.50	86.4	76.4	61.1	82.5	118	109	103
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	87.0	123	110	92.6	7.2	7.7	35.7
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.49	0.80	0.84	0.50	0.48	0.5	0.59
Total Barium (Ba)	ug/L	1.0	39.5	24.4	18.8	12.9	15.8	14.6	14.4
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.023	<0.010	0.011	0.022	0.022	0.016	0.02
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	0.29	0.80	0.22	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	1.4	1.72	3.43	4.2	0.73	0.72	1.05
Total Iron (Fe)	ug/L	10	565	879	513	182	56	228	116
Total Lead (Pb)	ug/L	0.20	0.23	0.22	0.24	0.38	<0.20	<0.20	0.38
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	105	125	57	11.9	16.1	19.3	12.9
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	0.0047	0.0109	0.0055	0.0085	0.0022
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	0.14	0.23	0.22	0.28
Total Silicon (Si)	ug/L	100	4330	2360	1930	7400	10400	9720	11600
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.028
Total Strontium (Sr)	ug/L	1.0	165	126	102	118	181	159	163
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BMP548	BOD911	BPJ747	ATH833	AVD809	AXH204	AZP516
			2023-02-28 10:30	2023-03-28 09:20	2023-04-25 18:13	2022-05-18 10:52	2022-06-15 15:15	2022-07-14 10:00	2022-08-15
			FOF	FOF	FOF	H-01	H-01	H-01	H-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	5	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	39.8	12.4	8	19.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	0.11	0.13	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	24.9	21.5	17.5	23.4	33.5	31.0	28.6
Total Magnesium (Mg)	mg/L	0.050	5.90	5.53	4.2	5.83	8.42	7.74	7.52
Total Potassium (K)	mg/L	0.050	2.17	1.53	1.34	1.34	1.84	1.72	1.74
Total Sodium (Na)	mg/L	0.050	149	30.7	16	14.3	21.4	20.1	20.2
Total Sulphur (S)	mg/L	3.0	4.8	4.0	3.5	5.0	7.3	7.3	6.7
Temperature	°C	--	3.22	7.9	13.2	12.3	12.9	12.9	12.9
Dissolved Oxygen	%	--	100.5	48.1	77.7	79.6	64.1	49.0	60.9
Dissolved Oxygen	mg/L	--	13.3	5.7	8.17	8.5	6.79	5.17	6.39
Specific Conductance	uS/cm	--	107.9	339.2	221	229.1	400.8	367.4	570.6
Salinity	psu	--	0.53	0.2	NA	0.11	0.19	0.18	0.08
pH	pH Units	--	6.92	6.53	6.99	6.3	6.36	6.33	6.3
Turbidity	NTU	--	5.5	4.1	3.91	4.6	1.38	3.03	2.17

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BCY925	BFS348	BHW402	BJT200	BKV690	BMP528	BOD900
			2022-09-27	2022-10-27	2022-11-28 11:25	2022-12-24 03:18	2023-01-25 03:40	2023-02-28 14:45	2023-03-28 13:35
			H-01	H-01	H-01	H-01	H-01	H-01	H-01
pH	pH	N/A	7.67	6.64	6.49	6.76	6.93	6.91	6.97
Total Ammonia (N)	mg/L	0.015	<0.015	0.061	0.52	0.47	0.026	0.33	<0.015
Total Phosphorus (P)	mg/L	0.0030	0.16	0.021	0.031	0.28	0.088	0.055	0.011
Nitrate plus Nitrite (N)	mg/L	0.0020	1.15	1.14	0.466	0.297	2.15	0.444	2.69
Nitrate (N)	mg/L	0.0020	1.06	1.12	0.446	0.238	2.14	0.423	2.68
Nitrite (N)	mg/L	0.0020	0.0902	0.0162	0.0201	0.0591	0.0077	0.021	0.0031
Total Hardness (CaCO3)	mg/L	0.50	99.1	43.1	72.9	31.9	101	21.9	114
Dissolved Fluoride (F)	mg/L	0.050	0.053	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	214	48.8	141	5030	257	857	6.1
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<2.5	4.09	<0.50	0.7	<0.50
Total Arsenic (As)	ug/L	0.10	1.99	0.51	0.56	2.32	1.0	0.76	0.45
Total Barium (Ba)	ug/L	1.0	17.7	9.5	89.7	84.1	19.2	23.1	15.1
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.50	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<5.0	1.3	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<250	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.033	0.014	0.323	0.166	0.034	0.062	0.02
Total Chromium (Cr)	ug/L	1.0	<1.0	1.4	<5.0	15.3	<1.0	10.4	<1.0
Total Cobalt (Co)	ug/L	0.20	0.20	<0.20	<1.0	3	0.24	0.57	<0.20
Total Copper (Cu)	ug/L	0.50	13.9	8.53	6.2	46.3	9.2	9.16	1.46
Total Iron (Fe)	ug/L	10	1600	177	227	7380	600	1100	144
Total Lead (Pb)	ug/L	0.20	0.9	0.21	<1.0	17.9	2.11	2.19	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<10	3.7	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	50.6	7.3	85.9	165	26.7	31.7	14.5
Total Mercury (Hg)	ug/L	0.0019	0.192	0.0343	0.01	0.003	0.0514	0.0329	0.0676
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<5.0	2	<1.0	9.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<5.0	8.5	<1.0	32.8	<1.0
Total Selenium (Se)	ug/L	0.10	0.24	<0.10	<0.50	<0.10	0.22	<0.10	0.25
Total Silicon (Si)	ug/L	100	9570	4210	1300	7370	9150	2570	9710
Total Silver (Ag)	ug/L	0.020	0.785	0.023	<0.10	0.15	<0.020	0.073	0.038
Total Strontium (Sr)	ug/L	1.0	150	56.5	109	38.4	151	41.3	164
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.050	0.022	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BCY925	BFS348	BHW402	BJT200	BKV690	BMP528	BOD900
			2022-09-27	2022-10-27	2022-11-28 11:25	2022-12-24 03:18	2023-01-25 03:40	2023-02-28 14:45	2023-03-28 13:35
			H-01	H-01	H-01	H-01	H-01	H-01	H-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	9.3	<5.0	<25	184	7.9	39.6	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.50	0.12	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<25	12.4	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	14.2	21.9	134	315	27.8	66.2	<5.0
Total Zirconium (Zr)	ug/L	0.10	0.17	0.24	0.92	1.62	0.10	0.50	<0.10
Total Calcium (Ca)	mg/L	0.050	28.3	12.4	20.2	7.45	28.4	6.71	32.3
Total Magnesium (Mg)	mg/L	0.050	6.93	2.95	5.47	3.22	7.3	1.24	8.11
Total Potassium (K)	mg/L	0.050	1.72	1.09	6.76	1.17	1.76	1.10	1.59
Total Sodium (Na)	mg/L	0.050	18.0	8.84	820	64.3	30.6	295	19.8
Total Sulphur (S)	mg/L	3.0	5.9	<3.0	<15	<3.0	5.0	<3.0	5.9
Temperature	°C	--	13.5	13.2	8.1	5.15	11.5	5.83	13.0
Dissolved Oxygen	%	--	47.6	60.1	91.6	101.1	59.1	109	62
Dissolved Oxygen	mg/L	--	4.90	6.33	10.69	12.84	6.4	13.54	6.53
Specific Conductance	uS/cm	--	368.6	247.2	3541	335	371.2	160.4	364
Salinity	psu	--	0.18	0.11	1.87	NA	0.2	0.81	0.18
pH	pH Units	--	6.44	6.38	6.43	7.28	6.5	6.92	6.28
Turbidity	NTU	--	3.89	3.97	6.2	Over-range	3.3	33.6	0.6

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BPJ737	ATF551	AVD810	AXE943	AZP517	BCY926	BFS349
			2023-04-25 16:08	2022-05-17 18:31	2022-06-15 12:55	2022-07-13 14:50	2022-08-15	2022-09-27	2022-10-27
			H-01	H-02	H-02	H-02	H-02	H-02	H-02
pH	pH	N/A	6.77	7.86	7.99	7.94	7.98	8.03	7.25
Total Ammonia (N)	mg/L	0.015	0.037	0.019	0.024	0.018	0.02	0.016	0.041
Total Phosphorus (P)	mg/L	0.0030	0.24	0.018	0.015	0.012	0.02	0.042	0.014
Nitrate plus Nitrite (N)	mg/L	0.0020	1.6	1.47	1.53	1.55	1.5	1.37	1.49
Nitrate (N)	mg/L	0.0020	1.59	1.47	1.53	1.55	1.49	1.37	1.48
Nitrite (N)	mg/L	0.0020	0.0066	0.0041	0.0051	0.0051	0.0038	<0.0020	0.0086
Total Hardness (CaCO3)	mg/L	0.50	129	108	111	117	115	115	112
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	9260	22.8	20.4	20.9	117	140	73.6
Total Antimony (Sb)	ug/L	0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	1.59	0.84	0.84	0.97	1.22	1.36	0.74
Total Barium (Ba)	ug/L	1.0	39.6	13.7	13.3	12.8	13.8	13.8	19.8
Total Beryllium (Be)	ug/L	0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<100	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.079	<0.010	<0.010	<0.010	0.011	0.018	<0.010
Total Chromium (Cr)	ug/L	1.0	50.6	1.4	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	13.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	32.8	0.75	0.69	0.61	0.89	0.77	0.87
Total Iron (Fe)	ug/L	10	17200	176	157	125	267	448	357
Total Lead (Pb)	ug/L	0.20	2.29	<0.20	<0.20	<0.20	0.23	0.22	<0.20
Total Lithium (Li)	ug/L	2.0	7.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	303	34.9	34.1	26.2	36.3	47.4	109
Total Mercury (Hg)	ug/L	0.0019	0.0193	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<2.0	1.6	<1.0	3.2	<1.0	1.2	<1.0
Total Nickel (Ni)	ug/L	1.0	31.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.25	0.16	0.17	0.2	0.15	0.21	0.18
Total Silicon (Si)	ug/L	100	22500	8850	9300	10600	12100	9980	10900
Total Silver (Ag)	ug/L	0.020	0.461	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	121	136	150	148	156	148	157
Total Thallium (Tl)	ug/L	0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BPJ737	ATF551	AVD810	AXE943	AZP517	BCY926	BFS349
			2023-04-25 16:08	2022-05-17 18:31	2022-06-15 12:55	2022-07-13 14:50	2022-08-15	2022-09-27	2022-10-27
			H-01	H-02	H-02	H-02	H-02	H-02	H-02
Total Tin (Sn)	ug/L	5.0	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	342	<5.0	<5.0	<5.0	5.1	6.8	<5.0
Total Uranium (U)	ug/L	0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	61	6.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	0.49	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	26.7	31.3	32.4	34	32.9	33	31.5
Total Magnesium (Mg)	mg/L	0.050	15.2	7.34	7.4	7.84	8.03	7.97	8.2
Total Potassium (K)	mg/L	0.050	1.85	1.62	1.72	1.78	1.86	1.76	1.83
Total Sodium (Na)	mg/L	0.050	14.1	11.3	11.6	12.3	11.5	10.8	10.7
Total Sulphur (S)	mg/L	3.0	<6.0	6.3	5.7	5.4	6.9	5.9	6.4
Temperature	°C	--	13.0	12.3	13.0	14.9	15.8	14.3	10.3
Dissolved Oxygen	%	--	51.2	87.1	70.3	71	86	75.3	91.7
Dissolved Oxygen	mg/L	--	5.42	9.32	7.41	7.17	8.4	7.61	10.5
Specific Conductance	uS/cm	--	355	249.9	337.1	311.6	520.4	322.7	268.3
Salinity	psu	--	NA	0.14	0.16	0.15	0.07	0.15	0.13
pH	pH Units	--	6.33	7.37	7.54	7.77	7.80	NV	7.13
Turbidity	NTU	--	231	1.46	2.63	3.93	4.37	4.53	1.72

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BHW403	BJT201	BKV689	BMP529	BOD901	BPJ738	ATH835
			2022-11-28 11:35	2022-12-24 02:00	2023-01-25 10:30	2023-02-28 14:10	2023-03-28 11:40	2023-04-25 15:02	2022-05-18 10:37
			H-02	H-02	H-02	H-02	H-02	H-02	H-03
pH	pH	N/A	7.28	7.23	7.45	6.87	7.86	7.64	7.21
Total Ammonia (N)	mg/L	0.015	0.021	0.071	0.046	0.31	0.018	0.027	0.100
Total Phosphorus (P)	mg/L	0.0030	0.0071	0.0086	0.03	0.056	0.033	0.013	0.046
Nitrate plus Nitrite (N)	mg/L	0.0020	1.02	1.43	1.32	0.600	1.35	1.17	0.891
Nitrate (N)	mg/L	0.0020	1.01	1.42	1.31	0.581	1.35	1.17	0.878
Nitrite (N)	mg/L	0.0020	0.0067	0.0079	0.0122	0.019	0.0044	0.0053	0.0133
Total Hardness (CaCO3)	mg/L	0.50	96.3	97.5	86.4	62.6	113	104	38.6
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	28.7	41.1	87.5	1010	30.9	40.3	160
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	0.94
Total Arsenic (As)	ug/L	0.10	0.76	0.79	0.80	0.86	0.76	0.96	0.48
Total Barium (Ba)	ug/L	1.0	30.4	19.9	16.6	47.4	14.6	14.3	9.9
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<100	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.025	0.016	0.013	0.082	<0.010	<0.010	0.022
Total Chromium (Cr)	ug/L	1.0	<1.0	1.1	<1.0	3.8	<1.0	<1.0	1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	0.65	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	1.41	1.23	1.66	6.4	0.53	1.13	6.57
Total Iron (Fe)	ug/L	10	118	128	290	1440	208	272	237
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	0.3	2.13	<0.20	<0.20	0.61
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	20.5	27	55.4	66.4	56.9	37.4	13.9
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	0.0025	<0.0019	0.0058	0.0044
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	3.4	2.2	2.6	5.8
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	3.1	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.12	0.14	<0.10	<0.20	0.16	0.18	<0.10
Total Silicon (Si)	ug/L	100	6310	8360	7340	4570	9380	8340	2920
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	133	135	114	131	145	130	55.3
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BHW403	BJT201	BKV689	BMP529	BOD901	BPJ738	ATH835
			2022-11-28 11:35	2022-12-24 02:00	2023-01-25 10:30	2023-02-28 14:10	2023-03-28 11:40	2023-04-25 15:02	2022-05-18 10:37
			H-02	H-02	H-02	H-02	H-02	H-02	H-03
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	43	<5.0	<5.0	7.6
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	17.9	10.5	14	61	<5.0	6.9	40.3
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	0.72	<0.10	<0.10	0.78
Total Calcium (Ca)	mg/L	0.050	28.7	28.6	24.9	19.1	32.5	30.3	11.5
Total Magnesium (Mg)	mg/L	0.050	6	6.33	5.87	3.61	7.79	6.84	2.39
Total Potassium (K)	mg/L	0.050	2.27	1.87	1.45	3.00	1.57	1.58	0.978
Total Sodium (Na)	mg/L	0.050	223	28.5	18.7	580	12.8	13.6	7.48
Total Sulphur (S)	mg/L	3.0	5.1	5.7	4.4	<6.0	5.8	5.5	<3.0
Temperature	°C	--	6.2	6.2	8.6	5.72	9.8	12.4	11.8
Dissolved Oxygen	%	--	92.1	92.1	99.9	112.3	97.9	96.0	87.4
Dissolved Oxygen	mg/L	--	11.38	11.38	11.63	13.9	11.11	10.4	9.47
Specific Conductance	uS/cm	--	1152	1152	281.2	319.3	311.4	302	141
Salinity	psu	--	0.57	NA	0.13	1.67	0.15	NA	0.07
pH	pH Units	--	7.49	7.49	7.83	7.43	7.69	7.66	6.74
Turbidity	NTU	--	1.4	1.4	2.7	30.2	2.1	2.36	8.35

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AVD811	AXH206	AZP518	BCY927	BFS350	BHW404	BJT202
			2022-06-15 14:55	2022-07-14 09:50	2022-08-15	2022-09-27	2022-10-27	2022-11-28 13:10	2022-12-24 03:09
			H-03	H-03	H-03	H-03	H-03	H-03	H-03
pH	pH	N/A	7.78	7.52	7.61	7.94	6.88	6.8	6.77
Total Ammonia (N)	mg/L	0.015	0.018	0.018	<0.015	<0.015	0.048	0.36	0.35
Total Phosphorus (P)	mg/L	0.0030	0.016	0.011	0.01	0.032	0.023	0.026	0.26
Nitrate plus Nitrite (N)	mg/L	0.0020	2.41	2.48	2.42	2.14	1.45	0.74	0.767
Nitrate (N)	mg/L	0.0020	2.41	2.47	2.42	2.14	1.44	0.719	0.710
Nitrite (N)	mg/L	0.0020	0.0035	0.0029	<0.0020	<0.0020	0.0167	0.0209	0.0574
Total Hardness (CaCO3)	mg/L	0.50	122	118	117	115	77.8	73.9	42.7
Dissolved Fluoride (F)	mg/L	0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	17.0	7.7	9.8	247	46.4	94	4400
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.5	3.38
Total Arsenic (As)	ug/L	0.10	0.52	0.61	0.5	0.83	0.64	<0.50	2.31
Total Barium (Ba)	ug/L	1.0	16.6	13.9	14.9	15.3	14.3	79.7	76.4
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<250	<50
Total Cadmium (Cd)	ug/L	0.010	0.018	0.012	0.037	0.034	0.025	0.247	0.148
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	12.2
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	0.27	<0.20	<1.0	2.48
Total Copper (Cu)	ug/L	0.50	1.07	0.62	1.07	3.37	5.16	5.2	38.4
Total Iron (Fe)	ug/L	10	48	19	24	461	159	154	6300
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	1.01	0.39	<1.0	11.9
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10	3.6
Total Manganese (Mn)	ug/L	1.0	17.9	12.2	10.7	54.4	17.2	58.1	149
Total Mercury (Hg)	ug/L	0.0019	0.0028	<0.0019	<0.0019	0.0035	0.0104	0.0053	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	30.9	7.5	2.5	3.2	15.4	<5.0	2
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	7.1
Total Selenium (Se)	ug/L	0.10	0.20	0.21	0.21	0.23	0.15	<0.50	<0.10
Total Silicon (Si)	ug/L	100	9580	9210	11800	10100	6850	2030	7790
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.10	0.08
Total Strontium (Sr)	ug/L	1.0	186	161	178	172	108	132	66.3
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	0.018

Parameter	UNITS	RDL	AVD811	AXH206	AZP518	BCY927	BFS350	BHW404	BJT202
			2022-06-15 14:55	2022-07-14 09:50	2022-08-15	2022-09-27	2022-10-27	2022-11-28 13:10	2022-12-24 03:09
			H-03	H-03	H-03	H-03	H-03	H-03	H-03
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	9.4	<5.0	<25	173
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	0.11
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	10.8
Total Zinc (Zn)	ug/L	5.0	10	5.5	8.1	14.2	30.6	120	233
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	3.82
Total Calcium (Ca)	mg/L	0.050	35	33.8	33.4	32.8	22.8	23.7	11.3
Total Magnesium (Mg)	mg/L	0.050	8.31	8.08	8.17	8.10	5.06	3.6	3.52
Total Potassium (K)	mg/L	0.050	2.02	1.8	2.04	1.83	1.83	4.02	1.69
Total Sodium (Na)	mg/L	0.050	20.5	19.1	19.5	19.6	13.2	834	119
Total Sulphur (S)	mg/L	3.0	6.8	6.7	6.0	6.5	4.7	<15	<3.0
Temperature	°C	--	13.5	13.1	15.1	13.5	12.6	8.3	6.18
Dissolved Oxygen	%	--	68.7	66	86.0	78.5	77.6	86.7	98.3
Dissolved Oxygen	mg/L	--	7.1	6.95	8.8	8.14	8.24	10.04	12.17
Specific Conductance	uS/cm	--	396.7	381.4	581.4	373.1	227.8	3977	719
Salinity	psu	--	0.19	0.18	0.07	0.13	0.11	1.89	NA
pH	pH Units	--	6.99	6.9	7.8	7.07	5.96	6.71	7.23
Turbidity	NTU	--	2.42	2.15	1.2	1.98	1.8	4.9	Over-range

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BKV691	BMP530	BOD902	BPJ739	ATH838	AVF135	AXH207
			2023-01-25 03:15	2023-02-28 14:30	2023-03-28 13:27	2023-04-25 15:50	2022-05-18 13:40	2022-06-16 09:30	2022-07-14 11:30
			H-03	H-03	H-03	H-03	W-01	W-01	W-01
pH	pH	N/A	7.23	6.67	7.64	7.34	7.12	7.43	7.55
Total Ammonia (N)	mg/L	0.015	0.021	0.40	<0.015	<0.015	0.042	0.042	0.044
Total Phosphorus (P)	mg/L	0.0030	0.012	0.060	0.017	0.018	0.021	0.02	0.014
Nitrate plus Nitrite (N)	mg/L	0.0020	2.13	0.544	2.28	1.97	0.97	1.02	1.70
Nitrate (N)	mg/L	0.0020	2.12	0.503	2.28	1.96	0.964	1.02	1.69
Nitrite (N)	mg/L	0.0020	0.0107	0.0405	0.0032	0.0064	0.0059	0.0063	0.0125
Total Hardness (CaCO3)	mg/L	0.50	103	32.6	124	105	56.5	63.5	99.9
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	29.0	907	19.0	73	40.9	53.6	24.9
Total Antimony (Sb)	ug/L	0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.50	0.70	0.55	0.56	0.79	0.92	0.74
Total Barium (Ba)	ug/L	1.0	17.6	30.7	15.2	15.5	21.7	23.3	31.3
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<100	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.023	0.074	0.014	0.022	<0.010	<0.010	0.011
Total Chromium (Cr)	ug/L	1.0	<1.0	3.3	<1.0	<1.0	1.7	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	0.60	<0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	2.47	8.2	2.1	2.7	1.24	0.74	<0.50
Total Iron (Fe)	ug/L	10	51.7	1220	37	117	552	716	374
Total Lead (Pb)	ug/L	0.20	<0.20	2.3	<0.20	<0.20	0.30	0.27	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	12.5	39.1	11.8	11.4	44.5	43.1	43.4
Total Mercury (Hg)	ug/L	0.0019	0.0369	0.0024	0.0189	0.0297	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	5.7	183	5.9	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	0.15	<0.20	0.20	0.18	<0.10	<0.10	0.10
Total Silicon (Si)	ug/L	100	8100	2800	9400	7860	6240	6960	10200
Total Silver (Ag)	ug/L	0.020	<0.020	<0.040	<0.020	0.024	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	146	74.7	173	142	106	129	190
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BKV691	BMP530	BOD902	BPJ739	ATH838	AVF135	AXH207
			2023-01-25 03:15	2023-02-28 14:30	2023-03-28 13:27	2023-04-25 15:50	2022-05-18 13:40	2022-06-16 09:30	2022-07-14 11:30
			H-03	H-03	H-03	H-03	W-01	W-01	W-01
Total Tin (Sn)	ug/L	5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	35	<5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	26.5	73	15.1	20.4	5.2	7.9	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	0.57	<0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	29.6	10.3	35.5	30.7	15.5	17.4	27.0
Total Magnesium (Mg)	mg/L	0.050	7.03	1.67	8.59	6.86	4.32	4.87	7.89
Total Potassium (K)	mg/L	0.050	2.1	3.08	2.05	1.98	0.975	0.935	1.24
Total Sodium (Na)	mg/L	0.050	27.2	465	21.3	17.2	24.6	21.5	15.5
Total Sulphur (S)	mg/L	3.0	6.3	<6.0	7.3	6.2	<3.0	<3.0	4.3
Temperature	°C	--	10.9	5.53	11.6	13.0	12.8	13.8	12.7
Dissolved Oxygen	%	--	74.2	112.3	NV	86.2	77.4	93.4	82.2
Dissolved Oxygen	mg/L	--	8.21	13.9	NV	9.14	8.18	9.69	8.63
Specific Conductance	uS/cm	--	366.1	319.3	9.53	329	263.3	270	312.3
Salinity	psu	--	0.18	1.29	371.1	NA	0.13	0.13	0.15
pH	pH Units	--	6.93	7.09	6.99	7.04	6.88	6.86	7.05
Turbidity	NTU	--	1.5	34.2	0.8	11.6	2.3	3.34	NR

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	AXH203	AZP521	BCY930	BGB943	BHW407	BJT205	BJT232
			2022-07-14 11:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 12:37	2022-12-29 15:57	2022-12-29 15:57
			W-01 Dup	W-01	W-01	W-01	W-01	W-01	W-01 Dup
pH	pH	N/A	7.48	7.76	7.93	6.80	6.95	6.77	6.84
Total Ammonia (N)	mg/L	0.015	0.046	0.034	0.036	0.12	0.19	0.32	0.32
Total Phosphorus (P)	mg/L	0.0030	0.014	0.038	0.028	0.028	0.026	0.11	0.094
Nitrate plus Nitrite (N)	mg/L	0.0020	1.69	1.70	1.60	0.354	0.687	0.360	0.351
Nitrate (N)	mg/L	0.0020	1.68	1.68	1.60	0.348	0.678	0.33	0.334
Nitrite (N)	mg/L	0.0020	0.0124	0.0117	0.0082	0.0062	0.0087	0.0301	0.0171
Total Hardness (CaCO3)	mg/L	0.50	98.2	99.6	109	37.2	56.4	27.3	27.2
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	34.1	131	58.8	61.0	37.9	1150	1080
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.89	0.88
Total Arsenic (As)	ug/L	0.10	0.76	1.42	0.95	0.91	0.8	1.42	1.32
Total Barium (Ba)	ug/L	1.0	30.5	34.3	32.8	17.6	24	27.6	27.2
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.014	0.03	0.020	<0.010	0.016	0.041	0.037
Total Chromium (Cr)	ug/L	1.0	<1.0	1.4	<1.0	<1.0	<1.0	3.6	3.4
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.76	0.72
Total Copper (Cu)	ug/L	0.50	<0.50	0.69	<0.50	0.9	1.07	8.39	8.4
Total Iron (Fe)	ug/L	10	465	1190	616	683	1120	2440	2300
Total Lead (Pb)	ug/L	0.20	<0.20	0.35	<0.20	0.31	0.26	2.61	2.59
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	44.3	57.4	47.4	45.2	71.1	88.3	84.3
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	1.2	1.1	<1.0	<1.0	2.4	2.3
Total Selenium (Se)	ug/L	0.10	0.13	0.12	0.15	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	10100	12600	11500	2490	5390	3600	3510
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	183	199	208	58.6	101	45.1	45.1
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	AXH203	AZP521	BCY930	BGB943	BHW407	BJT205	BJT232
			2022-07-14 11:30	2022-08-15	2022-09-27	2022-11-01	2022-11-28 12:37	2022-12-29 15:57	2022-12-29 15:57
			W-01 Dup	W-01	W-01	W-01	W-01	W-01	W-01 Dup
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	6.6	<5.0	<5.0	<5.0	52.2	47
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	5.3	8.7	57.9	57.7
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	0.11	<0.10	0.67	1.23
Total Calcium (Ca)	mg/L	0.050	26.4	27	29.8	10.6	15.7	7.48	7.4
Total Magnesium (Mg)	mg/L	0.050	7.83	7.85	8.46	2.58	4.16	2.1	2.11
Total Potassium (K)	mg/L	0.050	1.22	1.29	1.4	0.909	1.41	1.01	0.999
Total Sodium (Na)	mg/L	0.050	15.3	15.1	15.1	28.8	66	53.3	50.6
Total Sulphur (S)	mg/L	3.0	4.2	<3.0	4.2	<3.0	<3.0	<3.0	<3.0
Temperature	°C	--	12.7	13.6	13.2	11.2	5.9	3.75	--
Dissolved Oxygen	%	--	84.6	66.2	78.4	89.8	79.9	94.3	--
Dissolved Oxygen	mg/L	--	8.95	6.86	8.20	9.86	9.98	12.42	--
Specific Conductance	uS/cm	--	310.8	502.1	338.6	223.5	438.4	305	--
Salinity	psu	--	0.15	0.07	0.16	0.11	0.21	NA	--
pH	pH Units	--	7.07	7.15	7.27	6.99	6.90	6.97	--
Turbidity	NTU	--	NR	2.47	2.77	2.47	4.90	40.6	--

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BKT722	BMP533	BOM332	BPJ742
			2023-01-24 03:30	2023-02-28 15:35	2023-03-28 12:49	2023-04-25 17:03
			W-01	W-01	W-01	W-01
pH	pH	N/A	7.13	7.11	7.30	6.83
Total Ammonia (N)	mg/L	0.015	0.26	0.27	0.03	0.061
Total Phosphorus (P)	mg/L	0.0030	0.027	0.036	0.028	0.024
Nitrate plus Nitrite (N)	mg/L	0.0020	0.527	0.969	1.50	0.662
Nitrate (N)	mg/L	0.0020	0.517	0.948	1.48	0.654
Nitrite (N)	mg/L	0.0020	0.0109	0.0206	0.016	0.0079
Total Hardness (CaCO3)	mg/L	0.50	35.9	59.9	94.3	37.7
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	0.052	<0.050
Total Aluminum (Al)	ug/L	3.0	81.6	297	128	53.4
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	0.69	0.83	0.93	0.68
Total Barium (Ba)	ug/L	1.0	18.2	38.6	29.4	16.8
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	0.011	0.029	0.013	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	1.5	1.3	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	0.29	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	1.25	2.43	0.68	1.11
Total Iron (Fe)	ug/L	10	663	891	737	447
Total Lead (Pb)	ug/L	0.20	0.37	0.76	0.4	0.34
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	52.5	55.7	49.7	30.8
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	1.1	2.1	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	0.14	<0.10
Total Silicon (Si)	ug/L	100	3480	6060	10500	3510
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	63.1	130	178	67.4
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010

Parameter	UNITS	RDL	BKT722	BMP533	BOM332	BPJ742
			2023-01-24 03:30	2023-02-28 15:35	2023-03-28 12:49	2023-04-25 17:03
			W-01	W-01	W-01	W-01
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	12	6.3	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	8.3	20.8	<5.0	10
Total Zirconium (Zr)	ug/L	0.10	<0.10	0.20	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	9.95	17	25.7	10.4
Total Magnesium (Mg)	mg/L	0.050	2.56	4.24	7.32	2.82
Total Potassium (K)	mg/L	0.050	0.858	4.23	1.30	0.908
Total Sodium (Na)	mg/L	0.050	46.1	285	15.7	42.3
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	3.2	<3.0
Temperature	°C	--	6.2	6.27	10.7	13.6
Dissolved Oxygen	%	--	92	106.2	86.6	89.8
Dissolved Oxygen	mg/L	--	11.16	13.02	9.55	9.38
Specific Conductance	uS/cm	--	339.6	168	290.8	334
Salinity	psu	--	0.16	0.85	0.14	NA
pH	pH Units	--	6.78	6.92	7.08	6.94
Turbidity	NTU	--	4.50	12.6	0.20	2.52

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	ATH839	AVF132	AXE940	AZP528
			2022-05-18	2022-06-16	2022-07-13	2022-08-15
			TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
pH	pH	N/A	5.75	5.91	5.82	6.21
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	0.0026	<0.0020	<0.0020	<0.0020
Nitrate (N)	mg/L	0.0020	0.0026	<0.0020	<0.0020	<0.0020
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO3)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	0.31
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Iron (Fe)	ug/L	10	<10	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BDB696	BGB941	BHW414	BJT233
			2022-09-28	2022-11-01	2022-11-28	2022-12-29 17:16
			TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
pH	pH	N/A	6.51	5.70	6.21	7.11
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrate (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO ₃)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Iron (Fe)	ug/L	10	<10	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BKT725	BMP550	BOM333	BPJ749
			2023-01-24	2023-02-28 16:35	2023-03-28	2023-04-25
			TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
pH	pH	N/A	6.10	6.66	5.88	6.70
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrate (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO ₃)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.20	<0.50	<0.50	<0.50
Total Iron (Fe)	ug/L	10	<5.0	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	ATF548	AVF133	AXH205	AZP529
			2022-05-17 19:35	2022-06-16 12:30	2022-07-14 18:35	2022-08-15
			FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
pH	pH	N/A	5.70	5.84	5.85	5.82
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrate (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO ₃)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Iron (Fe)	ug/L	10	<10	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BDB697	BGB942	BHW415	BJT234
			2022-09-28	2022-11-01	2022-11-28 15:00	2022-12-29 04:02
			FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
pH	pH	N/A	5.76	5.31	5.61	6.29
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrate (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO ₃)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Iron (Fe)	ug/L	10	<10	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	0.21	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	BKV686	BMP551	BOM334	BPJ750
			2023-01-25 03:00	2023-02-28 10:53	2023-03-28	2023-04-25
			FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
pH	pH	N/A	6.48	7.70	5.34	5.80
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	<0.015	<0.015
Total Phosphorus (P)	mg/L	0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Nitrate plus Nitrite (N)	mg/L	0.0020	0.0027	0.0036	<0.0020	0.0085
Nitrate (N)	mg/L	0.0020	0.0027	0.0036	<0.0020	0.0085
Nitrite (N)	mg/L	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Hardness (CaCO ₃)	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Aluminum (Al)	ug/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Barium (Ba)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.50	<0.20	<0.50	<0.50	0.90
Total Iron (Fe)	ug/L	10	<5.0	<10	<10	<10
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	<0.20	<0.20
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0
Total Manganese (Mn)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	100	<100	<100	<100	<100
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	<0.020	<0.020
Total Strontium (Sr)	ug/L	1.0	<1.0	<1.0	<1.0	<1.0
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Magnesium (Mg)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Potassium (K)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sodium (Na)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0

RDL = Reportable Detection Limit

Parameter	UNITS	RDL	ATH840	ATH837	RPD	AVF136	AVF131	RPD
			2022-05-18 17:10	2022-05-18 17:10		2022-06-16 11:02	2022-06-16 11:20	
			F-01	F-01 DUP		F-02	F-02 DUP	
pH	pH	N/A	7.55	7.54	0.01	7.69	7.64	0.05
Total Ammonia (N)	mg/L	0.015	0.076	0.073	4%	0.031	0.031	0%
Total Phosphorus (P)	mg/L	0.0030	0.028	0.028	0%	0.027	0.027	0%
Nitrate plus Nitrite (N)	mg/L	0.0020	0.685	0.692	1%	0.122	0.109	11%
Nitrate (N)	mg/L	0.0020	0.671	0.679	1%	0.118	0.104	13%
Nitrite (N)	mg/L	0.0020	0.0135	0.0131	3%	0.0045	0.005	11%
Total Hardness (CaCO3)	mg/L	0.50	69.6	67.6	3%	75.4	71.6	5%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	146	147	1%	26.4	24.1	9%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	<0.50	<0.50	nc
Total Arsenic (As)	ug/L	0.10	1.34	1.29	4%	0.82	0.79	4%
Total Barium (Ba)	ug/L	1.0	15.4	15.1	2%	18.8	17.7	6%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	nc	0.23	0.2	14%
Total Copper (Cu)	ug/L	0.50	2.36	2.37	0%	0.84	0.79	6%
Total Iron (Fe)	ug/L	10	564	566	0%	730	691	5%
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	nc	<0.20	<0.20	nc
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	115	115	0%	191	180	6%
Total Mercury (Hg)	ug/L	0.0019	0.0028	<0.0019	nc	<0.0019	<0.0019	nc
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Selenium (Se)	ug/L	0.10	0.11	0.11	0%	<0.10	<0.10	nc
Total Silicon (Si)	ug/L	100	4290	4120	4%	4530	4290	5%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	<0.020	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	107	103	4%	126	124	2%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	ATH840	ATH837	RPD	AVF136	AVF131	RPD
			2022-05-18 17:10	2022-05-18 17:10		2022-06-16 11:02	2022-06-16 11:20	
			F-01	F-01 DUP		F-02	F-02 DUP	
Total Titanium (Ti)	ug/L	5.0	5.9	6.1	3%	<5.0	<5.0	nc
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	5.7	5.6	2%	<5.0	<5.0	nc
Total Zirconium (Zr)	ug/L	0.10	0.78	<0.10	nc	<0.10	<0.10	nc
Total Calcium (Ca)	mg/L	0.050	19.6	19.0	3%	21.4	20.4	5%
Total Magnesium (Mg)	mg/L	0.050	5.03	4.92	2%	5.32	5.01	6%
Total Potassium (K)	mg/L	0.050	1.36	1.34	1%	1.43	1.37	4%
Total Sodium (Na)	mg/L	0.050	10.0	9.84	2%	12.6	11.9	6%
Total Sulphur (S)	mg/L	3.0	4.0	4.0	0%	<3.0	<3.0	nc
Temperature	°C	--	12.1	12.1	0%	14.4	--	--
Dissolved Oxygen	%	--	83.3	83.3	0%	50.0	--	--
Dissolved Oxygen	mg/L	--	9.0	9.0	0%	5.07	--	--
Specific Conductance	uS/cm	--	198.5	198.5	0%	221.2	--	--
Salinity	psu	--	0.09	0.09	0%	0.11	--	--
pH	pH Units	--	7.4	7.4	0%	6.99	--	--
Turbidity	NTU	--	4.9	4.9	0%	4.6	--	--

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

Parameter	UNITS	RDL	AXH207	AXH203	RPD	AZP516	AZP527	RPD
			2022-07-14 11:30	2022-07-14 11:30		2022-08-15	2022-08-15	
			W-01	W-01 DUP		H-01	H-01 DUP	
pH	pH	N/A	7.55	7.48	0.07	7.15	7.24	0.09
Total Ammonia (N)	mg/L	0.015	0.044	0.046	4%	<0.015	<0.015	nc
Total Phosphorus (P)	mg/L	0.0030	0.014	0.014	0%	0.012	0.0082	38%
Nitrate plus Nitrite (N)	mg/L	0.0020	1.70	1.69	1%	2.77	2.80	1%
Nitrate (N)	mg/L	0.0020	1.69	1.68	1%	2.77	2.80	1%
Nitrite (N)	mg/L	0.0020	0.0125	0.0124	1%	<0.0020	<0.0020	nc
Total Hardness (CaCO3)	mg/L	0.50	99.9	98.2	2%	103	106	3%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	24.9	34.1	31%	35.7	15.3	80%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	<0.50	<0.50	nc
Total Arsenic (As)	ug/L	0.10	0.74	0.76	3%	0.59	0.44	29%
Total Barium (Ba)	ug/L	1.0	31.3	30.5	3%	14.4	13.6	6%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	0.011	0.014	24%	0.02	<0.010	nc
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	nc	<0.20	<0.20	nc
Total Copper (Cu)	ug/L	0.50	<0.50	<0.50	nc	1.05	0.66	46%
Total Iron (Fe)	ug/L	10	374	465	22%	116	79	38%
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	nc	0.38	<0.20	nc
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	43.4	44.3	2%	12.9	12.7	2%
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	nc	0.0022	0.0024	9%
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Selenium (Se)	ug/L	0.10	0.10	0.13	26%	0.28	0.22	24%
Total Silicon (Si)	ug/L	100	10200	10100	1%	11600	12000	3%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	0.028	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	190	183	4%	163	159	2%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	AXH207	AXH203	RPD	AZP516	AZP527	RPD
			2022-07-14 11:30	2022-07-14 11:30		2022-08-15	2022-08-15	
			W-01	W-01 DUP		H-01	H-01 DUP	
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Calcium (Ca)	mg/L	0.050	27.0	26.4	2%	28.6	30.1	5%
Total Magnesium (Mg)	mg/L	0.050	7.89	7.83	1%	7.52	7.44	1%
Total Potassium (K)	mg/L	0.050	1.24	1.22	2%	1.74	1.71	2%
Total Sodium (Na)	mg/L	0.050	15.5	15.3	1%	20.2	19.5	4%
Total Sulphur (S)	mg/L	3.0	4.3	4.2	2%	6.7	5.2	25%
Temperature	°C	--	12.7	12.7	0%	12.9	--	nc
Dissolved Oxygen	%	--	82.2	84.6	3%	60.9	--	nc
Dissolved Oxygen	mg/L	--	8.63	8.95	4%	6.39	--	nc
Specific Conductance	uS/cm	--	312.3	310.8	0%	570.6	--	nc
Salinity	psu	--	0.15	0.15	0%	0.08	--	nc
pH	pH Units	--	7.05	7.07	0%	6.3	--	nc
Turbidity	NTU	--	NR	NR	nc	2.17	--	nc

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

Parameter	UNITS	RDL	BDB482	BDB695	RPD	BFS352	BFS353	RPD
			2022-09-28	2022-09-28		2022-10-27	2022-10-27	
			F-03	F-03 DUP		B-02	B-02 DUP	
pH	pH	N/A	7.83	7.92	0.09	7.20	7.28	0.08
Total Ammonia (N)	mg/L	0.015	0.13	0.14	7%	0.065	0.061	6%
Total Phosphorus (P)	mg/L	0.0030	0.037	0.092	85%	0.015	0.015	0%
Nitrate plus Nitrite (N)	mg/L	0.0020	0.113	0.203	57%	1.53	1.56	2%
Nitrate (N)	mg/L	0.0020	0.106	0.195	59%	1.52	1.55	2%
Nitrite (N)	mg/L	0.0020	0.0067	0.0082	20%	0.0091	0.0095	4%
Total Hardness (CaCO3)	mg/L	0.50	102	107	5%	104	109	5%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	59.4	103	54%	81.3	65.6	21%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	<0.50	<0.50	nc
Total Arsenic (As)	ug/L	0.10	0.94	1.17	22%	0.61	0.65	6%
Total Barium (Ba)	ug/L	1.0	29.2	34.4	16%	19.2	20	4%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	0.03	0.036	18%	0.013	0.011	17%
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Cobalt (Co)	ug/L	0.20	0.98	1.12	13%	<0.20	<0.20	nc
Total Copper (Cu)	ug/L	0.50	0.77	1.43	60%	0.9	0.89	1%
Total Iron (Fe)	ug/L	10	649	705	8%	459	451	2%
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	nc	<0.20	<0.20	nc
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	7080	7400	4%	150	155	3%
Total Mercury (Hg)	ug/L	0.0019	<0.019 (1)	<0.0019	nc	<0.0019	<0.0019	nc
Total Molybdenum (Mo)	ug/L	1.0	1.8	1.8	0%	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	3.1	3.4	9%	<1.0	<1.0	nc
Total Selenium (Se)	ug/L	0.10	0.16	0.17	6%	0.2	0.18	11%
Total Silicon (Si)	ug/L	100	8900	9030	1%	10100	10600	5%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	<0.020	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	126	128	2%	151	155	3%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	BDB482	BDB695	RPD	BFS352	BFS353	RPD
			2022-09-28	2022-09-28		2022-10-27	2022-10-27	
			F-03	F-03 DUP		B-02	B-02 DUP	
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	7.3	11	40%	5.4	5.5	2%
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Calcium (Ca)	mg/L	0.050	27.3	28.5	4%	29.1	30.6	5%
Total Magnesium (Mg)	mg/L	0.050	8.32	8.77	5%	7.67	8.01	4%
Total Potassium (K)	mg/L	0.050	3.41	6.74	66%	1.7	1.76	3%
Total Sodium (Na)	mg/L	0.050	9.48	9.77	3%	10.5	11.1	6%
Total Sulphur (S)	mg/L	3.0	8.9	10.3	15%	5.5	5.9	7%
Temperature	°C	--	12.1	--	nc	10.5	10.5	0%
Dissolved Oxygen	%	--	78.6	--	nc	90.8	90.5	0%
Dissolved Oxygen	mg/L	--	8.44	--	nc	10.07	10.7	6%
Specific Conductance	uS/cm	--	327.2	--	nc	272.4	274.4	1%
Salinity	psu	--	0.16	--	nc	0.13	0.13	0%
pH	pH Units	--	NV	--	nc	7.47	7.46	0%
Turbidity	NTU	--	5.05	--	nc	4	4.01	0%

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

Parameter	UNITS	RDL	BHW408	BHW413	RPD	BJT205	BJT232	RPD
			2022-11-28 14:51	2022-11-28 14:51		2022-12-29 15:57	2022-12-29 15:57	
			D-01	D-01 DUP		W-01	W-01 DUP	
pH	pH	N/A	7.39	7.41	0.02	6.77	6.84	0.07
Total Ammonia (N)	mg/L	0.015	<0.015	<0.015	nc	0.32	0.32	0%
Total Phosphorus (P)	mg/L	0.0030	0.0099	0.0098	1%	0.11	0.094	16%
Nitrate plus Nitrite (N)	mg/L	0.0020	1.12	1.13	1%	0.360	0.351	3%
Nitrate (N)	mg/L	0.0020	1.12	1.12	0%	0.33	0.334	1%
Nitrite (N)	mg/L	0.0020	0.0034	0.0032	6%	0.0301	0.0171	55%
Total Hardness (CaCO3)	mg/L	0.50	89.2	86.6	3%	27.3	27.2	0%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	44	37.9	15%	1150	1080	6%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	0.89	0.88	1%
Total Arsenic (As)	ug/L	0.10	0.58	0.56	4%	1.42	1.32	7%
Total Barium (Ba)	ug/L	1.0	19.1	18.4	4%	27.6	27.2	1%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	<0.010	<0.010	nc	0.041	0.037	10%
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	nc	3.6	3.4	6%
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	nc	0.76	0.72	5%
Total Copper (Cu)	ug/L	0.50	0.96	0.93	3%	8.39	8.4	0%
Total Iron (Fe)	ug/L	10	179	171	5%	2440	2300	6%
Total Lead (Pb)	ug/L	0.20	<0.20	<0.20	nc	2.61	2.59	1%
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	35.4	34.3	3%	88.3	84.3	5%
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	nc	<0.0019	<0.0019	nc
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	nc	2.4	2.3	4%
Total Selenium (Se)	ug/L	0.10	0.16	0.17	6%	<0.10	<0.10	nc
Total Silicon (Si)	ug/L	100	7690	7440	3%	3600	3510	3%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	<0.020	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	136	129	5%	45.1	45.1	0%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	BHW408	BHW413	RPD	BJT205	BJT232	RPD
			2022-11-28 14:51	2022-11-28 14:51		2022-12-29 15:57	2022-12-29 15:57	
			D-01	D-01 DUP		W-01	W-01 DUP	
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	nc	52.2	47	10%
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	<5.0	<5.0	nc	57.9	57.7	0%
Total Zirconium (Zr)	ug/L	0.10	<0.10	<0.10	nc	0.67	1.23	59%
Total Calcium (Ca)	mg/L	0.050	24.3	23.6	3%	7.48	7.4	1%
Total Magnesium (Mg)	mg/L	0.050	6.96	6.7	4%	2.1	2.11	0%
Total Potassium (K)	mg/L	0.050	2.13	2.06	3%	1.01	0.999	1%
Total Sodium (Na)	mg/L	0.050	32.8	31.9	3%	53.3	50.6	5%
Total Sulphur (S)	mg/L	3.0	6.5	6.3	3%	<3.0	<3.0	nc
Temperature	°C	--	5.4	--		3.75	--	
Dissolved Oxygen	%	--	92.8	--		94.3	--	
Dissolved Oxygen	mg/L	--	11.72	--		12.42	--	
Specific Conductance	uS/cm	--	291.4	--		305	--	
Salinity	psu	--	0.14	--		NA	--	
pH	pH Units	--	7.52	--		6.97	--	
Turbidity	NTU	--	0.7	--		40.6	--	

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

Parameter	UNITS	RDL	BKV687	BKV685	RPD	BMP536	BMP549	RPD
			2023-01-25 10:50	2023-01-25 10:59		2023-02-28 10:59	2023-02-28 10:53	
			B-02	B-02 DUP		F-01	F-01 DUP	
pH	pH	N/A	7.40	7.57	0.17	7.34	7.26	0.08
Total Ammonia (N)	mg/L	0.015	0.085	0.11	26%	0.12	0.12	0%
Total Phosphorus (P)	mg/L	0.0030	0.017	0.013	27%	0.012	0.014	15%
Nitrate plus Nitrite (N)	mg/L	0.0020	1.28	1.30	2%	1.11	1.08	3%
Nitrate (N)	mg/L	0.0020	1.27	1.29	2%	1.09	1.06	3%
Nitrite (N)	mg/L	0.0020	0.0135	0.0132	2%	0.0151	0.014	8%
Total Hardness (CaCO3)	mg/L	0.50	77.3	78.4	1%	122	124	2%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	47.6	39.2	19%	93.8	94.6	1%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	<0.50	<0.50	nc
Total Arsenic (As)	ug/L	0.10	0.58	0.54	7%	0.58	0.64	10%
Total Barium (Ba)	ug/L	1.0	18.3	17.9	2%	47.5	49.5	4%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	0.015	0.013	14%	0.018	0.019	5%
Total Chromium (Cr)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Cobalt (Co)	ug/L	0.20	<0.20	<0.20	nc	<0.20	<0.20	nc
Total Copper (Cu)	ug/L	0.50	1.34	1.26	6%	1.38	1.41	2%
Total Iron (Fe)	ug/L	10	462	446	4%	499	520	4%
Total Lead (Pb)	ug/L	0.20	0.26	0.24	8%	<0.20	<0.20	nc
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	110	108	2%	171	175	2%
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	nc	<0.0019	<0.0019	nc
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Selenium (Se)	ug/L	0.10	0.11	0.11	0%	0.12	0.12	0%
Total Silicon (Si)	ug/L	100	7620	7880	3%	5470	5630	3%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	<0.020	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	120	120	0%	249	255	2%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	BKV687	BKV685	RPD	BMP536	BMP549	RPD
			2023-01-25 10:50	2023-01-25 10:59		2023-02-28 10:59	2023-02-28 10:53	
			B-02	B-02 DUP		F-01	F-01 DUP	
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	nc	<5.0	5.1	nc
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	9.9	9.3	6%	9.8	9.9	1%
Total Zirconium (Zr)	ug/L	0.10	<0.10	0.42	nc	<0.10	0.1	nc
Total Calcium (Ca)	mg/L	0.050	21.6	22.1	2%	34.8	35.5	2%
Total Magnesium (Mg)	mg/L	0.050	5.68	5.63	1%	8.51	8.70	2%
Total Potassium (K)	mg/L	0.050	1.23	1.22	1%	3.34	3.51	5%
Total Sodium (Na)	mg/L	0.050	19.7	19.7	0%	248	256	3%
Total Sulphur (S)	mg/L	3.0	3.8	3.1	20%	6.2	6.1	2%
Temperature	°C	--	7.7	--		4.86	--	
Dissolved Oxygen	%	--	102.5	--		100.3	--	
Dissolved Oxygen	mg/L	--	12.21	--		12.79	--	
Specific Conductance	uS/cm	--	253.7	--		165.2	--	
Salinity	psu	--	0.13	--		0.83	--	
pH	pH Units	--	7.72	--		7.49	--	
Turbidity	NTU	--	2.5	--		4.3	--	

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

Parameter	UNITS	RDL	BOD903	BOD912	RPD	BPJ746	BPJ748	RPD
			2023-03-28 12:30	2023-03-28 12:35		2023-04-25 13:14	2023-04-25 13:35	
			B-01	B-01 DUP		F-02	F-02 DUP	
pH	pH	N/A	6.93	7.12	0.19	7.27	7.15	0.12
Total Ammonia (N)	mg/L	0.015	0.21	0.21	0%	<0.015	<0.015	nc
Total Phosphorus (P)	mg/L	0.0030	0.055	0.024	78%	0.012	0.011	9%
Nitrate plus Nitrite (N)	mg/L	0.0020	0.764	0.720	6%	0.53	0.53	0%
Nitrate (N)	mg/L	0.0020	0.753	0.710	6%	0.527	0.528	0%
Nitrite (N)	mg/L	0.0020	0.011	0.0106	4%	0.0028	0.0021	29%
Total Hardness (CaCO3)	mg/L	0.50	78.4	74.7	5%	53	52.1	2%
Dissolved Fluoride (F)	mg/L	0.050	<0.050	<0.050	nc	<0.050	<0.050	nc
Total Aluminum (Al)	ug/L	3.0	60.9	69.8	14%	45.8	49.3	7%
Total Antimony (Sb)	ug/L	0.50	<0.50	<0.50	nc	<0.50	<0.50	nc
Total Arsenic (As)	ug/L	0.10	0.63	0.69	9%	0.34	0.34	0%
Total Barium (Ba)	ug/L	1.0	35.8	35.2	2%	16.6	16.7	1%
Total Beryllium (Be)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Bismuth (Bi)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Boron (B)	ug/L	50	<50	<50	nc	<50	<50	nc
Total Cadmium (Cd)	ug/L	0.010	0.054	0.053	2%	<0.010	<0.010	nc
Total Chromium (Cr)	ug/L	1.0	1.2	1.3	8%	<1.0	<1.0	nc
Total Cobalt (Co)	ug/L	0.20	1.08	1.06	2%	<0.20	<0.20	nc
Total Copper (Cu)	ug/L	0.50	2.92	3.0	3%	1.63	1.61	1%
Total Iron (Fe)	ug/L	10	1090	1060	3%	198	199	1%
Total Lead (Pb)	ug/L	0.20	3.27	3.42	4%	<0.20	<0.20	nc
Total Lithium (Li)	ug/L	2.0	<2.0	<2.0	nc	<2.0	<2.0	nc
Total Manganese (Mn)	ug/L	1.0	303	290	4%	23	23	0%
Total Mercury (Hg)	ug/L	0.0019	<0.0019	<0.0019	nc	<0.0019	<0.0019	nc
Total Molybdenum (Mo)	ug/L	1.0	<1.0	<1.0	nc	<1.0	<1.0	nc
Total Nickel (Ni)	ug/L	1.0	2.8	2.9	4%	<1.0	<1.0	nc
Total Selenium (Se)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Silicon (Si)	ug/L	100	8870	8200	8%	1950	1930	1%
Total Silver (Ag)	ug/L	0.020	<0.020	<0.020	nc	<0.020	<0.020	nc
Total Strontium (Sr)	ug/L	1.0	206	205	0%	83.1	82.2	1%
Total Thallium (Tl)	ug/L	0.010	<0.010	<0.010	nc	<0.010	<0.010	nc
Total Tin (Sn)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc

Parameter	UNITS	RDL	BOD903	BOD912	RPD	BPJ746	BPJ748	RPD
			2023-03-28 12:30	2023-03-28 12:35		2023-04-25 13:14	2023-04-25 13:35	
			B-01	B-01 DUP		F-02	F-02 DUP	
Total Titanium (Ti)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Uranium (U)	ug/L	0.10	<0.10	<0.10	nc	<0.10	<0.10	nc
Total Vanadium (V)	ug/L	5.0	<5.0	<5.0	nc	<5.0	<5.0	nc
Total Zinc (Zn)	ug/L	5.0	26.6	25.3	5%	5.4	5.5	2%
Total Zirconium (Zr)	ug/L	0.10	0.17	0.18	6%	<0.10	<0.10	nc
Total Calcium (Ca)	mg/L	0.050	22.7	21.3	6%	15.4	15.1	2%
Total Magnesium (Mg)	mg/L	0.050	5.27	5.20	1%	3.53	3.51	1%
Total Potassium (K)	mg/L	0.050	1.47	1.42	3%	1.07	1.08	1%
Total Sodium (Na)	mg/L	0.050	38.3	42.0	9%	13.4	13.4	0%
Total Sulphur (S)	mg/L	3.0	<3.0	<3.0	nc	3.2	3.2	0%
Temperature	°C	--	8.0	--	--	11.6	11.6	0%
Dissolved Oxygen	%	--	40.6	--	--	86.9	83.3	4%
Dissolved Oxygen	mg/L	--	4.77	--	--	9.49	9.10	4%
Specific Conductance	uS/cm	--	391.2	--	--	187	137	31%
Salinity	psu	--	0.19	--	--	NA	NA	nc
pH	pH Units	--	6.42	--	--	6.94	6.93	0%
Turbidity	NTU	--	5.8	--	--	2.56	2.66	4%

RDL = Reportable Detection Limit

RPD - Relative Percent Difference

nc - Not calculable

APPENDIX E

Analytical Laboratory Reports



Your Project #: BEVAN # 1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 663548-02-01, 3AF05, 3956D, 39566, 39569

Report Date: 2022/05/26

Report #: R3177068

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C233216

Received: 2022/05/18, 08:00

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	5	N/A	2022/05/18	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (2)	4	N/A	2022/05/19	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (2)	1	N/A	2022/05/20	BBY WI-00033	Auto Calc
Mercury (Total) by CV	5	2022/05/18	2022/05/18	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	2022/05/18	2022/05/19	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2022/05/18	2022/05/20	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	5	2022/05/19	2022/05/19	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	5	N/A	2022/05/19	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	5	N/A	2022/05/18	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	5	N/A	2022/05/18	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	5	N/A	2022/05/19	BBY WI-00033	Auto Calc
pH @25°C (3)	5	N/A	2022/05/18	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus (1)	5	2022/05/24	2022/05/26	AB SOP-00024	SM 23 4500-P A,B,F m

Remarks:

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

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

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



Your Project #: BEVAN # 1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 663548-02-01, 3AF05, 3956D, 39566, 39569

Report Date: 2022/05/26

Report #: R3177068

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C233216

Received: 2022/05/18, 08:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Calgary, 4000 - 19 St. , Calgary, AB, T2E 6P8

(2) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C233216

Report Date: 2022/05/26

CITY OF ABBOTSFORD

Client Project #: BEVAN # 1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			ATF548		ATF549		ATF550	ATF551		
Sampling Date			2022/05/17 19:35		2022/05/17 11:30		2022/05/17 12:20	2022/05/17 18:31		
COC Number			3AF05		3956D		3956D	39566		
	UNITS	Criteria	FIELD BLANK (3AF05)	QC Batch	D01 (3956D)	QC Batch	D02 (3956D)	H02 (39566)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	<0.0020	A581009	0.970	A581009	0.792	1.47	0.0020	A581009

Misc. Inorganics

pH	pH	6.5:9.0	5.70	A582549	7.52	A582549	7.87	7.86	N/A	A582549

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	A581688	<0.050	A581331	<0.050	<0.050	0.050	A581331

Nutrients

Total Ammonia (N)	mg/L	-	<0.015	A582355	<0.015	A582355	0.017	0.019	0.015	A582355
Total Phosphorus (P)	mg/L	-	<0.0030	A585440	0.012	A585399	0.017	0.018	0.0030	A585440
Nitrate plus Nitrite (N)	mg/L	-	<0.0020	A581625	0.974	A581625	0.795	1.47	0.0020	A581625
Nitrite (N)	mg/L	0.06	<0.0020	A581633	0.0042	A581633	0.0030	0.0041	0.0020	A581633

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID			ATF552		
Sampling Date			2022/05/17 18:49		
COC Number			39569		
	UNITS	Criteria	B02 (39569)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	1.59	0.0020	A581009

Misc. Inorganics

pH	pH	6.5:9.0	7.89	N/A	A582549

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A581331

Nutrients

Total Ammonia (N)	mg/L	-	0.052	0.015	A582355
Total Phosphorus (P)	mg/L	-	0.0098	0.0030	A585399
Nitrate plus Nitrite (N)	mg/L	-	1.60	0.0020	A581625
Nitrite (N)	mg/L	0.06	0.0064	0.0020	A581633

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

BUREAU
VERITAS

Bureau Veritas Job #: C233216

Report Date: 2022/05/26

CITY OF ABBOTSFORD

Client Project #: BEVAN # 1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATF548		ATF549	ATF550	ATF551		
Sampling Date			2022/05/17 19:35		2022/05/17 11:30	2022/05/17 12:20	2022/05/17 18:31		
COC Number			3AF05		3956D	3956D	39566		
	UNITS	Criteria	FIELD BLANK (3AF05)	QC Batch	D01 (3956D)	D02 (3956D)	H02 (39566)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	<0.50	A580952	82.8	107	108	0.50	A580952

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A581282	<0.0019	<0.0019	<0.0019	0.0019	A581282

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	<3.0	A582570	35.7	40.9	22.8	3.0	A582057
Total Antimony (Sb)	ug/L	-	<0.50	A582570	<0.50	<0.50	<0.50	0.50	A582057
Total Arsenic (As)	ug/L	5	<0.10	A582570	0.85	1.77	0.84	0.10	A582057
Total Barium (Ba)	ug/L	-	<1.0	A582570	14.9	12.4	13.7	1.0	A582057
Total Beryllium (Be)	ug/L	-	<0.10	A582570	<0.10	<0.10	<0.10	0.10	A582057
Total Bismuth (Bi)	ug/L	-	<1.0	A582570	<1.0	<1.0	<1.0	1.0	A582057
Total Boron (B)	ug/L	1500	<50	A582570	<50	<50	<50	50	A582057
Total Cadmium (Cd)	ug/L	-	<0.010	A582570	<0.010	<0.010	<0.010	0.010	A582057
Total Chromium (Cr)	ug/L	-	<1.0	A582570	<1.0	<1.0	1.4	1.0	A582057
Total Cobalt (Co)	ug/L	-	<0.20	A582570	<0.20	<0.20	<0.20	0.20	A582057
Total Copper (Cu)	ug/L	-	<0.50	A582570	0.90	<0.50	0.75	0.50	A582057
Total Iron (Fe)	ug/L	300	<10	A582570	308	547	176	10	A582057
Total Lead (Pb)	ug/L	-	<0.20	A582570	<0.20	<0.20	<0.20	0.20	A582057
Total Lithium (Li)	ug/L	-	<2.0	A582570	<2.0	<2.0	<2.0	2.0	A582057
Total Manganese (Mn)	ug/L	-	<1.0	A582570	62.5	156	34.9	1.0	A582057
Total Molybdenum (Mo)	ug/L	73	<1.0	A582570	<1.0	<1.0	1.6	1.0	A582057
Total Nickel (Ni)	ug/L	-	<1.0	A582570	<1.0	<1.0	<1.0	1.0	A582057
Total Selenium (Se)	ug/L	1	<0.10	A582570	0.17	0.22	0.16	0.10	A582057
Total Silicon (Si)	ug/L	-	<100	A582570	7700	10500	8850	100	A582057
Total Silver (Ag)	ug/L	0.25	<0.020	A582570	<0.020	<0.020	<0.020	0.020	A582057
Total Strontium (Sr)	ug/L	-	<1.0	A582570	124	150	136	1.0	A582057
Total Thallium (Tl)	ug/L	0.8	<0.010	A582570	<0.010	<0.010	<0.010	0.010	A582057
Total Tin (Sn)	ug/L	-	<5.0	A582570	<5.0	<5.0	<5.0	5.0	A582057
Total Titanium (Ti)	ug/L	-	<5.0	A582570	<5.0	<5.0	<5.0	5.0	A582057
Total Uranium (U)	ug/L	15	<0.10	A582570	<0.10	<0.10	<0.10	0.10	A582057
Total Vanadium (V)	ug/L	-	<5.0	A582570	<5.0	<5.0	<5.0	5.0	A582057
Total Zinc (Zn)	ug/L	30	<5.0	A582570	<5.0	<5.0	6.0	5.0	A582057
Total Zirconium (Zr)	ug/L	-	<0.10	A582570	<0.10	<0.10	<0.10	0.10	A582057

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATF548		ATF549	ATF550	ATF551		
Sampling Date			2022/05/17 19:35		2022/05/17 11:30	2022/05/17 12:20	2022/05/17 18:31		
COC Number			3AF05		3956D	3956D	39566		
	UNITS	Criteria	FIELD BLANK (3AF05)	QC Batch	D01 (3956D)	D02 (3956D)	H02 (39566)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	<0.050	A580960	22.2	27.8	31.3	0.050	A580960
Total Magnesium (Mg)	mg/L	-	<0.050	A580960	6.65	9.10	7.34	0.050	A580960
Total Potassium (K)	mg/L	-	<0.050	A580960	1.48	1.19	1.62	0.050	A580960
Total Sodium (Na)	mg/L	-	<0.050	A580960	11.3	8.97	11.3	0.050	A580960
Total Sulphur (S)	mg/L	-	<3.0	A580960	4.2	3.6	6.3	3.0	A580960
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATF552		
Sampling Date			2022/05/17 18:49		
COC Number			39569		
	UNITS	Criteria	B02 (39569)	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	-	99.3	0.50	A580952
Elements					
Total Mercury (Hg)	ug/L	0.026	<0.0019	0.0019	A581282
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	-	38.9	3.0	A582057
Total Antimony (Sb)	ug/L	-	<0.50	0.50	A582057
Total Arsenic (As)	ug/L	5	0.62	0.10	A582057
Total Barium (Ba)	ug/L	-	17.5	1.0	A582057
Total Beryllium (Be)	ug/L	-	<0.10	0.10	A582057
Total Bismuth (Bi)	ug/L	-	<1.0	1.0	A582057
Total Boron (B)	ug/L	1500	<50	50	A582057
Total Cadmium (Cd)	ug/L	-	<0.010	0.010	A582057
Total Chromium (Cr)	ug/L	-	2.0	1.0	A582057
Total Cobalt (Co)	ug/L	-	<0.20	0.20	A582057
Total Copper (Cu)	ug/L	-	0.80	0.50	A582057
Total Iron (Fe)	ug/L	300	458	10	A582057
Total Lead (Pb)	ug/L	-	<0.20	0.20	A582057
Total Lithium (Li)	ug/L	-	<2.0	2.0	A582057
Total Manganese (Mn)	ug/L	-	100	1.0	A582057
Total Molybdenum (Mo)	ug/L	73	<1.0	1.0	A582057
Total Nickel (Ni)	ug/L	-	<1.0	1.0	A582057
Total Selenium (Se)	ug/L	1	0.17	0.10	A582057
Total Silicon (Si)	ug/L	-	9940	100	A582057
Total Silver (Ag)	ug/L	0.25	<0.020	0.020	A582057
Total Strontium (Sr)	ug/L	-	149	1.0	A582057
Total Thallium (Tl)	ug/L	0.8	<0.010	0.010	A582057
Total Tin (Sn)	ug/L	-	<5.0	5.0	A582057
Total Titanium (Ti)	ug/L	-	<5.0	5.0	A582057
Total Uranium (U)	ug/L	15	<0.10	0.10	A582057
Total Vanadium (V)	ug/L	-	<5.0	5.0	A582057
Total Zinc (Zn)	ug/L	30	<5.0	5.0	A582057
Total Zirconium (Zr)	ug/L	-	<0.10	0.10	A582057
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID				ATF552		
Sampling Date				2022/05/17 18:49		
COC Number				39569		
	UNITS	Criteria	B02 (39569)	RDL	QC Batch	
Total Calcium (Ca)		mg/L	-	27.5	0.050	A580960
Total Magnesium (Mg)		mg/L	-	7.46	0.050	A580960
Total Potassium (K)		mg/L	-	1.44	0.050	A580960
Total Sodium (Na)		mg/L	-	10.9	0.050	A580960
Total Sulphur (S)		mg/L	-	4.6	3.0	A580960
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



Bureau Veritas Job #: C233216
Report Date: 2022/05/26

CITY OF ABBOTSFORD
Client Project #: BEVAN # 1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C233216
Report Date: 2022/05/26

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN # 1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
A581282	Total Mercury (Hg)	2022/05/18	91	80 - 120	99	80 - 120	<0.0019	ug/L	NC	20		
A581331	Dissolved Fluoride (F)	2022/05/18	107	80 - 120	102	80 - 120	<0.050	mg/L	1.6	20		
A581625	Nitrate plus Nitrite (N)	2022/05/18	105	80 - 120	108	80 - 120	<0.0020	mg/L	NC	25		
A581633	Nitrite (N)	2022/05/18	102	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25		
A581688	Dissolved Fluoride (F)	2022/05/18	101	80 - 120	102	80 - 120	<0.050	mg/L	4.0	20		
A582057	Total Aluminum (Al)	2022/05/19	104	80 - 120	101	80 - 120	<3.0	ug/L	0.48	20		
A582057	Total Antimony (Sb)	2022/05/19	99	80 - 120	97	80 - 120	<0.50	ug/L				
A582057	Total Arsenic (As)	2022/05/19	104	80 - 120	103	80 - 120	<0.10	ug/L	3.9	20		
A582057	Total Barium (Ba)	2022/05/19	100	80 - 120	99	80 - 120	<1.0	ug/L				
A582057	Total Beryllium (Be)	2022/05/19	101	80 - 120	101	80 - 120	<0.10	ug/L				
A582057	Total Bismuth (Bi)	2022/05/19	98	80 - 120	99	80 - 120	<1.0	ug/L				
A582057	Total Boron (B)	2022/05/19	NC	80 - 120	108	80 - 120	<50	ug/L	0.036	20		
A582057	Total Cadmium (Cd)	2022/05/19	100	80 - 120	100	80 - 120	<0.010	ug/L	NC	20		
A582057	Total Chromium (Cr)	2022/05/19	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20		
A582057	Total Cobalt (Co)	2022/05/19	102	80 - 120	100	80 - 120	<0.20	ug/L	NC	20		
A582057	Total Copper (Cu)	2022/05/19	102	80 - 120	100	80 - 120	<0.50	ug/L	NC	20		
A582057	Total Iron (Fe)	2022/05/19	NC	80 - 120	101	80 - 120	<10	ug/L	2.5	20		
A582057	Total Lead (Pb)	2022/05/19	98	80 - 120	101	80 - 120	<0.20	ug/L	NC	20		
A582057	Total Lithium (Li)	2022/05/19	95	80 - 120	97	80 - 120	<2.0	ug/L				
A582057	Total Manganese (Mn)	2022/05/19	NC	80 - 120	100	80 - 120	<1.0	ug/L	0.26	20		
A582057	Total Molybdenum (Mo)	2022/05/19	NC	80 - 120	102	80 - 120	<1.0	ug/L	5.3	20		
A582057	Total Nickel (Ni)	2022/05/19	102	80 - 120	102	80 - 120	<1.0	ug/L	5.9	20		
A582057	Total Selenium (Se)	2022/05/19	100	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
A582057	Total Silicon (Si)	2022/05/19	NC	80 - 120	108	80 - 120	<100	ug/L				
A582057	Total Silver (Ag)	2022/05/19	103	80 - 120	101	80 - 120	<0.020	ug/L	NC	20		
A582057	Total Strontium (Sr)	2022/05/19	NC	80 - 120	100	80 - 120	<1.0	ug/L				
A582057	Total Thallium (Tl)	2022/05/19	99	80 - 120	101	80 - 120	<0.010	ug/L				
A582057	Total Tin (Sn)	2022/05/19	100	80 - 120	98	80 - 120	<5.0	ug/L				
A582057	Total Titanium (Ti)	2022/05/19	98	80 - 120	99	80 - 120	<5.0	ug/L				
A582057	Total Uranium (U)	2022/05/19	101	80 - 120	103	80 - 120	<0.10	ug/L				
A582057	Total Vanadium (V)	2022/05/19	104	80 - 120	100	80 - 120	<5.0	ug/L				
A582057	Total Zinc (Zn)	2022/05/19	105	80 - 120	102	80 - 120	<5.0	ug/L	NC	20		
A582057	Total Zirconium (Zr)	2022/05/19	99	80 - 120	100	80 - 120	<0.10	ug/L				



Bureau Veritas Job #: C233216
Report Date: 2022/05/26

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN # 1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
A582355	Total Ammonia (N)	2022/05/19	NC	80 - 120	98	80 - 120	<0.015	mg/L	0.38	20		
A582549	pH	2022/05/18			102	97 - 103						
A582570	Total Aluminum (Al)	2022/05/19	95	80 - 120	102	80 - 120	<3.0	ug/L				
A582570	Total Antimony (Sb)	2022/05/19	92	80 - 120	102	80 - 120	<0.50	ug/L				
A582570	Total Arsenic (As)	2022/05/19	98	80 - 120	103	80 - 120	<0.10	ug/L				
A582570	Total Barium (Ba)	2022/05/19	93	80 - 120	99	80 - 120	<1.0	ug/L				
A582570	Total Beryllium (Be)	2022/05/19	94	80 - 120	101	80 - 120	<0.10	ug/L				
A582570	Total Bismuth (Bi)	2022/05/19	90	80 - 120	101	80 - 120	<1.0	ug/L				
A582570	Total Boron (B)	2022/05/19	98	80 - 120	104	80 - 120	<50	ug/L				
A582570	Total Cadmium (Cd)	2022/05/19	94	80 - 120	101	80 - 120	<0.010	ug/L				
A582570	Total Chromium (Cr)	2022/05/19	96	80 - 120	105	80 - 120	<1.0	ug/L				
A582570	Total Cobalt (Co)	2022/05/19	95	80 - 120	103	80 - 120	<0.20	ug/L				
A582570	Total Copper (Cu)	2022/05/19	94	80 - 120	105	80 - 120	<0.50	ug/L				
A582570	Total Iron (Fe)	2022/05/19	98	80 - 120	103	80 - 120	<10	ug/L				
A582570	Total Lead (Pb)	2022/05/19	91	80 - 120	104	80 - 120	<0.20	ug/L				
A582570	Total Lithium (Li)	2022/05/19	89	80 - 120	96	80 - 120	<2.0	ug/L				
A582570	Total Manganese (Mn)	2022/05/19	NC	80 - 120	103	80 - 120	<1.0	ug/L				
A582570	Total Molybdenum (Mo)	2022/05/19	NC	80 - 120	103	80 - 120	<1.0	ug/L				
A582570	Total Nickel (Ni)	2022/05/19	NC	80 - 120	105	80 - 120	<1.0	ug/L	0.84	20		
A582570	Total Selenium (Se)	2022/05/19	95	80 - 120	102	80 - 120	<0.10	ug/L				
A582570	Total Silicon (Si)	2022/05/19	93	80 - 120	108	80 - 120	<100	ug/L				
A582570	Total Silver (Ag)	2022/05/19	94	80 - 120	100	80 - 120	<0.020	ug/L				
A582570	Total Strontium (Sr)	2022/05/19	96	80 - 120	98	80 - 120	<1.0	ug/L				
A582570	Total Thallium (Tl)	2022/05/19	94	80 - 120	102	80 - 120	<0.010	ug/L				
A582570	Total Tin (Sn)	2022/05/19	93	80 - 120	101	80 - 120	<5.0	ug/L				
A582570	Total Titanium (Ti)	2022/05/19	96	80 - 120	102	80 - 120	<5.0	ug/L				
A582570	Total Uranium (U)	2022/05/19	102	80 - 120	107	80 - 120	<0.10	ug/L				
A582570	Total Vanadium (V)	2022/05/19	97	80 - 120	104	80 - 120	<5.0	ug/L				
A582570	Total Zinc (Zn)	2022/05/19	133 (1)	80 - 120	113	80 - 120	<5.0	ug/L				
A582570	Total Zirconium (Zr)	2022/05/19	97	80 - 120	101	80 - 120	<0.10	ug/L				
A585399	Total Phosphorus (P)	2022/05/26	105	80 - 120	96	80 - 120	<0.0030	mg/L	3.3	20	91	80 - 120

BUREAU
VERITAS

Bureau Veritas Job #: C233216

Report Date: 2022/05/26

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN # 1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
A585440	Total Phosphorus (P)	2022/05/26	102	80 - 120	99	80 - 120	<0.0030	mg/L	NC	20	91	80 - 120

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

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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



Bureau Veritas Job #: C233216
Report Date: 2022/05/26

CITY OF ABBOTSFORD
Client Project #: BEVAN # 1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang".

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

A handwritten signature in black ink, appearing to be "Ghayasuddin Khan".

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free: 800-563-6266 Fax: (604) 731 2386 www.bvna.com

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C233216_COC

e Only

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Fax	(604) 850-6418	Fax		Site #	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Sampled By	

Bottle Order #:



663548

Chain Of Custody Record

Project Manager



Customer Solutions

Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
☐ CSR														Please provide advance notice for rush projects.	
☐ CCME														Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
☐ BC Water Quality														Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required:	
☐ Other: _____														Rush Confirmation Number: _____ (call lab for #)	
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	~~505 (11064)~~					X	X	X	X	X	X	X	X		
2	~~DUPPLICATE~~					X	X	X	X	X	X	X	X		
3	~~TRIP BLANK (3AF04)~~					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)	17 May	19:35	water		X	X	X	X	X	X	X	X	5	
5	D01 (39560)	17 May	11:30	water		X	X	X	X	X	X	X	X		
6	D02 (39560)		12:20			X	X	X	X	X	X	X	X		
7	H02 (39566)		18:31			X	X	X	X	X	X	X	X		
8	B02 (39569)		18:49			X	X	X	X	X	X	X	X		
9															
10															

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		# Jars used and not submitted		Lab Use Only	
		22/05/17		21:30		JIMMY TAYLOR WHITEHOUSE		22/05/18		08:00		☐ Time Sensitive		Temperature (°C) on Receipt: 6, 8, 9	
														Custody Seal Intact on Cooler? ☐ Yes ☒ No	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Bureau Veritas Yellow: Client

100-yes



Bureau Veritas
4006 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free: 800-563-6296 Fax: (604) 731 2286 www.bvna.com

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C233216_COC

e Only

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240 Fax: (604) 850-6418	Phone	(778) 549-1240 Fax:	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled By	

Regulatory Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other: _____	Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	Turnaround Time (TAT) Required: Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS						Metals Field Filtered? (Y/N)										# of Bottles		Comments	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus							
1	SDP (11661)				X	X	X	X	X	X	X	X							
2	DUPLICATE				X	X	X	X	X	X	X	X							
3	TRIP BLANK (3AF04)				X	X	X	X	X	X	X	X							
4	FIELD BLANK (3AF05)	17 May	19:35	water	X	X	X	X	X	X	X	X				5			
5	DO1 (39560)	17 May	11:30	water	X	X	X	X	X	X	X	X				1			
6	DO2 (39560)		12:20		X	X	X	X	X	X	X	X							
7	HO2 (39566)		18:31		X	X	X	X	X	X	X	X							
8	BO2 (39564)		18:49		X	X	X	X	X	X	X	X							
9																			
10																			

* RELINQUISHED BY: (Signature/Print)		Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYMMDD)	Time	# jars used and not submitted	Lab Use Only		
<i>[Signature]</i>		22/05/17	21:30	<i>[Signature]</i> TAYLOR WHITEHOUSE		22/05/18	08:00		Time Sensitive ☐	Temperature (°C) on Receipt: 6, 8, 9	Custody Seal Intact on Cooler? ☐ Yes ☒ No
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.											

Bureau Veritas Canada (2019) Inc.

ICB-YES



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 663548-01-01, 39565, 41C64, 39567, 39568, F01, 3956A,
3956B, 3956C

Report Date: 2022/05/25
Report #: R3176902
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C233620

Received: 2022/05/19, 08:00

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	9	N/A	2022/05/19	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	8	N/A	2022/05/24	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	1	N/A	2022/05/25	BBY WI-00033	Auto Calc
Mercury (Total) by CV	9	2022/05/19	2022/05/19	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	8	2022/05/19	2022/05/24	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2022/05/19	2022/05/25	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	8	2022/05/20	2022/05/21	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	1	2022/05/21	2022/05/25	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	6	N/A	2022/05/19	AB SOP-00007	SM 23 4500 NH3 A G m
Ammonia-N (Total)	3	N/A	2022/05/20	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	8	N/A	2022/05/19	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	1	N/A	2022/05/20	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	8	N/A	2022/05/19	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2022/05/20	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	8	N/A	2022/05/21	BBY WI-00033	Auto Calc
Nitrogen - Nitrate (as N) Low Level Calc	1	N/A	2022/05/25	BBY WI-00033	Auto Calc
pH @25°C (2)	9	N/A	2022/05/20	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	9	2022/05/20	2022/05/20	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 663548-01-01, 39565, 41C64, 39567, 39568, F01, 3956A,
3956B, 3956C

Report Date: 2022/05/25
Report #: R3176902
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C233620

Received: 2022/05/19, 08:00

Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C233620

Report Date: 2022/05/25

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			ATH833			ATH834	ATH835		ATH836		
Sampling Date			2022/05/18 10:52			2022/05/18 16:55	2022/05/18 10:37		2022/05/18 12:15		
COC Number			39565			41C64	39567		39568		
	UNITS	Criteria	H01 (39565)	RDL	QC Batch	F0F (41C64)	H03 (39567)	QC Batch	B01 (39568)	RDL	QC Batch
Calculated Parameters											
Nitrate (N)	mg/L	-	2.32	0.0040	A582532	0.558	0.878	A582532	0.714	0.0020	A582532
Misc. Inorganics											
pH	pH	6.5:9.0	7.06	N/A	A583957	7.59	7.21	A583957	7.03	N/A	A583957
Anions											
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A582849	<0.050	<0.050	A582849	<0.050	0.050	A582849
Nutrients											
Total Ammonia (N)	mg/L	-	0.056	0.015	A583480	0.066	0.10	A582561	0.091	0.015	A583480
Total Phosphorus (P)	mg/L	-	0.024	0.0030	A584307	0.030	0.046	A584307	0.043	0.0030	A584307
Nitrate plus Nitrite (N)	mg/L	-	2.33	0.0040	A584200	0.570	0.891	A583786	0.727	0.0020	A583786
Nitrite (N)	mg/L	0.06	0.0059	0.0020	A584201	0.0119	0.0133	A583788	0.0131	0.0020	A583788
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels										
Grey											
Black											
RDL = Reportable Detection Limit											
N/A = Not Applicable											

Bureau Veritas ID			ATH837	ATH838	ATH839		ATH840		
Sampling Date			2022/05/18 17:10	2022/05/18 13:40	2022/05/18		2022/05/18 17:10		
COC Number			F01	3956A	663548-01-01		3956B		
	UNITS	Criteria	DUPLICATE (F0I)	W01 (3956A)	TRIP BLANK	QC Batch	F01 (3956B)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	0.679	0.964	0.0026	A582532	0.671	0.0020	A582532
Misc. Inorganics									
pH	pH	6.5:9.0	7.54	7.12	5.75	A584133	7.55	N/A	A584133
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	A582849	<0.050	0.050	A582849
Nutrients									
Total Ammonia (N)	mg/L	-	0.073	0.042	<0.015	A582561	0.076	0.015	A583480
Total Phosphorus (P)	mg/L	-	0.028	0.021	<0.0030	A584307	0.028	0.0030	A584307
Nitrate plus Nitrite (N)	mg/L	-	0.692	0.970	0.0026	A583786	0.685	0.0020	A583786
Nitrite (N)	mg/L	0.06	0.0131	0.0059	<0.0020	A583788	0.0135	0.0020	A583788
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit									
N/A = Not Applicable									



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			ATH841		
Sampling Date			2022/05/18 15:00		
COC Number			3956C		
	UNITS	Criteria	F02 (3956C)	RDL	QC Batch
Calculated Parameters					
Nitrate (N)	mg/L	-	0.122	0.0020	A582532
Misc. Inorganics					
pH	pH	6.5:9.0	7.45	N/A	A584133
Anions					
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A582849
Nutrients					
Total Ammonia (N)	mg/L	-	<0.015	0.015	A582561
Total Phosphorus (P)	mg/L	-	0.025	0.0030	A584307
Nitrate plus Nitrite (N)	mg/L	-	0.126	0.0020	A583786
Nitrite (N)	mg/L	0.06	0.0032	0.0020	A583788
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					
N/A = Not Applicable					

BUREAU
VERITAS

Bureau Veritas Job #: C233620

Report Date: 2022/05/25

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATH833	ATH834	ATH835	ATH836	ATH837	ATH838		
Sampling Date			2022/05/18 10:52	2022/05/18 16:55	2022/05/18 10:37	2022/05/18 12:15	2022/05/18 17:10	2022/05/18 13:40		
COC Number			39565	41C64	39567	39568	F01	3956A		
	UNITS	Criteria	H01 (39565)	F0F (41C64)	H03 (39567)	B01 (39568)	DUPLICATE (F0I)	W01 (3956A)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	82.5	60.3	38.6	31.4	67.6	56.5	0.50	A582288

Elements

Total Mercury (Hg)	ug/L	0.026	0.0109	<0.0019	0.0044	0.0021	<0.0019	<0.0019	0.0019	A582674

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	92.6	129	160	224	147	40.9	3.0	A583260
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	0.94	<0.50	<0.50	<0.50	0.50	A583260
Total Arsenic (As)	ug/L	5	0.50	1.15	0.48	0.70	1.29	0.79	0.10	A583260
Total Barium (Ba)	ug/L	-	12.9	13.8	9.9	16.5	15.1	21.7	1.0	A583260
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A583260
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A583260
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A583260
Total Cadmium (Cd)	ug/L	-	0.022	<0.010	0.022	0.027	<0.010	<0.010	0.010	A583260
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	1.0	1.8	<1.0	1.7	1.0	A583260
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	0.31	<0.20	<0.20	0.20	A583260
Total Copper (Cu)	ug/L	-	4.20	2.65	6.57	6.29	2.37	1.24	0.50	A583260
Total Iron (Fe)	ug/L	300	182	718	237	632	566	552	10	A583260
Total Lead (Pb)	ug/L	-	0.38	0.45	0.61	2.83	<0.20	0.30	0.20	A583260
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A583260
Total Manganese (Mn)	ug/L	-	11.9	70.7	13.9	61.5	115	44.5	1.0	A583260
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	5.8	<1.0	<1.0	<1.0	1.0	A583260
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	1.0	A583260
Total Selenium (Se)	ug/L	1	0.14	<0.10	<0.10	<0.10	0.11	<0.10	0.10	A583260
Total Silicon (Si)	ug/L	-	7400	3520	2920	4090	4120	6240	100	A583260
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A583260
Total Strontium (Sr)	ug/L	-	118	93.3	55.3	81.3	103	106	1.0	A583260
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A583260
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A583260
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	7.6	8.1	6.1	<5.0	5.0	A583260
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A583260
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A583260
Total Zinc (Zn)	ug/L	30	19.0	6.8	40.3	30.1	5.6	5.2	5.0	A583260
Total Zirconium (Zr)	ug/L	-	0.13	<0.10	0.78	0.34	<0.10	<0.10	0.10	A583260
Total Calcium (Ca)	mg/L	-	23.4	16.9	11.5	9.43	19.0	15.5	0.050	A582290

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATH833	ATH834	ATH835	ATH836	ATH837	ATH838		
Sampling Date			2022/05/18 10:52	2022/05/18 16:55	2022/05/18 10:37	2022/05/18 12:15	2022/05/18 17:10	2022/05/18 13:40		
COC Number			39565	41C64	39567	39568	F01	3956A		
	UNITS	Criteria	H01 (39565)	F0F (41C64)	H03 (39567)	B01 (39568)	DUPLICATE (F0I)	W01 (3956A)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	5.83	4.36	2.39	1.91	4.92	4.32	0.050	A582290
Total Potassium (K)	mg/L	-	1.34	1.19	0.978	0.834	1.34	0.975	0.050	A582290
Total Sodium (Na)	mg/L	-	14.3	10.1	7.48	10.6	9.84	24.6	0.050	A582290
Total Sulphur (S)	mg/L	-	5.0	3.5	<3.0	<3.0	4.0	<3.0	3.0	A582290
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATH839		ATH840	ATH841		
Sampling Date			2022/05/18		2022/05/18 17:10	2022/05/18 15:00		
COC Number			663548-01-01		3956B	3956C		
	UNITS	Criteria	TRIP BLANK	QC Batch	F01 (3956B)	F02 (3956C)	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	<0.50	A582288	69.6	57.5	0.50	A582288
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	A582674	0.0028	<0.0019	0.0019	A582444
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	<3.0	A584484	146	97.1	3.0	A583260
Total Antimony (Sb)	ug/L	-	<0.50	A584484	<0.50	<0.50	0.50	A583260
Total Arsenic (As)	ug/L	5	<0.10	A584484	1.34	0.52	0.10	A583260
Total Barium (Ba)	ug/L	-	<1.0	A584484	15.4	15.3	1.0	A583260
Total Beryllium (Be)	ug/L	-	<0.10	A584484	<0.10	<0.10	0.10	A583260
Total Bismuth (Bi)	ug/L	-	<1.0	A584484	<1.0	<1.0	1.0	A583260
Total Boron (B)	ug/L	1500	<50	A584484	<50	<50	50	A583260
Total Cadmium (Cd)	ug/L	-	<0.010	A584484	<0.010	<0.010	0.010	A583260
Total Chromium (Cr)	ug/L	-	<1.0	A584484	<1.0	<1.0	1.0	A583260
Total Cobalt (Co)	ug/L	-	<0.20	A584484	<0.20	<0.20	0.20	A583260
Total Copper (Cu)	ug/L	-	<0.50	A584484	2.36	1.76	0.50	A583260
Total Iron (Fe)	ug/L	300	<10	A584484	564	443	10	A583260
Total Lead (Pb)	ug/L	-	<0.20	A584484	<0.20	<0.20	0.20	A583260
Total Lithium (Li)	ug/L	-	<2.0	A584484	<2.0	<2.0	2.0	A583260
Total Manganese (Mn)	ug/L	-	<1.0	A584484	115	33.5	1.0	A583260
Total Molybdenum (Mo)	ug/L	73	<1.0	A584484	<1.0	<1.0	1.0	A583260
Total Nickel (Ni)	ug/L	-	<1.0	A584484	<1.0	<1.0	1.0	A583260
Total Selenium (Se)	ug/L	1	<0.10	A584484	0.11	<0.10	0.10	A583260
Total Silicon (Si)	ug/L	-	<100	A584484	4290	2710	100	A583260
Total Silver (Ag)	ug/L	0.25	<0.020	A584484	<0.020	<0.020	0.020	A583260
Total Strontium (Sr)	ug/L	-	<1.0	A584484	107	89.8	1.0	A583260
Total Thallium (Tl)	ug/L	0.8	<0.010	A584484	<0.010	<0.010	0.010	A583260
Total Tin (Sn)	ug/L	-	<5.0	A584484	<5.0	<5.0	5.0	A583260
Total Titanium (Ti)	ug/L	-	<5.0	A584484	5.9	<5.0	5.0	A583260
Total Uranium (U)	ug/L	15	<0.10	A584484	<0.10	<0.10	0.10	A583260
Total Vanadium (V)	ug/L	-	<5.0	A584484	<5.0	<5.0	5.0	A583260
Total Zinc (Zn)	ug/L	30	<5.0	A584484	5.7	<5.0	5.0	A583260
Total Zirconium (Zr)	ug/L	-	<0.10	A584484	0.78	<0.10	0.10	A583260
Total Calcium (Ca)	mg/L	-	<0.050	A582290	19.6	16.3	0.050	A582290
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			ATH839		ATH840	ATH841		
Sampling Date			2022/05/18		2022/05/18 17:10	2022/05/18 15:00		
COC Number			663548-01-01		3956B	3956C		
	UNITS	Criteria	TRIP BLANK	QC Batch	F01 (3956B)	F02 (3956C)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	<0.050	A582290	5.03	4.04	0.050	A582290
Total Potassium (K)	mg/L	-	<0.050	A582290	1.36	0.796	0.050	A582290
Total Sodium (Na)	mg/L	-	<0.050	A582290	10.0	10.6	0.050	A582290
Total Sulphur (S)	mg/L	-	<3.0	A582290	4.0	<3.0	3.0	A582290
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



Bureau Veritas Job #: C233620
Report Date: 2022/05/25

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C233620

Report Date: 2022/05/25

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A582444	Total Mercury (Hg)	2022/05/19	86	80 - 120	90	80 - 120	<0.0019	ug/L	NC	20
A582561	Total Ammonia (N)	2022/05/19	102	80 - 120	96	80 - 120	<0.015	mg/L	NC	20
A582674	Total Mercury (Hg)	2022/05/19	84	80 - 120	86	80 - 120	<0.0019	ug/L	5.7	20
A582849	Dissolved Fluoride (F)	2022/05/19			108	80 - 120	<0.050	mg/L		
A583260	Total Aluminum (Al)	2022/05/21	98	80 - 120	102	80 - 120	<3.0	ug/L	NC	20
A583260	Total Antimony (Sb)	2022/05/21	99	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A583260	Total Arsenic (As)	2022/05/21	103	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A583260	Total Barium (Ba)	2022/05/21	98	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A583260	Total Beryllium (Be)	2022/05/21	95	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A583260	Total Bismuth (Bi)	2022/05/21	99	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A583260	Total Boron (B)	2022/05/21	97	80 - 120	97	80 - 120	<50	ug/L	NC	20
A583260	Total Cadmium (Cd)	2022/05/21	98	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A583260	Total Chromium (Cr)	2022/05/21	98	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A583260	Total Cobalt (Co)	2022/05/21	98	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A583260	Total Copper (Cu)	2022/05/21	97	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
A583260	Total Iron (Fe)	2022/05/21	97	80 - 120	104	80 - 120	<10	ug/L	NC	20
A583260	Total Lead (Pb)	2022/05/21	101	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A583260	Total Lithium (Li)	2022/05/21	94	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
A583260	Total Manganese (Mn)	2022/05/21	98	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A583260	Total Molybdenum (Mo)	2022/05/21	98	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A583260	Total Nickel (Ni)	2022/05/21	100	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A583260	Total Selenium (Se)	2022/05/21	103	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A583260	Total Silicon (Si)	2022/05/21	111	80 - 120	115	80 - 120	<100	ug/L	NC	20
A583260	Total Silver (Ag)	2022/05/21	98	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A583260	Total Strontium (Sr)	2022/05/21	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A583260	Total Thallium (Tl)	2022/05/21	99	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A583260	Total Tin (Sn)	2022/05/21	97	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A583260	Total Titanium (Ti)	2022/05/21	99	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A583260	Total Uranium (U)	2022/05/21	98	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A583260	Total Vanadium (V)	2022/05/21	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A583260	Total Zinc (Zn)	2022/05/21	100	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A583260	Total Zirconium (Zr)	2022/05/21	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A583480	Total Ammonia (N)	2022/05/20	104	80 - 120	99	80 - 120	<0.015	mg/L	0.34	20



Bureau Veritas Job #: C233620
Report Date: 2022/05/25

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A583786	Nitrate plus Nitrite (N)	2022/05/19			107	80 - 120	<0.0020	mg/L		
A583788	Nitrite (N)	2022/05/19			100	80 - 120	<0.0020	mg/L		
A583957	pH	2022/05/20			101	97 - 103			0.55	N/A
A584133	pH	2022/05/20			102	97 - 103			3.6	N/A
A584200	Nitrate plus Nitrite (N)	2022/05/20			106	80 - 120	<0.0020	mg/L		
A584201	Nitrite (N)	2022/05/20			102	80 - 120	<0.0020	mg/L		
A584307	Total Phosphorus (P)	2022/05/20			105	80 - 120	<0.0030	mg/L	8.4	20
A584484	Total Aluminum (Al)	2022/05/25			98	80 - 120	<3.0	ug/L		
A584484	Total Antimony (Sb)	2022/05/25			97	80 - 120	<0.50	ug/L		
A584484	Total Arsenic (As)	2022/05/25			97	80 - 120	<0.10	ug/L		
A584484	Total Barium (Ba)	2022/05/25			91	80 - 120	<1.0	ug/L		
A584484	Total Beryllium (Be)	2022/05/25			98	80 - 120	<0.10	ug/L		
A584484	Total Bismuth (Bi)	2022/05/25			93	80 - 120	<1.0	ug/L		
A584484	Total Boron (B)	2022/05/25			103	80 - 120	<50	ug/L		
A584484	Total Cadmium (Cd)	2022/05/25			97	80 - 120	<0.010	ug/L		
A584484	Total Chromium (Cr)	2022/05/25			100	80 - 120	<1.0	ug/L		
A584484	Total Cobalt (Co)	2022/05/25			102	80 - 120	<0.20	ug/L		
A584484	Total Copper (Cu)	2022/05/25			98	80 - 120	<0.50	ug/L		
A584484	Total Iron (Fe)	2022/05/25			99	80 - 120	<10	ug/L		
A584484	Total Lead (Pb)	2022/05/25			96	80 - 120	<0.20	ug/L		
A584484	Total Lithium (Li)	2022/05/25			101	80 - 120	<2.0	ug/L		
A584484	Total Manganese (Mn)	2022/05/25			97	80 - 120	<1.0	ug/L		
A584484	Total Molybdenum (Mo)	2022/05/25			96	80 - 120	<1.0	ug/L		
A584484	Total Nickel (Ni)	2022/05/25			99	80 - 120	<1.0	ug/L		
A584484	Total Selenium (Se)	2022/05/25			99	80 - 120	<0.10	ug/L		
A584484	Total Silicon (Si)	2022/05/25			106	80 - 120	<100	ug/L		
A584484	Total Silver (Ag)	2022/05/25			96	80 - 120	<0.020	ug/L		
A584484	Total Strontium (Sr)	2022/05/25			91	80 - 120	<1.0	ug/L		
A584484	Total Thallium (Tl)	2022/05/25			92	80 - 120	<0.010	ug/L		
A584484	Total Tin (Sn)	2022/05/25			95	80 - 120	<5.0	ug/L		
A584484	Total Titanium (Ti)	2022/05/25			98	80 - 120	<5.0	ug/L		
A584484	Total Uranium (U)	2022/05/25			99	80 - 120	<0.10	ug/L		
A584484	Total Vanadium (V)	2022/05/25			99	80 - 120	<5.0	ug/L		



BUREAU
VERITAS

Bureau Veritas Job #: C233620

Report Date: 2022/05/25

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A584484	Total Zinc (Zn)	2022/05/25			102	80 - 120	<5.0	ug/L		
A584484	Total Zirconium (Zr)	2022/05/25			93	80 - 120	<0.10	ug/L		

N/A = Not Applicable

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



Bureau Veritas Job #: C233620
Report Date: 2022/05/25

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4500 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel (604) 734 7276 Toll-free 800-563-6266 Fax (604) 731 2386 www.bvna.com

Page 1 of 2



C233620_COC

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240 Fax (604) 850-6418	Phone	(778) 549-1240 Fax	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled By	

Bottle Order #:

603548

Project Manager

Customer Solutions

Regulatory Criteria:	Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
☐ CSR		Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	Please provide advance notice for rush projects		
☐ CCME	Regular (Standard) TAT:												
☐ BC Water Quality	(will be applied if Rush TAT is not specified):												
☐ Other	Standard TAT = 5-7 Working days for most tests.												
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.													
Job Specific Rush TAT (if applies to entire submission)													
1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required ☐													
Rush Confirmation Number: (call lab for #)													

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	H01 (39565)	18 May	10:52	water	N	X	X	X	X	X	X	X	X	5	
2	H02 (39566) FOF (YICU 4)		16:55			X	X	X	X	X	X	X	X		
3	H03 (39567)		10:37			X	X	X	X	X	X	X	X		
4	B01 (39568)		12:15			X	X	X	X	X	X	X	X		
5	B02 (39569) DUPLICATE (F01)		17:10			X	X	X	X	X	X	X	X		dup taken (d F01)
6	W01 (3956A)		13:40			X	X	X	X	X	X	X	X		
7	B01 (3956D) TRIP BLANK					X	X	X	X	X	X	X	X		
8	B02 (3956D)					X	X	X	X	X	X	X	X		
9	F01 (3956B)		17:10			X	X	X	X	X	X	X	X		
10	F02 (3956C)		15:00			X	X	X	X	X	X	X	X		

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only	
		22/05/18	20:30			22/05/19	08:00		Time Sensitive ☐	Temperature (°C) on Receipt 9.5.3
									Custody Seal Intact on Cooler? ☐ Yes ☒ No	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2019) Inc.

ice: yes



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 666209-01-01, 39565, 39566, 39567, 39568, 38569, 3956D

Report Date: 2022/06/22

Report #: R3190315

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C241899

Received: 2022/06/16, 08:00

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Hardness Total (calculated as CaCO ₃) (1)	7	N/A	2022/06/20	BBY WI-00033	Auto Calc
Mercury (Total) by CV	7	2022/06/16	2022/06/16	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	2022/06/16	2022/06/20	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	7	2022/06/16	2022/06/18	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	7	N/A	2022/06/21	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	7	N/A	2022/06/17	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	7	N/A	2022/06/17	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	7	N/A	2022/06/19	BBY WI-00033	Auto Calc
pH @25°C (2)	3	N/A	2022/06/16	BBY6SOP-00026	SM 23 4500-H+ B m
pH @25°C (2)	4	N/A	2022/06/17	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	7	2022/06/17	2022/06/17	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 666209-01-01, 39565, 39566, 39567, 39568, 38569, 3956D

Report Date: 2022/06/22

Report #: R3190315

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C241899

Received: 2022/06/16, 08:00

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

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For Service Group specific validation please refer to the Validation Signature Page.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AVD809			AVD810		AVD811		
Sampling Date			2022/06/15 15:15			2022/06/15 12:55		2022/06/15 14:55		
COC Number			39565			39566		39567		
	UNITS	Criteria	H01 (39565)	RDL	QC Batch	H02 (39566)	RDL	H03 (39567)	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	3.07	0.010	A611845	1.53	0.0020	2.41	0.0040	A611845
Misc. Inorganics										
pH	pH	6.5:9.0	7.28	N/A	A614002	7.99	N/A	7.78	N/A	A614002
Nutrients										
Total Ammonia (N)	mg/L	-	<0.015	0.015	A617543	0.024	0.015	0.018	0.015	A617604
Total Phosphorus (P)	mg/L	-	0.011	0.0030	A613962	0.015	0.0030	0.016	0.0030	A613962
Nitrate plus Nitrite (N)	mg/L	-	3.07	0.010	A614357	1.53	0.0020	2.41	0.0040	A614357
Nitrite (N)	mg/L	0.06	<0.0020	0.0020	A614360	0.0051	0.0020	0.0035	0.0020	A614360
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit N/A = Not Applicable										

Bureau Veritas ID			AVD812		AVD813	AVD814	AVD815		
Sampling Date			2022/06/15 16:50		2022/06/15 13:25	2022/06/15 09:30	2022/06/15 10:30		
COC Number			39568		38569	3956D	3956D		
	UNITS	Criteria	B01 (39568)	QC Batch	B02 (38569)	D01 (3956D)	D02 (3956D)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	1.52	A611845	1.65	1.05	0.788	0.0020	A611845
Misc. Inorganics									
pH	pH	6.5:9.0	7.42	A614009	8.03	8.12	8.14	N/A	A614019
Nutrients									
Total Ammonia (N)	mg/L	-	0.099	A617604	0.037	0.017	0.026	0.015	A617604
Total Phosphorus (P)	mg/L	-	0.027	A613962	0.012	0.016	0.019	0.0030	A613962
Nitrate plus Nitrite (N)	mg/L	-	1.54	A614357	1.66	1.05	0.792	0.0020	A614357
Nitrite (N)	mg/L	0.06	0.0175	A614360	0.0085	0.0041	0.0042	0.0020	A614360
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
N/A = Not Applicable									

BUREAU
VERITAS

Bureau Veritas Job #: C241899

Report Date: 2022/06/22

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVD809	AVD810	AVD811	AVD812	AVD813	AVD814		
Sampling Date			2022/06/15 15:15	2022/06/15 12:55	2022/06/15 14:55	2022/06/15 16:50	2022/06/15 13:25	2022/06/15 09:30		
COC Number			39565	39566	39567	39568	38569	3956D		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (38569)	D01 (3956D)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	118	111	122	68.6	110	102	0.50	A611600

Elements

Total Mercury (Hg)	ug/L	0.026	0.0055	<0.0019	0.0028	<0.0019	<0.0019	<0.0019	0.0019	A611365

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	7.2	20.4	17.0	61.7	25.3	47.2	3.0	A612176
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A612176
Total Arsenic (As)	ug/L	5	0.48	0.84	0.52	0.67	0.63	1.00	0.10	A612176
Total Barium (Ba)	ug/L	-	15.8	13.3	16.6	26.1	18.0	16.7	1.0	A612176
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A612176
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A612176
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A612176
Total Cadmium (Cd)	ug/L	-	0.022	<0.010	0.018	0.024	<0.010	<0.010	0.010	A612176
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	1.0	A612176
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	0.63	<0.20	<0.20	0.20	A612176
Total Copper (Cu)	ug/L	-	0.73	0.69	1.07	2.20	0.52	0.64	0.50	A612176
Total Iron (Fe)	ug/L	300	56	157	48	802	417	370	10	A612176
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	1.97	<0.20	<0.20	0.20	A612176
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A612176
Total Manganese (Mn)	ug/L	-	16.1	34.1	17.9	229	104	85.5	1.0	A612176
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	30.9	<1.0	<1.0	<1.0	1.0	A612176
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	1.0	A612176
Total Selenium (Se)	ug/L	1	0.23	0.17	0.20	<0.10	0.20	0.22	0.10	A612176
Total Silicon (Si)	ug/L	-	10400	9300	9580	8860	11000	9620	100	A612176
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A612176
Total Strontium (Sr)	ug/L	-	181	150	186	202	172	159	1.0	A612176
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A612176
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A612176
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A612176
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A612176
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A612176
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	10.0	12.6	<5.0	<5.0	5.0	A612176
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	0.18	<0.10	<0.10	0.10	A612176

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVD809	AVD810	AVD811	AVD812	AVD813	AVD814		
Sampling Date			2022/06/15 15:15	2022/06/15 12:55	2022/06/15 14:55	2022/06/15 16:50	2022/06/15 13:25	2022/06/15 09:30		
COC Number			39565	39566	39567	39568	38569	3956D		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (38569)	D01 (3956D)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	33.5	32.4	35.0	19.4	30.8	27.1	0.050	A611661
Total Magnesium (Mg)	mg/L	-	8.42	7.40	8.31	4.86	8.13	8.33	0.050	A611661
Total Potassium (K)	mg/L	-	1.84	1.72	2.02	1.26	1.58	1.60	0.050	A611661
Total Sodium (Na)	mg/L	-	21.4	11.6	20.5	17.0	11.2	12.6	0.050	A611661
Total Sulphur (S)	mg/L	-	7.3	5.7	6.8	<3.0	4.7	5.5	3.0	A611661
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVD815		
Sampling Date			2022/06/15 10:30		
COC Number			3956D		
	UNITS	Criteria	D02 (3956D)	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	-	121	0.50	A611600
Elements					
Total Mercury (Hg)	ug/L	0.026	<0.0019	0.0019	A611365
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	-	39.6	3.0	A612176
Total Antimony (Sb)	ug/L	-	<0.50	0.50	A612176
Total Arsenic (As)	ug/L	5	1.89	0.10	A612176
Total Barium (Ba)	ug/L	-	13.7	1.0	A612176
Total Beryllium (Be)	ug/L	-	<0.10	0.10	A612176
Total Bismuth (Bi)	ug/L	-	<1.0	1.0	A612176
Total Boron (B)	ug/L	1500	<50	50	A612176
Total Cadmium (Cd)	ug/L	-	<0.010	0.010	A612176
Total Chromium (Cr)	ug/L	-	<1.0	1.0	A612176
Total Cobalt (Co)	ug/L	-	<0.20	0.20	A612176
Total Copper (Cu)	ug/L	-	<0.50	0.50	A612176
Total Iron (Fe)	ug/L	300	554	10	A612176
Total Lead (Pb)	ug/L	-	<0.20	0.20	A612176
Total Lithium (Li)	ug/L	-	<2.0	2.0	A612176
Total Manganese (Mn)	ug/L	-	207	1.0	A612176
Total Molybdenum (Mo)	ug/L	73	<1.0	1.0	A612176
Total Nickel (Ni)	ug/L	-	<1.0	1.0	A612176
Total Selenium (Se)	ug/L	1	0.25	0.10	A612176
Total Silicon (Si)	ug/L	-	11800	100	A612176
Total Silver (Ag)	ug/L	0.25	<0.020	0.020	A612176
Total Strontium (Sr)	ug/L	-	174	1.0	A612176
Total Thallium (Tl)	ug/L	0.8	<0.010	0.010	A612176
Total Tin (Sn)	ug/L	-	<5.0	5.0	A612176
Total Titanium (Ti)	ug/L	-	<5.0	5.0	A612176
Total Uranium (U)	ug/L	15	<0.10	0.10	A612176
Total Vanadium (V)	ug/L	-	<5.0	5.0	A612176
Total Zinc (Zn)	ug/L	30	<5.0	5.0	A612176
Total Zirconium (Zr)	ug/L	-	<0.10	0.10	A612176
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					



Bureau Veritas Job #: C241899
Report Date: 2022/06/22

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVD815		
Sampling Date			2022/06/15 10:30		
COC Number			3956D		
	UNITS	Criteria	D02 (3956D)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	31.8	0.050	A611661
Total Magnesium (Mg)	mg/L	-	10.1	0.050	A611661
Total Potassium (K)	mg/L	-	1.28	0.050	A611661
Total Sodium (Na)	mg/L	-	9.71	0.050	A611661
Total Sulphur (S)	mg/L	-	3.9	3.0	A611661
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					



BUREAU
VERITAS

Bureau Veritas Job #: C241899

Report Date: 2022/06/22

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: E

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C241899
Report Date: 2022/06/22

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: E

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A611365	Total Mercury (Hg)	2022/06/16	95	80 - 120	96	80 - 120	<0.0019	ug/L	8.6	20
A612176	Total Aluminum (Al)	2022/06/18	117	80 - 120	103	80 - 120	<3.0	ug/L	2.4	20
A612176	Total Antimony (Sb)	2022/06/18	104	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A612176	Total Arsenic (As)	2022/06/18	107	80 - 120	105	80 - 120	<0.10	ug/L	7.6	20
A612176	Total Barium (Ba)	2022/06/18	102	80 - 120	102	80 - 120	<1.0	ug/L	1.9	20
A612176	Total Beryllium (Be)	2022/06/18	104	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A612176	Total Bismuth (Bi)	2022/06/18	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A612176	Total Boron (B)	2022/06/18	105	80 - 120	104	80 - 120	<50	ug/L	NC	20
A612176	Total Cadmium (Cd)	2022/06/18	103	80 - 120	101	80 - 120	<0.010	ug/L	6.6	20
A612176	Total Chromium (Cr)	2022/06/18	103	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A612176	Total Cobalt (Co)	2022/06/18	99	80 - 120	98	80 - 120	<0.20	ug/L	0.11	20
A612176	Total Copper (Cu)	2022/06/18	98	80 - 120	97	80 - 120	<0.50	ug/L	2.3	20
A612176	Total Iron (Fe)	2022/06/18	107	80 - 120	103	80 - 120	<10	ug/L	0.22	20
A612176	Total Lead (Pb)	2022/06/18	102	80 - 120	101	80 - 120	<0.20	ug/L	8.5	20
A612176	Total Lithium (Li)	2022/06/18	102	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
A612176	Total Manganese (Mn)	2022/06/18	102	80 - 120	101	80 - 120	<1.0	ug/L	3.2	20
A612176	Total Molybdenum (Mo)	2022/06/18	108	80 - 120	105	80 - 120	<1.0	ug/L	NC	20
A612176	Total Nickel (Ni)	2022/06/18	101	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A612176	Total Selenium (Se)	2022/06/18	105	80 - 120	105	80 - 120	<0.10	ug/L	0.48	20
A612176	Total Silicon (Si)	2022/06/18	104	80 - 120	111	80 - 120	<100	ug/L	1.9	20
A612176	Total Silver (Ag)	2022/06/18	101	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A612176	Total Strontium (Sr)	2022/06/18	102	80 - 120	102	80 - 120	<1.0	ug/L	0.83	20
A612176	Total Thallium (Tl)	2022/06/18	102	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A612176	Total Tin (Sn)	2022/06/18	104	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A612176	Total Titanium (Ti)	2022/06/18	115	80 - 120	104	80 - 120	<5.0	ug/L	0.62	20
A612176	Total Uranium (U)	2022/06/18	102	80 - 120	104	80 - 120	<0.10	ug/L	4.4	20
A612176	Total Vanadium (V)	2022/06/18	104	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A612176	Total Zinc (Zn)	2022/06/18	102	80 - 120	101	80 - 120	<5.0	ug/L	0.40	20
A612176	Total Zirconium (Zr)	2022/06/18	103	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A613962	Total Phosphorus (P)	2022/06/17	NC	N/A	107	80 - 120	<0.0030	mg/L	7.3	20
A614002	pH	2022/06/16			102	97 - 103			0.12	N/A
A614009	pH	2022/06/17			102	97 - 103			0.27	N/A

BUREAU
VERITAS

Bureau Veritas Job #: C241899

Report Date: 2022/06/22

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: E

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A614019	pH	2022/06/17			102	97 - 103			0.27	N/A
A614357	Nitrate plus Nitrite (N)	2022/06/17	103	80 - 120	104	80 - 120	<0.0020	mg/L	0.20	25
A614360	Nitrite (N)	2022/06/17	107	80 - 120	102	80 - 120	<0.0020	mg/L	6.6	25
A617543	Total Ammonia (N)	2022/06/21	102	80 - 120	104	80 - 120	<0.015	mg/L	NC	20
A617604	Total Ammonia (N)	2022/06/21	101	80 - 120	101	80 - 120	<0.015	mg/L	NC	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



BUREAU
VERITAS

Bureau Veritas Job #: C241899

Report Date: 2022/06/22

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: E

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "D. Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



INVOICE TO:				Report Information				Project Information				Bottle Order #:			
Company Name #1414 CITY OF ABBOTSFORD				Company Name Amy Peters				Quotation # C01193				C241899_COC			
Contact Name Amy Peters				Contact Name Amy Peters				P.O. #				Bottle Order #: 866209			
Address 32315 SOUTH FRASER WAY				Address 32315 SOUTH FRASER WAY				Project #				Project Manager			
Address ABBOTSFORD BC V2T 1W7				Address ABBOTSFORD BC V2T 1W7				Project Name				Customer Solutions			
Phone (778) 549-1240 Fax (604) 850-6418				Phone (778) 549-1240 Fax				Site #				Chain Of Custody Record			
Email apeters@abbotsford.ca				Email apeters@abbotsford.ca				Sampled By				CB066209-01-01			
Regulatory Criteria:				Special Instructions:				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)				Turnaround Time (TAT) Required:			
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other _____								Metals Field Filtered ? (Y / N) CSR/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate+Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus				Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 7 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)			
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	H01 (39565)	15-Jun-2022	15:15	water	N	X	X	X	X	X	X	X	X	5	
2	H02 (39566)		12:55			X	X	X	X	X	X	X	X		
3	H03 (39567)		14:55			X	X	X	X	X	X	X	X		
4	B01 (39568)		16:50			X	X	X	X	X	X	X	X		
5	B02 (39569)		13:25			X	X	X	X	X	X	X	X		
6	~~D01 (39565)~~					X	X	X	X	X	X	X	X		
7	D01 (3956D)		9:30			X	X	X	X	X	X	X	X		
8	D02 (3956D)		10:30			X	X	X	X	X	X	X	X		
9	~~F01 (3956B)~~					X	X	X	X	X	X	X	X		
10	~~F02 (3956C)~~					X	X	X	X	X	X	X	X		
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted		Lab Use Only					
[Signature]		22/06/15	19:10	[Signature] TAYLOR WHITEHOUSE		22/06/16	08:00			Time Sensitive ☐ Temperature (°C) on Receipt 11, 13, 13 Custody Seal Intact on Cooler? ☐ Yes ☒ No					
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS. IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															
Write: Bureau Veritas Yellow: Client															

*note: labels for B01, B02, D01, D02 are hand written

Bureau Veritas Canada (2019) Inc.

ice melted



Your Project #: Bevan #1 Creek Water Quality

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 666209-02-01, 41C64, 3AF04, 3AF05

Report Date: 2022/06/23

Report #: R3190980

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C242135

Received: 2022/06/16, 14:14

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	7	N/A	2022/06/21	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	7	N/A	2022/06/21	BBY WI-00033	Auto Calc
Mercury (Total) by CV	7	2022/06/17	2022/06/17	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	2022/06/16	2022/06/21	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	7	2022/06/18	2022/06/20	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	7	N/A	2022/06/21	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	6	N/A	2022/06/17	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrate+Nitrite (N) (low level)	1	N/A	2022/06/22	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	7	N/A	2022/06/17	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	7	N/A	2022/06/19	BBY WI-00033	Auto Calc
pH @25°C (2)	7	N/A	2022/06/17	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	7	2022/06/18	2022/06/18	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: Bevan #1 Creek Water Quality

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 666209-02-01, 41C64, 3AF04, 3AF05

Report Date: 2022/06/23

Report #: R3190980

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C242135

Received: 2022/06/16, 14:14

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.



Sampler Initials: E

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AVF130	AVF131		AVF132		
Sampling Date			2022/06/16 11:45	2022/06/16 11:20		2022/06/16		
COC Number			41C64	666209-02-01		3AF04		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (FO2)	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	0.341	0.104	A611845	<0.0020	0.0020	A611845
Misc. Inorganics								
pH	pH	6.5:9.0	7.49	7.64	A615818	5.91	N/A	A615818
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	A617203	<0.050	0.050	A617203
Nutrients								
Total Ammonia (N)	mg/L	-	0.085	0.031	A617543	<0.015	0.015	A617543
Total Phosphorus (P)	mg/L	-	0.036	0.027	A614861	<0.0030	0.0030	A614861
Nitrate plus Nitrite (N)	mg/L	-	0.352	0.109	A614357	<0.0020	0.0020	A619595
Nitrite (N)	mg/L	0.06	0.0103	0.0050	A614360	<0.0020	0.0020	A614360
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								

Bureau Veritas ID			AVF133	AVF134	AVF135	AVF136		
Sampling Date			2022/06/16 12:30	2022/06/16 12:12	2022/06/16 09:30	2022/06/16 11:02		
COC Number			3AF05	666209-02-01	666209-02-01	666209-02-01		
	UNITS	Criteria	FIELD BLANK (3AF05)	FO1	WO1	FO2	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	<0.0020	0.641	1.02	0.118	0.0020	A611845
Misc. Inorganics								
pH	pH	6.5:9.0	5.84	7.90	7.43	7.69	N/A	A615818
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	0.050	A617203
Nutrients								
Total Ammonia (N)	mg/L	-	<0.015	0.054	0.042	0.031	0.015	A617543
Total Phosphorus (P)	mg/L	-	<0.0030	0.026	0.020	0.027	0.0030	A614861
Nitrate plus Nitrite (N)	mg/L	-	<0.0020	0.656	1.02	0.122	0.0020	A614357
Nitrite (N)	mg/L	0.06	<0.0020	0.0142	0.0063	0.0045	0.0020	A614360
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								

BUREAU
VERITAS

Bureau Veritas Job #: C242135

Report Date: 2022/06/23

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVF130	AVF131		AVF132		
Sampling Date			2022/06/16 11:45	2022/06/16 11:20		2022/06/16		
COC Number			41C64	666209-02-01		3AF04		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (FO2)	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	76.9	71.6	A611600	<0.50	0.50	A611600

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	A613068	<0.0019	0.0019	A613068

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	49.0	24.1	A614475	<3.0	3.0	A614556
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	A614475	<0.50	0.50	A614556
Total Arsenic (As)	ug/L	5	1.85	0.79	A614475	<0.10	0.10	A614556
Total Barium (Ba)	ug/L	-	24.5	17.7	A614475	<1.0	1.0	A614556
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	A614475	<0.10	0.10	A614556
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	A614475	<1.0	1.0	A614556
Total Boron (B)	ug/L	1500	<50	<50	A614475	<50	50	A614556
Total Cadmium (Cd)	ug/L	-	<0.010	<0.010	A614475	<0.010	0.010	A614556
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	A614475	<1.0	1.0	A614556
Total Cobalt (Co)	ug/L	-	0.32	0.20	A614475	<0.20	0.20	A614556
Total Copper (Cu)	ug/L	-	1.92	0.79	A614475	<0.50	0.50	A614556
Total Iron (Fe)	ug/L	300	1660	691	A614475	<10	10	A614556
Total Lead (Pb)	ug/L	-	0.27	<0.20	A614475	<0.20	0.20	A614556
Total Lithium (Li)	ug/L	-	<2.0	<2.0	A614475	<2.0	2.0	A614556
Total Manganese (Mn)	ug/L	-	368	180	A614475	<1.0	1.0	A614556
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	A614475	<1.0	1.0	A614556
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	A614475	<1.0	1.0	A614556
Total Selenium (Se)	ug/L	1	<0.10	<0.10	A614475	<0.10	0.10	A614556
Total Silicon (Si)	ug/L	-	5420	4290	A614475	<100	100	A614556
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	A614475	<0.020	0.020	A614556
Total Strontium (Sr)	ug/L	-	135	124	A614475	<1.0	1.0	A614556
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	A614475	<0.010	0.010	A614556
Total Tin (Sn)	ug/L	-	<5.0	<5.0	A614475	<5.0	5.0	A614556
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	A614475	<5.0	5.0	A614556
Total Uranium (U)	ug/L	15	<0.10	<0.10	A614475	<0.10	0.10	A614556
Total Vanadium (V)	ug/L	-	<5.0	<5.0	A614475	<5.0	5.0	A614556
Total Zinc (Zn)	ug/L	30	13.7	<5.0	A614475	<5.0	5.0	A614556

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



BUREAU
VERITAS

Bureau Veritas Job #: C242135

Report Date: 2022/06/23

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVF130	AVF131		AVF132		
Sampling Date			2022/06/16 11:45	2022/06/16 11:20		2022/06/16		
COC Number			41C64	666209-02-01		3AF04		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (FO2)	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	A614475	<0.10	0.10	A614556
Total Calcium (Ca)	mg/L	-	21.7	20.4	A611661	<0.050	0.050	A611661
Total Magnesium (Mg)	mg/L	-	5.51	5.01	A611661	<0.050	0.050	A611661
Total Potassium (K)	mg/L	-	1.35	1.37	A611661	<0.050	0.050	A611661
Total Sodium (Na)	mg/L	-	13.6	11.9	A611661	<0.050	0.050	A611661
Total Sulphur (S)	mg/L	-	3.1	<3.0	A611661	<3.0	3.0	A611661
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								

BUREAU
VERITAS

Bureau Veritas Job #: C242135

Report Date: 2022/06/23

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVF133		AVF134	AVF135	AVF136		
Sampling Date			2022/06/16 12:30		2022/06/16 12:12	2022/06/16 09:30	2022/06/16 11:02		
COC Number			3AF05		666209-02-01	666209-02-01	666209-02-01		
	UNITS	Criteria	FIELD BLANK (3AF05)	QC Batch	FO1	WO1	FO2	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	<0.50	A611600	110	63.5	75.4	0.50	A611600

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A613068	<0.0019	<0.0019	<0.0019	0.0019	A613068

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	<3.0	A614556	70.9	53.6	26.4	3.0	A614475
Total Antimony (Sb)	ug/L	-	<0.50	A614556	<0.50	<0.50	<0.50	0.50	A614475
Total Arsenic (As)	ug/L	5	<0.10	A614556	1.88	0.92	0.82	0.10	A614475
Total Barium (Ba)	ug/L	-	<1.0	A614556	20.0	23.3	18.8	1.0	A614475
Total Beryllium (Be)	ug/L	-	<0.10	A614556	<0.10	<0.10	<0.10	0.10	A614475
Total Bismuth (Bi)	ug/L	-	<1.0	A614556	<1.0	<1.0	<1.0	1.0	A614475
Total Boron (B)	ug/L	1500	<50	A614556	<50	<50	<50	50	A614475
Total Cadmium (Cd)	ug/L	-	<0.010	A614556	<0.010	<0.010	<0.010	0.010	A614475
Total Chromium (Cr)	ug/L	-	<1.0	A614556	<1.0	<1.0	<1.0	1.0	A614475
Total Cobalt (Co)	ug/L	-	<0.20	A614556	<0.20	<0.20	0.23	0.20	A614475
Total Copper (Cu)	ug/L	-	<0.50	A614556	2.02	0.74	0.84	0.50	A614475
Total Iron (Fe)	ug/L	300	<10	A614556	860	716	730	10	A614475
Total Lead (Pb)	ug/L	-	<0.20	A614556	<0.20	0.27	<0.20	0.20	A614475
Total Lithium (Li)	ug/L	-	<2.0	A614556	<2.0	<2.0	<2.0	2.0	A614475
Total Manganese (Mn)	ug/L	-	<1.0	A614556	169	43.1	191	1.0	A614475
Total Molybdenum (Mo)	ug/L	73	<1.0	A614556	<1.0	<1.0	<1.0	1.0	A614475
Total Nickel (Ni)	ug/L	-	<1.0	A614556	<1.0	<1.0	<1.0	1.0	A614475
Total Selenium (Se)	ug/L	1	<0.10	A614556	0.15	<0.10	<0.10	0.10	A614475
Total Silicon (Si)	ug/L	-	<100	A614556	7050	6960	4530	100	A614475
Total Silver (Ag)	ug/L	0.25	<0.020	A614556	<0.020	<0.020	<0.020	0.020	A614475
Total Strontium (Sr)	ug/L	-	<1.0	A614556	177	129	126	1.0	A614475
Total Thallium (Tl)	ug/L	0.8	<0.010	A614556	<0.010	<0.010	<0.010	0.010	A614475
Total Tin (Sn)	ug/L	-	<5.0	A614556	<5.0	<5.0	<5.0	5.0	A614475
Total Titanium (Ti)	ug/L	-	<5.0	A614556	<5.0	<5.0	<5.0	5.0	A614475
Total Uranium (U)	ug/L	15	<0.10	A614556	<0.10	<0.10	<0.10	0.10	A614475
Total Vanadium (V)	ug/L	-	<5.0	A614556	<5.0	<5.0	<5.0	5.0	A614475
Total Zinc (Zn)	ug/L	30	<5.0	A614556	6.2	7.9	<5.0	5.0	A614475

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit



Sampler Initials: E

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AVF133		AVF134	AVF135	AVF136		
Sampling Date			2022/06/16 12:30		2022/06/16 12:12	2022/06/16 09:30	2022/06/16 11:02		
COC Number			3AF05		666209-02-01	666209-02-01	666209-02-01		
	UNITS	Criteria	FIELD BLANK (3AF05)	QC Batch	FO1	WO1	FO2	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	A614556	0.11	<0.10	<0.10	0.10	A614475
Total Calcium (Ca)	mg/L	-	<0.050	A611661	30.1	17.4	21.4	0.050	A611661
Total Magnesium (Mg)	mg/L	-	<0.050	A611661	8.37	4.87	5.32	0.050	A611661
Total Potassium (K)	mg/L	-	<0.050	A611661	1.91	0.935	1.43	0.050	A611661
Total Sodium (Na)	mg/L	-	<0.050	A611661	15.8	21.5	12.6	0.050	A611661
Total Sulphur (S)	mg/L	-	<3.0	A611661	5.4	<3.0	<3.0	3.0	A611661
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



Bureau Veritas Job #: C242135
Report Date: 2022/06/23

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

GENERAL COMMENTS

Sample AVF132 [TRIP BLANK (3AF04)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.
Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C242135
Report Date: 2022/06/23

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A613068	Total Mercury (Hg)	2022/06/17	103	80 - 120	102	80 - 120	<0.0019	ug/L	NC	20
A614357	Nitrate plus Nitrite (N)	2022/06/17	103	80 - 120	104	80 - 120	<0.0020	mg/L	0.20	25
A614360	Nitrite (N)	2022/06/17	107	80 - 120	102	80 - 120	<0.0020	mg/L	6.6	25
A614475	Total Aluminum (Al)	2022/06/20	106	80 - 120	105	80 - 120	<3.0	ug/L	NC	20
A614475	Total Antimony (Sb)	2022/06/20	103	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
A614475	Total Arsenic (As)	2022/06/20	107	80 - 120	107	80 - 120	<0.10	ug/L	NC	20
A614475	Total Barium (Ba)	2022/06/20	103	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A614475	Total Beryllium (Be)	2022/06/20	110	80 - 120	111	80 - 120	<0.10	ug/L	NC	20
A614475	Total Bismuth (Bi)	2022/06/20	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A614475	Total Boron (B)	2022/06/20	109	80 - 120	108	80 - 120	<50	ug/L	NC	20
A614475	Total Cadmium (Cd)	2022/06/20	104	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A614475	Total Chromium (Cr)	2022/06/20	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A614475	Total Cobalt (Co)	2022/06/20	101	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A614475	Total Copper (Cu)	2022/06/20	99	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
A614475	Total Iron (Fe)	2022/06/20	103	80 - 120	101	80 - 120	<10	ug/L	NC	20
A614475	Total Lead (Pb)	2022/06/20	103	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
A614475	Total Lithium (Li)	2022/06/20	105	80 - 120	105	80 - 120	<2.0	ug/L	NC	20
A614475	Total Manganese (Mn)	2022/06/20	103	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A614475	Total Molybdenum (Mo)	2022/06/20	107	80 - 120	107	80 - 120	<1.0	ug/L	NC	20
A614475	Total Nickel (Ni)	2022/06/20	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A614475	Total Selenium (Se)	2022/06/20	104	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A614475	Total Silicon (Si)	2022/06/20	117	80 - 120	118	80 - 120	<100	ug/L	NC	20
A614475	Total Silver (Ag)	2022/06/20	101	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A614475	Total Strontium (Sr)	2022/06/20	107	80 - 120	107	80 - 120	<1.0	ug/L	NC	20
A614475	Total Thallium (Tl)	2022/06/20	102	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A614475	Total Tin (Sn)	2022/06/20	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A614475	Total Titanium (Ti)	2022/06/20	103	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A614475	Total Uranium (U)	2022/06/20	105	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A614475	Total Vanadium (V)	2022/06/20	103	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A614475	Total Zinc (Zn)	2022/06/20	104	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A614475	Total Zirconium (Zr)	2022/06/20	106	80 - 120	104	80 - 120	<0.10	ug/L	NC	20

BUREAU
VERITAS

Bureau Veritas Job #: C242135

Report Date: 2022/06/23

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A614556	Total Aluminum (Al)	2022/06/20	96	80 - 120	98	80 - 120	<3.0	ug/L	NC	20
A614556	Total Antimony (Sb)	2022/06/20	97	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
A614556	Total Arsenic (As)	2022/06/20	99	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A614556	Total Barium (Ba)	2022/06/20	95	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A614556	Total Beryllium (Be)	2022/06/20	92	80 - 120	94	80 - 120	<0.10	ug/L	NC	20
A614556	Total Bismuth (Bi)	2022/06/20	98	80 - 120	102	80 - 120	<1.0	ug/L		
A614556	Total Boron (B)	2022/06/20	95	80 - 120	98	80 - 120	<50	ug/L	NC	20
A614556	Total Cadmium (Cd)	2022/06/20	98	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A614556	Total Chromium (Cr)	2022/06/20	93	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A614556	Total Cobalt (Co)	2022/06/20	95	80 - 120	98	80 - 120	<0.20	ug/L		
A614556	Total Copper (Cu)	2022/06/20	94	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
A614556	Total Iron (Fe)	2022/06/20	99	80 - 120	100	80 - 120	<10	ug/L	NC	20
A614556	Total Lead (Pb)	2022/06/20	101	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
A614556	Total Lithium (Li)	2022/06/20	91	80 - 120	93	80 - 120	<2.0	ug/L	NC	20
A614556	Total Manganese (Mn)	2022/06/20	96	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A614556	Total Molybdenum (Mo)	2022/06/20	101	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A614556	Total Nickel (Ni)	2022/06/20	96	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A614556	Total Selenium (Se)	2022/06/20	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A614556	Total Silicon (Si)	2022/06/20	101	80 - 120	102	80 - 120	<100	ug/L		
A614556	Total Silver (Ag)	2022/06/20	97	80 - 120	100	80 - 120	<0.020	ug/L		
A614556	Total Strontium (Sr)	2022/06/20	95	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A614556	Total Thallium (Tl)	2022/06/20	98	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A614556	Total Tin (Sn)	2022/06/20	97	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A614556	Total Titanium (Ti)	2022/06/20	95	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A614556	Total Uranium (U)	2022/06/20	98	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A614556	Total Vanadium (V)	2022/06/20	95	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A614556	Total Zinc (Zn)	2022/06/20	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A614556	Total Zirconium (Zr)	2022/06/20	99	80 - 120	101	80 - 120	<0.10	ug/L		
A614861	Total Phosphorus (P)	2022/06/18	96	N/A	98	80 - 120	<0.0030	mg/L	4.0	20
A615818	pH	2022/06/17			102	97 - 103				
A617203	Dissolved Fluoride (F)	2022/06/21	NC	80 - 120	104	80 - 120	<0.050	mg/L	10	20

BUREAU
VERITAS

Bureau Veritas Job #: C242135

Report Date: 2022/06/23

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A617543	Total Ammonia (N)	2022/06/21	102	80 - 120	104	80 - 120	<0.015	mg/L	NC	20
A619595	Nitrate plus Nitrite (N)	2022/06/22	106	80 - 120	101	80 - 120	<0.0020	mg/L	1.3	25

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



Bureau Veritas Job #: C242135
Report Date: 2022/06/23

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: E

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "DH", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free 800-965-6266 Fax: (604) 731 2386 www.bvna.com

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C242135_COC

Bottle Order #:



666209

Customer Solutions

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240 Fax: (604) 850-6418	Phone	(778) 549-1240 Fax:	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled By	

Chain Of Custody Record	Project Manager
CRM0209-02-01	

Regulatory Criteria	Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	Turnaround Time (TAT) Required
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other		Matrix Field Filled ? (Y/N) CS/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate-Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus	Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Furan are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 Day ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐ Rush Confirmation Number: ☐ (call lab for #) Comments

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Matrix Field Filled ? (Y/N)	CS/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate-Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	FOF (41C64)	16 Jun 22	11:45	WATER	N	X	X	X	X	X	X	X	X	5	
2	DUPLICATE (FO2)		11:20			X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)		12:30			X	X	X	X	X	X	X	X		
5	FO1		12:12			X	X	X	X	X	X	X	X		
6	WD1	16 Jun 22	9:30			X	X	X	X	X	X	X	X		
7	FO2		11:02			X	X	X	X	X	X	X	X		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# Jars used and not submitted	Lab Use Only
<i>[Signature]</i>	22/06/16	14:55	<i>[Signature]</i> TAYLOR WHITEHOUSE	22/06/16	14:14		Time Sensitive ☐ Temperature (°C) on Receipt: 13.11.9 Custody Seal intact on Cooler? ☐ Yes ☒ No

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

ICE: YES



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 668914-02-01, 3AF04, 3956D, 39566, 39568, 39569

Report Date: 2022/07/20

Report #: R3202563

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C250504

Received: 2022/07/14, 08:00

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	6	N/A	2022/07/19	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	6	N/A	2022/07/18	BBY WI-00033	Auto Calc
Mercury (Total) by CV	6	2022/07/15	2022/07/15	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	6	2022/07/14	2022/07/18	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2022/07/15	2022/07/15	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	5	2022/07/15	2022/07/16	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	6	N/A	2022/07/15	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	6	N/A	2022/07/15	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	6	N/A	2022/07/15	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	6	N/A	2022/07/20	BBY WI-00033	Auto Calc
pH @25°C (2)	6	N/A	2022/07/15	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	6	2022/07/19	2022/07/19	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 668914-02-01, 3AF04, 3956D, 39566, 39568, 39569

Report Date: 2022/07/20

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Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C250504

Received: 2022/07/14, 08:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C250504

Report Date: 2022/07/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AXE940		AXE941		AXE942		
Sampling Date			2022/07/13		2022/07/13 09:30		2022/07/13 10:30		
COC Number			3AF04		3956D		3956D		
	UNITS	Criteria	TRIP BLANK (3AF04)	QC Batch	D01 (3956D)	QC Batch	D02 (3956D)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	<0.0020	A644113	1.18	A644113	0.786	0.0020	A644113
Misc. Inorganics									
pH	pH	6.5:9.0	5.82	A647901	7.96	A647901	7.89	N/A	A647901
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A649495	<0.050	A649495	<0.050	0.050	A649495
Nutrients									
Total Ammonia (N)	mg/L	-	<0.015	A645945	0.019	A645945	0.028	0.015	A645945
Total Phosphorus (P)	mg/L	-	<0.0030	A649176	0.015	A649178	0.016	0.0030	A649176
Nitrate plus Nitrite (N)	mg/L	-	<0.0020	A646213	1.18	A646213	0.790	0.0020	A646213
Nitrite (N)	mg/L	0.06	<0.0020	A646214	0.0030	A646214	0.0041	0.0020	A646214
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit N/A = Not Applicable									

Bureau Veritas ID			AXE943			AXE944			AXE945		
Sampling Date			2022/07/13 14:50			2022/07/13 16:30			2022/07/13 15:23		
COC Number			39566			39568			39569		
	UNITS	Criteria	H02 (39566)	RDL	QC Batch	B01 (39568)	RDL	QC Batch	B02 (39569)	RDL	QC Batch
Calculated Parameters											
Nitrate (N)	mg/L	-	1.55	0.0020	A644113	2.71	0.0040	A644113	1.76	0.0020	A644113
Misc. Inorganics											
pH	pH	6.5:9.0	7.94	N/A	A647901	7.13	N/A	A647901	7.88	N/A	A647901
Anions											
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A649495	<0.050	0.050	A649495	<0.050	0.050	A649495
Nutrients											
Total Ammonia (N)	mg/L	-	0.018	0.015	A645945	0.056	0.015	A645945	0.032	0.015	A645945
Total Phosphorus (P)	mg/L	-	0.012	0.0030	A649176	0.083	0.0030	A649176	0.0092	0.0030	A649178
Nitrate plus Nitrite (N)	mg/L	-	1.55	0.0020	A646258	2.73	0.0040	A646213	1.77	0.0020	A646213
Nitrite (N)	mg/L	0.06	0.0051	0.0020	A646259	0.0175	0.0020	A646214	0.0092	0.0020	A646214
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels										
Grey											
Black											
RDL = Reportable Detection Limit N/A = Not Applicable											

BUREAU
VERITAS

Bureau Veritas Job #: C250504

Report Date: 2022/07/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXE940		AXE941	AXE942	AXE943		
Sampling Date			2022/07/13		2022/07/13 09:30	2022/07/13 10:30	2022/07/13 14:50		
COC Number			3AF04		3956D	3956D	39566		
	UNITS	Criteria	TRIP BLANK (3AF04)	QC Batch	D01 (3956D)	D02 (3956D)	H02 (39566)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	<0.50	A643681	105	125	117	0.50	A643681

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A645090	<0.0019	<0.0019	<0.0019	0.0019	A645090

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	<3.0	A645176	41.3	36.3	20.9	3.0	A645140
Total Antimony (Sb)	ug/L	-	<0.50	A645176	<0.50	<0.50	<0.50	0.50	A645140
Total Arsenic (As)	ug/L	5	<0.10	A645176	1.13	1.87	0.97	0.10	A645140
Total Barium (Ba)	ug/L	-	<1.0	A645176	15.1	13.8	12.8	1.0	A645140
Total Beryllium (Be)	ug/L	-	<0.10	A645176	<0.10	<0.10	<0.10	0.10	A645140
Total Bismuth (Bi)	ug/L	-	<1.0	A645176	<1.0	<1.0	<1.0	1.0	A645140
Total Boron (B)	ug/L	1500	<50	A645176	<50	<50	<50	50	A645140
Total Cadmium (Cd)	ug/L	-	<0.010	A645176	<0.010	<0.010	<0.010	0.010	A645140
Total Chromium (Cr)	ug/L	-	<1.0	A645176	<1.0	<1.0	<1.0	1.0	A645140
Total Cobalt (Co)	ug/L	-	<0.20	A645176	<0.20	<0.20	<0.20	0.20	A645140
Total Copper (Cu)	ug/L	-	<0.50	A645176	0.51	<0.50	0.61	0.50	A645140
Total Iron (Fe)	ug/L	300	<10	A645176	298	469	125	10	A645140
Total Lead (Pb)	ug/L	-	<0.20	A645176	<0.20	<0.20	<0.20	0.20	A645140
Total Lithium (Li)	ug/L	-	<2.0	A645176	<2.0	<2.0	<2.0	2.0	A645140
Total Manganese (Mn)	ug/L	-	<1.0	A645176	85.5	207	26.2	1.0	A645140
Total Molybdenum (Mo)	ug/L	73	<1.0	A645176	<1.0	<1.0	3.2	1.0	A645140
Total Nickel (Ni)	ug/L	-	<1.0	A645176	<1.0	<1.0	<1.0	1.0	A645140
Total Selenium (Se)	ug/L	1	<0.10	A645176	0.26	0.24	0.20	0.10	A645140
Total Silicon (Si)	ug/L	-	<100	A645176	11500	13300	10600	100	A645140
Total Silver (Ag)	ug/L	0.25	<0.020	A645176	<0.020	<0.020	<0.020	0.020	A645140
Total Strontium (Sr)	ug/L	-	<1.0	A645176	147	173	148	1.0	A645140
Total Thallium (Tl)	ug/L	0.8	<0.010	A645176	<0.010	<0.010	<0.010	0.010	A645140
Total Tin (Sn)	ug/L	-	<5.0	A645176	<5.0	<5.0	<5.0	5.0	A645140
Total Titanium (Ti)	ug/L	-	<5.0	A645176	<5.0	<5.0	<5.0	5.0	A645140
Total Uranium (U)	ug/L	15	<0.10	A645176	<0.10	<0.10	<0.10	0.10	A645140
Total Vanadium (V)	ug/L	-	<5.0	A645176	<5.0	<5.0	<5.0	5.0	A645140
Total Zinc (Zn)	ug/L	30	<5.0	A645176	<5.0	<5.0	<5.0	5.0	A645140
Total Zirconium (Zr)	ug/L	-	<0.10	A645176	<0.10	<0.10	<0.10	0.10	A645140

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXE940		AXE941	AXE942	AXE943		
Sampling Date			2022/07/13		2022/07/13 09:30	2022/07/13 10:30	2022/07/13 14:50		
COC Number			3AF04		3956D	3956D	39566		
	UNITS	Criteria	TRIP BLANK (3AF04)	QC Batch	D01 (3956D)	D02 (3956D)	H02 (39566)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	<0.050	A643904	27.6	33.3	34.0	0.050	A643904
Total Magnesium (Mg)	mg/L	-	<0.050	A643904	8.84	10.2	7.84	0.050	A643904
Total Potassium (K)	mg/L	-	<0.050	A643904	1.55	1.32	1.78	0.050	A643904
Total Sodium (Na)	mg/L	-	<0.050	A643904	10.9	10.1	12.3	0.050	A643904
Total Sulphur (S)	mg/L	-	<3.0	A643904	5.3	3.3	5.4	3.0	A643904
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXE944	AXE945		
Sampling Date			2022/07/13 16:30	2022/07/13 15:23		
COC Number			39568	39569		
	UNITS	Criteria	B01 (39568)	B02 (39569)	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	-	76.5	115	0.50	A643681
Elements						
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0019	A645090
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	-	1300	31.3	3.0	A645140
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	0.50	A645140
Total Arsenic (As)	ug/L	5	0.92	0.69	0.10	A645140
Total Barium (Ba)	ug/L	-	25.8	16.8	1.0	A645140
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	0.10	A645140
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	1.0	A645140
Total Boron (B)	ug/L	1500	<50	<50	50	A645140
Total Cadmium (Cd)	ug/L	-	0.048	<0.010	0.010	A645140
Total Chromium (Cr)	ug/L	-	5.3	<1.0	1.0	A645140
Total Cobalt (Co)	ug/L	-	0.78	<0.20	0.20	A645140
Total Copper (Cu)	ug/L	-	3.94	<0.50	0.50	A645140
Total Iron (Fe)	ug/L	300	2020	311	10	A645140
Total Lead (Pb)	ug/L	-	4.04	<0.20	0.20	A645140
Total Lithium (Li)	ug/L	-	<2.0	<2.0	2.0	A645140
Total Manganese (Mn)	ug/L	-	144	89.4	1.0	A645140
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.0	A645140
Total Nickel (Ni)	ug/L	-	2.9	<1.0	1.0	A645140
Total Selenium (Se)	ug/L	1	0.13	0.21	0.10	A645140
Total Silicon (Si)	ug/L	-	13300	12500	100	A645140
Total Silver (Ag)	ug/L	0.25	0.021	<0.020	0.020	A645140
Total Strontium (Sr)	ug/L	-	213	168	1.0	A645140
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	0.010	A645140
Total Tin (Sn)	ug/L	-	<5.0	<5.0	5.0	A645140
Total Titanium (Ti)	ug/L	-	59.5	<5.0	5.0	A645140
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.10	A645140
Total Vanadium (V)	ug/L	-	<5.0	<5.0	5.0	A645140
Total Zinc (Zn)	ug/L	30	14.7	<5.0	5.0	A645140
Total Zirconium (Zr)	ug/L	-	0.19	<0.10	0.10	A645140
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXE944	AXE945		
Sampling Date			2022/07/13 16:30	2022/07/13 15:23		
COC Number			39568	39569		
	UNITS	Criteria	B01 (39568)	B02 (39569)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	21.0	31.9	0.050	A643904
Total Magnesium (Mg)	mg/L	-	5.86	8.51	0.050	A643904
Total Potassium (K)	mg/L	-	1.02	1.61	0.050	A643904
Total Sodium (Na)	mg/L	-	14.1	10.9	0.050	A643904
Total Sulphur (S)	mg/L	-	3.4	4.8	3.0	A643904
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



Bureau Veritas Job #: C250504
Report Date: 2022/07/20

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C250504
Report Date: 2022/07/20

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A645090	Total Mercury (Hg)	2022/07/15	102	80 - 120	104	80 - 120	<0.0019	ug/L	NC	20
A645140	Total Aluminum (Al)	2022/07/16	103	80 - 120	103	80 - 120	<3.0	ug/L	0.30	20
A645140	Total Antimony (Sb)	2022/07/16	102	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A645140	Total Arsenic (As)	2022/07/16	107	80 - 120	104	80 - 120	<0.10	ug/L	5.3	20
A645140	Total Barium (Ba)	2022/07/16	99	80 - 120	99	80 - 120	<1.0	ug/L	3.2	20
A645140	Total Beryllium (Be)	2022/07/16	102	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A645140	Total Bismuth (Bi)	2022/07/16	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A645140	Total Boron (B)	2022/07/16	104	80 - 120	100	80 - 120	<50	ug/L	NC	20
A645140	Total Cadmium (Cd)	2022/07/16	102	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A645140	Total Chromium (Cr)	2022/07/16	102	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A645140	Total Cobalt (Co)	2022/07/16	101	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A645140	Total Copper (Cu)	2022/07/16	99	80 - 120	101	80 - 120	<0.50	ug/L	2.2	20
A645140	Total Iron (Fe)	2022/07/16	102	80 - 120	104	80 - 120	<10	ug/L	3.7	20
A645140	Total Lead (Pb)	2022/07/16	99	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A645140	Total Lithium (Li)	2022/07/16	99	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
A645140	Total Manganese (Mn)	2022/07/16	NC	80 - 120	101	80 - 120	<1.0	ug/L	3.4	20
A645140	Total Molybdenum (Mo)	2022/07/16	107	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A645140	Total Nickel (Ni)	2022/07/16	101	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A645140	Total Selenium (Se)	2022/07/16	108	80 - 120	108	80 - 120	<0.10	ug/L	5.3	20
A645140	Total Silicon (Si)	2022/07/16	NC	80 - 120	118	80 - 120	<100	ug/L	6.4	20
A645140	Total Silver (Ag)	2022/07/16	102	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A645140	Total Strontium (Sr)	2022/07/16	NC	80 - 120	100	80 - 120	<1.0	ug/L	5.2	20
A645140	Total Thallium (Tl)	2022/07/16	103	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A645140	Total Tin (Sn)	2022/07/16	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A645140	Total Titanium (Ti)	2022/07/16	105	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A645140	Total Uranium (U)	2022/07/16	106	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A645140	Total Vanadium (V)	2022/07/16	104	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A645140	Total Zinc (Zn)	2022/07/16	102	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A645140	Total Zirconium (Zr)	2022/07/16	105	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A645176	Total Aluminum (Al)	2022/07/15	101	80 - 120	99	80 - 120	<3.0	ug/L	NC	20
A645176	Total Antimony (Sb)	2022/07/15	101	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
A645176	Total Arsenic (As)	2022/07/15	104	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A645176	Total Barium (Ba)	2022/07/15	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20



Bureau Veritas Job #: C250504
Report Date: 2022/07/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A645176	Total Beryllium (Be)	2022/07/15	100	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A645176	Total Bismuth (Bi)	2022/07/15	95	80 - 120	97	80 - 120	<1.0	ug/L		
A645176	Total Boron (B)	2022/07/15	100	80 - 120	98	80 - 120	<50	ug/L	NC	20
A645176	Total Cadmium (Cd)	2022/07/15	98	80 - 120	97	80 - 120	<0.010	ug/L	NC	20
A645176	Total Chromium (Cr)	2022/07/15	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A645176	Total Cobalt (Co)	2022/07/15	99	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A645176	Total Copper (Cu)	2022/07/18	97	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
A645176	Total Iron (Fe)	2022/07/18	100	80 - 120	103	80 - 120	<10	ug/L	3.3	20
A645176	Total Lead (Pb)	2022/07/15	100	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A645176	Total Lithium (Li)	2022/07/15	98	80 - 120	96	80 - 120	<2.0	ug/L	NC	20
A645176	Total Manganese (Mn)	2022/07/15	100	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A645176	Total Molybdenum (Mo)	2022/07/15	102	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A645176	Total Nickel (Ni)	2022/07/15	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A645176	Total Selenium (Se)	2022/07/15	100	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A645176	Total Silicon (Si)	2022/07/15	116	80 - 120	113	80 - 120	<100	ug/L		
A645176	Total Silver (Ag)	2022/07/15	95	80 - 120	95	80 - 120	<0.020	ug/L	NC	20
A645176	Total Strontium (Sr)	2022/07/15	100	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A645176	Total Thallium (Tl)	2022/07/15	101	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
A645176	Total Tin (Sn)	2022/07/15	98	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A645176	Total Titanium (Ti)	2022/07/15	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A645176	Total Uranium (U)	2022/07/15	100	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A645176	Total Vanadium (V)	2022/07/15	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A645176	Total Zinc (Zn)	2022/07/15	103	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A645176	Total Zirconium (Zr)	2022/07/15	101	80 - 120	100	80 - 120	<0.10	ug/L		
A645945	Total Ammonia (N)	2022/07/15	NC	80 - 120	105	80 - 120	<0.015	mg/L	2.9	20
A646213	Nitrate plus Nitrite (N)	2022/07/15	100	80 - 120	106	80 - 120	0.0020, RDL=0.0020	mg/L	3.1	25
A646214	Nitrite (N)	2022/07/15	97	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
A646258	Nitrate plus Nitrite (N)	2022/07/15	NC	80 - 120	107	80 - 120	<0.0020	mg/L	0.34	25
A646259	Nitrite (N)	2022/07/15	102	80 - 120	101	80 - 120	<0.0020	mg/L	3.8	25
A647901	pH	2022/07/15			101	97 - 103				
A649176	Total Phosphorus (P)	2022/07/19			94	80 - 120	<0.0030	mg/L		
A649178	Total Phosphorus (P)	2022/07/19	71	N/A	94	80 - 120	<0.0030	mg/L	0.69	20

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Bureau Veritas Job #: C250504

Report Date: 2022/07/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A649495	Dissolved Fluoride (F)	2022/07/19	107	80 - 120	100	80 - 120	<0.050	mg/L	NC	20

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



Bureau Veritas Job #: C250504
Report Date: 2022/07/20

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas
4006 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel (604) 734 7276 Toll-free 800-563-6266 Fax (604) 731 2386 www.bvna.com

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ge 1 of 1

C250504_COC

658914

Chain Of Custody Record

Project Manager

Customer Solutions

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission):
1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐

Rush Confirmation Number: ☐ (call lab for #)

of Bottles

Comments

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
1	~~FOR ANALYSIS~~					X	X	X	X	X	X	X	X
2	~~FOR ANALYSIS~~					X	X	X	X	X	X	X	X
3	TRIP BLANK (3AF04)	13 July 22	N/A	WATER	N	X	X	X	X	X	X	X	X
4	~~FIELD BLANK (3AF04)~~					X	X	X	X	X	X	X	X
5	DO1 (39560)	13 July 22	9:30	WATER	N								
6	DO2 (39560)		10:30										
7	HO2 (39566)		14:50										
8	BO1 (39568)		16:30										
9	BO2 (39569)		15:23										
10													

* RELINQUISHED BY: (Signature/Print) *Sam Remy* Date: (YY/MM/DD) 22/07/13 Time 18:30

RECEIVED BY: (Signature/Print) *Edelene Cadiu* Date: (YY/MM/DD) 28/07/14 Time 05:00

jars used and not submitted

Lab Use Only

Time Sensitive ☐

Temperature (°C) on Receipt 6.5.0

Custody Seal Intact on Code? ☐ Yes ☒ No

White Bureau Veritas Yellow Client

Ice: yes

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2019) Inc.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 668914-02-01, 41C64, 39565, 3AF05, 39567, 3956A,
3956B, 3956C

Report Date: 2022/07/20
Report #: R3202777
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C250882

Received: 2022/07/15, 08:00

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	8	N/A	2022/07/19	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	1	N/A	2022/07/18	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	7	N/A	2022/07/20	BBY WI-00033	Auto Calc
Mercury (Total) by CV	8	2022/07/18	2022/07/18	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2022/07/15	2022/07/18	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	2022/07/15	2022/07/20	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2022/07/18	2022/07/18	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	7	2022/07/18	2022/07/19	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	8	N/A	2022/07/15	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	8	N/A	2022/07/15	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	8	N/A	2022/07/15	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	8	N/A	2022/07/20	BBY WI-00033	Auto Calc
pH @25°C (2)	8	N/A	2022/07/15	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	8	2022/07/19	2022/07/19	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 668914-02-01, 41C64, 39565, 3AF05, 39567, 3956A,
3956B, 3956C

Report Date: 2022/07/20

Report #: R3202777

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C250882

Received: 2022/07/15, 08:00

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

This report has been generated and distributed using a secure automated process.

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For Service Group specific validation please refer to the Validation Signature Page.

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Bureau Veritas Job #: C250882

Report Date: 2022/07/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AXH202	AXH203		AXH204		AXH205		
Sampling Date			2022/07/14 13:45	2022/07/14 11:30		2022/07/14 10:00		2022/07/14 18:35		
COC Number			41C64	668914-02-01		39565		3AF05		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (W-01)	RDL	H-01 (39565)	RDL	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	0.240	1.68	0.0020	2.93	0.0040	<0.0020	0.0020	A645347
Misc. Inorganics										
pH	pH	6.5:9.0	7.64	7.48	N/A	7.04	N/A	5.85	N/A	A646208
Anions										
Dissolved Fluoride (F)	mg/L	0.12	0.059	<0.050	0.050	<0.050	0.050	<0.050	0.050	A649753
Nutrients										
Total Ammonia (N)	mg/L	-	0.13	0.046	0.015	0.020	0.015	<0.015	0.015	A646130
Total Phosphorus (P)	mg/L	-	0.018	0.014	0.0030	0.0099	0.0030	<0.0030	0.0030	A649178
Nitrate plus Nitrite (N)	mg/L	-	0.252	1.69	0.0020	2.93	0.0040	<0.0020	0.0020	A646213
Nitrite (N)	mg/L	0.06	0.0115	0.0124	0.0020	<0.0020	0.0020	<0.0020	0.0020	A646214
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										

Bureau Veritas ID			AXH206			AXH207	AXH208	AXH209		
Sampling Date			2022/07/14 09:50			2022/07/14 11:30	2022/07/14 13:00	2022/07/14 14:30		
COC Number			39567			3956A	3956B	3956C		
	UNITS	Criteria	H-03 (39567)	RDL	QC Batch	W-01 (3956A)	F-01 (3956B)	F-02 (3956C)	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	2.47	0.0040	A645347	1.69	0.437	0.0199	0.0020	A645347
Misc. Inorganics										
pH	pH	6.5:9.0	7.52	N/A	A646208	7.55	8.02	7.53	N/A	A646208
Anions										
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A649753	<0.050	0.056	0.078	0.050	A649753
Nutrients										
Total Ammonia (N)	mg/L	-	0.018	0.015	A646130	0.044	0.026	0.12	0.015	A646217
Total Phosphorus (P)	mg/L	-	0.011	0.0030	A649178	0.014	0.026	0.059	0.0030	A649178
Nitrate plus Nitrite (N)	mg/L	-	2.48	0.0040	A646213	1.70	0.449	0.0274	0.0020	A646213
Nitrite (N)	mg/L	0.06	0.0029	0.0020	A646214	0.0125	0.0123	0.0075	0.0020	A646214
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										

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Bureau Veritas Job #: C250882

Report Date: 2022/07/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXH202	AXH203	AXH204		AXH205		
Sampling Date			2022/07/14 13:45	2022/07/14 11:30	2022/07/14 10:00		2022/07/14 18:35		
COC Number			41C64	668914-02-01	39565		3AF05		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (W-01)	H-01 (39565)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch

Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	118	98.2	109	A645310	<0.50	0.50	A645310
Elements									
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0085	A647848	<0.0019	0.0019	A647848
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	-	45.7	34.1	7.7	A647822	<3.0	3.0	A647387
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	A647822	<0.50	0.50	A647387
Total Arsenic (As)	ug/L	5	2.59	0.76	0.50	A647822	<0.10	0.10	A647387
Total Barium (Ba)	ug/L	-	28.2	30.5	14.6	A647822	<1.0	1.0	A647387
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	A647822	<0.10	0.10	A647387
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	A647822	<1.0	1.0	A647387
Total Boron (B)	ug/L	1500	<50	<50	<50	A647822	<50	50	A647387
Total Cadmium (Cd)	ug/L	-	<0.010	0.014	0.016	A647822	<0.010	0.010	A647387
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	A647822	<1.0	1.0	A647387
Total Cobalt (Co)	ug/L	-	0.39	<0.20	<0.20	A647822	<0.20	0.20	A647387
Total Copper (Cu)	ug/L	-	1.00	<0.50	0.72	A647822	<0.50	0.50	A647387
Total Iron (Fe)	ug/L	300	2220	465	228	A647822	<10	10	A647387
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	A647822	<0.20	0.20	A647387
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	A647822	<2.0	2.0	A647387
Total Manganese (Mn)	ug/L	-	639	44.3	19.3	A647822	<1.0	1.0	A647387
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	A647822	<1.0	1.0	A647387
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	A647822	<1.0	1.0	A647387
Total Selenium (Se)	ug/L	1	0.11	0.13	0.22	A647822	<0.10	0.10	A647387
Total Silicon (Si)	ug/L	-	7110	10100	9720	A647822	<100	100	A647387
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	A647822	<0.020	0.020	A647387
Total Strontium (Sr)	ug/L	-	180	183	159	A647822	<1.0	1.0	A647387
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	A647822	<0.010	0.010	A647387
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	A647822	<5.0	5.0	A647387
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	A647822	<5.0	5.0	A647387
Total Uranium (U)	ug/L	15	0.11	<0.10	<0.10	A647822	<0.10	0.10	A647387
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	A647822	<5.0	5.0	A647387
Total Zinc (Zn)	ug/L	30	9.7	<5.0	<5.0	A647822	<5.0	5.0	A647387
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	A647822	<0.10	0.10	A647387

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXH202	AXH203	AXH204		AXH205		
Sampling Date			2022/07/14 13:45	2022/07/14 11:30	2022/07/14 10:00		2022/07/14 18:35		
COC Number			41C64	668914-02-01	39565		3AF05		
	UNITS	Criteria	FOF (41C64)	DUPLICATE (W-01)	H-01 (39565)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	31.5	26.4	31.0	A645312	<0.050	0.050	A645312
Total Magnesium (Mg)	mg/L	-	9.69	7.83	7.74	A645312	<0.050	0.050	A645312
Total Potassium (K)	mg/L	-	1.77	1.22	1.72	A645312	<0.050	0.050	A645312
Total Sodium (Na)	mg/L	-	18.6	15.3	20.1	A645312	<0.050	0.050	A645312
Total Sulphur (S)	mg/L	-	4.1	4.2	7.3	A645312	<3.0	3.0	A645312
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXH206	AXH207	AXH208	AXH209		
Sampling Date			2022/07/14 09:50	2022/07/14 11:30	2022/07/14 13:00	2022/07/14 14:30		
COC Number			39567	3956A	3956B	3956C		
	UNITS	Criteria	H-03 (39567)	W-01 (3956A)	F-01 (3956B)	F-02 (3956C)	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	118	99.9	130	92.9	0.50	A645310
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	A647848
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	7.7	24.9	80.9	41.9	3.0	A647822
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	0.50	A647822
Total Arsenic (As)	ug/L	5	0.61	0.74	2.60	3.19	0.10	A647822
Total Barium (Ba)	ug/L	-	13.9	31.3	22.2	53.7	1.0	A647822
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	0.10	A647822
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	1.0	A647822
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	50	A647822
Total Cadmium (Cd)	ug/L	-	0.012	0.011	<0.010	<0.010	0.010	A647822
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	<1.0	1.0	A647822
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	0.20	1.58	0.20	A647822
Total Copper (Cu)	ug/L	-	0.62	<0.50	1.35	0.66	0.50	A647822
Total Iron (Fe)	ug/L	300	19	374	919	4910	10	A647822
Total Lead (Pb)	ug/L	-	<0.20	<0.20	0.39	<0.20	0.20	A647822
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	2.0	A647822
Total Manganese (Mn)	ug/L	-	12.2	43.4	249	3930	1.0	A647822
Total Molybdenum (Mo)	ug/L	73	7.5	<1.0	<1.0	1.2	1.0	A647822
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	<1.0	1.0	A647822
Total Selenium (Se)	ug/L	1	0.21	0.10	0.15	<0.10	0.10	A647822
Total Silicon (Si)	ug/L	-	9210	10200	7850	5320	100	A647822
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	0.020	A647822
Total Strontium (Sr)	ug/L	-	161	190	183	155	1.0	A647822
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	0.010	A647822
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	5.0	A647822
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	<5.0	5.0	A647822
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.16	<0.10	0.10	A647822
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	5.0	A647822
Total Zinc (Zn)	ug/L	30	5.5	<5.0	<5.0	<5.0	5.0	A647822
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	<0.10	0.10	A647822
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AXH206	AXH207	AXH208	AXH209		
Sampling Date			2022/07/14 09:50	2022/07/14 11:30	2022/07/14 13:00	2022/07/14 14:30		
COC Number			39567	3956A	3956B	3956C		
	UNITS	Criteria	H-03 (39567)	W-01 (3956A)	F-01 (3956B)	F-02 (3956C)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	33.8	27.0	34.6	26.0	0.050	A645312
Total Magnesium (Mg)	mg/L	-	8.08	7.89	10.6	6.80	0.050	A645312
Total Potassium (K)	mg/L	-	1.80	1.24	2.02	1.28	0.050	A645312
Total Sodium (Na)	mg/L	-	19.1	15.5	17.4	17.4	0.050	A645312
Total Sulphur (S)	mg/L	-	6.7	4.3	5.7	<3.0	3.0	A645312
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels							
Grey								
Black								
RDL = Reportable Detection Limit								



Bureau Veritas Job #: C250882
Report Date: 2022/07/20

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

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Bureau Veritas Job #: C250882

Report Date: 2022/07/20

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A646130	Total Ammonia (N)	2022/07/15	97	80 - 120	103	80 - 120	<0.015	mg/L	0.33	20
A646208	pH	2022/07/15			101	97 - 103			0.56	N/A
A646213	Nitrate plus Nitrite (N)	2022/07/15	100	80 - 120	106	80 - 120	0.0020, RDL=0.0020	mg/L	3.1	25
A646214	Nitrite (N)	2022/07/15	97	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
A646217	Total Ammonia (N)	2022/07/15	NC	80 - 120	104	80 - 120	<0.015	mg/L	0.062	20
A647387	Total Aluminum (Al)	2022/07/18	99	80 - 120	98	80 - 120	<3.0	ug/L	NC	20
A647387	Total Antimony (Sb)	2022/07/18	102	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
A647387	Total Arsenic (As)	2022/07/18	103	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A647387	Total Barium (Ba)	2022/07/18	98	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A647387	Total Beryllium (Be)	2022/07/18	101	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A647387	Total Bismuth (Bi)	2022/07/18	92	80 - 120	93	80 - 120	<1.0	ug/L	NC	20
A647387	Total Boron (B)	2022/07/18	100	80 - 120	96	80 - 120	<50	ug/L	NC	20
A647387	Total Cadmium (Cd)	2022/07/18	100	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A647387	Total Chromium (Cr)	2022/07/18	102	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A647387	Total Cobalt (Co)	2022/07/18	101	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A647387	Total Copper (Cu)	2022/07/18	102	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A647387	Total Iron (Fe)	2022/07/18	106	80 - 120	104	80 - 120	<10	ug/L	NC	20
A647387	Total Lead (Pb)	2022/07/18	101	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A647387	Total Lithium (Li)	2022/07/18	104	80 - 120	100	80 - 120	<2.0	ug/L	NC	20
A647387	Total Manganese (Mn)	2022/07/18	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A647387	Total Molybdenum (Mo)	2022/07/18	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A647387	Total Nickel (Ni)	2022/07/18	102	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A647387	Total Selenium (Se)	2022/07/18	97	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A647387	Total Silicon (Si)	2022/07/18	100	80 - 120	100	80 - 120	<100	ug/L	NC	20
A647387	Total Silver (Ag)	2022/07/18	97	80 - 120	99	80 - 120	<0.020	ug/L	NC	20
A647387	Total Strontium (Sr)	2022/07/18	96	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A647387	Total Thallium (Tl)	2022/07/18	99	80 - 120	95	80 - 120	<0.010	ug/L	NC	20
A647387	Total Tin (Sn)	2022/07/18	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A647387	Total Titanium (Ti)	2022/07/18	98	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A647387	Total Uranium (U)	2022/07/18	102	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A647387	Total Vanadium (V)	2022/07/18	102	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A647387	Total Zinc (Zn)	2022/07/18	106	80 - 120	108	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C250882
Report Date: 2022/07/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A647387	Total Zirconium (Zr)	2022/07/18	100	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A647822	Total Aluminum (Al)	2022/07/20	104	80 - 120	99	80 - 120	<3.0	ug/L	2.1	20
A647822	Total Antimony (Sb)	2022/07/20	NC	80 - 120	101	80 - 120	<0.50	ug/L	0.56	20
A647822	Total Arsenic (As)	2022/07/20	107	80 - 120	102	80 - 120	<0.10	ug/L	0.58	20
A647822	Total Barium (Ba)	2022/07/20	100	80 - 120	96	80 - 120	<1.0	ug/L	0.26	20
A647822	Total Beryllium (Be)	2022/07/20	101	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A647822	Total Bismuth (Bi)	2022/07/20	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A647822	Total Boron (B)	2022/07/20	101	80 - 120	99	80 - 120	<50	ug/L	11	20
A647822	Total Cadmium (Cd)	2022/07/20	101	80 - 120	100	80 - 120	<0.010	ug/L	0.043	20
A647822	Total Chromium (Cr)	2022/07/20	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A647822	Total Cobalt (Co)	2022/07/20	99	80 - 120	98	80 - 120	<0.20	ug/L	0.81	20
A647822	Total Copper (Cu)	2022/07/20	99	80 - 120	100	80 - 120	<0.50	ug/L	0.62	20
A647822	Total Iron (Fe)	2022/07/20	105	80 - 120	103	80 - 120	<10	ug/L	2.7	20
A647822	Total Lead (Pb)	2022/07/20	100	80 - 120	103	80 - 120	<0.20	ug/L	1.8	20
A647822	Total Lithium (Li)	2022/07/20	99	80 - 120	98	80 - 120	<2.0	ug/L	0.21	20
A647822	Total Manganese (Mn)	2022/07/20	NC	80 - 120	99	80 - 120	<1.0	ug/L	0.41	20
A647822	Total Molybdenum (Mo)	2022/07/20	112	80 - 120	101	80 - 120	<1.0	ug/L	2.7	20
A647822	Total Nickel (Ni)	2022/07/20	101	80 - 120	100	80 - 120	<1.0	ug/L	4.8	20
A647822	Total Selenium (Se)	2022/07/20	105	80 - 120	103	80 - 120	<0.10	ug/L	1.6	20
A647822	Total Silicon (Si)	2022/07/20	114	80 - 120	109	80 - 120	<100	ug/L	1.4	20
A647822	Total Silver (Ag)	2022/07/20	102	80 - 120	98	80 - 120	<0.020	ug/L	1.1	20
A647822	Total Strontium (Sr)	2022/07/20	NC	80 - 120	98	80 - 120	<1.0	ug/L	0.37	20
A647822	Total Thallium (Tl)	2022/07/20	NC	80 - 120	98	80 - 120	<0.010	ug/L	1.3	20
A647822	Total Tin (Sn)	2022/07/20	102	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A647822	Total Titanium (Ti)	2022/07/20	105	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A647822	Total Uranium (U)	2022/07/20	106	80 - 120	100	80 - 120	<0.10	ug/L	0.83	20
A647822	Total Vanadium (V)	2022/07/20	104	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A647822	Total Zinc (Zn)	2022/07/20	NC	80 - 120	99	80 - 120	<5.0	ug/L	0.34	20
A647822	Total Zirconium (Zr)	2022/07/20	103	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A647848	Total Mercury (Hg)	2022/07/18	94	80 - 120	93	80 - 120	<0.0019	ug/L	NC	20
A649178	Total Phosphorus (P)	2022/07/19	71	N/A	94	80 - 120	<0.0030	mg/L	0.69	20



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Bureau Veritas Job #: C250882

Report Date: 2022/07/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A649753	Dissolved Fluoride (F)	2022/07/19	105	80 - 120	102	80 - 120	<0.050	mg/L	NC	20

N/A = Not Applicable

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

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

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

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

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

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



Bureau Veritas Job #: C250882
Report Date: 2022/07/20

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4605 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel (604) 734 7276 Toll-free 800-563-6260 Fax (604) 731 2386 www.bvna.com

Page 1 of 1

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY	Address	32315 SOUTH FRASER WAY	Project #	Bevan #1 Creek Water Quality
	ABBOTSFORD BC V2T 1W7		ABBOTSFORD BC V2T 1W7	Project Name	
Phone	(778) 549-1240 Fax: (604) 850-6418	Phone	(778) 549-1240 Fax:	Site #	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Sampled By	

Regulatory Criteria		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:			
☐ CSR																Please provide advance notice for rush projects	
☐ CCME																Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests.	
☐ BC Water Quality																Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 5 days - contact your Project Manager for details.	
☐ Other																Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____	
														Rush Confirmation Number: _____ (call lab for #)			

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS																	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered 7 (Y/N)	CSRICCME Tol. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments		
1	FOF (41C64)	14 Jun-22	13:45	Water	N	X	X	X	X	X	X	X	X	5			
2	DUPLICATE (W-02)		11:30			X	X	X	X	X	X	X	X				
3	TRIP BLANK (3AF04)		10:00			X	X	X	X	X	X	X	X				
4	FIELD BLANK (3AF05)		18:35			X	X	X	X	X	X	X	X				
5	H-03 (39567)		9:50			X	X	X	X	X	X	X	X				
6	W-01 (3956A)		11:30			X	X	X	X	X	X	X	X				
7	F-01 (3956B)		13:00			X	X	X	X	X	X	X	X				
8	F-02 (3956C)		14:30			X	X	X	X	X	X	X	X				
9																	
10																	

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only	
		22/07/14	14:30			22/07/15	08:00		Time Sensitive ☐	Temperature (°C) on Receipt: 15.14.7
									Custody Seal Intact on Cooler? ☐ Yes ☒ No	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2019) Inc.

ice packs: thawed



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 672263-01-01, 39565, 39566, 39567, 36568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 672263-02-01, 3AF04, 3AF05

Report Date: 2022/08/23
Report #: R3220334
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C260536

Received: 2022/08/16, 08:00

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	12	N/A	2022/08/17	BBY6SOP-00048	SM 23 4500-F C m
Fluoride	2	N/A	2022/08/18	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	2	N/A	2022/08/19	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	12	N/A	2022/08/23	BBY WI-00033	Auto Calc
Mercury (Total) by CV	14	2022/08/16	2022/08/16	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2022/08/16	2022/08/19	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	12	2022/08/16	2022/08/23	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	2	2022/08/17	2022/08/18	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	12	2022/08/19	2022/08/20	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	14	N/A	2022/08/16	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	13	N/A	2022/08/16	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrate+Nitrite (N) (low level)	1	N/A	2022/08/17	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	14	N/A	2022/08/16	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	13	N/A	2022/08/17	BBY WI-00033	Auto Calc
Nitrogen - Nitrate (as N) Low Level Calc	1	N/A	2022/08/18	BBY WI-00033	Auto Calc
pH @25°C (2)	14	N/A	2022/08/16	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	14	2022/08/16	2022/08/16	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 672263-01-01, 39565, 39566, 39567, 36568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 672263-02-01, 3AF04, 3AF05

Report Date: 2022/08/23

Report #: R3220334

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C260536

Received: 2022/08/16, 08:00

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C260536

Report Date: 2022/08/23

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AZP516		AZP517		AZP518		AZP519		
Sampling Date			2022/08/15		2022/08/15		2022/08/15		2022/08/15		
COC Number			39565		39566		39567		36568		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	RDL	H03 (39567)	QC Batch	B01 (39568)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	2.77	0.0040	1.49	0.0020	2.42	A682274	2.93	0.0040	A682274

Misc. Inorganics

pH	pH	6.5:9.0	7.15	N/A	7.98	N/A	7.61	A685040	7.80	N/A	A685040

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	<0.050	0.050	<0.050	A684026	<0.050	0.050	A685892

Nutrients

Total Ammonia (N)	mg/L	-	<0.015	0.015	0.020	0.015	<0.015	A682851	<0.015	0.015	A682851
Total Phosphorus (P)	mg/L	-	0.012	0.0030	0.020	0.0030	0.010	A683372	0.016	0.0030	A683372
Nitrate plus Nitrite (N)	mg/L	-	2.77	0.0040	1.50	0.0020	2.42	A683310	2.93	0.0040	A683310
Nitrite (N)	mg/L	0.06	<0.0020	0.0020	0.0038	0.0020	<0.0020	A683311	0.0021	0.0020	A683311

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	
N/A = Not Applicable	

Bureau Veritas ID			AZP520		AZP521		AZP522	AZP523		
Sampling Date			2022/08/15		2022/08/15		2022/08/15	2022/08/15		
COC Number			39569		3956A		3956D	3956D		
	UNITS	Criteria	B02 (39569)	QC Batch	W01 (3956A)	QC Batch	D01 (3956D)	D02 (3956D)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	1.75	A682274	1.68	A682274	1.09	0.786	0.0020	A682274

Misc. Inorganics

pH	pH	6.5:9.0	8.03	A685040	7.76	A685040	8.05	8.01	N/A	A685040

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	A685892	<0.050	A684576	<0.050	<0.050	0.050	A684026

Nutrients

Total Ammonia (N)	mg/L	-	0.022	A682851	0.034	A682851	0.022	0.022	0.015	A682851
Total Phosphorus (P)	mg/L	-	0.016	A683372	0.038	A683372	0.035	0.022	0.0030	A683372
Nitrate plus Nitrite (N)	mg/L	-	1.76	A683310	1.70	A683310	1.09	0.790	0.0020	A683310
Nitrite (N)	mg/L	0.06	0.0082	A683311	0.0117	A683311	0.0028	0.0034	0.0020	A683311

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	
N/A = Not Applicable	

BUREAU
VERITAS

Bureau Veritas Job #: C260536

Report Date: 2022/08/23

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			AZP524	AZP525	AZP526			AZP527		
Sampling Date			2022/08/15	2022/08/15	2022/08/15			2022/08/15		
COC Number			3956B	3956C	41C64			672263-02-01		
	UNITS	Criteria	F01 (3956B)	F02 (3956C)	F0F (41C64)	RDL	QC Batch	DUPLICATE	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	0.327	0.0144	0.0611	0.0020	A682274	2.80	0.0040	A682274
Misc. Inorganics										
pH	pH	6.5:9.0	8.10	7.80	7.81	N/A	A685040	7.24	N/A	A685040
Anions										
Dissolved Fluoride (F)	mg/L	0.12	0.055	0.064	0.053	0.050	A684026	<0.050	0.050	A684026
Nutrients										
Total Ammonia (N)	mg/L	-	0.027	0.068	0.077	0.015	A682851	<0.015	0.015	A682851
Total Phosphorus (P)	mg/L	-	0.018	0.012	0.021	0.0030	A683372	0.0082	0.0030	A683372
Nitrate plus Nitrite (N)	mg/L	-	0.335	0.0196	0.0796	0.0020	A683310	2.80	0.0040	A685800
Nitrite (N)	mg/L	0.06	0.0083	0.0052	0.0185	0.0020	A683311	<0.0020	0.0020	A683311
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										

Bureau Veritas ID			AZP528		AZP529		
Sampling Date			2022/08/15		2022/08/15		
COC Number			3AF04		3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters							
Nitrate (N)	mg/L	-	<0.0020	A682274	<0.0020	0.0020	A682274
Misc. Inorganics							
pH	pH	6.5:9.0	6.21	A685040	5.82	N/A	A685040
Anions							
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A684576	<0.050	0.050	A684026
Nutrients							
Total Ammonia (N)	mg/L	-	<0.015	A682851	<0.015	0.015	A682896
Total Phosphorus (P)	mg/L	-	<0.0030	A683372	<0.0030	0.0030	A683372
Nitrate plus Nitrite (N)	mg/L	-	<0.0020	A683310	<0.0020	0.0020	A683310
Nitrite (N)	mg/L	0.06	<0.0020	A683311	<0.0020	0.0020	A683311
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C260536

Report Date: 2022/08/23

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP516	AZP517	AZP518	AZP519	AZP520	AZP521		
Sampling Date			2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15		
COC Number			39565	39566	39567	36568	39569	3956A		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	W01 (3956A)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	103	115	117	123	109	99.6	0.50	A681740

Elements

Total Mercury (Hg)	ug/L	0.026	0.0022	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	A682556

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	35.7	117	9.8	57.7	112	131	3.0	A687159
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A687159
Total Arsenic (As)	ug/L	5	0.59	1.22	0.50	0.66	0.87	1.42	0.10	A687159
Total Barium (Ba)	ug/L	-	14.4	13.8	14.9	13.0	16.3	34.3	1.0	A687159
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A687159
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A687159
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A687159
Total Cadmium (Cd)	ug/L	-	0.020	0.011	0.037	0.024	<0.010	0.030	0.010	A687159
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	1.7	<1.0	1.4	1.0	A687159
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	A687159
Total Copper (Cu)	ug/L	-	1.05	0.89	1.07	<0.50	0.56	0.69	0.50	A687159
Total Iron (Fe)	ug/L	300	116	267	24	159	356	1190	10	A687159
Total Lead (Pb)	ug/L	-	0.38	0.23	<0.20	0.38	<0.20	0.35	0.20	A687159
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A687159
Total Manganese (Mn)	ug/L	-	12.9	36.3	10.7	13.4	87.0	57.4	1.0	A687159
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	2.5	<1.0	<1.0	<1.0	1.0	A687159
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	8.2	<1.0	1.2	1.0	A687159
Total Selenium (Se)	ug/L	1	0.28	0.15	0.21	0.36	0.20	0.12	0.10	A687159
Total Silicon (Si)	ug/L	-	11600	12100	11800	14700	13100	12600	100	A687159
Total Silver (Ag)	ug/L	0.25	0.028	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A687159
Total Strontium (Sr)	ug/L	-	163	156	178	192	164	199	1.0	A687159
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A687159
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A687159
Total Titanium (Ti)	ug/L	-	<5.0	5.1	<5.0	<5.0	<5.0	6.6	5.0	A687159
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A687159
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A687159
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	8.1	<5.0	<5.0	<5.0	5.0	A687159
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A687159
Total Calcium (Ca)	mg/L	-	28.6	32.9	33.4	32.7	29.9	27.0	0.050	A682272

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP516	AZP517	AZP518	AZP519	AZP520	AZP521		
Sampling Date			2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15		
COC Number			39565	39566	39567	36568	39569	3956A		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	W01 (3956A)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	7.52	8.03	8.17	10.1	8.36	7.85	0.050	A682272
Total Potassium (K)	mg/L	-	1.74	1.86	2.04	1.46	1.56	1.29	0.050	A682272
Total Sodium (Na)	mg/L	-	20.2	11.5	19.5	9.39	10.1	15.1	0.050	A682272
Total Sulphur (S)	mg/L	-	6.7	6.9	6.0	4.3	6.2	<3.0	3.0	A682272
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										

BUREAU
VERITAS

Bureau Veritas Job #: C260536

Report Date: 2022/08/23

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP522	AZP523	AZP524	AZP525	AZP526	AZP527		
Sampling Date			2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15		
COC Number			3956D	3956D	3956B	3956C	41C64	672263-02-01		
	UNITS	Criteria	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	F0F (41C64)	DUPLICATE	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	115	125	127	91.0	106	106	0.50	A681740

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	0.0024	0.0019	A682556

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	225	76.7	41.3	15.8	19.6	15.3	3.0	A687159
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A687159
Total Arsenic (As)	ug/L	5	1.95	2.41	2.22	1.38	2.72	0.44	0.10	A687159
Total Barium (Ba)	ug/L	-	17.7	14.8	20.9	24.8	30.8	13.6	1.0	A687159
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A687159
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A687159
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A687159
Total Cadmium (Cd)	ug/L	-	0.018	<0.010	<0.010	0.011	<0.010	<0.010	0.010	A687159
Total Chromium (Cr)	ug/L	-	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A687159
Total Cobalt (Co)	ug/L	-	0.21	<0.20	<0.20	0.44	0.29	<0.20	0.20	A687159
Total Copper (Cu)	ug/L	-	1.35	<0.50	1.21	0.53	0.71	0.66	0.50	A687159
Total Iron (Fe)	ug/L	300	785	640	408	1840	2280	79	10	A687159
Total Lead (Pb)	ug/L	-	<0.20	<0.20	0.52	<0.20	<0.20	<0.20	0.20	A687159
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A687159
Total Manganese (Mn)	ug/L	-	151	204	83.3	1150	677	12.7	1.0	A687159
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	1.0	A687159
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A687159
Total Selenium (Se)	ug/L	1	0.26	0.28	<0.10	<0.10	<0.10	0.22	0.10	A687159
Total Silicon (Si)	ug/L	-	14000	14900	9150	6030	8790	12000	100	A687159
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A687159
Total Strontium (Sr)	ug/L	-	162	181	183	151	169	159	1.0	A687159
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A687159
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A687159
Total Titanium (Ti)	ug/L	-	8.8	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A687159
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.15	<0.10	<0.10	<0.10	0.10	A687159
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A687159
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	<5.0	10.7	<5.0	5.0	A687159
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A687159
Total Calcium (Ca)	mg/L	-	29.6	32.4	33.0	25.4	28.5	30.1	0.050	A682272

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP522	AZP523	AZP524	AZP525	AZP526	AZP527		
Sampling Date			2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15	2022/08/15		
COC Number			3956D	3956D	3956B	3956C	41C64	672263-02-01		
	UNITS	Criteria	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	F0F (41C64)	DUPLICATE	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	9.93	10.6	10.9	6.70	8.37	7.44	0.050	A682272
Total Potassium (K)	mg/L	-	1.74	1.50	2.17	1.33	1.48	1.71	0.050	A682272
Total Sodium (Na)	mg/L	-	10.4	10.4	15.2	18.5	16.0	19.5	0.050	A682272
Total Sulphur (S)	mg/L	-	7.1	4.9	4.6	<3.0	3.9	5.2	3.0	A682272
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP528	AZP529		
Sampling Date			2022/08/15	2022/08/15		
COC Number			3AF04	3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	-	<0.50	<0.50	0.50	A681740
Elements						
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0019	A682556
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	-	<3.0	<3.0	3.0	A683831
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	0.50	A683831
Total Arsenic (As)	ug/L	5	<0.10	<0.10	0.10	A683831
Total Barium (Ba)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	0.10	A683831
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Boron (B)	ug/L	1500	<50	<50	50	A683831
Total Cadmium (Cd)	ug/L	-	<0.010	<0.010	0.010	A683831
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Cobalt (Co)	ug/L	-	0.31	<0.20	0.20	A683831
Total Copper (Cu)	ug/L	-	<0.50	<0.50	0.50	A683831
Total Iron (Fe)	ug/L	300	<10	<10	10	A683831
Total Lead (Pb)	ug/L	-	<0.20	<0.20	0.20	A683831
Total Lithium (Li)	ug/L	-	<2.0	<2.0	2.0	A683831
Total Manganese (Mn)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.0	A683831
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Selenium (Se)	ug/L	1	<0.10	<0.10	0.10	A683831
Total Silicon (Si)	ug/L	-	<100	<100	100	A683831
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	0.020	A683831
Total Strontium (Sr)	ug/L	-	<1.0	<1.0	1.0	A683831
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	0.010	A683831
Total Tin (Sn)	ug/L	-	<5.0	<5.0	5.0	A683831
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	5.0	A683831
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.10	A683831
Total Vanadium (V)	ug/L	-	<5.0	<5.0	5.0	A683831
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	5.0	A683831
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	0.10	A683831
Total Calcium (Ca)	mg/L	-	<0.050	<0.050	0.050	A682272
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			AZP528	AZP529		
Sampling Date			2022/08/15	2022/08/15		
COC Number			3AF04	3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	<0.050	<0.050	0.050	A682272
Total Potassium (K)	mg/L	-	<0.050	<0.050	0.050	A682272
Total Sodium (Na)	mg/L	-	<0.050	<0.050	0.050	A682272
Total Sulphur (S)	mg/L	-	<3.0	<3.0	3.0	A682272
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



Bureau Veritas Job #: C260536
Report Date: 2022/08/23

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C260536
Report Date: 2022/08/23

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A682556	Total Mercury (Hg)	2022/08/16	97	80 - 120	93	80 - 120	<0.0019	ug/L	NC	20
A682851	Total Ammonia (N)	2022/08/16	102	80 - 120	104	80 - 120	<0.015	mg/L	NC	20
A682896	Total Ammonia (N)	2022/08/16	122 (1)	80 - 120	103	80 - 120	<0.015	mg/L	NC	20
A683310	Nitrate plus Nitrite (N)	2022/08/16	NC	80 - 120	104	80 - 120	0.0024, RDL=0.0020	mg/L	0.46	25
A683311	Nitrite (N)	2022/08/16	102	80 - 120	100	80 - 120	<0.0020	mg/L	NC	25
A683372	Total Phosphorus (P)	2022/08/16	86	N/A	86	80 - 120	<0.0030	mg/L	9.7	20
A683831	Total Aluminum (Al)	2022/08/18	96	80 - 120	102	80 - 120	<3.0	ug/L	NC	20
A683831	Total Antimony (Sb)	2022/08/18	94	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
A683831	Total Arsenic (As)	2022/08/18	95	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A683831	Total Barium (Ba)	2022/08/18	89	80 - 120	91	80 - 120	<1.0	ug/L	NC	20
A683831	Total Beryllium (Be)	2022/08/18	92	80 - 120	94	80 - 120	<0.10	ug/L	NC	20
A683831	Total Bismuth (Bi)	2022/08/18	96	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A683831	Total Boron (B)	2022/08/18	102	80 - 120	105	80 - 120	<50	ug/L	NC	20
A683831	Total Cadmium (Cd)	2022/08/18	91	80 - 120	93	80 - 120	<0.010	ug/L	NC	20
A683831	Total Chromium (Cr)	2022/08/18	97	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A683831	Total Cobalt (Co)	2022/08/18	96	80 - 120	98	80 - 120	<0.20	ug/L	1.2	20
A683831	Total Copper (Cu)	2022/08/18	93	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
A683831	Total Iron (Fe)	2022/08/18	98	80 - 120	102	80 - 120	<10	ug/L	NC	20
A683831	Total Lead (Pb)	2022/08/18	104	80 - 120	109	80 - 120	<0.20	ug/L	NC	20
A683831	Total Lithium (Li)	2022/08/18	96	80 - 120	102	80 - 120	<2.0	ug/L	NC	20
A683831	Total Manganese (Mn)	2022/08/18	96	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A683831	Total Molybdenum (Mo)	2022/08/18	92	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A683831	Total Nickel (Ni)	2022/08/18	98	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A683831	Total Selenium (Se)	2022/08/18	94	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A683831	Total Silicon (Si)	2022/08/18	104	80 - 120	108	80 - 120	<100	ug/L	NC	20
A683831	Total Silver (Ag)	2022/08/18	89	80 - 120	91	80 - 120	<0.020	ug/L	NC	20
A683831	Total Strontium (Sr)	2022/08/18	89	80 - 120	92	80 - 120	<1.0	ug/L	NC	20
A683831	Total Thallium (Tl)	2022/08/18	95	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A683831	Total Tin (Sn)	2022/08/18	92	80 - 120	93	80 - 120	<5.0	ug/L	NC	20
A683831	Total Titanium (Ti)	2022/08/18	99	80 - 120	105	80 - 120	<5.0	ug/L	NC	20
A683831	Total Uranium (U)	2022/08/18	102	80 - 120	108	80 - 120	<0.10	ug/L	NC	20
A683831	Total Vanadium (V)	2022/08/18	98	80 - 120	102	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C260536
Report Date: 2022/08/23

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A683831	Total Zinc (Zn)	2022/08/18	101	80 - 120	105	80 - 120	<5.0	ug/L	NC	20
A683831	Total Zirconium (Zr)	2022/08/18	90	80 - 120	93	80 - 120	<0.10	ug/L	NC	20
A684026	Dissolved Fluoride (F)	2022/08/17	108	80 - 120	102	80 - 120	<0.050	mg/L	NC	20
A684576	Dissolved Fluoride (F)	2022/08/17	112	80 - 120	104	80 - 120	<0.050	mg/L	0	20
A685040	pH	2022/08/16			102	97 - 103			0	N/A
A685800	Nitrate plus Nitrite (N)	2022/08/17			107	80 - 120	<0.0020	mg/L		
A685892	Dissolved Fluoride (F)	2022/08/18	106	80 - 120	104	80 - 120	<0.050	mg/L	0	20
A687159	Total Aluminum (Al)	2022/08/20	109	80 - 120	107	80 - 120	<3.0	ug/L	5.1	20
A687159	Total Antimony (Sb)	2022/08/20	105	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
A687159	Total Arsenic (As)	2022/08/20	109	80 - 120	107	80 - 120	<0.10	ug/L	1.8	20
A687159	Total Barium (Ba)	2022/08/20	108	80 - 120	106	80 - 120	<1.0	ug/L	2.1	20
A687159	Total Beryllium (Be)	2022/08/20	110	80 - 120	95	80 - 120	<0.10	ug/L	NC	20
A687159	Total Bismuth (Bi)	2022/08/20	105	80 - 120	105	80 - 120	<1.0	ug/L	NC	20
A687159	Total Boron (B)	2022/08/20	107	80 - 120	91	80 - 120	<50	ug/L	NC	20
A687159	Total Cadmium (Cd)	2022/08/20	105	80 - 120	104	80 - 120	<0.010	ug/L	NC	20
A687159	Total Chromium (Cr)	2022/08/20	105	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A687159	Total Cobalt (Co)	2022/08/20	104	80 - 120	103	80 - 120	<0.20	ug/L	9.6	20
A687159	Total Copper (Cu)	2022/08/20	102	80 - 120	101	80 - 120	<0.50	ug/L	7.0	20
A687159	Total Iron (Fe)	2022/08/20	NC	80 - 120	103	80 - 120	<10	ug/L	1.9	20
A687159	Total Lead (Pb)	2022/08/20	107	80 - 120	104	80 - 120	<0.20	ug/L	NC	20
A687159	Total Lithium (Li)	2022/08/20	107	80 - 120	92	80 - 120	<2.0	ug/L	NC	20
A687159	Total Manganese (Mn)	2022/08/20	NC	80 - 120	103	80 - 120	<1.0	ug/L	0.49	20
A687159	Total Molybdenum (Mo)	2022/08/20	116	80 - 120	106	80 - 120	<1.0	ug/L	NC	20
A687159	Total Nickel (Ni)	2022/08/20	104	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A687159	Total Selenium (Se)	2022/08/20	103	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A687159	Total Silicon (Si)	2022/08/20	NC	80 - 120	128 (2)	80 - 120	<100	ug/L	1.2	20
A687159	Total Silver (Ag)	2022/08/20	107	80 - 120	103	80 - 120	<0.020	ug/L	NC	20
A687159	Total Strontium (Sr)	2022/08/20	NC	80 - 120	108	80 - 120	<1.0	ug/L	0.53	20
A687159	Total Thallium (Tl)	2022/08/20	108	80 - 120	103	80 - 120	<0.010	ug/L	NC	20
A687159	Total Tin (Sn)	2022/08/20	104	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A687159	Total Titanium (Ti)	2022/08/20	102	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A687159	Total Uranium (U)	2022/08/20	105	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A687159	Total Vanadium (V)	2022/08/20	106	80 - 120	104	80 - 120	<5.0	ug/L	NC	20

BUREAU
VERITAS

Bureau Veritas Job #: C260536

Report Date: 2022/08/23

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A687159	Total Zinc (Zn)	2022/08/20	101	80 - 120	102	80 - 120	<5.0	ug/L	1.6	20
A687159	Total Zirconium (Zr)	2022/08/20	113	80 - 120	109	80 - 120	<0.10	ug/L	NC	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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

(2) Blank Spike outside acceptance criteria (10% of analytes failure allowed).



Bureau Veritas Job #: C260536
Report Date: 2022/08/23

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free 800-563-6296 Fax: (604) 731 2386 www.bvna.com

Page 2 of 2

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
Regulatory Criteria:		Special Instructions		Turnaround Time (TAT) Required:	
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other				Please provide advance notice for rush projects	
				Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
				Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐	
				Rush Confirmation Number: ☐ (call lab for #)	
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS				# of Bottles	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Comments
1	F0F (41C64)	Aug 5 2022			5
2	DUPLICATE				5
3	TRIP BLANK (3AF04)				5
4	FIELD BLANK (3AF05)				5
5					
6					
7					
8					
9					
10					
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	
		22/08/15	19:31		
				Date: (YY/MM/DD)	
				Time	
				# Jars used and not submitted	
				Time Sensitive	
				Temperature (°C) on Receipt	
				Custody Seal intact on Cooler?	
				CCA + Yes ☒ No ☐	
				White: Bureau Veritas Yellow: Client	
				14, 12, 12	
				ice packs: yes, melted	

Bureau Veritas Canada (2019) Inc.



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7272 Toll-Free 800-563-6266 Fax: (604) 731 2386 www.bvna.com

Page 1 of 2

INVOICE TO:		Report Information		Project Information											
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193										
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #											
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality										
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name											
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #											
Regulatory Criteria:		Special Instructions		Turnaround Time (TAT) Required:											
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other				Please provide advance notice for rush projects											
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS		ANALYSIS REQUESTED (PLEASE BE SPECIFIC):		Regular (Standard) TAT: ☐ (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.											
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	H01 (39565)	AUG 15/12				X	X	X	X	X	X	X	X	5	
2	H02 (39566)					X	X	X	X	X	X	X	X	5	
3	H03 (39567)					X	X	X	X	X	X	X	X	5	
4	B01 (39568)					X	X	X	X	X	X	X	X	5	
5	B02 (39569)					X	X	X	X	X	X	X	X	5	
6	W01 (3956A)					X	X	X	X	X	X	X	X	5	
7	D01 (3956D)					X	X	X	X	X	X	X	X	5	
8	D02 (3956D)					X	X	X	X	X	X	X	X	5	
9	F01 (3956B)					X	X	X	X	X	X	X	X	5	
10	F02 (3956C)					X	X	X	X	X	X	X	X	5	
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted		Lab Use Only					
		22/08/12	9:31			22/08/12	14:00	08-00		Time Sensitive ☐ Temperature (°C) on Receipt 19, 18, 18		Custody Seal Intact on Cooler? ☐ Yes ☒ No			
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.															
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															

Ice packs: yes, melted

Bureau Veritas Canada (2019) Inc.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 676611-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D

Report Date: 2022/10/05
Report #: R3243946
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275099

Received: 2022/09/28, 09:00

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	8	N/A	2022/10/03	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	8	N/A	2022/10/03	BBY WI-00033	Auto Calc
Mercury (Total) by CV	8	2022/09/30	2022/09/30	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	8	2022/09/28	2022/10/03	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	8	2022/09/29	2022/09/30	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	8	N/A	2022/09/29	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	8	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	8	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	8	N/A	2022/10/05	BBY WI-00033	Auto Calc
pH @25°C (2)	8	N/A	2022/10/03	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	8	2022/09/29	2022/09/29	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 676611-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D

Report Date: 2022/10/05
Report #: R3243946
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275099

Received: 2022/09/28, 09:00

dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.

BUREAU
VERITAS

Bureau Veritas Job #: C275099

Report Date: 2022/10/05

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BCY925	BCY926		BCY927	BCY928		
Sampling Date			2022/09/27	2022/09/27		2022/09/27	2022/09/27		
COC Number			39565	39566		39567	39568		
	UNITS	Criteria	H01 (39565)	H02 (39566)	RDL	H03 (39567)	B01 (39568)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	1.06	1.37	0.0020	2.14	3.65	0.0040	A733880
Misc. Inorganics									
pH	pH	6.5:9.0	7.67	8.03	N/A	7.94	7.01	N/A	A742858
Anions									
Dissolved Fluoride (F)	mg/L	0.12	0.053	<0.050	0.050	<0.050	<0.050	0.050	A740187
Nutrients									
Total Ammonia (N)	mg/L	-	<0.015	0.016	0.015	<0.015	0.031	0.015	A735148
Total Phosphorus (P)	mg/L	-	0.16	0.042	0.0030	0.032	0.032	0.0030	A735887
Nitrate plus Nitrite (N)	mg/L	-	1.15	1.37	0.0020	2.14	3.66	0.0040	A737914
Nitrite (N)	mg/L	0.06	0.0902	<0.0020	0.0020	<0.0020	0.0045	0.0020	A737915
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
N/A = Not Applicable									

Bureau Veritas ID			BCY929	BCY930	BCY931	BCY932		
Sampling Date			2022/09/27	2022/09/27	2022/09/27	2022/09/27		
COC Number			39569	3956A	3956D	3956D		
	UNITS	Criteria	B02 (39569)	W01 (3956A)	D01 (3956D)	D02 (3956D)	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	1.64	1.60	1.02	0.783	0.0020	A733880
Misc. Inorganics								
pH	pH	6.5:9.0	8.00	7.93	8.14	8.12	N/A	A742858
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	0.050	A739808
Nutrients								
Total Ammonia (N)	mg/L	-	0.024	0.036	0.017	0.045	0.015	A735148
Total Phosphorus (P)	mg/L	-	0.014	0.028	0.022	0.023	0.0030	A735887
Nitrate plus Nitrite (N)	mg/L	-	1.65	1.60	1.02	0.785	0.0020	A737914
Nitrite (N)	mg/L	0.06	0.0081	0.0082	<0.0020	0.0027	0.0020	A737915
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								

BUREAU
VERITAS

Bureau Veritas Job #: C275099

Report Date: 2022/10/05

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BCY925		BCY926	BCY927		BCY928		
Sampling Date			2022/09/27		2022/09/27	2022/09/27		2022/09/27		
COC Number			39565		39566	39567		39568		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	H03 (39567)	QC Batch	B01 (39568)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	99.1	0.50	115	115	A733580	62.5	0.50	A733580

Elements

Total Mercury (Hg)	ug/L	0.026	0.192 (1)	0.019	<0.0019	0.0035	A736250	<0.0019	0.0019	A736530

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	214	3.0	140	247	A735463	95.3	3.0	A735463
Total Antimony (Sb)	ug/L	-	<0.50	0.50	<0.50	<0.50	A735463	<0.50	0.50	A735463
Total Arsenic (As)	ug/L	5	1.99	0.10	1.36	0.83	A735463	0.31	0.10	A735463
Total Barium (Ba)	ug/L	-	17.7	1.0	13.8	15.3	A735463	14.4	1.0	A735463
Total Beryllium (Be)	ug/L	-	<0.10	0.10	<0.10	<0.10	A735463	<0.10	0.10	A735463
Total Bismuth (Bi)	ug/L	-	<1.0	1.0	<1.0	<1.0	A735463	<1.0	1.0	A735463
Total Boron (B)	ug/L	1500	<50	50	<50	<50	A735463	<50	50	A735463
Total Cadmium (Cd)	ug/L	-	0.033	0.010	0.018	0.034	A735463	0.033	0.010	A735463
Total Chromium (Cr)	ug/L	-	<1.0	1.0	<1.0	<1.0	A735463	2.8	1.0	A735463
Total Cobalt (Co)	ug/L	-	0.20	0.20	<0.20	0.27	A735463	0.26	0.20	A735463
Total Copper (Cu)	ug/L	-	13.9	0.50	0.77	3.37	A735463	0.69	0.50	A735463
Total Iron (Fe)	ug/L	300	1600	10	448	461	A735463	523	10	A735463
Total Lead (Pb)	ug/L	-	0.90	0.20	0.22	1.01	A735463	0.70	0.20	A735463
Total Lithium (Li)	ug/L	-	<2.0	2.0	<2.0	<2.0	A735463	<2.0	2.0	A735463
Total Manganese (Mn)	ug/L	-	50.6	1.0	47.4	54.4	A735463	111	1.0	A735463
Total Molybdenum (Mo)	ug/L	73	<1.0	1.0	1.2	3.2	A735463	<1.0	1.0	A735463
Total Nickel (Ni)	ug/L	-	<1.0	1.0	<1.0	<1.0	A735463	1.2	1.0	A735463
Total Selenium (Se)	ug/L	1	0.24	0.10	0.21	0.23	A735463	<0.10	0.10	A735463
Total Silicon (Si)	ug/L	-	9570	100	9980	10100	A735463	10500	100	A735463
Total Silver (Ag)	ug/L	0.25	0.785	0.020	<0.020	<0.020	A735463	<0.020	0.020	A735463
Total Strontium (Sr)	ug/L	-	150	1.0	148	172	A735463	219	1.0	A735463
Total Thallium (Tl)	ug/L	0.8	<0.010	0.010	<0.010	<0.010	A735463	<0.010	0.010	A735463
Total Tin (Sn)	ug/L	-	<5.0	5.0	<5.0	<5.0	A735463	<5.0	5.0	A735463
Total Titanium (Ti)	ug/L	-	9.3	5.0	6.8	9.4	A735463	<5.0	5.0	A735463
Total Uranium (U)	ug/L	15	<0.10	0.10	<0.10	<0.10	A735463	<0.10	0.10	A735463
Total Vanadium (V)	ug/L	-	<5.0	5.0	<5.0	<5.0	A735463	<5.0	5.0	A735463
Total Zinc (Zn)	ug/L	30	14.2	5.0	<5.0	14.2	A735463	6.1	5.0	A735463
Total Zirconium (Zr)	ug/L	-	0.17	0.10	<0.10	<0.10	A735463	<0.10	0.10	A735463

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

(1) Detection limit raised based on sample volume used and sample matrix



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BCY925		BCY926	BCY927		BCY928		
Sampling Date			2022/09/27		2022/09/27	2022/09/27		2022/09/27		
COC Number			39565		39566	39567		39568		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	H03 (39567)	QC Batch	B01 (39568)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	28.3	0.050	33.0	32.8	A733586	18.1	0.050	A733586
Total Magnesium (Mg)	mg/L	-	6.93	0.050	7.97	8.10	A733586	4.20	0.050	A733586
Total Potassium (K)	mg/L	-	1.72	0.050	1.76	1.83	A733586	1.10	0.050	A733586
Total Sodium (Na)	mg/L	-	18.0	0.050	10.8	19.6	A733586	13.6	0.050	A733586
Total Sulphur (S)	mg/L	-	5.9	3.0	5.9	6.5	A733586	<3.0	3.0	A733586
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										

BUREAU
VERITAS

Bureau Veritas Job #: C275099

Report Date: 2022/10/05

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BCY929		BCY930		BCY931	BCY932		
Sampling Date			2022/09/27		2022/09/27		2022/09/27	2022/09/27		
COC Number			39569		3956A		3956D	3956D		
	UNITS	Criteria	B02 (39569)	QC Batch	W01 (3956A)	QC Batch	D01 (3956D)	D02 (3956D)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	121	A733580	109	A733580	117	126	0.50	A733580

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A736239	<0.0019	A736530	<0.0019	<0.0019	0.0019	A736250

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	55.0	A735463	58.8	A735463	46.6	48.3	3.0	A735463
Total Antimony (Sb)	ug/L	-	<0.50	A735463	<0.50	A735463	<0.50	<0.50	0.50	A735463
Total Arsenic (As)	ug/L	5	0.80	A735463	0.95	A735463	1.59	2.34	0.10	A735463
Total Barium (Ba)	ug/L	-	16.2	A735463	32.8	A735463	14.3	14.7	1.0	A735463
Total Beryllium (Be)	ug/L	-	<0.10	A735463	<0.10	A735463	<0.10	<0.10	0.10	A735463
Total Bismuth (Bi)	ug/L	-	<1.0	A735463	<1.0	A735463	<1.0	<1.0	1.0	A735463
Total Boron (B)	ug/L	1500	<50	A735463	<50	A735463	<50	<50	50	A735463
Total Cadmium (Cd)	ug/L	-	<0.010	A735463	0.020	A735463	0.012	<0.010	0.010	A735463
Total Chromium (Cr)	ug/L	-	<1.0	A735463	<1.0	A735463	<1.0	<1.0	1.0	A735463
Total Cobalt (Co)	ug/L	-	<0.20	A735463	<0.20	A735463	<0.20	<0.20	0.20	A735463
Total Copper (Cu)	ug/L	-	<0.50	A735463	<0.50	A735463	<0.50	<0.50	0.50	A735463
Total Iron (Fe)	ug/L	300	368	A735463	616	A735463	431	695	10	A735463
Total Lead (Pb)	ug/L	-	<0.20	A735463	<0.20	A735463	<0.20	<0.20	0.20	A735463
Total Lithium (Li)	ug/L	-	<2.0	A735463	<2.0	A735463	<2.0	<2.0	2.0	A735463
Total Manganese (Mn)	ug/L	-	94.6	A735463	47.4	A735463	118	219	1.0	A735463
Total Molybdenum (Mo)	ug/L	73	<1.0	A735463	<1.0	A735463	<1.0	<1.0	1.0	A735463
Total Nickel (Ni)	ug/L	-	<1.0	A735463	1.1	A735463	<1.0	<1.0	1.0	A735463
Total Selenium (Se)	ug/L	1	0.20	A735463	0.15	A735463	0.26	0.26	0.10	A735463
Total Silicon (Si)	ug/L	-	11900	A735463	11500	A735463	11900	12900	100	A735463
Total Silver (Ag)	ug/L	0.25	<0.020	A735463	<0.020	A735463	<0.020	<0.020	0.020	A735463
Total Strontium (Sr)	ug/L	-	175	A735463	208	A735463	160	179	1.0	A735463
Total Thallium (Tl)	ug/L	0.8	<0.010	A735463	<0.010	A735463	<0.010	<0.010	0.010	A735463
Total Tin (Sn)	ug/L	-	<5.0	A735463	<5.0	A735463	<5.0	<5.0	5.0	A735463
Total Titanium (Ti)	ug/L	-	<5.0	A735463	<5.0	A735463	<5.0	<5.0	5.0	A735463
Total Uranium (U)	ug/L	15	<0.10	A735463	<0.10	A735463	0.12	<0.10	0.10	A735463
Total Vanadium (V)	ug/L	-	<5.0	A735463	<5.0	A735463	<5.0	<5.0	5.0	A735463
Total Zinc (Zn)	ug/L	30	<5.0	A735463	<5.0	A735463	<5.0	<5.0	5.0	A735463
Total Zirconium (Zr)	ug/L	-	<0.10	A735463	<0.10	A735463	<0.10	<0.10	0.10	A735463
Total Calcium (Ca)	mg/L	-	33.2	A733586	29.8	A733586	30.4	33.1	0.050	A733586

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BCY929		BCY930		BCY931	BCY932		
Sampling Date			2022/09/27		2022/09/27		2022/09/27	2022/09/27		
COC Number			39569		3956A		3956D	3956D		
	UNITS	Criteria	B02 (39569)	QC Batch	W01 (3956A)	QC Batch	D01 (3956D)	D02 (3956D)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	9.15	A733586	8.46	A733586	9.87	10.5	0.050	A733586
Total Potassium (K)	mg/L	-	1.69	A733586	1.40	A733586	1.67	1.53	0.050	A733586
Total Sodium (Na)	mg/L	-	10.3	A733586	15.1	A733586	9.81	10.1	0.050	A733586
Total Sulphur (S)	mg/L	-	5.0	A733586	4.2	A733586	5.3	4.3	3.0	A733586
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										



BUREAU
VERITAS

Bureau Veritas Job #: C275099

Report Date: 2022/10/05

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C275099
Report Date: 2022/10/05

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A735148	Total Ammonia (N)	2022/09/29	101	80 - 120	108	80 - 120	<0.015	mg/L	NC	20
A735463	Total Aluminum (Al)	2022/09/30	100	80 - 120	97	80 - 120	<3.0	ug/L	2.4	20
A735463	Total Antimony (Sb)	2022/09/30	103	80 - 120	99	80 - 120	<0.50	ug/L	0.19	20
A735463	Total Arsenic (As)	2022/09/30	107	80 - 120	100	80 - 120	<0.10	ug/L	1.6	20
A735463	Total Barium (Ba)	2022/09/30	100	80 - 120	96	80 - 120	<1.0	ug/L	0.82	20
A735463	Total Beryllium (Be)	2022/09/30	102	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A735463	Total Bismuth (Bi)	2022/09/30	98	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A735463	Total Boron (B)	2022/09/30	104	80 - 120	108	80 - 120	<50	ug/L	NC	20
A735463	Total Cadmium (Cd)	2022/09/30	101	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
A735463	Total Chromium (Cr)	2022/09/30	99	80 - 120	98	80 - 120	<1.0	ug/L	2.0	20
A735463	Total Cobalt (Co)	2022/09/30	99	80 - 120	97	80 - 120	<0.20	ug/L	NC	20
A735463	Total Copper (Cu)	2022/09/30	93	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
A735463	Total Iron (Fe)	2022/09/30	106	80 - 120	101	80 - 120	<10	ug/L	0.024	20
A735463	Total Lead (Pb)	2022/09/30	100	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
A735463	Total Lithium (Li)	2022/09/30	103	80 - 120	105	80 - 120	<2.0	ug/L	NC	20
A735463	Total Manganese (Mn)	2022/09/30	92	80 - 120	92	80 - 120	<1.0	ug/L	1.8	20
A735463	Total Molybdenum (Mo)	2022/09/30	110	80 - 120	102	80 - 120	<1.0	ug/L	1.3	20
A735463	Total Nickel (Ni)	2022/09/30	94	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A735463	Total Selenium (Se)	2022/09/30	104	80 - 120	99	80 - 120	<0.10	ug/L	2.7	20
A735463	Total Silicon (Si)	2022/09/30	108	80 - 120	105	80 - 120	<100	ug/L	1.2	20
A735463	Total Silver (Ag)	2022/09/30	99	80 - 120	96	80 - 120	<0.020	ug/L	NC	20
A735463	Total Strontium (Sr)	2022/09/30	115	80 - 120	94	80 - 120	<1.0	ug/L	1.2	20
A735463	Total Thallium (Tl)	2022/09/30	101	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
A735463	Total Tin (Sn)	2022/09/30	102	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A735463	Total Titanium (Ti)	2022/09/30	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A735463	Total Uranium (U)	2022/09/30	105	80 - 120	99	80 - 120	<0.10	ug/L	4.0	20
A735463	Total Vanadium (V)	2022/09/30	97	80 - 120	94	80 - 120	<5.0	ug/L	NC	20
A735463	Total Zinc (Zn)	2022/09/30	96	80 - 120	96	80 - 120	<5.0	ug/L	NC	20
A735463	Total Zirconium (Zr)	2022/09/30	107	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A735887	Total Phosphorus (P)	2022/09/29	90	N/A	93	80 - 120	<0.0030	mg/L	1.4	20
A736239	Total Mercury (Hg)	2022/09/30	95	80 - 120	95	80 - 120	<0.0019	ug/L	NC	20
A736250	Total Mercury (Hg)	2022/09/30	92	80 - 120	95	80 - 120	<0.0019	ug/L	NC	20

BUREAU
VERITAS

Bureau Veritas Job #: C275099

Report Date: 2022/10/05

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A736530	Total Mercury (Hg)	2022/09/30	91	80 - 120	83	80 - 120	<0.0019	ug/L	NC	20
A737914	Nitrate plus Nitrite (N)	2022/09/30			104	80 - 120	<0.0020	mg/L		
A737915	Nitrite (N)	2022/09/30			102	80 - 120	<0.0020	mg/L		
A739808	Dissolved Fluoride (F)	2022/10/03	103	80 - 120	110	80 - 120	<0.050	mg/L	NC	20
A740187	Dissolved Fluoride (F)	2022/10/03	108	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A742858	pH	2022/10/03			102	97 - 103			0.25	N/A

N/A = Not Applicable

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



Bureau Veritas Job #: C275099
Report Date: 2022/10/05

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas
4506 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free: 800-563-6266 Fax: (604) 731 2356 www.bvna.com

Page 1 of 2

INVOICE TO:			Report Information			Project Information		
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193			
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #				
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality			
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name				
Fax	(604) 850-6418	Fax		Site #				
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Sampled By				

Regulatory Criteria:		Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
☐ CSR														
☐ CCME														
☐ BC Water Quality														
☐ Other														

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS														
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	
1	H01 (39565)	SEP 27 2022				X	X	X	X	X	X	X	X	
2	H02 (39566)					X	X	X	X	X	X	X	X	
3	H03 (39567)					X	X	X	X	X	X	X	X	
4	B01 (39568)					X	X	X	X	X	X	X	X	
5	B02 (39569)					X	X	X	X	X	X	X	X	
6	W01 (3956A)					X	X	X	X	X	X	X	X	
7	D01 (3956D)					X	X	X	X	X	X	X	X	
8	D02 (3956D)					X	X	X	X	X	X	X	X	
9	~~F01 (3956B)~~					X	X	X	X	X	X	X	X	
10	~~F02 (3956C)~~					X	X	X	X	X	X	X	X	

RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Lab Use Only	
Tina Madysen Adams		22/09/22	19:25	Vikram Thangaraj		SEP 28 2022	07:40		Time Sensitive	Temperature (°C) on Receipt
									☐	5/11/13
									Custody Seal Intact on Cooler?	
									☐ Yes ☒ No	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2019) Inc.



Your Project #: BEVAN #7 CREEK WATER QUALITY
Your C.O.C. #: 676613-01-01

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2022/10/06
Report #: R3244351
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275568

Received: 2022/09/29, 08:00

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	1	N/A	2022/10/03	BBY6SOP-00048	SM 23 4500-F C m
Fluoride	2	N/A	2022/10/04	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	3	N/A	2022/10/05	BBY WI-00033	Auto Calc
Mercury (Total) by CV	1	2022/10/03	2022/10/03	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV	2	2022/10/05	2022/10/05	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	2022/09/29	2022/10/05	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	3	2022/10/03	2022/10/04	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	3	N/A	2022/09/29	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	3	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	3	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	3	N/A	2022/10/05	BBY WI-00033	Auto Calc
pH @25°C (2)	3	N/A	2022/09/30	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	3	2022/10/03	2022/10/03	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.



Your Project #: BEVAN #7 CREEK WATER QUALITY
Your C.O.C. #: 676613-01-01

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2022/10/06
Report #: R3244351
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275568

Received: 2022/09/29, 08:00

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

This report has been generated and distributed using a secure automated process.

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For Service Group specific validation please refer to the Validation Signature Page.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BDB482			BDB483		BDB484		
Sampling Date		2022/09/28			2022/09/28		2022/09/28		
COC Number		676613-01-01			676613-01-01		676613-01-01		
	UNITS	F-03	RDL	QC Batch	F-04	RDL	FOF	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	0.106	0.0020	A735431	2.65	0.0040	0.0154	0.0020	A735431
Misc. Inorganics									
pH	pH	7.83	N/A	A740621	7.33	N/A	7.84	N/A	A740635
Anions									
Dissolved Fluoride (F)	mg/L	<0.050	0.050	A740187	<0.050	0.050	<0.050	0.050	A741288
Nutrients									
Total Ammonia (N)	mg/L	0.13	0.015	A735674	0.019	0.015	0.32	0.015	A735674
Total Phosphorus (P)	mg/L	0.037	0.0030	A740520	0.020	0.0030	0.030	0.0030	A740520
Nitrate plus Nitrite (N)	mg/L	0.113	0.0020	A737914	2.65	0.0040	0.0222	0.0020	A737914
Nitrite (N)	mg/L	0.0067	0.0020	A737915	0.0056	0.0020	0.0068	0.0020	A737915
RDL = Reportable Detection Limit N/A = Not Applicable									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID		BDB482	BDB483			BDB484		
Sampling Date		2022/09/28	2022/09/28			2022/09/28		
COC Number		676613-01-01	676613-01-01			676613-01-01		
	UNITS	F-03	F-04	RDL	QC Batch	FOF	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO ₃)	mg/L	102	87.6	0.50	A735223	112	0.50	A735223
Elements								
Total Mercury (Hg)	ug/L	<0.019 (1)	<0.019 (1)	0.019	A743589	<0.0019	0.0019	A739638
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	59.4	144	3.0	A740646	19.2	3.0	A740646
Total Antimony (Sb)	ug/L	<0.50	<0.50	0.50	A740646	<0.50	0.50	A740646
Total Arsenic (As)	ug/L	0.94	0.52	0.10	A740646	1.87	0.10	A740646
Total Barium (Ba)	ug/L	29.2	14.5	1.0	A740646	31.8	1.0	A740646
Total Beryllium (Be)	ug/L	<0.10	<0.10	0.10	A740646	<0.10	0.10	A740646
Total Bismuth (Bi)	ug/L	<1.0	<1.0	1.0	A740646	<1.0	1.0	A740646
Total Boron (B)	ug/L	<50	<50	50	A740646	<50	50	A740646
Total Cadmium (Cd)	ug/L	0.030	0.014	0.010	A740646	<0.010	0.010	A740646
Total Chromium (Cr)	ug/L	<1.0	<1.0	1.0	A740646	<1.0	1.0	A740646
Total Cobalt (Co)	ug/L	0.98	0.37	0.20	A740646	0.27	0.20	A740646
Total Copper (Cu)	ug/L	0.77	1.26	0.50	A740646	<0.50	0.50	A740646
Total Iron (Fe)	ug/L	649	485	10	A740646	1990	10	A740646
Total Lead (Pb)	ug/L	<0.20	<0.20	0.20	A740646	<0.20	0.20	A740646
Total Lithium (Li)	ug/L	<2.0	<2.0	2.0	A740646	<2.0	2.0	A740646
Total Manganese (Mn)	ug/L	7080	460	1.0	A740646	340	1.0	A740646
Total Molybdenum (Mo)	ug/L	1.8	<1.0	1.0	A740646	<1.0	1.0	A740646
Total Nickel (Ni)	ug/L	3.1	<1.0	1.0	A740646	<1.0	1.0	A740646
Total Selenium (Se)	ug/L	0.16	0.19	0.10	A740646	<0.10	0.10	A740646
Total Silicon (Si)	ug/L	8900	8010	100	A740646	6100	100	A740646
Total Silver (Ag)	ug/L	<0.020	<0.020	0.020	A740646	<0.020	0.020	A740646
Total Strontium (Sr)	ug/L	126	151	1.0	A740646	149	1.0	A740646
Total Thallium (Tl)	ug/L	<0.010	<0.010	0.010	A740646	<0.010	0.010	A740646
Total Tin (Sn)	ug/L	<5.0	<5.0	5.0	A740646	<5.0	5.0	A740646
Total Titanium (Ti)	ug/L	<5.0	6.2	5.0	A740646	<5.0	5.0	A740646
Total Uranium (U)	ug/L	<0.10	<0.10	0.10	A740646	<0.10	0.10	A740646
Total Vanadium (V)	ug/L	<5.0	<5.0	5.0	A740646	<5.0	5.0	A740646
Total Zinc (Zn)	ug/L	7.3	<5.0	5.0	A740646	15.5	5.0	A740646
Total Zirconium (Zr)	ug/L	<0.10	<0.10	0.10	A740646	<0.10	0.10	A740646
RDL = Reportable Detection Limit								
(1) Detection limit raised based on sample volume used for analysis. The original container was not found and sample was aliquotted from plastic container.								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID		BDB482	BDB483			BDB484		
Sampling Date		2022/09/28	2022/09/28			2022/09/28		
COC Number		676613-01-01	676613-01-01			676613-01-01		
	UNITS	F-03	F-04	RDL	QC Batch	FOF	RDL	QC Batch
Total Calcium (Ca)	mg/L	27.3	24.2	0.050	A735224	30.2	0.050	A735224
Total Magnesium (Mg)	mg/L	8.32	6.61	0.050	A735224	9.00	0.050	A735224
Total Potassium (K)	mg/L	3.41	3.39	0.050	A735224	2.05	0.050	A735224
Total Sodium (Na)	mg/L	9.48	7.27	0.050	A735224	13.1	0.050	A735224
Total Sulphur (S)	mg/L	8.9	6.6	3.0	A735224	4.7	3.0	A735224
RDL = Reportable Detection Limit								



Bureau Veritas Job #: C275568
Report Date: 2022/10/06

CITY OF ABBOTSFORD
Client Project #: BEVAN #7 CREEK WATER QUALITY

GENERAL COMMENTS

Results relate only to the items tested.



Bureau Veritas Job #: C275568
Report Date: 2022/10/06

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #7 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A735674	Total Ammonia (N)	2022/09/29	NC	80 - 120	109	80 - 120	<0.015	mg/L	0.79	20
A737914	Nitrate plus Nitrite (N)	2022/09/30			104	80 - 120	<0.0020	mg/L		
A737915	Nitrite (N)	2022/09/30			102	80 - 120	<0.0020	mg/L		
A739638	Total Mercury (Hg)	2022/10/03	105	80 - 120	107	80 - 120	<0.0019	ug/L	NC	20
A740187	Dissolved Fluoride (F)	2022/10/03	108	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A740520	Total Phosphorus (P)	2022/10/03			111	80 - 120	<0.0030	mg/L		
A740621	pH	2022/09/30			101	97 - 103	4.61	pH	0.69	N/A
A740635	pH	2022/09/30			101	97 - 103			8.4	N/A
A740646	Total Aluminum (Al)	2022/10/04	100	80 - 120	98	80 - 120	<3.0	ug/L	3.9	20
A740646	Total Antimony (Sb)	2022/10/04	96	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
A740646	Total Arsenic (As)	2022/10/04	99	80 - 120	97	80 - 120	<0.10	ug/L	0.81	20
A740646	Total Barium (Ba)	2022/10/04	93	80 - 120	92	80 - 120	<1.0	ug/L	2.2	20
A740646	Total Beryllium (Be)	2022/10/04	97	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A740646	Total Bismuth (Bi)	2022/10/04	95	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A740646	Total Boron (B)	2022/10/04	106	80 - 120	105	80 - 120	<50	ug/L	NC	20
A740646	Total Cadmium (Cd)	2022/10/04	98	80 - 120	97	80 - 120	<0.010	ug/L	4.5	20
A740646	Total Chromium (Cr)	2022/10/04	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A740646	Total Cobalt (Co)	2022/10/04	95	80 - 120	96	80 - 120	<0.20	ug/L	3.0	20
A740646	Total Copper (Cu)	2022/10/04	95	80 - 120	99	80 - 120	<0.50	ug/L	6.0	20
A740646	Total Iron (Fe)	2022/10/04	NC	80 - 120	102	80 - 120	<10	ug/L	1.5	20
A740646	Total Lead (Pb)	2022/10/04	101	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
A740646	Total Lithium (Li)	2022/10/04	97	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
A740646	Total Manganese (Mn)	2022/10/04	NC	80 - 120	99	80 - 120	<1.0	ug/L	1.6	20
A740646	Total Molybdenum (Mo)	2022/10/04	100	80 - 120	98	80 - 120	<1.0	ug/L	0.67	20
A740646	Total Nickel (Ni)	2022/10/04	97	80 - 120	98	80 - 120	<1.0	ug/L	1.7	20
A740646	Total Selenium (Se)	2022/10/04	107	80 - 120	104	80 - 120	<0.10	ug/L	8.5	20
A740646	Total Silicon (Si)	2022/10/04	NC	80 - 120	112	80 - 120	<100	ug/L	0.45	20
A740646	Total Silver (Ag)	2022/10/04	96	80 - 120	96	80 - 120	<0.020	ug/L	NC	20
A740646	Total Strontium (Sr)	2022/10/04	NC	80 - 120	94	80 - 120	<1.0	ug/L	0.93	20
A740646	Total Thallium (Tl)	2022/10/04	98	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A740646	Total Tin (Sn)	2022/10/04	97	80 - 120	95	80 - 120	<5.0	ug/L	NC	20
A740646	Total Titanium (Ti)	2022/10/04	100	80 - 120	96	80 - 120	<5.0	ug/L	NC	20
A740646	Total Uranium (U)	2022/10/04	103	80 - 120	100	80 - 120	<0.10	ug/L	NC	20

BUREAU
VERITAS

Bureau Veritas Job #: C275568

Report Date: 2022/10/06

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #7 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A740646	Total Vanadium (V)	2022/10/04	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A740646	Total Zinc (Zn)	2022/10/04	98	80 - 120	102	80 - 120	<5.0	ug/L	2.3	20
A740646	Total Zirconium (Zr)	2022/10/04	97	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A741288	Dissolved Fluoride (F)	2022/10/04	108	80 - 120	100	80 - 120	<0.050	mg/L	3.5	20
A743589	Total Mercury (Hg)	2022/10/05	91	80 - 120	97	80 - 120	<0.0019	ug/L	NC	20

N/A = Not Applicable

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

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

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

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

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

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



Bureau Veritas Job #: C275568
Report Date: 2022/10/06

CITY OF ABBOTSFORD
Client Project #: BEVAN #7 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		Report Information		Project Information		Laboratory Use Only									
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bureau Veritas Job #	Bottle Order #:								
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #											
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #7 Creek Water Quality										
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name		Chain Of Custody Record	Project Manager								
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #			Customer Solutions								
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:									
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other _____				Metals Field Filtered? (Y/N) CSR/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate-Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus		Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire sub-section) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate-Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	F-03	SEP 28 2012				X	X	X	X	X	X	X	X		
2	F-04					X	X	X	X	X	X	X	X		
3	FOR					X	X	X	X	X	X	X	X		
4															
5															
6															
7															
8															
9															
10															
RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted		Lab Use Only					
Mrs Madeline Adams		22/09/12	11:50	[Signature]		22/09/12	0800			Temperature (°C) for Receipt	Custody Seal Intact on Receipt?				
										14, 13, 12 17, 17, 17	☐ Yes ☒ No				
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															



Your Project #: Bevan #1 Creek Water Quality

Your C.O.C. #: 676611-02-01, 3AF04, 3AF05

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2022/10/06

Report #: R3244805

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275602

Received: 2022/09/29, 08:00

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	4	N/A	2022/10/03	BBY6SOP-00048	SM 23 4500-F C m
Fluoride	1	N/A	2022/10/04	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	5	N/A	2022/10/05	BBY WI-00033	Auto Calc
Mercury (Total) by CV	5	2022/10/03	2022/10/03	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	5	2022/09/29	2022/10/05	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	3	2022/10/03	2022/10/04	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	2	2022/10/04	2022/10/04	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	5	N/A	2022/10/04	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	5	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	5	N/A	2022/09/30	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	5	N/A	2022/10/05	BBY WI-00033	Auto Calc
pH @25°C (2)	4	N/A	2022/10/03	BBY6SOP-00026	SM 23 4500-H+ B m
pH @25°C (2)	1	N/A	2022/10/04	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	5	2022/10/03	2022/10/03	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: Bevan #1 Creek Water Quality

Your C.O.C. #: 676611-02-01, 3AF04, 3AF05

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2022/10/06

Report #: R3244805

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C275602

Received: 2022/09/29, 08:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BDB695		BDB696		BDB697		
Sampling Date			2022/09/28		2022/09/28		2022/09/28		
COC Number			676611-02-01		3AF04		3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	0.195	A735431	<0.0020	A735431	<0.0020	0.0020	A735431
Misc. Inorganics									
pH	pH	6.5:9.0	7.92	A742923	6.51	A742864	5.76	N/A	A742864
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A739512	<0.050	A739512	<0.050	0.050	A739808
Nutrients									
Total Ammonia (N)	mg/L	-	0.14	A742089	<0.015	A742089	<0.015	0.015	A742089
Total Phosphorus (P)	mg/L	-	0.092	A740520	<0.0030	A740520	<0.0030	0.0030	A740520
Nitrate plus Nitrite (N)	mg/L	-	0.203	A738037	<0.0020	A738037	<0.0020	0.0020	A738037
Nitrite (N)	mg/L	0.06	0.0082	A738038	<0.0020	A738038	<0.0020	0.0020	A738038
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit N/A = Not Applicable									

Bureau Veritas ID			BDB698		BDB699		
Sampling Date			2022/09/28		2022/09/28		
COC Number			676611-02-01		676611-02-01		
	UNITS	Criteria	F01	QC Batch	F02	RDL	QC Batch
Calculated Parameters							
Nitrate (N)	mg/L	-	0.194	A735431	0.104	0.0020	A735431
Misc. Inorganics							
pH	pH	6.5:9.0	8.11	A742864	7.46	N/A	A742864
Anions							
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A741288	0.054	0.050	A739808
Nutrients							
Total Ammonia (N)	mg/L	-	0.024	A742089	0.095	0.015	A742089
Total Phosphorus (P)	mg/L	-	0.076	A740520	0.078	0.0030	A740520
Nitrate plus Nitrite (N)	mg/L	-	0.202	A738037	0.106	0.0020	A738037
Nitrite (N)	mg/L	0.06	0.0078	A738038	0.0021	0.0020	A738038
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
N/A = Not Applicable							

BUREAU
VERITAS

Bureau Veritas Job #: C275602

Report Date: 2022/10/06

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BDB695		BDB696	BDB697		
Sampling Date			2022/09/28		2022/09/28	2022/09/28		
COC Number			676611-02-01		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	107	A735223	<0.50	<0.50	0.50	A735223
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	A739638	<0.0019	<0.0019	0.0019	A739638
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	103	A740646	<3.0	<3.0	3.0	A741409
Total Antimony (Sb)	ug/L	-	<0.50	A740646	<0.50	<0.50	0.50	A741409
Total Arsenic (As)	ug/L	5	1.17	A740646	<0.10	<0.10	0.10	A741409
Total Barium (Ba)	ug/L	-	34.4	A740646	<1.0	<1.0	1.0	A741409
Total Beryllium (Be)	ug/L	-	<0.10	A740646	<0.10	<0.10	0.10	A741409
Total Bismuth (Bi)	ug/L	-	<1.0	A740646	<1.0	<1.0	1.0	A741409
Total Boron (B)	ug/L	1500	<50	A740646	<50	<50	50	A741409
Total Cadmium (Cd)	ug/L	-	0.036	A740646	<0.010	<0.010	0.010	A741409
Total Chromium (Cr)	ug/L	-	<1.0	A740646	<1.0	<1.0	1.0	A741409
Total Cobalt (Co)	ug/L	-	1.12	A740646	<0.20	<0.20	0.20	A741409
Total Copper (Cu)	ug/L	-	1.43	A740646	<0.50	<0.50	0.50	A741409
Total Iron (Fe)	ug/L	300	705	A740646	<10	<10	10	A741409
Total Lead (Pb)	ug/L	-	<0.20	A740646	<0.20	<0.20	0.20	A741409
Total Lithium (Li)	ug/L	-	<2.0	A740646	<2.0	<2.0	2.0	A741409
Total Manganese (Mn)	ug/L	-	7400	A740646	<1.0	<1.0	1.0	A741409
Total Molybdenum (Mo)	ug/L	73	1.8	A740646	<1.0	<1.0	1.0	A741409
Total Nickel (Ni)	ug/L	-	3.4	A740646	<1.0	<1.0	1.0	A741409
Total Selenium (Se)	ug/L	1	0.17	A740646	<0.10	<0.10	0.10	A741409
Total Silicon (Si)	ug/L	-	9030	A740646	<100	<100	100	A741409
Total Silver (Ag)	ug/L	0.25	<0.020	A740646	<0.020	<0.020	0.020	A741409
Total Strontium (Sr)	ug/L	-	128	A740646	<1.0	<1.0	1.0	A741409
Total Thallium (Tl)	ug/L	0.8	<0.010	A740646	<0.010	<0.010	0.010	A741409
Total Tin (Sn)	ug/L	-	<5.0	A740646	<5.0	<5.0	5.0	A741409
Total Titanium (Ti)	ug/L	-	<5.0	A740646	<5.0	<5.0	5.0	A741409
Total Uranium (U)	ug/L	15	<0.10	A740646	<0.10	<0.10	0.10	A741409
Total Vanadium (V)	ug/L	-	<5.0	A740646	<5.0	<5.0	5.0	A741409
Total Zinc (Zn)	ug/L	30	11.0	A740646	<5.0	<5.0	5.0	A741409
Total Zirconium (Zr)	ug/L	-	<0.10	A740646	<0.10	<0.10	0.10	A741409
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BDB695		BDB696	BDB697		
Sampling Date			2022/09/28		2022/09/28	2022/09/28		
COC Number			676611-02-01		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	28.5	A735224	<0.050	<0.050	0.050	A735224
Total Magnesium (Mg)	mg/L	-	8.77	A735224	<0.050	<0.050	0.050	A735224
Total Potassium (K)	mg/L	-	6.74	A735224	<0.050	<0.050	0.050	A735224
Total Sodium (Na)	mg/L	-	9.77	A735224	<0.050	<0.050	0.050	A735224
Total Sulphur (S)	mg/L	-	10.3	A735224	<3.0	<3.0	3.0	A735224
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BDB698	BDB699		
Sampling Date			2022/09/28	2022/09/28		
COC Number			676611-02-01	676611-02-01		
	UNITS	Criteria	F01	F02	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	-	120	44.5	0.50	A735223
Elements						
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0019	A739638
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	-	128	531	3.0	A740646
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	0.50	A740646
Total Arsenic (As)	ug/L	5	2.71	1.44	0.10	A740646
Total Barium (Ba)	ug/L	-	22.6	21.9	1.0	A740646
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	0.10	A740646
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	1.0	A740646
Total Boron (B)	ug/L	1500	<50	<50	50	A740646
Total Cadmium (Cd)	ug/L	-	<0.010	0.024	0.010	A740646
Total Chromium (Cr)	ug/L	-	<1.0	1.3	1.0	A740646
Total Cobalt (Co)	ug/L	-	0.25	0.72	0.20	A740646
Total Copper (Cu)	ug/L	-	1.10	2.63	0.50	A740646
Total Iron (Fe)	ug/L	300	1220	2300	10	A740646
Total Lead (Pb)	ug/L	-	0.38	0.82	0.20	A740646
Total Lithium (Li)	ug/L	-	<2.0	<2.0	2.0	A740646
Total Manganese (Mn)	ug/L	-	260	521	1.0	A740646
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.0	A740646
Total Nickel (Ni)	ug/L	-	<1.0	1.1	1.0	A740646
Total Selenium (Se)	ug/L	1	0.11	<0.10	0.10	A740646
Total Silicon (Si)	ug/L	-	8240	4500	100	A740646
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	0.020	A740646
Total Strontium (Sr)	ug/L	-	151	65.4	1.0	A740646
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	0.010	A740646
Total Tin (Sn)	ug/L	-	<5.0	<5.0	5.0	A740646
Total Titanium (Ti)	ug/L	-	5.2	24.2	5.0	A740646
Total Uranium (U)	ug/L	15	0.16	<0.10	0.10	A740646
Total Vanadium (V)	ug/L	-	<5.0	<5.0	5.0	A740646
Total Zinc (Zn)	ug/L	30	<5.0	12.2	5.0	A740646
Total Zirconium (Zr)	ug/L	-	<0.10	0.10	0.10	A740646
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BDB698	BDB699		
Sampling Date			2022/09/28	2022/09/28		
COC Number			676611-02-01	676611-02-01		
	UNITS	Criteria	F01	F02	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	31.9	12.5	0.050	A735224
Total Magnesium (Mg)	mg/L	-	9.89	3.22	0.050	A735224
Total Potassium (K)	mg/L	-	1.92	1.40	0.050	A735224
Total Sodium (Na)	mg/L	-	11.9	7.56	0.050	A735224
Total Sulphur (S)	mg/L	-	5.6	<3.0	3.0	A735224
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



Bureau Veritas Job #: C275602
Report Date: 2022/10/06

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C275602
Report Date: 2022/10/06

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A738037	Nitrate plus Nitrite (N)	2022/09/30			104	80 - 120	<0.0020	mg/L		
A739512	Dissolved Fluoride (F)	2022/10/03	104	80 - 120	106	80 - 120	<0.050	mg/L	3.6	20
A739638	Total Mercury (Hg)	2022/10/03	105	80 - 120	107	80 - 120	<0.0019	ug/L	NC	20
A739808	Dissolved Fluoride (F)	2022/10/03	103	80 - 120	110	80 - 120	<0.050	mg/L	NC	20
A740520	Total Phosphorus (P)	2022/10/03			111	80 - 120	<0.0030	mg/L		
A740646	Total Aluminum (Al)	2022/10/04	100	80 - 120	98	80 - 120	<3.0	ug/L	3.9	20
A740646	Total Antimony (Sb)	2022/10/04	96	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
A740646	Total Arsenic (As)	2022/10/04	99	80 - 120	97	80 - 120	<0.10	ug/L	0.81	20
A740646	Total Barium (Ba)	2022/10/04	93	80 - 120	92	80 - 120	<1.0	ug/L	2.2	20
A740646	Total Beryllium (Be)	2022/10/04	97	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A740646	Total Bismuth (Bi)	2022/10/04	95	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A740646	Total Boron (B)	2022/10/04	106	80 - 120	105	80 - 120	<50	ug/L	NC	20
A740646	Total Cadmium (Cd)	2022/10/04	98	80 - 120	97	80 - 120	<0.010	ug/L	4.5	20
A740646	Total Chromium (Cr)	2022/10/04	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A740646	Total Cobalt (Co)	2022/10/04	95	80 - 120	96	80 - 120	<0.20	ug/L	3.0	20
A740646	Total Copper (Cu)	2022/10/04	95	80 - 120	99	80 - 120	<0.50	ug/L	6.0	20
A740646	Total Iron (Fe)	2022/10/04	NC	80 - 120	102	80 - 120	<10	ug/L	1.5	20
A740646	Total Lead (Pb)	2022/10/04	101	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
A740646	Total Lithium (Li)	2022/10/04	97	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
A740646	Total Manganese (Mn)	2022/10/04	NC	80 - 120	99	80 - 120	<1.0	ug/L	1.6	20
A740646	Total Molybdenum (Mo)	2022/10/04	100	80 - 120	98	80 - 120	<1.0	ug/L	0.67	20
A740646	Total Nickel (Ni)	2022/10/04	97	80 - 120	98	80 - 120	<1.0	ug/L	1.7	20
A740646	Total Selenium (Se)	2022/10/04	107	80 - 120	104	80 - 120	<0.10	ug/L	8.5	20
A740646	Total Silicon (Si)	2022/10/04	NC	80 - 120	112	80 - 120	<100	ug/L	0.45	20
A740646	Total Silver (Ag)	2022/10/04	96	80 - 120	96	80 - 120	<0.020	ug/L	NC	20
A740646	Total Strontium (Sr)	2022/10/04	NC	80 - 120	94	80 - 120	<1.0	ug/L	0.93	20
A740646	Total Thallium (Tl)	2022/10/04	98	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A740646	Total Tin (Sn)	2022/10/04	97	80 - 120	95	80 - 120	<5.0	ug/L	NC	20
A740646	Total Titanium (Ti)	2022/10/04	100	80 - 120	96	80 - 120	<5.0	ug/L	NC	20
A740646	Total Uranium (U)	2022/10/04	103	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A740646	Total Vanadium (V)	2022/10/04	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A740646	Total Zinc (Zn)	2022/10/04	98	80 - 120	102	80 - 120	<5.0	ug/L	2.3	20



Bureau Veritas Job #: C275602
Report Date: 2022/10/06

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A740646	Total Zirconium (Zr)	2022/10/04	97	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A741288	Dissolved Fluoride (F)	2022/10/04	108	80 - 120	100	80 - 120	<0.050	mg/L	3.5	20
A741409	Total Aluminum (Al)	2022/10/04	95	80 - 120	97	80 - 120	<3.0	ug/L	NC	20
A741409	Total Antimony (Sb)	2022/10/04	94	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
A741409	Total Arsenic (As)	2022/10/04	98	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A741409	Total Barium (Ba)	2022/10/04	93	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A741409	Total Beryllium (Be)	2022/10/04	96	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A741409	Total Bismuth (Bi)	2022/10/04	95	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A741409	Total Boron (B)	2022/10/04	102	80 - 120	105	80 - 120	<50	ug/L	NC	20
A741409	Total Cadmium (Cd)	2022/10/04	100	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A741409	Total Chromium (Cr)	2022/10/04	98	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A741409	Total Cobalt (Co)	2022/10/04	95	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A741409	Total Copper (Cu)	2022/10/04	98	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A741409	Total Iron (Fe)	2022/10/04	101	80 - 120	103	80 - 120	<10	ug/L	NC	20
A741409	Total Lead (Pb)	2022/10/04	98	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A741409	Total Lithium (Li)	2022/10/04	93	80 - 120	97	80 - 120	<2.0	ug/L		
A741409	Total Manganese (Mn)	2022/10/04	97	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A741409	Total Molybdenum (Mo)	2022/10/04	100	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A741409	Total Nickel (Ni)	2022/10/04	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A741409	Total Selenium (Se)	2022/10/04	106	80 - 120	108	80 - 120	<0.10	ug/L	NC	20
A741409	Total Silicon (Si)	2022/10/04	105	80 - 120	108	80 - 120	<100	ug/L	NC	20
A741409	Total Silver (Ag)	2022/10/04	99	80 - 120	99	80 - 120	<0.020	ug/L	NC	20
A741409	Total Strontium (Sr)	2022/10/04	94	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A741409	Total Thallium (Tl)	2022/10/04	98	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A741409	Total Tin (Sn)	2022/10/04	98	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
A741409	Total Titanium (Ti)	2022/10/04	97	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A741409	Total Uranium (U)	2022/10/04	98	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A741409	Total Vanadium (V)	2022/10/04	97	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A741409	Total Zinc (Zn)	2022/10/04	107	80 - 120	109	80 - 120	<5.0	ug/L	NC	20
A741409	Total Zirconium (Zr)	2022/10/04	95	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A742089	Total Ammonia (N)	2022/10/04	120	80 - 120	111	80 - 120	<0.015	mg/L	1.4	20
A742864	pH	2022/10/03			102	97 - 103				

BUREAU
VERITAS

Bureau Veritas Job #: C275602

Report Date: 2022/10/06

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A742923	pH	2022/10/04			101	97 - 103			0	N/A
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration) NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).										



Bureau Veritas Job #: C275602
Report Date: 2022/10/06

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		Report Information		Project Information		Laboratory Use Only									
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bureau Veritas Job #	Bottle Order #								
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #											
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality										
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name		Chain Of Custody Record	Project Manager								
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #			Customer Solutions								
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:									
☐ CSIR ☐ CCME ☐ BC Water Quality ☐ Other _____				Metals Field Filtered ? (Y/N) CSIR/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate+Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus		Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (Send Job for #)									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y/N)	CSIR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	FOF (41C84)	SEPT 28 2022				X	X	X	X	X	X	X	X		
2	DUPLICATE					X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)					X	X	X	X	X	X	X	X		
5	FO1					X	X	X	X	X	X	X	X		
6	FO2														
7															
8															
9															
10															
RELINQUISHED BY: (Signature/Print)		Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYMMDD)	Time	# Jars used and not submitted		Lab Use Only					
Max Madison Adams		27/09/28	11:50	[Signature]		27/09/19	0800			Time Sampled	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?			
										☐	14.13.12	17.17.17	☐ Yes ☐ No		
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 679025-01-01, 39565, 39566, 39567, 39568, 39569,
3C26D

Report Date: 2022/11/03
Report #: R3258856
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C285092

Received: 2022/10/27, 17:25

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	7	N/A	2022/10/31	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	7	N/A	2022/11/02	BBY WI-00033	Auto Calc
Mercury (Total) by CV	7	2022/10/31	2022/10/31	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	2022/10/28	2022/11/02	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	7	2022/11/01	2022/11/02	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	7	N/A	2022/10/28	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	7	N/A	2022/11/01	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	7	N/A	2022/11/01	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	7	N/A	2022/11/02	BBY WI-00033	Auto Calc
pH @25°C (2)	7	N/A	2022/10/28	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	7	2022/11/01	2022/11/01	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 679025-01-01, 39565, 39566, 39567, 39568, 39569,
3C26D

Report Date: 2022/11/03

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Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C285092

Received: 2022/10/27, 17:25

dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

BUREAU
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Bureau Veritas Job #: C285092

Report Date: 2022/11/03

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BFS348	BFS349	BFS350	BFS351	BFS352	BFS353		
Sampling Date			2022/10/27	2022/10/27	2022/10/27	2022/10/27	2022/10/27	2022/10/27		
COC Number			39565	39566	39567	39568	39569	39569		
	UNITS	Criteria	HO1 (39565)	HO2 (39566)	HO3 (39567)	BO1 (39568)	BO2 (39569)	DUPLICATE BO2	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	1.12	1.48	1.44	0.529	1.52	1.55	0.0020	A777601

Misc. Inorganics

pH	pH	6.5:9.0	6.64	7.25	6.88	6.33	7.20	7.28	N/A	A780147

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A779569

Nutrients

Total Ammonia (N)	mg/L	-	0.061	0.041	0.048	0.054	0.065	0.061	0.015	A778094
Total Phosphorus (P)	mg/L	-	0.021	0.014	0.023	0.037	0.015	0.015	0.0030	A782015
Nitrate plus Nitrite (N)	mg/L	-	1.14	1.49	1.45	0.535	1.53	1.56	0.0020	A782995
Nitrite (N)	mg/L	0.06	0.0162	0.0086	0.0167	0.0057	0.0091	0.0095	0.0020	A782997

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID			BFS354		
Sampling Date			2022/10/27		
COC Number			3C26D		
	UNITS	Criteria	F-04	RDL	QC Batch
Calculated Parameters					
Nitrate (N)	mg/L	-	0.433	0.0020	A777601
Misc. Inorganics					
pH	pH	6.5:9.0	6.72	N/A	A780147
Anions					
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A779569
Nutrients					
Total Ammonia (N)	mg/L	-	<0.015	0.015	A778094
Total Phosphorus (P)	mg/L	-	0.052	0.0030	A782015
Nitrate plus Nitrite (N)	mg/L	-	0.437	0.0020	A782995
Nitrite (N)	mg/L	0.06	0.0037	0.0020	A782997
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					
N/A = Not Applicable					

BUREAU
VERITAS

Bureau Veritas Job #: C285092

Report Date: 2022/11/03

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BFS348	BFS349	BFS350	BFS351	BFS352											
Sampling Date			2022/10/27	2022/10/27	2022/10/27	2022/10/27	2022/10/27											
COC Number			39565	39566	39567	39568	39569											
	UNITS	Criteria	HO1 (39565)	HO2 (39566)	HO3 (39567)	BO1 (39568)	BO2 (39569)	RDL	QC Batch									
Calculated Parameters																		
Total Hardness (CaCO3)	mg/L	-	43.1	112	77.8	80.4	104	0.50	A776867									
Elements																		
Total Mercury (Hg)	ug/L	0.026	0.0343	<0.0019	0.0104	<0.0019	<0.0019 (1)	0.0019	A779755									
Total Metals by ICPMS																		
Total Aluminum (Al)	ug/L	-	48.8	73.6	46.4	133	81.3	3.0	A781272									
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	2.71	<0.50	0.50	A781272									
Total Arsenic (As)	ug/L	5	0.51	0.74	0.64	0.60	0.61	0.10	A781272									
Total Barium (Ba)	ug/L	-	9.5	19.8	14.3	60.9	19.2	1.0	A781272									
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A781272									
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A781272									
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	50	A781272									
Total Cadmium (Cd)	ug/L	-	0.014	<0.010	0.025	0.422	0.013	0.010	A781272									
Total Chromium (Cr)	ug/L	-	1.4	<1.0	<1.0	1.1	<1.0	1.0	A781272									
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	2.35	<0.20	0.20	A781272									
Total Copper (Cu)	ug/L	-	8.53	0.87	5.16	7.14	0.90	0.50	A781272									
Total Iron (Fe)	ug/L	300	177	357	159	259	459	10	A781272									
Total Lead (Pb)	ug/L	-	0.21	<0.20	0.39	2.13	<0.20	0.20	A781272									
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A781272									
Total Manganese (Mn)	ug/L	-	7.3	109	17.2	229	150	1.0	A781272									
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	15.4	<1.0	<1.0	1.0	A781272									
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	5.6	<1.0	1.0	A781272									
Total Selenium (Se)	ug/L	1	<0.10	0.18	0.15	<0.10	0.20	0.10	A781272									
Total Silicon (Si)	ug/L	-	4210	10900	6850	5710	10100	100	A781272									
Total Silver (Ag)	ug/L	0.25	0.023	<0.020	<0.020	<0.020	<0.020	0.020	A781272									
Total Strontium (Sr)	ug/L	-	56.5	157	108	214	151	1.0	A781272									
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A781272									
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A781272									
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A781272									
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A781272									
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A781272									
Total Zinc (Zn)	ug/L	30	21.9	<5.0	30.6	249	5.4	5.0	A781272									
Total Zirconium (Zr)	ug/L	-	0.24	<0.10	<0.10	0.14	<0.10	0.10	A781272									
Total Calcium (Ca)	mg/L	-	12.4	31.5	22.8	25.1	29.1	0.050	A776870									
No Fill	No Exceedance																	
Grey										Exceeds 1 criteria policy/level								
Black																		
RDL = Reportable Detection Limit																		
(1) Sample container was broken in lab. Aliquotted sample from BSF352-02.																		



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BFS348	BFS349	BFS350	BFS351	BFS352		
Sampling Date			2022/10/27	2022/10/27	2022/10/27	2022/10/27	2022/10/27		
COC Number			39565	39566	39567	39568	39569		
	UNITS	Criteria	HO1 (39565)	HO2 (39566)	HO3 (39567)	BO1 (39568)	BO2 (39569)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	2.95	8.20	5.06	4.32	7.67	0.050	A776870
Total Potassium (K)	mg/L	-	1.09	1.83	1.83	2.21	1.70	0.050	A776870
Total Sodium (Na)	mg/L	-	8.84	10.7	13.2	21.5	10.5	0.050	A776870
Total Sulphur (S)	mg/L	-	<3.0	6.4	4.7	22.8	5.5	3.0	A776870
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BFS353		BFS354		
Sampling Date			2022/10/27		2022/10/27		
COC Number			39569		3C26D		
	UNITS	Criteria	DUPLICATE BO2	QC Batch	F-04	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	-	109	A776867	77.5	0.50	A776867
Elements							
Total Mercury (Hg)	ug/L	0.026	<0.0019	A779755	<0.0019	0.0019	A779755
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	-	65.6	A781272	238	3.0	A781283
Total Antimony (Sb)	ug/L	-	<0.50	A781272	<0.50	0.50	A781283
Total Arsenic (As)	ug/L	5	0.65	A781272	0.74	0.10	A781283
Total Barium (Ba)	ug/L	-	20.0	A781272	28.0	1.0	A781283
Total Beryllium (Be)	ug/L	-	<0.10	A781272	<0.10	0.10	A781283
Total Bismuth (Bi)	ug/L	-	<1.0	A781272	<1.0	1.0	A781283
Total Boron (B)	ug/L	1500	<50	A781272	<50	50	A781283
Total Cadmium (Cd)	ug/L	-	0.011	A781272	0.021	0.010	A781283
Total Chromium (Cr)	ug/L	-	<1.0	A781272	<1.0	1.0	A781283
Total Cobalt (Co)	ug/L	-	<0.20	A781272	0.26	0.20	A781283
Total Copper (Cu)	ug/L	-	0.89	A781272	2.87	0.50	A781283
Total Iron (Fe)	ug/L	300	451	A781272	834	10	A781283
Total Lead (Pb)	ug/L	-	<0.20	A781272	0.24	0.20	A781283
Total Lithium (Li)	ug/L	-	<2.0	A781272	<2.0	2.0	A781283
Total Manganese (Mn)	ug/L	-	155	A781272	105	1.0	A781283
Total Molybdenum (Mo)	ug/L	73	<1.0	A781272	<1.0	1.0	A781283
Total Nickel (Ni)	ug/L	-	<1.0	A781272	1.6	1.0	A781283
Total Selenium (Se)	ug/L	1	0.18	A781272	0.10	0.10	A781283
Total Silicon (Si)	ug/L	-	10600	A781272	4520	100	A781283
Total Silver (Ag)	ug/L	0.25	<0.020	A781272	<0.020	0.020	A781283
Total Strontium (Sr)	ug/L	-	155	A781272	122	1.0	A781283
Total Thallium (Tl)	ug/L	0.8	<0.010	A781272	<0.010	0.010	A781283
Total Tin (Sn)	ug/L	-	<5.0	A781272	<5.0	5.0	A781283
Total Titanium (Ti)	ug/L	-	<5.0	A781272	9.8	5.0	A781283
Total Uranium (U)	ug/L	15	<0.10	A781272	<0.10	0.10	A781283
Total Vanadium (V)	ug/L	-	<5.0	A781272	<5.0	5.0	A781283
Total Zinc (Zn)	ug/L	30	5.5	A781272	16.2	5.0	A781283
Total Zirconium (Zr)	ug/L	-	<0.10	A781272	0.10	0.10	A781283
Total Calcium (Ca)	mg/L	-	30.6	A776870	22.1	0.050	A776870
Total Magnesium (Mg)	mg/L	-	8.01	A776870	5.46	0.050	A776870
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BFS353		BFS354		
Sampling Date			2022/10/27		2022/10/27		
COC Number			39569		3C26D		
	UNITS	Criteria	DUPLICATE BO2	QC Batch	F-04	RDL	QC Batch
Total Potassium (K)	mg/L	-	1.76	A776870	5.06	0.050	A776870
Total Sodium (Na)	mg/L	-	11.1	A776870	12.0	0.050	A776870
Total Sulphur (S)	mg/L	-	5.9	A776870	16.7	3.0	A776870
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels						
Grey							
Black							
RDL = Reportable Detection Limit							



GENERAL COMMENTS

Sample BFS348 [HO1 (39565)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS349 [HO2 (39566)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS350 [HO3 (39567)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS351 [BO1 (39568)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS352 [BO2 (39569)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS353 [DUPLICATE BO2] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BFS354 [F-04] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C285092
Report Date: 2022/11/03

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A778094	Total Ammonia (N)	2022/10/28	94	80 - 120	103	80 - 120	<0.015	mg/L	1.2	20
A779569	Dissolved Fluoride (F)	2022/10/31	107	80 - 120	98	80 - 120	<0.050	mg/L	NC	20
A779755	Total Mercury (Hg)	2022/10/31	94	80 - 120	106	80 - 120	<0.0019	ug/L	5.7	20
A780147	pH	2022/10/28			101	97 - 103	5.19	pH	0.14	N/A
A781272	Total Aluminum (Al)	2022/11/02	103	80 - 120	102	80 - 120	<3.0	ug/L	0.71	20
A781272	Total Antimony (Sb)	2022/11/02	103	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
A781272	Total Arsenic (As)	2022/11/02	106	80 - 120	104	80 - 120	<0.10	ug/L	6.3	20
A781272	Total Barium (Ba)	2022/11/02	104	80 - 120	102	80 - 120	<1.0	ug/L	0.60	20
A781272	Total Beryllium (Be)	2022/11/02	105	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A781272	Total Bismuth (Bi)	2022/11/02	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A781272	Total Boron (B)	2022/11/02	109	80 - 120	105	80 - 120	<50	ug/L	NC	20
A781272	Total Cadmium (Cd)	2022/11/02	102	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A781272	Total Chromium (Cr)	2022/11/02	96	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A781272	Total Cobalt (Co)	2022/11/02	96	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
A781272	Total Copper (Cu)	2022/11/02	97	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
A781272	Total Iron (Fe)	2022/11/02	108	80 - 120	104	80 - 120	<10	ug/L	3.0	20
A781272	Total Lead (Pb)	2022/11/02	101	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A781272	Total Lithium (Li)	2022/11/02	101	80 - 120	98	80 - 120	<2.0	ug/L	NC	20
A781272	Total Manganese (Mn)	2022/11/02	102	80 - 120	102	80 - 120	<1.0	ug/L	0.56	20
A781272	Total Molybdenum (Mo)	2022/11/02	107	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A781272	Total Nickel (Ni)	2022/11/02	100	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A781272	Total Selenium (Se)	2022/11/02	104	80 - 120	101	80 - 120	<0.10	ug/L	6.8	20
A781272	Total Silicon (Si)	2022/11/02	115	80 - 120	111	80 - 120	<100	ug/L	0.24	20
A781272	Total Silver (Ag)	2022/11/02	102	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
A781272	Total Strontium (Sr)	2022/11/02	NC	80 - 120	97	80 - 120	<1.0	ug/L	0.63	20
A781272	Total Thallium (Tl)	2022/11/02	105	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A781272	Total Tin (Sn)	2022/11/02	102	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A781272	Total Titanium (Ti)	2022/11/02	104	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A781272	Total Uranium (U)	2022/11/02	106	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A781272	Total Vanadium (V)	2022/11/02	103	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A781272	Total Zinc (Zn)	2022/11/02	100	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A781272	Total Zirconium (Zr)	2022/11/02	105	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A781283	Total Aluminum (Al)	2022/11/02	99	80 - 120	105	80 - 120	<3.0	ug/L	1.5	20



Bureau Veritas Job #: C285092
Report Date: 2022/11/03

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A781283	Total Antimony (Sb)	2022/11/02	102	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
A781283	Total Arsenic (As)	2022/11/02	108	80 - 120	105	80 - 120	<0.10	ug/L	8.7	20
A781283	Total Barium (Ba)	2022/11/02	102	80 - 120	103	80 - 120	<1.0	ug/L	1.2	20
A781283	Total Beryllium (Be)	2022/11/02	98	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A781283	Total Bismuth (Bi)	2022/11/02	94	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A781283	Total Boron (B)	2022/11/02	104	80 - 120	107	80 - 120	<50	ug/L	NC	20
A781283	Total Cadmium (Cd)	2022/11/02	97	80 - 120	101	80 - 120	<0.010	ug/L	4.0	20
A781283	Total Chromium (Cr)	2022/11/02	94	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A781283	Total Cobalt (Co)	2022/11/02	99	80 - 120	99	80 - 120	<0.20	ug/L	3.0	20
A781283	Total Copper (Cu)	2022/11/02	90	80 - 120	100	80 - 120	<0.50	ug/L	0.48	20
A781283	Total Iron (Fe)	2022/11/02	104	80 - 120	104	80 - 120	<10	ug/L	0.24	20
A781283	Total Lead (Pb)	2022/11/02	99	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
A781283	Total Lithium (Li)	2022/11/02	98	80 - 120	99	80 - 120	<2.0	ug/L	2.7	20
A781283	Total Manganese (Mn)	2022/11/02	NC	80 - 120	104	80 - 120	<1.0	ug/L	1.2	20
A781283	Total Molybdenum (Mo)	2022/11/02	109	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A781283	Total Nickel (Ni)	2022/11/02	NC	80 - 120	102	80 - 120	<1.0	ug/L	2.5	20
A781283	Total Selenium (Se)	2022/11/02	41 (1)	80 - 120	101	80 - 120	<0.10	ug/L	2.4	20
A781283	Total Silicon (Si)	2022/11/02	NC	80 - 120	109	80 - 120	<100	ug/L	0.85	20
A781283	Total Silver (Ag)	2022/11/02	99	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
A781283	Total Strontium (Sr)	2022/11/02	NC	80 - 120	98	80 - 120	<1.0	ug/L	1.5	20
A781283	Total Thallium (Tl)	2022/11/02	101	80 - 120	102	80 - 120	<0.010	ug/L	6.5	20
A781283	Total Tin (Sn)	2022/11/02	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A781283	Total Titanium (Ti)	2022/11/02	103	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A781283	Total Uranium (U)	2022/11/02	104	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A781283	Total Vanadium (V)	2022/11/02	103	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A781283	Total Zinc (Zn)	2022/11/02	NC	80 - 120	104	80 - 120	<5.0	ug/L	1.7	20
A781283	Total Zirconium (Zr)	2022/11/02	106	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A782015	Total Phosphorus (P)	2022/11/01			93	80 - 120	<0.0030	mg/L		
A782995	Nitrate plus Nitrite (N)	2022/11/01			107	80 - 120	<0.0020	mg/L		



BUREAU
VERITAS

Bureau Veritas Job #: C285092

Report Date: 2022/11/03

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A782997	Nitrite (N)	2022/11/01			105	80 - 120	<0.0020	mg/L		
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration) NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL). (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.										



Bureau Veritas Job #: C285092
Report Date: 2022/11/03

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "M. Florescu", written over a horizontal line.

Maria Magdalena Florescu, Ph.D., P.Chem., QP, Inorganics Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas
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Page 1 of 2

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled by	
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	
☐ CSR ☐ CCWC ☐ BC Water Quality ☐ Other _____				Turnaround Time (TAT) Required: Please provide advance notice for rush projects.	
Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details.				Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)	
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS				# of Bottles _____ Comments _____	
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix	
1	H01 (39565)	OCT 27 2022			
2	H02 (39566)				
3	H03 (39567)				
4	B01 (39568)				
5	B02 (39569)				
6	DUPLICATE B02				
7	B04 (39566)				
8	B06 (39567)				
9	B01 (39568)				
10	B02 (39569)				
* RELINQUISHED BY: (Signature/Print) [Signature] Madysen Adams		Date: (YY/MM/DD) 22/10/27		Time: 17:22	
RECEIVED BY: (Signature/Print) [Signature] KYRA VASIANO		Date: (YY/MM/DD) 22/10/27		Time: 17:25	
# (are used and not submitted)		Lab Use Only		Temperature (°C) on Receipt: 7.87	
Time Sensitive ☐		Curbly Seal Intact on Receipt? ☐ Yes ☒ No		Write Bureau Veritas Yellow Client	
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.					
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.					

Bureau Veritas Canada (2019) Inc.

Coding media: Yes



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 679025-02-01, 41C64, 3AF04, 3AF05, 3956A, 3956D,
3956B, 3956C

Report Date: 2022/11/09
Report #: R3261377
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C286496

Received: 2022/11/02, 08:00

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	8	N/A	2022/11/07	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	8	N/A	2022/11/07	BBY WI-00033	Auto Calc
Mercury (Total) by CV	8	2022/11/04	2022/11/04	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	8	2022/11/03	2022/11/07	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	8	2022/11/05	2022/11/05	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Nitrogen (Total)	8	N/A	2022/11/08	BBY6SOP-00016	SM 23 4500-N C m
Ammonia-N (Total)	8	N/A	2022/11/04	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	8	N/A	2022/11/04	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	8	N/A	2022/11/04	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	8	N/A	2022/11/05	BBY WI-00033	Auto Calc
pH @25°C (2)	8	N/A	2022/11/05	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	8	2022/11/04	2022/11/04	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 679025-02-01, 41C64, 3AF04, 3AF05, 3956A, 3956D,
3956B, 3956C

Report Date: 2022/11/09

Report #: R3261377

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C286496

Received: 2022/11/02, 08:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BGB940	BGB941	BGB942	BGB943	BGB944											
Sampling Date			2022/11/01	2022/11/01	2022/11/01	2022/11/01	2022/11/01											
COC Number			41C64	3AF04	3AF05	3956A	3956D											
	UNITS	Criteria	FOF (41C64)	TRIPBLANK (3AF04)	FIELDBLANK (3AF05)	W01 (3956A)	D01 (3956D)	RDL	QC Batch									
Calculated Parameters																		
Nitrate (N)	mg/L	-	0.620	<0.0020	<0.0020	0.348	1.33	0.0020	A784884									
Misc. Inorganics																		
pH	pH	6.5:9.0	6.87	5.70	5.31	6.80	7.46	N/A	A788824									
Anions																		
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A788665									
Nutrients																		
Total Ammonia (N)	mg/L	-	0.041	<0.015	<0.015	0.12	<0.015	0.015	A786702									
Total Phosphorus (P)	mg/L	-	0.026	<0.0030	<0.0030	0.028	0.023	0.0030	A786388									
Nitrate plus Nitrite (N)	mg/L	-	0.630	<0.0020	<0.0020	0.354	1.34	0.0020	A787219									
Nitrite (N)	mg/L	0.06	0.0097	<0.0020	<0.0020	0.0062	0.0027	0.0020	A787220									
Total Nitrogen (N)	mg/L	-	1.04	0.039	0.032	0.772	1.68	0.020	A789351									
No Fill	No Exceedance																	
Grey										Exceeds 1 criteria policy/level								
Black																		
RDL = Reportable Detection Limit																		
N/A = Not Applicable																		

Bureau Veritas ID			BGB945			BGB946			BGB947													
Sampling Date			2022/11/01			2022/11/01			2022/11/01													
COC Number			3956D			3956B			3956C													
	UNITS	Criteria	D02 (3956D)	RDL	QC Batch	F01 (3956B)	RDL	QC Batch	F02 (3956C)	RDL	QC Batch											
Calculated Parameters																						
Nitrate (N)	mg/L	-	0.838	0.0020	A784884	1.87	0.0020	A784884	0.559	0.0020	A784884											
Misc. Inorganics																						
pH	pH	6.5:9.0	7.72	N/A	A788824	7.30	N/A	A788824	6.75	N/A	A788850											
Anions																						
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	A788665	<0.050	0.050	A788656	<0.050	0.050	A788656											
Nutrients																						
Total Ammonia (N)	mg/L	-	0.020	0.015	A786702	0.041	0.015	A786702	<0.015	0.015	A786702											
Total Phosphorus (P)	mg/L	-	0.019	0.0030	A786388	0.027	0.0030	A786388	0.015	0.0030	A786388											
Nitrate plus Nitrite (N)	mg/L	-	0.841	0.0020	A787219	1.89	0.0020	A787219	0.563	0.0020	A787219											
Nitrite (N)	mg/L	0.06	0.0029	0.0020	A787220	0.0139	0.0020	A787220	0.0039	0.0020	A787220											
Total Nitrogen (N)	mg/L	-	1.08	0.020	A789351	2.23	0.10	A789354	0.882	0.020	A789354											
No Fill	No Exceedance																					
Grey												Exceeds 1 criteria policy/level										
Black																						
RDL = Reportable Detection Limit																						
N/A = Not Applicable																						



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BGB940		BGB941	BGB942										
Sampling Date			2022/11/01		2022/11/01	2022/11/01										
COC Number			41C64		3AF04	3AF05										
	UNITS	Criteria	FOF (41C64)	QC Batch	TRIPBLANK (3AF04)	FIELDBLANK (3AF05)	RDL	QC Batch								
Calculated Parameters																
Total Hardness (CaCO3)	mg/L	-	43.6	A784444	<0.50	<0.50	0.50	A784444								
Elements																
Total Mercury (Hg)	ug/L	0.026	<0.0019	A786535	<0.0019 (1)	<0.0019	0.0019	A786535								
Total Metals by ICPMS																
Total Aluminum (Al)	ug/L	-	75.0	A787251	<3.0	<3.0	3.0	A787759								
Total Antimony (Sb)	ug/L	-	<0.50	A787251	<0.50	<0.50	0.50	A787759								
Total Arsenic (As)	ug/L	5	1.16	A787251	<0.10	<0.10	0.10	A787759								
Total Barium (Ba)	ug/L	-	15.0	A787251	<1.0	<1.0	1.0	A787759								
Total Beryllium (Be)	ug/L	-	<0.10	A787251	<0.10	<0.10	0.10	A787759								
Total Bismuth (Bi)	ug/L	-	<1.0	A787251	<1.0	<1.0	1.0	A787759								
Total Boron (B)	ug/L	1500	<50	A787251	<50	<50	50	A787759								
Total Cadmium (Cd)	ug/L	-	<0.010	A787251	<0.010	<0.010	0.010	A787759								
Total Chromium (Cr)	ug/L	-	<1.0	A787251	<1.0	<1.0	1.0	A787759								
Total Cobalt (Co)	ug/L	-	<0.20	A787251	<0.20	<0.20	0.20	A787759								
Total Copper (Cu)	ug/L	-	2.33	A787251	<0.50	<0.50	0.50	A787759								
Total Iron (Fe)	ug/L	300	323	A787251	<10	<10	10	A787759								
Total Lead (Pb)	ug/L	-	<0.20	A787251	<0.20	<0.20	0.20	A787759								
Total Lithium (Li)	ug/L	-	<2.0	A787251	<2.0	<2.0	2.0	A787759								
Total Manganese (Mn)	ug/L	-	25.4	A787251	<1.0	<1.0	1.0	A787759								
Total Molybdenum (Mo)	ug/L	73	<1.0	A787251	<1.0	<1.0	1.0	A787759								
Total Nickel (Ni)	ug/L	-	<1.0	A787251	<1.0	<1.0	1.0	A787759								
Total Selenium (Se)	ug/L	1	<0.10	A787251	<0.10	<0.10	0.10	A787759								
Total Silicon (Si)	ug/L	-	2730	A787251	<100	<100	100	A787759								
Total Silver (Ag)	ug/L	0.25	<0.020	A787251	<0.020	<0.020	0.020	A787759								
Total Strontium (Sr)	ug/L	-	67.1	A787251	<1.0	<1.0	1.0	A787759								
Total Thallium (Tl)	ug/L	0.8	<0.010	A787251	<0.010	<0.010	0.010	A787759								
Total Tin (Sn)	ug/L	-	<5.0	A787251	<5.0	<5.0	5.0	A787759								
Total Titanium (Ti)	ug/L	-	<5.0	A787251	<5.0	<5.0	5.0	A787759								
Total Uranium (U)	ug/L	15	<0.10	A787251	<0.10	<0.10	0.10	A787759								
Total Vanadium (V)	ug/L	-	<5.0	A787251	<5.0	<5.0	5.0	A787759								
Total Zinc (Zn)	ug/L	30	9.4	A787251	<5.0	<5.0	5.0	A787759								
Total Zirconium (Zr)	ug/L	-	<0.10	A787251	<0.10	<0.10	0.10	A787759								
No Fill	No Exceedance															
Grey									Exceeds 1 criteria policy/level							
Black																
RDL = Reportable Detection Limit																
(1) Matrix spike exceeds acceptance limits due to matrix interference.																



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BGB940		BGB941	BGB942		
Sampling Date			2022/11/01		2022/11/01	2022/11/01		
COC Number			41C64		3AF04	3AF05		
	UNITS	Criteria	FOF (41C64)	QC Batch	TRIPBLANK (3AF04)	FIELDBLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	12.8	A784448	<0.050	<0.050	0.050	A784448
Total Magnesium (Mg)	mg/L	-	2.84	A784448	<0.050	<0.050	0.050	A784448
Total Potassium (K)	mg/L	-	1.73	A784448	<0.050	<0.050	0.050	A784448
Total Sodium (Na)	mg/L	-	6.25	A784448	<0.050	<0.050	0.050	A784448
Total Sulphur (S)	mg/L	-	4.2	A784448	<3.0	<3.0	3.0	A784448
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels							
Grey								
Black								
RDL = Reportable Detection Limit								

BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BGB943	BGB944	BGB945	BGB946	BGB947		
Sampling Date			2022/11/01	2022/11/01	2022/11/01	2022/11/01	2022/11/01		
COC Number			3956A	3956D	3956D	3956B	3956C		
	UNITS	Criteria	W01 (3956A)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	RDL	QC Batch
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	37.2	98.2	114	87.5	40.3	0.50	A784444
Elements									
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	A786535
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	-	61.0	95.3	51.1	78.9	47.5	3.0	A787251
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A787251
Total Arsenic (As)	ug/L	5	0.91	1.20	1.88	1.20	0.46	0.10	A787251
Total Barium (Ba)	ug/L	-	17.6	19.6	13.9	19.9	20.8	1.0	A787251
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A787251
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A787251
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	50	A787251
Total Cadmium (Cd)	ug/L	-	<0.010	<0.010	<0.010	<0.010	0.010	0.010	A787251
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A787251
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	A787251
Total Copper (Cu)	ug/L	-	0.90	1.33	<0.50	2.57	1.99	0.50	A787251
Total Iron (Fe)	ug/L	300	683	441	547	287	202	10	A787251
Total Lead (Pb)	ug/L	-	0.31	<0.20	<0.20	<0.20	<0.20	0.20	A787251
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A787251
Total Manganese (Mn)	ug/L	-	45.2	75.2	173	72.3	22.8	1.0	A787251
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A787251
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A787251
Total Selenium (Se)	ug/L	1	<0.10	0.24	0.24	0.18	<0.10	0.10	A787251
Total Silicon (Si)	ug/L	-	2490	9150	11800	4510	2360	100	A787251
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A787251
Total Strontium (Sr)	ug/L	-	58.6	147	162	135	60.7	1.0	A787251
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A787251
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A787251
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A787251
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A787251
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A787251
Total Zinc (Zn)	ug/L	30	5.3	<5.0	<5.0	5.2	17.8	5.0	A787251
Total Zirconium (Zr)	ug/L	-	0.11	<0.10	<0.10	<0.10	<0.10	0.10	A787251
Total Calcium (Ca)	mg/L	-	10.6	26.9	30.3	25.6	12.2	0.050	A784448
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



**BUREAU
VERITAS**

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BGB943	BGB944	BGB945	BGB946	BGB947		
Sampling Date			2022/11/01	2022/11/01	2022/11/01	2022/11/01	2022/11/01		
COC Number			3956A	3956D	3956D	3956B	3956C		
	UNITS	Criteria	W01 (3956A)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	2.58	7.57	9.39	5.72	2.40	0.050	A784448
Total Potassium (K)	mg/L	-	0.909	2.23	1.73	2.05	1.55	0.050	A784448
Total Sodium (Na)	mg/L	-	28.8	11.3	9.43	10.1	6.05	0.050	A784448
Total Sulphur (S)	mg/L	-	<3.0	8.8	4.4	11.5	6.2	3.0	A784448
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A786388	Total Phosphorus (P)	2022/11/04	90	N/A	104	80 - 120	<0.0030	mg/L	5.6	20
A786535	Total Mercury (Hg)	2022/11/04	129 (1)	80 - 120	109	80 - 120	<0.0019	ug/L	NC	20
A786702	Total Ammonia (N)	2022/11/04	99	80 - 120	103	80 - 120	<0.015	mg/L	NC	20
A787219	Nitrate plus Nitrite (N)	2022/11/04	NC	80 - 120	104	80 - 120	<0.0020	mg/L	0	25
A787220	Nitrite (N)	2022/11/04	102	80 - 120	97	80 - 120	<0.0020	mg/L	5.0	25
A787251	Total Aluminum (Al)	2022/11/05	109	80 - 120	101	80 - 120	<3.0	ug/L	6.0	20
A787251	Total Antimony (Sb)	2022/11/05	107	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
A787251	Total Arsenic (As)	2022/11/05	113	80 - 120	107	80 - 120	<0.10	ug/L	3.8	20
A787251	Total Barium (Ba)	2022/11/05	107	80 - 120	102	80 - 120	<1.0	ug/L	1.9	20
A787251	Total Beryllium (Be)	2022/11/05	99	80 - 120	96	80 - 120	<0.10	ug/L	NC	20
A787251	Total Bismuth (Bi)	2022/11/05	99	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A787251	Total Boron (B)	2022/11/05	100	80 - 120	95	80 - 120	<50	ug/L	NC	20
A787251	Total Cadmium (Cd)	2022/11/05	107	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A787251	Total Chromium (Cr)	2022/11/05	103	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A787251	Total Cobalt (Co)	2022/11/05	105	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
A787251	Total Copper (Cu)	2022/11/05	102	80 - 120	96	80 - 120	<0.50	ug/L	0.60	20
A787251	Total Iron (Fe)	2022/11/05	112	80 - 120	101	80 - 120	<10	ug/L	2.5	20
A787251	Total Lead (Pb)	2022/11/05	104	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A787251	Total Lithium (Li)	2022/11/05	95	80 - 120	90	80 - 120	<2.0	ug/L	NC	20
A787251	Total Manganese (Mn)	2022/11/05	110	80 - 120	98	80 - 120	<1.0	ug/L	3.3	20
A787251	Total Molybdenum (Mo)	2022/11/05	110	80 - 120	105	80 - 120	<1.0	ug/L	NC	20
A787251	Total Nickel (Ni)	2022/11/05	102	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A787251	Total Selenium (Se)	2022/11/05	109	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A787251	Total Silicon (Si)	2022/11/05	114	80 - 120	104	80 - 120	<100	ug/L	3.2	20
A787251	Total Silver (Ag)	2022/11/05	105	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
A787251	Total Strontium (Sr)	2022/11/05	NC	80 - 120	99	80 - 120	<1.0	ug/L	1.8	20
A787251	Total Thallium (Tl)	2022/11/05	102	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A787251	Total Tin (Sn)	2022/11/05	105	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A787251	Total Titanium (Ti)	2022/11/05	108	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A787251	Total Uranium (U)	2022/11/05	105	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A787251	Total Vanadium (V)	2022/11/05	103	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A787251	Total Zinc (Zn)	2022/11/05	106	80 - 120	105	80 - 120	<5.0	ug/L	1.5	20

BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A787251	Total Zirconium (Zr)	2022/11/05	105	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A787759	Total Aluminum (Al)	2022/11/05	101	80 - 120	101	80 - 120	<3.0	ug/L		
A787759	Total Antimony (Sb)	2022/11/05	104	80 - 120	101	80 - 120	<0.50	ug/L		
A787759	Total Arsenic (As)	2022/11/05	108	80 - 120	104	80 - 120	<0.10	ug/L		
A787759	Total Barium (Ba)	2022/11/05	101	80 - 120	101	80 - 120	<1.0	ug/L		
A787759	Total Beryllium (Be)	2022/11/05	101	80 - 120	98	80 - 120	<0.10	ug/L		
A787759	Total Bismuth (Bi)	2022/11/05	98	80 - 120	97	80 - 120	<1.0	ug/L		
A787759	Total Boron (B)	2022/11/05	104	80 - 120	103	80 - 120	<50	ug/L		
A787759	Total Cadmium (Cd)	2022/11/05	104	80 - 120	100	80 - 120	<0.010	ug/L		
A787759	Total Chromium (Cr)	2022/11/05	97	80 - 120	98	80 - 120	<1.0	ug/L		
A787759	Total Cobalt (Co)	2022/11/05	101	80 - 120	100	80 - 120	<0.20	ug/L		
A787759	Total Copper (Cu)	2022/11/05	95	80 - 120	96	80 - 120	<0.50	ug/L		
A787759	Total Iron (Fe)	2022/11/05	105	80 - 120	103	80 - 120	<10	ug/L		
A787759	Total Lead (Pb)	2022/11/05	100	80 - 120	97	80 - 120	<0.20	ug/L		
A787759	Total Lithium (Li)	2022/11/05	98	80 - 120	95	80 - 120	<2.0	ug/L		
A787759	Total Manganese (Mn)	2022/11/05	96	80 - 120	97	80 - 120	<1.0	ug/L		
A787759	Total Molybdenum (Mo)	2022/11/05	105	80 - 120	105	80 - 120	<1.0	ug/L		
A787759	Total Nickel (Ni)	2022/11/05	99	80 - 120	100	80 - 120	<1.0	ug/L		
A787759	Total Selenium (Se)	2022/11/05	105	80 - 120	101	80 - 120	<0.10	ug/L		
A787759	Total Silicon (Si)	2022/11/05	103	80 - 120	103	80 - 120	<100	ug/L		
A787759	Total Silver (Ag)	2022/11/05	102	80 - 120	100	80 - 120	<0.020	ug/L		
A787759	Total Strontium (Sr)	2022/11/05	106	80 - 120	98	80 - 120	<1.0	ug/L		
A787759	Total Thallium (Tl)	2022/11/05	100	80 - 120	98	80 - 120	<0.010	ug/L		
A787759	Total Tin (Sn)	2022/11/05	103	80 - 120	100	80 - 120	<5.0	ug/L		
A787759	Total Titanium (Ti)	2022/11/05	101	80 - 120	101	80 - 120	<5.0	ug/L		
A787759	Total Uranium (U)	2022/11/05	102	80 - 120	102	80 - 120	<0.10	ug/L		
A787759	Total Vanadium (V)	2022/11/05	99	80 - 120	98	80 - 120	<5.0	ug/L		
A787759	Total Zinc (Zn)	2022/11/05	NC	80 - 120	101	80 - 120	<5.0	ug/L	0.18	20
A787759	Total Zirconium (Zr)	2022/11/05	103	80 - 120	102	80 - 120	<0.10	ug/L		
A788656	Dissolved Fluoride (F)	2022/11/07	102	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A788665	Dissolved Fluoride (F)	2022/11/07	101	80 - 120	94	80 - 120	<0.050	mg/L	NC	20
A788824	pH	2022/11/05			101	97 - 103				

BUREAU
VERITAS

Bureau Veritas Job #: C286496

Report Date: 2022/11/09

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A788850	pH	2022/11/05			101	97 - 103				
A789351	Total Nitrogen (N)	2022/11/08	104	80 - 120	100	80 - 120	<0.020	mg/L	6.6	20
A789354	Total Nitrogen (N)	2022/11/08	NC	80 - 120	97	80 - 120	<0.020	mg/L	0.42	20

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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



Bureau Veritas Job #: C286496
Report Date: 2022/11/09

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "M. Florescu", written over a horizontal line.

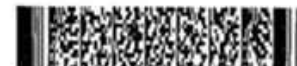
Maria Magdalena Florescu, Ph.D., P.Chem., QP, Inorganics Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll free: 800-563-6206 Fax: (604) 731 2386 www.bvna.com

Page 2 of 2



C286496_COC

Order #:

679025

Project Manager

Customer Solutions

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled By	

Regulatory Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other		Special Instructions:		ANALYSIS REQUESTED (PLEASE BE SPECIFIC):										Turnaround Time (TAT) Required: Please provide advance notice for rush projects.	
				Metals Field Filtered ? (Y/N) CS/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate+Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus										Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as DOO and Dissolved Fluorine are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission): 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for R)	
SAMPLES MUST BE KEPT COOL (+ 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Metre	Metals Field Filtered ? (Y/N)	CS/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	FOF (41C64)	NOV 1 2022				X	X	X	X	X	X	X	X		
2	DUPLICATE					X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AFD4)					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)					X	X	X	X	X	X	X	X		
5	W01 (3956A)														
6	D01 (3956D)														
7	D02 (3956D)														
8	F01 (3956B)														
9	F02 (3956C)														
10															

RELINQUISHED BY: (Signature/Print) Max Madison Adams		Date: (YYMMDD) 22/11/01		Time: 10:26		RECEIVED BY: (Signature/Print) Rebecca Looi		Date: (YYMMDD) 22/11/02		Time: 0800		# Jars used and not submitted 0		Lab Use Only Temperature (°C) on Receipt 11.9, 12		Custody Seal Intact on Container? ☐ Yes ☒ No	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL LAT DELAYS.

Bureau Veritas Canada (2019) Inc.

see pages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

**Attention: Amy Peters**

CITY OF ABBOTSFORD
 CITYOABB-ABB
 32315 SOUTH FRASER WAY
 ABBOTSFORD, BC
 Canada V2T 1W7

Your C.O.C. #: 681712-01-01, 39565, 39566, 39567, 39568, 39569,
 3956A, 3956D, 3956B, 3956C, 41C64, 3AF04, 3AF05

Report Date: 2022/12/05
 Report #: R3273260
 Version: 1 - Final

CERTIFICATE OF ANALYSIS**BUREAU VERITAS JOB #: C293635****Received: 2022/11/28, 16:44**

Sample Matrix: Water
 # Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	14	N/A	2022/11/29	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	14	N/A	2022/12/05	BBY WI-00033	Auto Calc
Mercury (Total) by CV	14	2022/12/02	2022/12/02	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	14	2022/11/28	2022/12/05	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	2	2022/12/01	2022/12/01	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	12	2022/12/01	2022/12/02	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	14	N/A	2022/11/29	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	14	N/A	2022/11/29	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	14	N/A	2022/11/29	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	14	N/A	2022/11/29	BBY WI-00033	Auto Calc
pH @25°C (2)	14	N/A	2022/11/29	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	14	2022/11/30	2022/11/30	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 681712-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 3AF04, 3AF05

Report Date: 2022/12/05
Report #: R3273260
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C293635

Received: 2022/11/28, 16:44

customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

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For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BHW402		BHW403	BHW404		BHW405		
Sampling Date			2022/11/28 11:25		2022/11/28 11:35	2022/11/28 13:10		2022/11/28 12:15		
COC Number			39565		39566	39567		39568		
	UNITS	Criteria	H01 (39565)	QC Batch	H02 (39566)	H03 (39567)	QC Batch	B01 (39568)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	0.446	A812590	1.01	0.719	A812590	0.126	0.0020	A812590

Misc. Inorganics

pH	pH	6.5:9.0	6.49	A815882	7.28	6.80	A815907	6.47	N/A	A815907

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	A813738	<0.050	<0.050	A813738	<0.050	0.050	A813738

Nutrients

Total Ammonia (N)	mg/L	-	0.52	A813501	0.021	0.36	A813501	0.043	0.015	A813501
Total Phosphorus (P)	mg/L	-	0.031	A814775	0.0071	0.026	A814775	0.021	0.0030	A814775
Nitrate plus Nitrite (N)	mg/L	-	0.466	A814167	1.02	0.740	A814167	0.129	0.0020	A814261
Nitrite (N)	mg/L	0.06	0.0201	A814169	0.0067	0.0209	A814169	0.0036	0.0020	A814262

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID			BHW406	BHW407	BHW408	BHW409	BHW410	BHW411		
Sampling Date			2022/11/28 11:46	2022/11/28 12:37	2022/11/28 14:51	2022/11/28 15:00	2022/11/28 11:15	2022/11/28 09:54		
COC Number			39569	3956A	3956D	3956D	3956B	3956C		
	UNITS	Criteria	B02 (39569)	W01 (3956A)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	0.940	0.678	1.12	0.833	1.14	0.699	0.0020	A812590

Misc. Inorganics

pH	pH	6.5:9.0	7.17	6.95	7.39	7.57	7.25	6.96	N/A	A815907

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A813738

Nutrients

Total Ammonia (N)	mg/L	-	0.020	0.19	<0.015	0.018	0.052	0.029	0.015	A813501
Total Phosphorus (P)	mg/L	-	0.0087	0.026	0.0099	0.0097	0.022	0.011	0.0030	A814775
Nitrate plus Nitrite (N)	mg/L	-	0.944	0.687	1.12	0.837	1.15	0.702	0.0020	A814261
Nitrite (N)	mg/L	0.06	0.0035	0.0087	0.0034	0.0033	0.0099	0.0038	0.0020	A814262

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable



BUREAU
VERITAS

Bureau Veritas Job #: C293635
Report Date: 2022/12/05

CITY OF ABBOTSFORD
Sampler Initials: EF

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BHW412	BHW413		BHW414	BHW415		
Sampling Date			2022/11/28 10:59	2022/11/28 14:51		2022/11/28	2022/11/28 15:00		
COC Number			41C64	41C64		3AF04	3AF05		
	UNITS	Criteria	FOF (41C64)	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	0.977	1.12	A812590	<0.0020	<0.0020	0.0020	A812590
Misc. Inorganics									
pH	pH	6.5:9.0	7.00	7.41	A815907	6.21	5.61	N/A	A815907
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	A813738	<0.050	<0.050	0.050	A813738
Nutrients									
Total Ammonia (N)	mg/L	-	0.054	<0.015	A813501	<0.015	<0.015	0.015	A813501
Total Phosphorus (P)	mg/L	-	0.017	0.0098	A814775	<0.0030	<0.0030	0.0030	A814775
Nitrate plus Nitrite (N)	mg/L	-	0.987	1.13	A814261	<0.0020	<0.0020	0.0020	A814167
Nitrite (N)	mg/L	0.06	0.0096	0.0032	A814262	<0.0020	<0.0020	0.0020	A814169
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit N/A = Not Applicable									

BUREAU
VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW402		BHW403			BHW404		
Sampling Date			2022/11/28 11:25		2022/11/28 11:35			2022/11/28 13:10		
COC Number			39565		39566			39567		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	RDL	QC Batch	H03 (39567)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	72.9	0.50	96.3	0.50	A812121	73.9	0.50	A812121

Elements

Total Mercury (Hg)	ug/L	0.026	0.0100	0.0019	<0.0019	0.0019	A817039	0.0053	0.0019	A817033

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	141	15	28.7	3.0	A816057	94	15	A816057
Total Antimony (Sb)	ug/L	-	<2.5	2.5	<0.50	0.50	A816057	<2.5	2.5	A816057
Total Arsenic (As)	ug/L	5	0.56	0.50	0.76	0.10	A816057	<0.50	0.50	A816057
Total Barium (Ba)	ug/L	-	89.7	5.0	30.4	1.0	A816057	79.7	5.0	A816057
Total Beryllium (Be)	ug/L	-	<0.50	0.50	<0.10	0.10	A816057	<0.50	0.50	A816057
Total Bismuth (Bi)	ug/L	-	<5.0	5.0	<1.0	1.0	A816057	<5.0	5.0	A816057
Total Boron (B)	ug/L	1500	<250	250	<50	50	A816057	<250	250	A816057
Total Cadmium (Cd)	ug/L	-	0.323	0.050	0.025	0.010	A816057	0.247	0.050	A816057
Total Chromium (Cr)	ug/L	-	<5.0	5.0	<1.0	1.0	A816057	<5.0	5.0	A816057
Total Cobalt (Co)	ug/L	-	<1.0	1.0	<0.20	0.20	A816057	<1.0	1.0	A816057
Total Copper (Cu)	ug/L	-	6.2	2.5	1.41	0.50	A816057	5.2	2.5	A816057
Total Iron (Fe)	ug/L	300	227	50	118	10	A816057	154	50	A816057
Total Lead (Pb)	ug/L	-	<1.0	1.0	<0.20	0.20	A816057	<1.0	1.0	A816057
Total Lithium (Li)	ug/L	-	<10	10	<2.0	2.0	A816057	<10	10	A816057
Total Manganese (Mn)	ug/L	-	85.9	5.0	20.5	1.0	A816057	58.1	5.0	A816057
Total Molybdenum (Mo)	ug/L	73	<5.0	5.0	<1.0	1.0	A816057	<5.0	5.0	A816057
Total Nickel (Ni)	ug/L	-	<5.0	5.0	<1.0	1.0	A816057	<5.0	5.0	A816057
Total Selenium (Se)	ug/L	1	<0.50	0.50	0.12	0.10	A816057	<0.50	0.50	A816057
Total Silicon (Si)	ug/L	-	1300	500	6310	100	A816057	2030	500	A816057
Total Silver (Ag)	ug/L	0.25	<0.10	0.10	<0.020	0.020	A816057	<0.10	0.10	A816057
Total Strontium (Sr)	ug/L	-	109	5.0	133	1.0	A816057	132	5.0	A816057
Total Thallium (Tl)	ug/L	0.8	<0.050	0.050	<0.010	0.010	A816057	<0.050	0.050	A816057
Total Tin (Sn)	ug/L	-	<25	25	<5.0	5.0	A816057	<25	25	A816057
Total Titanium (Ti)	ug/L	-	<25	25	<5.0	5.0	A816057	<25	25	A816057
Total Uranium (U)	ug/L	15	<0.50	0.50	<0.10	0.10	A816057	<0.50	0.50	A816057
Total Vanadium (V)	ug/L	-	<25	25	<5.0	5.0	A816057	<25	25	A816057
Total Zinc (Zn)	ug/L	30	134	25	17.9	5.0	A816057	120	25	A816057
Total Zirconium (Zr)	ug/L	-	0.92	0.50	<0.10	0.10	A816057	<0.50	0.50	A816057

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID					BHW402		BHW403			BHW404		
Sampling Date					2022/11/28 11:25		2022/11/28 11:35			2022/11/28 13:10		
COC Number					39565		39566			39567		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	RDL	QC Batch	H03 (39567)	RDL	QC Batch		
Total Calcium (Ca)	mg/L	-	20.2	0.25	28.7	0.050	A812130	23.7	0.25	A812130		
Total Magnesium (Mg)	mg/L	-	5.47	0.25	6.00	0.050	A812130	3.60	0.25	A812130		
Total Potassium (K)	mg/L	-	6.76	0.25	2.27	0.050	A812130	4.02	0.25	A812130		
Total Sodium (Na)	mg/L	-	820	0.25	223	0.050	A812130	834	0.25	A812130		
Total Sulphur (S)	mg/L	-	<15	15	5.1	3.0	A812130	<15	15	A812130		
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels											
Grey												
Black												
RDL = Reportable Detection Limit												

BUREAU
VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW405		BHW406		BHW407	BHW408		
Sampling Date			2022/11/28 12:15		2022/11/28 11:46		2022/11/28 12:37	2022/11/28 14:51		
COC Number			39568		39569		3956A	3956D		
	UNITS	Criteria	B01 (39568)	QC Batch	B02 (39569)	QC Batch	W01 (3956A)	D01 (3956D)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	66.2	A812121	96.5	A812121	56.4	89.2	0.50	A812121

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A817039	<0.0019	A817033	<0.0019	<0.0019	0.0019	A817039

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	107	A816057	60.6	A816057	37.9	44.0	3.0	A816057
Total Antimony (Sb)	ug/L	-	<0.50	A816057	<0.50	A816057	<0.50	<0.50	0.50	A816057
Total Arsenic (As)	ug/L	5	1.01	A816057	0.65	A816057	0.80	0.58	0.10	A816057
Total Barium (Ba)	ug/L	-	69.0	A816057	31.9	A816057	24.0	19.1	1.0	A816057
Total Beryllium (Be)	ug/L	-	<0.10	A816057	<0.10	A816057	<0.10	<0.10	0.10	A816057
Total Bismuth (Bi)	ug/L	-	<1.0	A816057	<1.0	A816057	<1.0	<1.0	1.0	A816057
Total Boron (B)	ug/L	1500	<50	A816057	<50	A816057	<50	<50	50	A816057
Total Cadmium (Cd)	ug/L	-	0.310	A816057	0.029	A816057	0.016	<0.010	0.010	A816057
Total Chromium (Cr)	ug/L	-	1.1	A816057	<1.0	A816057	<1.0	<1.0	1.0	A816057
Total Cobalt (Co)	ug/L	-	2.06	A816057	<0.20	A816057	<0.20	<0.20	0.20	A816057
Total Copper (Cu)	ug/L	-	4.23	A816057	1.21	A816057	1.07	0.96	0.50	A816057
Total Iron (Fe)	ug/L	300	683	A816057	331	A816057	1120	179	10	A816057
Total Lead (Pb)	ug/L	-	1.65	A816057	<0.20	A816057	0.26	<0.20	0.20	A816057
Total Lithium (Li)	ug/L	-	<2.0	A816057	<2.0	A816057	<2.0	<2.0	2.0	A816057
Total Manganese (Mn)	ug/L	-	337	A816057	89.8	A816057	71.1	35.4	1.0	A816057
Total Molybdenum (Mo)	ug/L	73	<1.0	A816057	<1.0	A816057	<1.0	<1.0	1.0	A816057
Total Nickel (Ni)	ug/L	-	3.0	A816057	<1.0	A816057	<1.0	<1.0	1.0	A816057
Total Selenium (Se)	ug/L	1	<0.10	A816057	0.11	A816057	<0.10	0.16	0.10	A816057
Total Silicon (Si)	ug/L	-	3420	A816057	7080	A816057	5390	7690	100	A816057
Total Silver (Ag)	ug/L	0.25	<0.020	A816057	<0.020	A816057	<0.020	<0.020	0.020	A816057
Total Strontium (Sr)	ug/L	-	166	A816057	154	A816057	101	136	1.0	A816057
Total Thallium (Tl)	ug/L	0.8	<0.010	A816057	<0.010	A816057	<0.010	<0.010	0.010	A816057
Total Tin (Sn)	ug/L	-	<5.0	A816057	<5.0	A816057	<5.0	<5.0	5.0	A816057
Total Titanium (Ti)	ug/L	-	<5.0	A816057	<5.0	A816057	<5.0	<5.0	5.0	A816057
Total Uranium (U)	ug/L	15	<0.10	A816057	<0.10	A816057	<0.10	<0.10	0.10	A816057
Total Vanadium (V)	ug/L	-	<5.0	A816057	<5.0	A816057	<5.0	<5.0	5.0	A816057
Total Zinc (Zn)	ug/L	30	186	A816057	15.8	A816057	8.7	<5.0	5.0	A816057
Total Zirconium (Zr)	ug/L	-	0.18	A816057	<0.10	A816057	<0.10	<0.10	0.10	A816057

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



**BUREAU
VERITAS**

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW405		BHW406		BHW407	BHW408		
Sampling Date			2022/11/28 12:15		2022/11/28 11:46		2022/11/28 12:37	2022/11/28 14:51		
COC Number			39568		39569		3956A	3956D		
	UNITS	Criteria	B01 (39568)	QC Batch	B02 (39569)	QC Batch	W01 (3956A)	D01 (3956D)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	20.7	A812130	27.6	A812130	15.7	24.3	0.050	A812130
Total Magnesium (Mg)	mg/L	-	3.55	A812130	6.73	A812130	4.16	6.96	0.050	A812130
Total Potassium (K)	mg/L	-	2.04	A812130	1.91	A812130	1.41	2.13	0.050	A812130
Total Sodium (Na)	mg/L	-	142	A812130	118	A812130	66.0	32.8	0.050	A812130
Total Sulphur (S)	mg/L	-	<3.0	A812130	4.3	A812130	<3.0	6.5	3.0	A812130
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										

BUREAU
VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW409	BHW410	BHW411		BHW412		
Sampling Date			2022/11/28 15:00	2022/11/28 11:15	2022/11/28 09:54		2022/11/28 10:59		
COC Number			3956D	3956B	3956C		41C64		
	UNITS	Criteria	D02 (3956D)	F01 (3956B)	F02 (3956C)	QC Batch	FOF (41C64)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	115	74.1	57.5	A812121	72.9	0.50	A812121

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	A817039	<0.0019	0.0019	A817033

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	19.1	124	71.2	A816057	119	3.0	A816057
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	A816057	<0.50	0.50	A816057
Total Arsenic (As)	ug/L	5	1.09	0.94	0.28	A816057	0.78	0.10	A816057
Total Barium (Ba)	ug/L	-	12.2	24.8	26.0	A816057	25.8	1.0	A816057
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	A816057	<0.10	0.10	A816057
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	A816057	<1.0	1.0	A816057
Total Boron (B)	ug/L	1500	<50	<50	<50	A816057	<50	50	A816057
Total Cadmium (Cd)	ug/L	-	<0.010	0.021	0.013	A816057	0.020	0.010	A816057
Total Chromium (Cr)	ug/L	-	<1.0	1.2	<1.0	A816057	1.3	1.0	A816057
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	A816057	<0.20	0.20	A816057
Total Copper (Cu)	ug/L	-	<0.50	2.41	1.80	A816057	2.81	0.50	A816057
Total Iron (Fe)	ug/L	300	304	339	192	A816057	417	10	A816057
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	A816057	0.28	0.20	A816057
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	A816057	<2.0	2.0	A816057
Total Manganese (Mn)	ug/L	-	138	70.8	19.3	A816057	37.7	1.0	A816057
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	A816057	<1.0	1.0	A816057
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	A816057	1.2	1.0	A816057
Total Selenium (Se)	ug/L	1	0.23	0.12	<0.10	A816057	<0.10	0.10	A816057
Total Silicon (Si)	ug/L	-	11400	3700	3130	A816057	3880	100	A816057
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	A816057	<0.020	0.020	A816057
Total Strontium (Sr)	ug/L	-	158	118	82.8	A816057	111	1.0	A816057
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	A816057	<0.010	0.010	A816057
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	A816057	<5.0	5.0	A816057
Total Titanium (Ti)	ug/L	-	<5.0	5.2	<5.0	A816057	5.8	5.0	A816057
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	A816057	<0.10	0.10	A816057
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	A816057	<5.0	5.0	A816057
Total Zinc (Zn)	ug/L	30	<5.0	10.2	13.9	A816057	14.3	5.0	A816057
Total Zirconium (Zr)	ug/L	-	<0.10	0.12	<0.10	A816057	0.14	0.10	A816057

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW409	BHW410	BHW411		BHW412		
Sampling Date			2022/11/28 15:00	2022/11/28 11:15	2022/11/28 09:54		2022/11/28 10:59		
COC Number			3956D	3956B	3956C		41C64		
	UNITS	Criteria	D02 (3956D)	F01 (3956B)	F02 (3956C)	QC Batch	FOF (41C64)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	30.2	21.5	16.6	A812130	21.3	0.050	A812130
Total Magnesium (Mg)	mg/L	-	9.60	4.96	3.91	A812130	4.79	0.050	A812130
Total Potassium (K)	mg/L	-	1.69	1.85	1.85	A812130	2.01	0.050	A812130
Total Sodium (Na)	mg/L	-	18.0	90.9	44.7	A812130	71.9	0.050	A812130
Total Sulphur (S)	mg/L	-	4.7	6.5	5.2	A812130	6.8	3.0	A812130
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit									

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VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW413		BHW414		BHW415		
Sampling Date			2022/11/28 14:51		2022/11/28		2022/11/28 15:00		
COC Number			41C64		3AF04		3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	86.6	A812121	<0.50	A812121	<0.50	0.50	A812121

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A817039	<0.0019	A817033	<0.0019	0.0019	A817039

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	37.9	A816057	<3.0	A816120	<3.0	3.0	A816120
Total Antimony (Sb)	ug/L	-	<0.50	A816057	<0.50	A816120	<0.50	0.50	A816120
Total Arsenic (As)	ug/L	5	0.56	A816057	<0.10	A816120	<0.10	0.10	A816120
Total Barium (Ba)	ug/L	-	18.4	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Beryllium (Be)	ug/L	-	<0.10	A816057	<0.10	A816120	<0.10	0.10	A816120
Total Bismuth (Bi)	ug/L	-	<1.0	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Boron (B)	ug/L	1500	<50	A816057	<50	A816120	<50	50	A816120
Total Cadmium (Cd)	ug/L	-	<0.010	A816057	<0.010	A816120	<0.010	0.010	A816120
Total Chromium (Cr)	ug/L	-	<1.0	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Cobalt (Co)	ug/L	-	<0.20	A816057	<0.20	A816120	<0.20	0.20	A816120
Total Copper (Cu)	ug/L	-	0.93	A816057	<0.50	A816120	<0.50	0.50	A816120
Total Iron (Fe)	ug/L	300	171	A816057	<10	A816120	<10	10	A816120
Total Lead (Pb)	ug/L	-	<0.20	A816057	<0.20	A816120	<0.20	0.20	A816120
Total Lithium (Li)	ug/L	-	<2.0	A816057	<2.0	A816120	<2.0	2.0	A816120
Total Manganese (Mn)	ug/L	-	34.3	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Molybdenum (Mo)	ug/L	73	<1.0	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Nickel (Ni)	ug/L	-	<1.0	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Selenium (Se)	ug/L	1	0.17	A816057	<0.10	A816120	<0.10	0.10	A816120
Total Silicon (Si)	ug/L	-	7440	A816057	<100	A816120	<100	100	A816120
Total Silver (Ag)	ug/L	0.25	<0.020	A816057	<0.020	A816120	<0.020	0.020	A816120
Total Strontium (Sr)	ug/L	-	129	A816057	<1.0	A816120	<1.0	1.0	A816120
Total Thallium (Tl)	ug/L	0.8	<0.010	A816057	<0.010	A816120	<0.010	0.010	A816120
Total Tin (Sn)	ug/L	-	<5.0	A816057	<5.0	A816120	<5.0	5.0	A816120
Total Titanium (Ti)	ug/L	-	<5.0	A816057	<5.0	A816120	<5.0	5.0	A816120
Total Uranium (U)	ug/L	15	<0.10	A816057	<0.10	A816120	0.21	0.10	A816120
Total Vanadium (V)	ug/L	-	<5.0	A816057	<5.0	A816120	<5.0	5.0	A816120
Total Zinc (Zn)	ug/L	30	<5.0	A816057	<5.0	A816120	<5.0	5.0	A816120
Total Zirconium (Zr)	ug/L	-	<0.10	A816057	<0.10	A816120	<0.10	0.10	A816120

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



**BUREAU
VERITAS**

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

CITY OF ABBOTSFORD

Sampler Initials: EF

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BHW413		BHW414		BHW415		
Sampling Date			2022/11/28 14:51		2022/11/28		2022/11/28 15:00		
COC Number			41C64		3AF04		3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	QC Batch	FIELD BLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	23.6	A812130	<0.050	A812130	<0.050	0.050	A812130
Total Magnesium (Mg)	mg/L	-	6.70	A812130	<0.050	A812130	<0.050	0.050	A812130
Total Potassium (K)	mg/L	-	2.06	A812130	<0.050	A812130	<0.050	0.050	A812130
Total Sodium (Na)	mg/L	-	31.9	A812130	<0.050	A812130	<0.050	0.050	A812130
Total Sulphur (S)	mg/L	-	6.3	A812130	<3.0	A812130	<3.0	3.0	A812130

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



Bureau Veritas Job #: C293635
Report Date: 2022/12/05

CITY OF ABBOTSFORD
Sampler Initials: EF

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

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Bureau Veritas Job #: C293635

Report Date: 2022/12/05

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Sampler Initials: EF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A813501	Total Ammonia (N)	2022/11/29	96	80 - 120	101	80 - 120	<0.015	mg/L	0.26	20
A813738	Dissolved Fluoride (F)	2022/11/29	100	80 - 120	102	80 - 120	<0.050	mg/L	NC	20
A814167	Nitrate plus Nitrite (N)	2022/11/29	104	80 - 120	106	80 - 120	<0.0020	mg/L	1.3	25
A814169	Nitrite (N)	2022/11/29			103	80 - 120	<0.0020	mg/L		
A814261	Nitrate plus Nitrite (N)	2022/11/29			105	80 - 120	<0.0020	mg/L		
A814262	Nitrite (N)	2022/11/29			103	80 - 120	<0.0020	mg/L		
A814775	Total Phosphorus (P)	2022/11/30	100	N/A	99	80 - 120	<0.0030	mg/L	NC	20
A815882	pH	2022/11/29			101	97 - 103			1.6	N/A
A815907	pH	2022/11/29			101	97 - 103			1.7	N/A
A816057	Total Aluminum (Al)	2022/12/02	104	80 - 120	97	80 - 120	<3.0	ug/L	11	20
A816057	Total Antimony (Sb)	2022/12/02	102	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
A816057	Total Arsenic (As)	2022/12/02	104	80 - 120	98	80 - 120	<0.10	ug/L	11	20
A816057	Total Barium (Ba)	2022/12/02	NC	80 - 120	95	80 - 120	<1.0	ug/L	0.78	20
A816057	Total Beryllium (Be)	2022/12/02	100	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A816057	Total Bismuth (Bi)	2022/12/02	94	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A816057	Total Boron (B)	2022/12/02	119	80 - 120	100	80 - 120	<50	ug/L	NC	20
A816057	Total Cadmium (Cd)	2022/12/02	96	80 - 120	95	80 - 120	<0.010	ug/L	4.5	20
A816057	Total Chromium (Cr)	2022/12/02	89	80 - 120	90	80 - 120	<1.0	ug/L	NC	20
A816057	Total Cobalt (Co)	2022/12/02	88	80 - 120	92	80 - 120	<0.20	ug/L	NC	20
A816057	Total Copper (Cu)	2022/12/02	88	80 - 120	90	80 - 120	<0.50	ug/L	1.8	20
A816057	Total Iron (Fe)	2022/12/02	104	80 - 120	96	80 - 120	<10	ug/L	0.50	20
A816057	Total Lead (Pb)	2022/12/02	92	80 - 120	95	80 - 120	<0.20	ug/L	NC	20
A816057	Total Lithium (Li)	2022/12/02	96	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
A816057	Total Manganese (Mn)	2022/12/02	NC	80 - 120	95	80 - 120	<1.0	ug/L	0.96	20
A816057	Total Molybdenum (Mo)	2022/12/02	110	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A816057	Total Nickel (Ni)	2022/12/02	91	80 - 120	94	80 - 120	<1.0	ug/L	NC	20
A816057	Total Selenium (Se)	2022/12/02	100	80 - 120	95	80 - 120	<0.10	ug/L	NC	20
A816057	Total Silicon (Si)	2022/12/02	86	80 - 120	104	80 - 120	<100	ug/L	1.2	20
A816057	Total Silver (Ag)	2022/12/02	95	80 - 120	94	80 - 120	<0.020	ug/L	NC	20
A816057	Total Strontium (Sr)	2022/12/02	NC	80 - 120	90	80 - 120	<1.0	ug/L	0.82	20
A816057	Total Thallium (Tl)	2022/12/02	97	80 - 120	96	80 - 120	<0.010	ug/L	NC	20
A816057	Total Tin (Sn)	2022/12/02	101	80 - 120	96	80 - 120	<5.0	ug/L	NC	20
A816057	Total Titanium (Ti)	2022/12/02	99	80 - 120	95	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C293635
Report Date: 2022/12/05

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Sampler Initials: EF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A816057	Total Uranium (U)	2022/12/02	97	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A816057	Total Vanadium (V)	2022/12/02	93	80 - 120	91	80 - 120	<5.0	ug/L	NC	20
A816057	Total Zinc (Zn)	2022/12/02	NC	80 - 120	96	80 - 120	<5.0	ug/L	2.7	20
A816057	Total Zirconium (Zr)	2022/12/02	86	80 - 120	96	80 - 120	<0.10	ug/L	NC	20
A816120	Total Aluminum (Al)	2022/12/01	102	80 - 120	101	80 - 120	<3.0	ug/L	NC	20
A816120	Total Antimony (Sb)	2022/12/01	102	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
A816120	Total Arsenic (As)	2022/12/01	106	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A816120	Total Barium (Ba)	2022/12/01	99	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A816120	Total Beryllium (Be)	2022/12/01	101	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A816120	Total Bismuth (Bi)	2022/12/01	99	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
A816120	Total Boron (B)	2022/12/01	100	80 - 120	100	80 - 120	<50	ug/L	NC	20
A816120	Total Cadmium (Cd)	2022/12/01	101	80 - 120	97	80 - 120	<0.010	ug/L	NC	20
A816120	Total Chromium (Cr)	2022/12/01	100	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A816120	Total Cobalt (Co)	2022/12/01	98	80 - 120	96	80 - 120	<0.20	ug/L	NC	20
A816120	Total Copper (Cu)	2022/12/01	98	80 - 120	95	80 - 120	<0.50	ug/L	NC	20
A816120	Total Iron (Fe)	2022/12/01	101	80 - 120	97	80 - 120	<10	ug/L	NC	20
A816120	Total Lead (Pb)	2022/12/01	99	80 - 120	96	80 - 120	<0.20	ug/L	NC	20
A816120	Total Lithium (Li)	2022/12/01	98	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
A816120	Total Manganese (Mn)	2022/12/01	99	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A816120	Total Molybdenum (Mo)	2022/12/01	106	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A816120	Total Nickel (Ni)	2022/12/01	99	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A816120	Total Selenium (Se)	2022/12/01	103	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A816120	Total Silicon (Si)	2022/12/01	104	80 - 120	106	80 - 120	<100	ug/L	NC	20
A816120	Total Silver (Ag)	2022/12/01	99	80 - 120	96	80 - 120	<0.020	ug/L	NC	20
A816120	Total Strontium (Sr)	2022/12/01	101	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A816120	Total Thallium (Tl)	2022/12/01	100	80 - 120	95	80 - 120	<0.010	ug/L	NC	20
A816120	Total Tin (Sn)	2022/12/01	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A816120	Total Titanium (Ti)	2022/12/01	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A816120	Total Uranium (U)	2022/12/01	97	80 - 120	95	80 - 120	<0.10	ug/L	16	20
A816120	Total Vanadium (V)	2022/12/01	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A816120	Total Zinc (Zn)	2022/12/01	103	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A816120	Total Zirconium (Zr)	2022/12/01	104	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A817033	Total Mercury (Hg)	2022/12/02	110	80 - 120	108	80 - 120	<0.0019	ug/L	NC	20



BUREAU
VERITAS

Bureau Veritas Job #: C293635

Report Date: 2022/12/05

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Sampler Initials: EF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A817039	Total Mercury (Hg)	2022/12/02	106	80 - 120	108	80 - 120	<0.0019	ug/L	NC	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



Bureau Veritas Job #: C293635
Report Date: 2022/12/05

CITY OF ABBOTSFORD
Sampler Initials: EF

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Page 1 of 2



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free 800-563-6206 Fax: (604) 731 2206 www.bvna.com

Barcode: C293635_COC

001712

INVOICE TO:		Report Information		Project Information	
Company Name: #1414 CITY OF ABBOTSFORD		Company Name: Amy Peters		Quotation #: C01193	
Contact Name: Amy Peters		Contact Name: Amy Peters		P.O. #:	
Address: 32315 SOUTH FRASER WAY		Address: 32315 SOUTH FRASER WAY		Project #:	Bevan #1 Creek Water Quality
ABBOTSFORD BC V2T 1W7		ABBOTSFORD BC V2T 1W7		Project Name:	
Phone: (778) 549-1240	Fax: (604) 850-6416	Phone: (778) 549-1240	Fax:	Site #:	
Email: apeters@abbotsford.ca		Email: apeters@abbotsford.ca		Sampled By:	

Regulatory Criteria:

☐ CSR

☐ CCME

☐ BC Water Quality

☐ Other: _____

Special Instructions:

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metals Field Filtered ? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix
1	H01 (39565)	28/11/22	1:25	
2	H02 (39566)	"	11:35	
3	H03 (39567)		1:10	
4	B01 (39568)		12:15	
5	B02 (39569)		11:46	
6	W01 (3956A)		12:37	
7	D01 (3956D)		2:51	
8	D02 (3956D)		3:06	
9	F01 (3956B)		11:15	
10	F02 (3956C)	11/11	9:54	

* RELINQUISHED BY: (Signature/Print)

Chris Adams

Date: (YY/MM/DD) Time

28/11/22 14:07

RECEIVED BY: (Signature/Print)

Josh Popilla

Date: (YY/MM/DD) Time

28/11/22 16:10

Jars used and not submitted

Lab Use Only

Time Sensitive: ☐ Temperature (°C) on Receipt: 5.6.3

Custody Seal intact on Cooler? ☐ Yes ☒ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNED CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
 * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

KEE FRIGS TH COOLER

Page 2 of 2



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free: 800-563-6266 Fax: (604) 731 2386 www.bvna.com

Only

Bottle Order #:

681712

Project Manager

Customer Solutions

INVOICE TO:

Company Name: #1414 CITY OF ABBOTSFORD

Contact Name: Amy Peters

Address: 32315 SOUTH FRASER WAY
ABBOTSFORD BC V2T 1W7

Phone: (778) 549-1240 Fax: (604) 850-6418

Email: apeters@abbotsford.ca

Report Information

Company Name: Amy Peters

Contact Name: Amy Peters

Address: 32315 SOUTH FRASER WAY
ABBOTSFORD BC V2T 1W7

Phone: (778) 549-1240 Fax:

Email: apeters@abbotsford.ca

Project Information

Quotation #: C01193

P.O. #:

Project #: Bevan #1 Creek Water Qu

Project Name:

Site #:

Sampled By:

Regulatory Criteria:

☐ CSR

☐ CCME

☐ BC Water Quality

☐ Other:

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metals Field Filtered ? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix
1	FOF (41C64)	28/11/2022	10:59	
2	DUPLICATE	"	2:51	
3	TRIP BLANK (3AF04)			
4	FIELD BLANK (3AF05)	"	3:00	
5				
6				
7				
8				
9				
10				

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Glucose/Ferment are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission):
1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐

Rush Confirmation Number: (call lab for #)

of bottles: _____

Comments: _____

RELINQUISHED BY: (Signature/Print)

[Signature]

Date: (YYMMDD) 28/11/22 Time: 4:04

RECEIVED BY: (Signature/Print)

[Signature]

Date: (YYMMDD) 28/11/22 Time: 15:10

Lab Use Only

Time Sampled: ☐

Temperature (°C) on Receipt: 10, 3, 6

Custody Seal intact on Cooler? ☐ Yes ☒ No

IF IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD, AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

ICE PAKS IN COOLER



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: C#684137-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 3AF04, 3AF05

Report Date: 2023/06/20
Report #: R3352470
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2A1528

Received: 2022/12/29, 17:16

Sample Matrix: Water
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	13	N/A	2023/01/03	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	2	N/A	2023/01/03	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	11	N/A	2023/01/05	BBY WI-00033	Auto Calc
Mercury (Total) by CV	13	2023/01/03	2023/01/03	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2022/12/30	2023/01/03	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	11	2022/12/30	2023/01/05	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	13	2022/12/30	2022/12/31	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	13	N/A	2023/01/04	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	13	N/A	2022/12/31	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	13	N/A	2022/12/31	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	13	N/A	2022/12/31	BBY WI-00033	Auto Calc
pH @25°C (2)	13	N/A	2022/12/30	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	13	2023/01/04	2023/01/05	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: C#684137-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 3AF04, 3AF05

Report Date: 2023/06/20
Report #: R3352470
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2A1528

Received: 2022/12/29, 17:16

customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

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BUREAU
VERITAS

Bureau Veritas Job #: C2A1528

Report Date: 2023/06/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BJT200		BJT201	BJT202	BJT203	BJT204		
Sampling Date			2022/12/29 15:18		2022/12/29 14:00	2022/12/29 15:09	2022/12/29 15:34	2022/12/29 14:17		
COC Number			39565		39566	39567	39568	39569		
	UNITS	Criteria	H01 (39565)	QC Batch	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	0.238	A843791	1.42	0.710	1.09	1.38	0.0020	A843791

Misc. Inorganics

pH	pH	6.5:9.0	6.76	A844673	7.23	6.77	6.88	7.35	N/A	A844673

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	A844777	<0.050	<0.050	<0.050	<0.050	0.050	A844777

Nutrients

Total Ammonia (N)	mg/L	-	0.47	A845815	0.071	0.35	0.038	0.030	0.015	A845815

Total Phosphorus (P)	mg/L	-	0.28	A845419	0.0086	0.26	0.057	0.012	0.0030	A845398

Nitrate plus Nitrite (N)	mg/L	-	0.297	A844304	1.43	0.767	1.10	1.39	0.0020	A844304

Nitrite (N)	mg/L	0.06	0.0591	A844305	0.0079	0.0574	0.0067	0.0046	0.0020	A844305

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID			BJT205		BJT206	BJT207		BJT208	BJT231		
Sampling Date			2022/12/29 15:57		2022/12/29 12:16	2022/12/29 11:46		2022/12/29 09:30	2022/12/29 11:30		
COC Number			3956A		3956D	3956B		3956C	41C64		
	UNITS	Criteria	W01 (3956A)	RDL	D01 (3956D)	F01 (3956B)	RDL	F02 (3956C)	FOF (41C64)	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	0.330	0.0020	2.19	2.20	0.0040	1.58	1.54	0.0020	A843791

Misc. Inorganics

pH	pH	6.5:9.0	6.77	N/A	7.11	7.02	N/A	6.83	6.78	N/A	A844673

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	<0.050	<0.050	0.050	<0.050	<0.050	0.050	A844777

Nutrients

Total Ammonia (N)	mg/L	-	0.32	0.015	0.018	0.038	0.015	<0.015	0.068	0.015	A845815

Total Phosphorus (P)	mg/L	-	0.11	0.0030	0.014	0.018	0.0030	0.010	0.021	0.0030	A845398

Nitrate plus Nitrite (N)	mg/L	-	0.360	0.0020	2.19	2.21	0.0040	1.59	1.55	0.0020	A844304

Nitrite (N)	mg/L	0.06	0.0301	0.0020	0.0054	0.0078	0.0020	0.0065	0.0126	0.0020	A844305

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BJT232		BJT233	BJT234		
Sampling Date			2022/12/29 15:57		2022/12/29 17:16	2022/12/29 16:02		
COC Number			3956A		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	0.334	A843791	<0.0020	<0.0020	0.0020	A843791
Misc. Inorganics								
pH	pH	6.5:9.0	6.84	A844673	7.11	6.29	N/A	A844673
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A844777	<0.050	<0.050	0.050	A844782
Nutrients								
Total Ammonia (N)	mg/L	-	0.32	A845815	<0.015	<0.015	0.015	A845815
Total Phosphorus (P)	mg/L	-	0.094	A845398	<0.0030	<0.0030	0.0030	A845398
Nitrate plus Nitrite (N)	mg/L	-	0.351	A844304	<0.0020	<0.0020	0.0020	A844304
Nitrite (N)	mg/L	0.06	0.0171	A844305	<0.0020	<0.0020	0.0020	A844305
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								

BUREAU
VERITAS

Bureau Veritas Job #: C2A1528

Report Date: 2023/06/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT200	BJT201	BJT202	BJT203	BJT204	BJT205		
Sampling Date			2022/12/29 15:18	2022/12/29 14:00	2022/12/29 15:09	2022/12/29 15:34	2022/12/29 14:17	2022/12/29 15:57		
COC Number			39565	39566	39567	39568	39569	3956A		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	W01 (3956A)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	31.9	97.5	42.7	62.5	90.9	27.3	0.50	A843832

Elements

Total Mercury (Hg)	ug/L	0.026	0.0030	<0.0019	<0.0019	0.0020	<0.0019	<0.0019	0.0019	A844752

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	5030	41.1	4400	619	104	1150	3.0	A843977
Total Antimony (Sb)	ug/L	-	4.09	<0.50	3.38	<0.50	<0.50	0.89	0.50	A843977
Total Arsenic (As)	ug/L	5	2.32	0.79	2.31	0.99	0.72	1.42	0.10	A843977
Total Barium (Ba)	ug/L	-	84.1	19.9	76.4	34.7	22.7	27.6	1.0	A843977
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A843977
Total Bismuth (Bi)	ug/L	-	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A843977
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A843977
Total Cadmium (Cd)	ug/L	-	0.166	0.016	0.148	0.174	0.026	0.041	0.010	A843977
Total Chromium (Cr)	ug/L	-	15.3	1.1	12.2	2.9	<1.0	3.6	1.0	A843977
Total Cobalt (Co)	ug/L	-	3.00	<0.20	2.48	0.85	<0.20	0.76	0.20	A843977
Total Copper (Cu)	ug/L	-	46.3	1.23	38.4	5.22	1.05	8.39	0.50	A843977
Total Iron (Fe)	ug/L	300	7380	128	6300	1120	377	2440	10	A843977
Total Lead (Pb)	ug/L	-	17.9	<0.20	11.9	4.33	0.20	2.61	0.20	A843977
Total Lithium (Li)	ug/L	-	3.7	<2.0	3.6	<2.0	<2.0	<2.0	2.0	A843977
Total Manganese (Mn)	ug/L	-	165	27.0	149	115	89.2	88.3	1.0	A843977
Total Molybdenum (Mo)	ug/L	73	2.0	<1.0	2.0	<1.0	<1.0	<1.0	1.0	A843977
Total Nickel (Ni)	ug/L	-	8.5	<1.0	7.1	2.4	<1.0	2.4	1.0	A843977
Total Selenium (Se)	ug/L	1	<0.10	0.14	<0.10	0.13	0.13	<0.10	0.10	A843977
Total Silicon (Si)	ug/L	-	7370	8360	7790	7380	9390	3600	100	A843977
Total Silver (Ag)	ug/L	0.25	0.150	<0.020	0.080	<0.020	<0.020	<0.020	0.020	A843977
Total Strontium (Sr)	ug/L	-	38.4	135	66.3	147	150	45.1	1.0	A843977
Total Thallium (Tl)	ug/L	0.8	0.022	<0.010	0.018	<0.010	<0.010	<0.010	0.010	A843977
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A843977
Total Titanium (Ti)	ug/L	-	184	<5.0	173	26.0	5.1	52.2	5.0	A843977
Total Uranium (U)	ug/L	15	0.12	<0.10	0.11	<0.10	<0.10	<0.10	0.10	A843977
Total Vanadium (V)	ug/L	-	12.4	<5.0	10.8	<5.0	<5.0	<5.0	5.0	A843977
Total Zinc (Zn)	ug/L	30	315	10.5	233	56.4	10.2	57.9	5.0	A843977
Total Zirconium (Zr)	ug/L	-	1.62	<0.10	3.82	0.32	<0.10	0.67	0.10	A843977

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT200	BJT201	BJT202	BJT203	BJT204	BJT205		
Sampling Date			2022/12/29 15:18	2022/12/29 14:00	2022/12/29 15:09	2022/12/29 15:34	2022/12/29 14:17	2022/12/29 15:57		
COC Number			39565	39566	39567	39568	39569	3956A		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	W01 (3956A)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	7.45	28.6	11.3	17.9	25.9	7.48	0.050	A843836
Total Magnesium (Mg)	mg/L	-	3.22	6.33	3.52	4.33	6.35	2.10	0.050	A843836
Total Potassium (K)	mg/L	-	1.17	1.87	1.69	1.48	1.56	1.01	0.050	A843836
Total Sodium (Na)	mg/L	-	64.3	28.5	119	51.0	26.5	53.3	0.050	A843836
Total Sulphur (S)	mg/L	-	<3.0	5.7	<3.0	3.0	4.5	<3.0	3.0	A843836
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										



BUREAU
VERITAS

Bureau Veritas Job #: C2A1528

Report Date: 2023/06/20

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT206	BJT207	BJT208	BJT231	BJT232		
Sampling Date			2022/12/29 12:16	2022/12/29 11:46	2022/12/29 09:30	2022/12/29 11:30	2022/12/29 15:57		
COC Number			3956D	3956B	3956C	41C64	3956A		
	UNITS	Criteria	D01 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	DUPLICATE	RDL	QC Batch
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	74.9	103	58.0	62.3	27.2	0.50	A843832
Elements									
Total Mercury (Hg)	ug/L	0.026	0.0062	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	A844752
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	-	112	101	105	146	1080	3.0	A843977
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	0.88	0.50	A843977
Total Arsenic (As)	ug/L	5	0.54	0.75	0.46	1.12	1.32	0.10	A843977
Total Barium (Ba)	ug/L	-	27.3	33.4	27.8	31.1	27.2	1.0	A843977
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A843977
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A843977
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	50	A843977
Total Cadmium (Cd)	ug/L	-	0.015	0.019	0.011	0.027	0.037	0.010	A843977
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	<1.0	3.4	1.0	A843977
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	0.20	0.72	0.20	A843977
Total Copper (Cu)	ug/L	-	1.12	1.97	1.75	2.10	8.40	0.50	A843977
Total Iron (Fe)	ug/L	300	224	331	207	418	2300	10	A843977
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	<0.20	2.59	0.20	A843977
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A843977
Total Manganese (Mn)	ug/L	-	38.2	97.0	11.8	89.0	84.3	1.0	A843977
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A843977
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	<1.0	2.3	1.0	A843977
Total Selenium (Se)	ug/L	1	0.16	0.13	<0.10	<0.10	<0.10	0.10	A843977
Total Silicon (Si)	ug/L	-	6350	4960	3450	3740	3510	100	A843977
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A843977
Total Strontium (Sr)	ug/L	-	134	192	98.6	108	45.1	1.0	A843977
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A843977
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A843977
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	5.2	47.0	5.0	A843977
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A843977
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A843977
Total Zinc (Zn)	ug/L	30	<5.0	9.9	12.4	15.9	57.7	5.0	A843977
Total Zirconium (Zr)	ug/L	-	0.11	0.23	0.10	0.12	1.23	0.10	A843977
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT206	BJT207	BJT208	BJT231	BJT232		
Sampling Date			2022/12/29 12:16	2022/12/29 11:46	2022/12/29 09:30	2022/12/29 11:30	2022/12/29 15:57		
COC Number			3956D	3956B	3956C	41C64	3956A		
	UNITS	Criteria	D01 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	DUPLICATE	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	21.6	30.0	17.2	18.6	7.40	0.050	A843836
Total Magnesium (Mg)	mg/L	-	5.12	6.74	3.64	3.84	2.11	0.050	A843836
Total Potassium (K)	mg/L	-	2.13	2.07	1.90	1.80	0.999	0.050	A843836
Total Sodium (Na)	mg/L	-	24.6	42.7	46.9	57.0	50.6	0.050	A843836
Total Sulphur (S)	mg/L	-	5.5	6.5	4.1	4.2	<3.0	3.0	A843836
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit									



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT233	BJT234		
Sampling Date			2022/12/29 17:16	2022/12/29 16:02		
COC Number			3AF04	3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO3)	mg/L	-	<0.50	<0.50	0.50	A843832
Elements						
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0019	A844752
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	-	<3.0	<3.0	3.0	A844067
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	0.50	A844067
Total Arsenic (As)	ug/L	5	<0.10	<0.10	0.10	A844067
Total Barium (Ba)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	0.10	A844067
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Boron (B)	ug/L	1500	<50	<50	50	A844067
Total Cadmium (Cd)	ug/L	-	<0.010	<0.010	0.010	A844067
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	0.20	A844067
Total Copper (Cu)	ug/L	-	<0.50	<0.50	0.50	A844067
Total Iron (Fe)	ug/L	300	<10	<10	10	A844067
Total Lead (Pb)	ug/L	-	<0.20	<0.20	0.20	A844067
Total Lithium (Li)	ug/L	-	<2.0	<2.0	2.0	A844067
Total Manganese (Mn)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.0	A844067
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Selenium (Se)	ug/L	1	<0.10	<0.10	0.10	A844067
Total Silicon (Si)	ug/L	-	<100	<100	100	A844067
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	0.020	A844067
Total Strontium (Sr)	ug/L	-	<1.0	<1.0	1.0	A844067
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	0.010	A844067
Total Tin (Sn)	ug/L	-	<5.0	<5.0	5.0	A844067
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	5.0	A844067
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.10	A844067
Total Vanadium (V)	ug/L	-	<5.0	<5.0	5.0	A844067
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	5.0	A844067
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	0.10	A844067
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BJT233	BJT234		
Sampling Date			2022/12/29 17:16	2022/12/29 16:02		
COC Number			3AF04	3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	<0.050	<0.050	0.050	A843836
Total Magnesium (Mg)	mg/L	-	<0.050	<0.050	0.050	A843836
Total Potassium (K)	mg/L	-	<0.050	<0.050	0.050	A843836
Total Sodium (Na)	mg/L	-	<0.050	<0.050	0.050	A843836
Total Sulphur (S)	mg/L	-	<3.0	<3.0	3.0	A843836
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						



GENERAL COMMENTS

Version #2: Report reissued to amend client sampling date on all samples from 2022/12/24 to 2022/12/29 and Sampling time on samples BJT200, BJT201, BJT202, BJT203, BJT204, BJT205, BJT232 and BJT234 from AM to PM as per the original Chain of Custody.

Sample BJT200 [H01 (39565)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT201 [H02 (39566)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT202 [H03 (39567)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT203 [B01 (39568)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT204 [B02 (39569)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT205 [W01 (3956A)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Sample BJT206 [D01 (3956D)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Nitrate+Nitrite (N) (low level). Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample received past method specified hold time for Nitrite (N) (low level).

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C2A1528
Report Date: 2023/06/20

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A843977	Total Aluminum (Al)	2022/12/31	113	80 - 120	104	80 - 120	<3.0	ug/L	0.61	20
A843977	Total Antimony (Sb)	2022/12/31	104	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
A843977	Total Arsenic (As)	2022/12/31	107	80 - 120	104	80 - 120	<0.10	ug/L	0.68	20
A843977	Total Barium (Ba)	2022/12/31	105	80 - 120	101	80 - 120	<1.0	ug/L	2.2	20
A843977	Total Beryllium (Be)	2022/12/31	105	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
A843977	Total Bismuth (Bi)	2022/12/31	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A843977	Total Boron (B)	2022/12/31	112	80 - 120	111	80 - 120	<50	ug/L	NC	20
A843977	Total Cadmium (Cd)	2022/12/31	100	80 - 120	100	80 - 120	<0.010	ug/L	5.1	20
A843977	Total Chromium (Cr)	2022/12/31	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A843977	Total Cobalt (Co)	2022/12/31	95	80 - 120	94	80 - 120	<0.20	ug/L	5.1	20
A843977	Total Copper (Cu)	2022/12/31	95	80 - 120	96	80 - 120	<0.50	ug/L	1.6	20
A843977	Total Iron (Fe)	2022/12/31	109	80 - 120	103	80 - 120	<10	ug/L	3.9	20
A843977	Total Lead (Pb)	2022/12/31	101	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A843977	Total Lithium (Li)	2022/12/31	102	80 - 120	105	80 - 120	<2.0	ug/L	NC	20
A843977	Total Manganese (Mn)	2022/12/31	NC	80 - 120	100	80 - 120	<1.0	ug/L	2.3	20
A843977	Total Molybdenum (Mo)	2022/12/31	109	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A843977	Total Nickel (Ni)	2022/12/31	98	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A843977	Total Selenium (Se)	2022/12/31	102	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A843977	Total Silicon (Si)	2022/12/31	111	80 - 120	114	80 - 120	<100	ug/L	1.4	20
A843977	Total Silver (Ag)	2022/12/31	100	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A843977	Total Strontium (Sr)	2022/12/31	NC	80 - 120	103	80 - 120	<1.0	ug/L	8.1	20
A843977	Total Thallium (Tl)	2022/12/31	104	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A843977	Total Tin (Sn)	2022/12/31	103	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A843977	Total Titanium (Ti)	2022/12/31	106	80 - 120	102	80 - 120	<5.0	ug/L	19	20
A843977	Total Uranium (U)	2022/12/31	105	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A843977	Total Vanadium (V)	2022/12/31	105	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A843977	Total Zinc (Zn)	2022/12/31	99	80 - 120	98	80 - 120	<5.0	ug/L	1.5	20
A843977	Total Zirconium (Zr)	2022/12/31	106	80 - 120	103	80 - 120	<0.10	ug/L	7.2	20
A844067	Total Aluminum (Al)	2022/12/31	105	80 - 120	103	80 - 120	<3.0	ug/L	NC	20
A844067	Total Antimony (Sb)	2022/12/31	105	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A844067	Total Arsenic (As)	2022/12/31	104	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A844067	Total Barium (Ba)	2022/12/31	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A844067	Total Beryllium (Be)	2022/12/31	105	80 - 120	102	80 - 120	<0.10	ug/L	NC	20



Bureau Veritas Job #: C2A1528
Report Date: 2023/06/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A844067	Total Bismuth (Bi)	2022/12/31	96	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A844067	Total Boron (B)	2022/12/31	114	80 - 120	113	80 - 120	<50	ug/L	NC	20
A844067	Total Cadmium (Cd)	2022/12/31	102	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A844067	Total Chromium (Cr)	2022/12/31	98	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A844067	Total Cobalt (Co)	2022/12/31	94	80 - 120	94	80 - 120	<0.20	ug/L	NC	20
A844067	Total Copper (Cu)	2022/12/31	97	80 - 120	96	80 - 120	<0.50	ug/L	0.0076	20
A844067	Total Iron (Fe)	2022/12/31	103	80 - 120	104	80 - 120	<10	ug/L	NC	20
A844067	Total Lead (Pb)	2022/12/31	101	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A844067	Total Lithium (Li)	2022/12/31	103	80 - 120	98	80 - 120	<2.0	ug/L	NC	20
A844067	Total Manganese (Mn)	2022/12/31	101	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A844067	Total Molybdenum (Mo)	2022/12/31	105	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A844067	Total Nickel (Ni)	2022/12/31	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A844067	Total Selenium (Se)	2022/12/31	102	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A844067	Total Silicon (Si)	2022/12/31	113	80 - 120	112	80 - 120	<100	ug/L	NC	20
A844067	Total Silver (Ag)	2022/12/31	88	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A844067	Total Strontium (Sr)	2022/12/31	106	80 - 120	105	80 - 120	<1.0	ug/L	NC	20
A844067	Total Thallium (Tl)	2022/12/31	105	80 - 120	103	80 - 120	<0.010	ug/L	NC	20
A844067	Total Tin (Sn)	2022/12/31	104	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A844067	Total Titanium (Ti)	2022/12/31	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A844067	Total Uranium (U)	2022/12/31	105	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A844067	Total Vanadium (V)	2022/12/31	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A844067	Total Zinc (Zn)	2022/12/31	103	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A844067	Total Zirconium (Zr)	2022/12/31	105	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A844304	Nitrate plus Nitrite (N)	2022/12/31	NC	80 - 120	104	80 - 120	<0.0020	mg/L	0.31	25
A844305	Nitrite (N)	2022/12/31	102	80 - 120	101	80 - 120	<0.0020	mg/L	0.87	25
A844673	pH	2022/12/30			101	97 - 103			1.8	N/A
A844752	Total Mercury (Hg)	2023/01/03	77 (1)	80 - 120	96	80 - 120	<0.0019	ug/L	NC	20
A844777	Dissolved Fluoride (F)	2023/01/03	107	80 - 120	102	80 - 120	<0.050	mg/L	NC	20
A844782	Dissolved Fluoride (F)	2023/01/03	103	80 - 120	104	80 - 120	<0.050	mg/L	5.5	20
A845398	Total Phosphorus (P)	2023/01/05	96	N/A	96	80 - 120	<0.0030	mg/L	5.3	20
A845419	Total Phosphorus (P)	2023/01/05	98	N/A	90	80 - 120	<0.0030	mg/L	4.7	20

BUREAU
VERITAS

Bureau Veritas Job #: C2A1528

Report Date: 2023/06/20

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A845815	Total Ammonia (N)	2023/01/04	113	80 - 120	105	80 - 120	<0.015	mg/L	2.8	20

N/A = Not Applicable

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

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

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

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

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

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

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



Bureau Veritas Job #: C2A1528
Report Date: 2023/06/20

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas
4500 Canada Way, Burnaby, British Columbia Canada V6G 1K5 Tel: (604) 734 7276 Toll Free: 800-563-6296 Fax: (604) 731 2385 www.bvna.com

Page 1 of 2

INVOICE TO:

Company Name: **#1414 CITY OF ABBOTSFORD**
Contact Name: **Amy Peters**
Address: **32315 SOUTH FRASER WAY
ABBOTSFORD BC V2T 1W7**
Phone: **(778) 549-1240** Fax: **(604) 850-6418**
Email: **apeters@abbotsford.ca**

Report Information

Company Name: **Amy Peters**
Contact Name: **Amy Peters**
Address: **32315 SOUTH FRASER WAY
ABBOTSFORD BC V2T 1W7**
Phone: **(778) 549-1240** Fax: **(604) 850-6418**
Email: **apeters@abbotsford.ca**

Project Information

Quotation #: **C01193**
F.O. #:
Project #: **Bevan #1 Creek Water Quality**
Project Name:
Site #:
Sampled By:

C2A1528_COC

Only

Bottle Order #: **004137**
Project Manager:
Customer Solutions:

Regulatory Criteria:

☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other:

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metals Field Filtered ? (Y/N)

CSRI/CCME Tot. Metals in Water w/ CV Hg

Ammonia-N (Total)

Fluoride

Nitrate+Nitrite (N) (low level)

Nitrite (N) (low level)

Nitrogen - Nitrate (as N) Low Level Calc

pH @25°C

Total Phosphorus

Turnaround Time (TAT) Required:

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
1 DAY ☐ 2 Day ☐ 3 Day ☐ Data Required: ☐

Rush Confirmation Number: (add lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y/N)	CSRI/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	H01 (39565)	Dec 28	3:18			X	X	X	X	X	X	X	X		
2	H02 (39566)	12/29	3:20			X	X	X	X	X	X	X	X		
3	H03 (39567)		3:09			X	X	X	X	X	X	X	X		
4	B01 (39568)		3:34			X	X	X	X	X	X	X	X		
5	B02 (39569)		2:17			X	X	X	X	X	X	X	X		
6	W01 (3956A)		3:57			X	X	X	X	X	X	X	X		
7	D01 (3956D)	12/29	12:16			X	X	X	X	X	X	X	X		
8	~~D02 (3956D)~~	~~Dec 28~~				~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		
9	F01 (3956B)	Dec 29	11:46			X	X	X	X	X	X	X	X		
10	F02 (3956C)	Dec 29	9:30			X	X	X	X	X	X	X	X		

*** RELINQUISHED BY: (Signature/Print)** **Date: (YY/MM/DD)** **Time**

RECEIVED BY: (Signature/Print) **Date: (YY/MM/DD)** **Time**

Jars used and not submitted **Time Description** **Temperature (°C) on Receipt** **Custody Seal Intact on Container?**

Lab Use Only

White: Bureau Veritas Yellow: Client

106 PAGES IN COOLER



Bureau Veritas
4600 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free: 800-553-6266 Fax: (604) 731 2386 www.bvna.com

Page 2 of 2



C2A1528_COC

INVOICE TO:		Report Information		Project Information		Only									
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bottle Order #									
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #											
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality	Chain Of Custody Record	Project Manager								
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name											
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #			Customer Solutions								
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:									
☐ CSR ☐ CCM ☐ BC Water Quality ☐ Other						Please provide advance notice for rush projects									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS						Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐ Rush Confirmation Number: ☐ (call lab for #)									
Sample Barcode Label	Sample Location/Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Batches	Comments
1	FOF (41C64)	Dec 29	11:30			X	X	X	X	X	X	X	X		
2	DUPLICATE = W01	Dec 29	3:57			X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AF04)	Dec 29				X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)	Dec 29	14:02			X	X	X	X	X	X	X	X		
5															
6															
7															
8															
9															
10															
* RELINQUISHED BY: (Signature/Print)		Date: (YYYY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYYY/MM/DD)	Time	# (are used and not submitted)		Lab Use Only					
[Signature]		22/12/29	15:10	[Signature]		22/12/29	17:16			Time/Date		Temperature (°C) on Receipt	Custody Seal Intact on Code?		
												359/356	☐ Yes ☒ No		
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/SOOC-TERMS-AND-CONDITIONS.															
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															

Bureau Veritas Canada (2019) Inc.

ICE TRUCK IN DOCK



Your Project #: BEVAN #1 CREEK WATER QUALITY
Your C.O.C. #: 685619-01-01, 584

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2023/04/21
Report #: R3325385
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C305355

Received: 2023/01/24, 17:25

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	4	N/A	2023/01/25	BBY6SOP-00048	SM 23 4500-F C m
Fluoride	1	N/A	2023/02/01	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	4	N/A	2023/01/26	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	1	N/A	2023/01/31	BBY WI-00033	Auto Calc
Mercury (Total) by CV	4	2023/01/26	2023/01/26	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV	1	2023/01/30	2023/01/30	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	2023/04/19	2023/04/20	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2023/01/26	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2023/01/31	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	N/A	2023/01/25	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	1	N/A	2023/01/31	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	3	2023/04/19	2023/04/20	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	4	N/A	2023/01/25	AB SOP-00007	SM 23 4500 NH ₃ A G m
Ammonia-N (Total)	1	N/A	2023/01/30	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	4	N/A	2023/01/26	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrate+Nitrite (N) (low level)	1	N/A	2023/01/27	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	4	N/A	2023/01/26	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	1	N/A	2023/01/27	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	4	N/A	2023/01/27	BBY WI-00033	Auto Calc
Nitrogen - Nitrate (as N) Low Level Calc	1	N/A	2023/01/28	BBY WI-00033	Auto Calc
pH @25°C (2)	4	N/A	2023/01/25	BBY6SOP-00026	SM 23 4500-H+ B m
pH @25°C (2)	1	N/A	2023/01/27	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	4	2023/01/26	2023/01/26	BBY6SOP-00013	SM 23 4500-P E m
Total Phosphorus	1	2023/01/27	2023/01/27	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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



Your Project #: BEVAN #1 CREEK WATER QUALITY
Your C.O.C. #: 685619-01-01, 584

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Report Date: 2023/04/21
Report #: R3325385
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C305355

Received: 2023/01/24, 17:25

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Solutions, Western Canada Customer Experience Team
Email: customersolutionswest@bureauveritas.com
Phone# (604) 734 7276

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

BUREAU
VERITAS

Bureau Veritas Job #: C305355

Report Date: 2023/04/21

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BKT721	BKT722	BKT723	BKT724		BKT725		
Sampling Date			2023/01/24 01:40	2023/01/24 03:30	2023/01/24 02:05	2023/01/24 16:06		2023/01/24		
COC Number			584	584	584	584		584		
	UNITS	Criteria	FOF (41C64)	W01 (3956A)	F01 (3956B)	F02 (3956C)	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	1.06	0.517	1.12	0.952	A863445	<0.0020	0.0020	A865869
Misc. Inorganics										
pH	pH	6.5:9.0	7.40	7.13	7.37	7.23	A864217	6.10	N/A	A867896
Anions										
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	A863519	<0.050	0.050	A869646
Nutrients										
Total Ammonia (N)	mg/L	-	0.23	0.26	0.14	0.085	A863726	<0.015	0.015	A867623
Total Phosphorus (P)	mg/L	-	0.032	0.027	0.030	0.027	A864502	<0.0030	0.0030	A865794
Nitrate plus Nitrite (N)	mg/L	-	1.09	0.527	1.14	0.966	A865086	<0.0020	0.0020	A866326
Nitrite (N)	mg/L	0.06	0.0318	0.0109	0.0263	0.0138	A865087	<0.0020	0.0020	A866327
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										



TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKT721	BKT722			BKT723		
Sampling Date			2023/01/24 01:40	2023/01/24 03:30			2023/01/24 02:05		
COC Number			584	584			584		
	UNITS	Criteria	FOF (41C64)	W01 (3956A)	RDL	QC Batch	F01 (3956B)	RDL	QC Batch
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	-	78.0	35.9	0.50	A863137	85.9	0.50	A863137
Elements									
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	0.0019	A864268	<0.0019	0.0019	A864268
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	-					238	3.0	A863678
Total Antimony (Sb)	ug/L	-					<0.50	0.50	A863678
Total Arsenic (As)	ug/L	5					1.39	0.10	A863678
Total Barium (Ba)	ug/L	-					27.1	1.0	A863678
Total Beryllium (Be)	ug/L	-					<0.10	0.10	A863678
Total Bismuth (Bi)	ug/L	-					<1.0	1.0	A863678
Total Boron (B)	ug/L	1500					<50	50	A863678
Total Cadmium (Cd)	ug/L	-					0.015	0.010	A863678
Total Chromium (Cr)	ug/L	-					<1.0	1.0	A863678
Total Cobalt (Co)	ug/L	-					0.21	0.20	A863678
Total Copper (Cu)	ug/L	-					2.56	0.20	A863678
Total Iron (Fe)	ug/L	300					563	5.0	A863678
Total Lead (Pb)	ug/L	-					0.32	0.20	A863678
Total Lithium (Li)	ug/L	-					<2.0	2.0	A863678
Total Manganese (Mn)	ug/L	-					118	1.0	A863678
Total Molybdenum (Mo)	ug/L	73					<1.0	1.0	A863678
Total Nickel (Ni)	ug/L	-					<1.0	1.0	A863678
Total Selenium (Se)	ug/L	1					0.10	0.10	A863678
Total Silicon (Si)	ug/L	-					4940	100	A863678
Total Silver (Ag)	ug/L	0.25					<0.020	0.020	A863678
Total Strontium (Sr)	ug/L	-					145	1.0	A863678
Total Thallium (Tl)	ug/L	0.8					<0.010	0.010	A863678
Total Tin (Sn)	ug/L	-					<5.0	5.0	A863678
Total Titanium (Ti)	ug/L	-					17.9	5.0	A863678
Total Uranium (U)	ug/L	15					<0.10	0.10	A863678
Total Vanadium (V)	ug/L	-					<5.0	5.0	A863678
Total Zinc (Zn)	ug/L	30					11.7	5.0	A863678
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKT721	BKT722			BKT723		
Sampling Date			2023/01/24 01:40	2023/01/24 03:30			2023/01/24 02:05		
COC Number			584	584			584		
	UNITS	Criteria	FOF (41C64)	W01 (3956A)	RDL	QC Batch	F01 (3956B)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-					0.28	0.10	A863678
Total Calcium (Ca)	mg/L	-					24.3	0.050	A863358
Total Magnesium (Mg)	mg/L	-					6.10	0.050	A863358
Total Potassium (K)	mg/L	-					1.59	0.050	A863358
Total Sodium (Na)	mg/L	-					50.0	0.050	A863358
Total Sulphur (S)	mg/L	-					4.2	3.0	A863358
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									



TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKT724			BKT725		
Sampling Date			2023/01/24 16:06			2023/01/24		
COC Number			584			584		
	UNITS	Criteria	F02 (3956C)	RDL	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	66.1	0.50	A863137	<0.50	0.50	A865661
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	0.0019	A864268	<0.0019	0.0019	A867527
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-				<3.0	3.0	A868463
Total Antimony (Sb)	ug/L	-				<0.50	0.50	A868463
Total Arsenic (As)	ug/L	5				<0.10	0.10	A868463
Total Barium (Ba)	ug/L	-				<1.0	1.0	A868463
Total Beryllium (Be)	ug/L	-				<0.10	0.10	A868463
Total Bismuth (Bi)	ug/L	-				<1.0	1.0	A868463
Total Boron (B)	ug/L	1500				<50	50	A868463
Total Cadmium (Cd)	ug/L	-				<0.010	0.010	A868463
Total Chromium (Cr)	ug/L	-				<1.0	1.0	A868463
Total Cobalt (Co)	ug/L	-				<0.20	0.20	A868463
Total Copper (Cu)	ug/L	-				<0.20	0.20	A868463
Total Iron (Fe)	ug/L	300				<5.0	5.0	A868463
Total Lead (Pb)	ug/L	-				<0.20	0.20	A868463
Total Lithium (Li)	ug/L	-				<2.0	2.0	A868463
Total Manganese (Mn)	ug/L	-				<1.0	1.0	A868463
Total Molybdenum (Mo)	ug/L	73				<1.0	1.0	A868463
Total Nickel (Ni)	ug/L	-				<1.0	1.0	A868463
Total Selenium (Se)	ug/L	1				<0.10	0.10	A868463
Total Silicon (Si)	ug/L	-				<100	100	A868463
Total Silver (Ag)	ug/L	0.25				<0.020	0.020	A868463
Total Strontium (Sr)	ug/L	-				<1.0	1.0	A868463
Total Thallium (Tl)	ug/L	0.8				<0.010	0.010	A868463
Total Tin (Sn)	ug/L	-				<5.0	5.0	A868463
Total Titanium (Ti)	ug/L	-				<5.0	5.0	A868463
Total Uranium (U)	ug/L	15				<0.10	0.10	A868463
Total Vanadium (V)	ug/L	-				<5.0	5.0	A868463
Total Zinc (Zn)	ug/L	30				<5.0	5.0	A868463
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKT724			BKT725		
Sampling Date			2023/01/24 16:06			2023/01/24		
COC Number			584			584		
	UNITS	Criteria	F02 (3956C)	RDL	QC Batch	TRIP BLANK (3AF04)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-				<0.10	0.10	A868463
Total Calcium (Ca)	mg/L	-				<0.050	0.050	A865673
Total Magnesium (Mg)	mg/L	-				<0.050	0.050	A865673
Total Potassium (K)	mg/L	-				<0.050	0.050	A865673
Total Sodium (Na)	mg/L	-				<0.050	0.050	A865673
Total Sulphur (S)	mg/L	-				<3.0	3.0	A865673
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BKT721	BKT722	BKT724		
Sampling Date			2023/01/24 01:40	2023/01/24 03:30	2023/01/24 16:06		
COC Number			584	584	584		
	UNITS	Criteria	FOF (41C64)	W01 (3956A)	F02 (3956C)	RDL	QC Batch
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	-	504	81.6	488	3.0	A939488
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	0.50	A939488
Total Arsenic (As)	ug/L	5	0.98	0.69	0.41	0.10	A939488
Total Barium (Ba)	ug/L	-	39.9	18.2	34.6	1.0	A939488
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	0.10	A939488
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	1.0	A939488
Total Boron (B)	ug/L	1500	<50	<50	<50	50	A939488
Total Cadmium (Cd)	ug/L	-	0.035	0.011	0.031	0.010	A939488
Total Chromium (Cr)	ug/L	-	1.5	<1.0	1.1	1.0	A939488
Total Cobalt (Co)	ug/L	-	0.47	<0.20	0.48	0.20	A939488
Total Copper (Cu)	ug/L	-	3.95	1.25	2.77	0.50	A939488
Total Iron (Fe)	ug/L	300	1070	663	709	10	A939488
Total Lead (Pb)	ug/L	-	0.74	0.37	0.40	0.20	A939488
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	2.0	A939488
Total Manganese (Mn)	ug/L	-	107	52.5	48.0	1.0	A939488
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	1.0	A939488
Total Nickel (Ni)	ug/L	-	1.3	<1.0	1.2	1.0	A939488
Total Selenium (Se)	ug/L	1	<0.10	<0.10	<0.10	0.10	A939488
Total Silicon (Si)	ug/L	-	5420	3480	5340	100	A939488
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	0.020	A939488
Total Strontium (Sr)	ug/L	-	132	63.1	124	1.0	A939488
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	0.010	A939488
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	5.0	A939488
Total Titanium (Ti)	ug/L	-	21.7	<5.0	16.5	5.0	A939488
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	0.10	A939488
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	5.0	A939488
Total Zinc (Zn)	ug/L	30	31.0	8.3	25.9	5.0	A939488
Total Zirconium (Zr)	ug/L	-	0.27	<0.10	0.23	0.10	A939488
Total Calcium (Ca)	mg/L	-	23.4	9.95	21.1	0.050	A939048
Total Magnesium (Mg)	mg/L	-	5.17	2.56	4.84	0.050	A939048
Total Potassium (K)	mg/L	-	1.63	0.858	1.82	0.050	A939048
Total Sodium (Na)	mg/L	-	67.5	46.1	36.8	0.050	A939048
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BKT721	BKT722	BKT724		
Sampling Date			2023/01/24 01:40	2023/01/24 03:30	2023/01/24 16:06		
COC Number			584	584	584		
	UNITS	Criteria	FOF (41C64)	W01 (3956A)	F02 (3956C)	RDL	QC Batch
Total Sulphur (S)	mg/L	-	4.1	<3.0	4.3	3.0	A939048
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

GENERAL COMMENTS

Version #2: Report reissued as a result of an internal data review. Revised data for the following samples and tests are included in this report: BKT721, BKT722, BKT724 for Total Metals. Total Lithium has also been added to all other samples.
Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A863519	Dissolved Fluoride (F)	2023/01/25	104	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A863678	Total Aluminum (Al)	2023/01/25	97	80 - 120	104	80 - 120	<3.0	ug/L	12	20
A863678	Total Antimony (Sb)	2023/01/25	102	80 - 120	107	80 - 120	<0.50	ug/L	NC	20
A863678	Total Arsenic (As)	2023/01/25	102	80 - 120	106	80 - 120	<0.10	ug/L	0.98	20
A863678	Total Barium (Ba)	2023/01/25	98	80 - 120	105	80 - 120	<1.0	ug/L	9.2	20
A863678	Total Beryllium (Be)	2023/01/25	95	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
A863678	Total Bismuth (Bi)	2023/01/25	95	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A863678	Total Boron (B)	2023/01/25	NC	80 - 120	98	80 - 120	<50	ug/L	1.5	20
A863678	Total Cadmium (Cd)	2023/01/25	99	80 - 120	104	80 - 120	<0.010	ug/L	NC	20
A863678	Total Chromium (Cr)	2023/01/25	97	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A863678	Total Cobalt (Co)	2023/01/25	94	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
A863678	Total Copper (Cu)	2023/01/25	93	80 - 120	101	80 - 120	<0.20	ug/L	1.9	20
A863678	Total Iron (Fe)	2023/01/25	96	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A863678	Total Lead (Pb)	2023/01/25	97	80 - 120	104	80 - 120	<0.20	ug/L	0.16	20
A863678	Total Lithium (Li)	2023/01/25	90	80 - 120	94	80 - 120	<2.0	ug/L	1.6	20
A863678	Total Manganese (Mn)	2023/01/25	97	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
A863678	Total Molybdenum (Mo)	2023/01/25	104	80 - 120	106	80 - 120	<1.0	ug/L	NC	20
A863678	Total Nickel (Ni)	2023/01/25	93	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A863678	Total Selenium (Se)	2023/01/25	98	80 - 120	101	80 - 120	<0.10	ug/L	3.6	20
A863678	Total Silicon (Si)	2023/01/25	NC	80 - 120	109	80 - 120	<100	ug/L	0.033	20
A863678	Total Silver (Ag)	2023/01/25	100	80 - 120	105	80 - 120	<0.020	ug/L	NC	20
A863678	Total Strontium (Sr)	2023/01/25	NC	80 - 120	105	80 - 120	<1.0	ug/L	0.62	20
A863678	Total Thallium (Tl)	2023/01/25	96	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A863678	Total Tin (Sn)	2023/01/25	97	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A863678	Total Titanium (Ti)	2023/01/25	100	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A863678	Total Uranium (U)	2023/01/25	101	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A863678	Total Vanadium (V)	2023/01/25	100	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A863678	Total Zinc (Zn)	2023/01/25	99	80 - 120	106	80 - 120	<5.0	ug/L	NC	20
A863678	Total Zirconium (Zr)	2023/01/25	103	80 - 120	108	80 - 120	<0.10	ug/L	NC	20
A863726	Total Ammonia (N)	2023/01/25	NC	80 - 120	107	80 - 120	<0.015	mg/L	0.051	20
A864217	pH	2023/01/25			102	97 - 103			0.30	N/A
A864268	Total Mercury (Hg)	2023/01/26	78 (1)	80 - 120	104	80 - 120	<0.0019	ug/L	18	20



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A864502	Total Phosphorus (P)	2023/01/26	94	N/A	110	80 - 120	<0.0030	mg/L	8.5	20
A865086	Nitrate plus Nitrite (N)	2023/01/26	NC	80 - 120	106	80 - 120	<0.0020	mg/L	1.0	25
A865087	Nitrite (N)	2023/01/26	105	80 - 120	102	80 - 120	<0.0020	mg/L	0.63	25
A865794	Total Phosphorus (P)	2023/01/27	NC	N/A	107	80 - 120	<0.0030	mg/L	0.45	20
A866326	Nitrate plus Nitrite (N)	2023/01/27			101	80 - 120	<0.0020	mg/L		
A866327	Nitrite (N)	2023/01/27			104	80 - 120	<0.0020	mg/L		
A867527	Total Mercury (Hg)	2023/01/30	96	80 - 120	100	80 - 120	<0.0019	ug/L	NC	20
A867623	Total Ammonia (N)	2023/01/30	110	80 - 120	106	80 - 120	<0.015	mg/L	NC	20
A867896	pH	2023/01/27			102	97 - 103			0.38	N/A
A868463	Total Aluminum (Al)	2023/01/31	92	80 - 120	97	80 - 120	<3.0	ug/L	NC	20
A868463	Total Antimony (Sb)	2023/01/31	101	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
A868463	Total Arsenic (As)	2023/01/31	102	80 - 120	104	80 - 120	<0.10	ug/L	0.096	20
A868463	Total Barium (Ba)	2023/01/31	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A868463	Total Beryllium (Be)	2023/01/31	101	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
A868463	Total Bismuth (Bi)	2023/01/31	91	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A868463	Total Boron (B)	2023/01/31	NC	80 - 120	98	80 - 120	<50	ug/L	3.1	20
A868463	Total Cadmium (Cd)	2023/01/31	99	80 - 120	103	80 - 120	<0.010	ug/L	NC	20
A868463	Total Chromium (Cr)	2023/01/31	93	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
A868463	Total Cobalt (Co)	2023/01/31	98	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
A868463	Total Copper (Cu)	2023/01/31	90	80 - 120	96	80 - 120	<0.20	ug/L	NC	20
A868463	Total Iron (Fe)	2023/01/31	98	80 - 120	100	80 - 120	<5.0	ug/L	0.92	20
A868463	Total Lead (Pb)	2023/01/31	93	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A868463	Total Lithium (Li)	2023/01/31	103	80 - 120	110	80 - 120	<2.0	ug/L		
A868463	Total Manganese (Mn)	2023/01/31	95	80 - 120	101	80 - 120	<1.0	ug/L	2.4	20
A868463	Total Molybdenum (Mo)	2023/01/31	101	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A868463	Total Nickel (Ni)	2023/01/31	95	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A868463	Total Selenium (Se)	2023/01/31	101	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A868463	Total Silicon (Si)	2023/01/31	NC	80 - 120	100	80 - 120	<100	ug/L	1.0	20
A868463	Total Silver (Ag)	2023/01/31	99	80 - 120	103	80 - 120	<0.020	ug/L	NC	20
A868463	Total Strontium (Sr)	2023/01/31	NC	80 - 120	102	80 - 120	<1.0	ug/L	1.3	20
A868463	Total Thallium (Tl)	2023/01/31	94	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A868463	Total Tin (Sn)	2023/01/31	98	80 - 120	103	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A868463	Total Titanium (Ti)	2023/01/31	97	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A868463	Total Uranium (U)	2023/01/31	98	80 - 120	106	80 - 120	<0.10	ug/L	NC	20
A868463	Total Vanadium (V)	2023/01/31	92	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
A868463	Total Zinc (Zn)	2023/01/31	95	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A868463	Total Zirconium (Zr)	2023/01/31	101	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A869646	Dissolved Fluoride (F)	2023/02/01	NC	80 - 120	104	80 - 120	<0.050	mg/L	1.9	20
A939488	Total Aluminum (Al)	2023/04/20	108	80 - 120	102	80 - 120	<3.0	ug/L	0.88	20
A939488	Total Antimony (Sb)	2023/04/20	108	80 - 120	105	80 - 120	<0.50	ug/L	NC	20
A939488	Total Arsenic (As)	2023/04/20	109	80 - 120	104	80 - 120	<0.10	ug/L	1.4	20
A939488	Total Barium (Ba)	2023/04/20	105	80 - 120	102	80 - 120	<1.0	ug/L	1.6	20
A939488	Total Beryllium (Be)	2023/04/20	104	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A939488	Total Bismuth (Bi)	2023/04/20	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A939488	Total Boron (B)	2023/04/20	105	80 - 120	104	80 - 120	<50	ug/L	NC	20
A939488	Total Cadmium (Cd)	2023/04/20	105	80 - 120	102	80 - 120	<0.010	ug/L	11	20
A939488	Total Chromium (Cr)	2023/04/20	102	80 - 120	103	80 - 120	<1.0	ug/L	1.5	20
A939488	Total Cobalt (Co)	2023/04/20	98	80 - 120	99	80 - 120	<0.20	ug/L	1.9	20
A939488	Total Copper (Cu)	2023/04/20	97	80 - 120	98	80 - 120	<0.50	ug/L	0.57	20
A939488	Total Iron (Fe)	2023/04/20	NC	80 - 120	104	80 - 120	<10	ug/L	0.73	20
A939488	Total Lead (Pb)	2023/04/20	102	80 - 120	101	80 - 120	<0.20	ug/L	0.81	20
A939488	Total Lithium (Li)	2023/04/20	99	80 - 120	102	80 - 120	<2.0	ug/L	NC	20
A939488	Total Manganese (Mn)	2023/04/20	100	80 - 120	103	80 - 120	<1.0	ug/L	1.4	20
A939488	Total Molybdenum (Mo)	2023/04/20	107	80 - 120	106	80 - 120	<1.0	ug/L	NC	20
A939488	Total Nickel (Ni)	2023/04/20	101	80 - 120	103	80 - 120	<1.0	ug/L	4.6	20
A939488	Total Selenium (Se)	2023/04/20	109	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A939488	Total Silicon (Si)	2023/04/20	NC	80 - 120	112	80 - 120	<100	ug/L	2.1	20
A939488	Total Silver (Ag)	2023/04/20	103	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A939488	Total Strontium (Sr)	2023/04/20	NC	80 - 120	102	80 - 120	<1.0	ug/L	1.3	20
A939488	Total Thallium (Tl)	2023/04/20	103	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A939488	Total Tin (Sn)	2023/04/20	105	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A939488	Total Titanium (Ti)	2023/04/20	110	80 - 120	103	80 - 120	<5.0	ug/L	2.8	20
A939488	Total Uranium (U)	2023/04/20	108	80 - 120	106	80 - 120	<0.10	ug/L	NC	20
A939488	Total Vanadium (V)	2023/04/20	105	80 - 120	103	80 - 120	<5.0	ug/L	NC	20



BUREAU
VERITAS

Bureau Veritas Job #: C305355

Report Date: 2023/04/21

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A939488	Total Zinc (Zn)	2023/04/20	99	80 - 120	103	80 - 120	<5.0	ug/L	2.6	20
A939488	Total Zirconium (Zr)	2023/04/20	107	80 - 120	103	80 - 120	<0.10	ug/L	11	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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



Bureau Veritas Job #: C305355
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas Canada (2019) Inc.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: C#685619-02-01, 3AF06, 419FD, 3AF05, 39569, 39568,
39566, 39565, 39567, 3956D

Report Date: 2023/04/21
Report #: R3325326
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C305710

Received: 2023/01/25, 17:00

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	9	N/A	2023/01/30	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	9	N/A	2023/01/27	BBY WI-00033	Auto Calc
Mercury (Total) by CV	8	2023/01/30	2023/01/30	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV	1	2023/02/01	2023/02/01	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	9	N/A	2023/01/27	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	9	N/A	2023/01/26	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	9	N/A	2023/01/26	AB SOP-00007	SM 23 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	9	N/A	2023/01/27	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	9	N/A	2023/01/27	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	9	N/A	2023/01/28	BBY WI-00033	Auto Calc
pH @25°C (2)	9	N/A	2023/01/26	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	9	2023/01/26	2023/01/26	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: C#685619-02-01, 3AF06, 419FD, 3AF05, 39569, 39568,
39566, 39565, 39567, 3956D

Report Date: 2023/04/21
Report #: R3325326
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C305710

Received: 2023/01/25, 17:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

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

BUREAU
VERITAS

Bureau Veritas Job #: C305710

Report Date: 2023/04/21

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BKV684	BKV685	BKV686	BKV687		BKV688		
Sampling Date			2023/01/25 02:47	2023/01/25 10:59	2023/01/25 03:00	2023/01/25 10:50		2023/01/25 12:50		
COC Number			3AF06	419FD	3AF05	39569		39568		
	UNITS	Criteria	D02	DUPLICATE	FIELD BLANK (3AF05)	B02	QC Batch	B01	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	0.813	1.29	0.0027	1.27	A864414	0.692	0.0020	A864414

Misc. Inorganics

pH	pH	6.5:9.0	7.55	7.57	6.48	7.40	A866029	6.71	N/A	A866051

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	A867668	<0.050	0.050	A867668

Nutrients

Total Ammonia (N)	mg/L	-	0.016	0.11	<0.015	0.085	A864956	0.18	0.015	A864956
Total Phosphorus (P)	mg/L	-	0.017	0.013	<0.0030	0.017	A864502	0.027	0.0030	A864502
Nitrate plus Nitrite (N)	mg/L	-	0.817	1.30	0.0027	1.28	A866324	0.703	0.0020	A866324
Nitrite (N)	mg/L	0.06	0.0046	0.0132	<0.0020	0.0135	A866325	0.0117	0.0020	A866325

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

Bureau Veritas ID			BKV689		BKV690	BKV691		BKV692		
Sampling Date			2023/01/25 10:30		2023/01/25 03:40	2023/01/25 03:15		2023/01/25 02:15		
COC Number			39566		39565	39567		3956D		
	UNITS	Criteria	H02	RDL	H01	H03	RDL	D01	RDL	QC Batch

Calculated Parameters

Nitrate (N)	mg/L	-	1.31	0.0020	2.14	2.12	0.0040	1.27	0.0020	A864414

Misc. Inorganics

pH	pH	6.5:9.0	7.45	N/A	6.93	7.23	N/A	7.57	N/A	A866051

Anions

Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	<0.050	<0.050	0.050	<0.050	0.050	A867668

Nutrients

Total Ammonia (N)	mg/L	-	0.046	0.015	0.026	0.021	0.015	<0.015	0.015	A864956
Total Phosphorus (P)	mg/L	-	0.030	0.0030	0.088	0.012	0.0030	0.0092	0.0030	A864502
Nitrate plus Nitrite (N)	mg/L	-	1.32	0.0020	2.15	2.13	0.0040	1.28	0.0020	A866324
Nitrite (N)	mg/L	0.06	0.0122	0.0020	0.0077	0.0107	0.0020	0.0046	0.0020	A866325

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

N/A = Not Applicable

BUREAU
VERITAS

Bureau Veritas Job #: C305710

Report Date: 2023/04/21

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV684		BKV685	BKV686		BKV687		
Sampling Date			2023/01/25 02:47		2023/01/25 10:59	2023/01/25 03:00		2023/01/25 10:50		
COC Number			3AF06		419FD	3AF05		39569		
	UNITS	Criteria	D02	QC Batch	DUPLICATE	FIELD BLANK (3AF05)	QC Batch	B02	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	107	A864328	78.4	<0.50	A864328	77.3	0.50	A864328

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A869455	<0.0019	<0.0019	A867872	<0.0019	0.0019	A867820

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	16.8	A864692	39.2	<3.0	A864692	47.6	3.0	A864692
Total Antimony (Sb)	ug/L	-	<0.50	A864692	<0.50	<0.50	A864692	<0.50	0.50	A864692
Total Arsenic (As)	ug/L	5	1.20	A864692	0.54	<0.10	A864692	0.58	0.10	A864692
Total Barium (Ba)	ug/L	-	11.8	A864692	17.9	<1.0	A864692	18.3	1.0	A864692
Total Beryllium (Be)	ug/L	-	<0.10	A864692	<0.10	<0.10	A864692	<0.10	0.10	A864692
Total Bismuth (Bi)	ug/L	-	<1.0	A864692	<1.0	<1.0	A864692	<1.0	1.0	A864692
Total Boron (B)	ug/L	1500	<50	A864692	<50	<50	A864692	<50	50	A864692
Total Cadmium (Cd)	ug/L	-	<0.010	A864692	0.013	<0.010	A864692	0.015	0.010	A864692
Total Chromium (Cr)	ug/L	-	<1.0	A864692	<1.0	<1.0	A864692	<1.0	1.0	A864692
Total Cobalt (Co)	ug/L	-	<0.20	A864692	<0.20	<0.20	A864692	<0.20	0.20	A864692
Total Copper (Cu)	ug/L	-	0.22	A864692	1.26	<0.20	A864692	1.34	0.20	A864692
Total Iron (Fe)	ug/L	300	332	A864692	446	<5.0	A864692	462	5.0	A864692
Total Lead (Pb)	ug/L	-	<0.20	A864692	0.24	<0.20	A864692	0.26	0.20	A864692
Total Lithium (Li)	ug/L	-	<2.0	A864692	<2.0	<2.0	A864692	<2.0	2.0	A864692
Total Manganese (Mn)	ug/L	-	126	A864692	108	<1.0	A864692	110	1.0	A864692
Total Molybdenum (Mo)	ug/L	73	<1.0	A864692	<1.0	<1.0	A864692	<1.0	1.0	A864692
Total Nickel (Ni)	ug/L	-	<1.0	A864692	<1.0	<1.0	A864692	<1.0	1.0	A864692
Total Selenium (Se)	ug/L	1	0.23	A864692	0.11	<0.10	A864692	0.11	0.10	A864692
Total Silicon (Si)	ug/L	-	11400	A864692	7880	<100	A864692	7620	100	A864692
Total Silver (Ag)	ug/L	0.25	<0.020	A864692	<0.020	<0.020	A864692	<0.020	0.020	A864692
Total Strontium (Sr)	ug/L	-	143	A864692	120	<1.0	A864692	120	1.0	A864692
Total Thallium (Tl)	ug/L	0.8	<0.010	A864692	<0.010	<0.010	A864692	<0.010	0.010	A864692
Total Tin (Sn)	ug/L	-	<5.0	A864692	<5.0	<5.0	A864692	<5.0	5.0	A864692
Total Titanium (Ti)	ug/L	-	<5.0	A864692	<5.0	<5.0	A864692	<5.0	5.0	A864692
Total Uranium (U)	ug/L	15	<0.10	A864692	<0.10	<0.10	A864692	<0.10	0.10	A864692
Total Vanadium (V)	ug/L	-	<5.0	A864692	<5.0	<5.0	A864692	<5.0	5.0	A864692
Total Zinc (Zn)	ug/L	30	<5.0	A864692	9.3	<5.0	A864692	9.9	5.0	A864692

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



Bureau Veritas Job #: C305710
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV684		BKV685	BKV686		BKV687		
Sampling Date			2023/01/25 02:47		2023/01/25 10:59	2023/01/25 03:00		2023/01/25 10:50		
COC Number			3AF06		419FD	3AF05		39569		
	UNITS	Criteria	D02	QC Batch	DUPLICATE	FIELD BLANK (3AF05)	QC Batch	B02	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	A864692	0.42	<0.10	A864692	<0.10	0.10	A864692
Total Calcium (Ca)	mg/L	-	27.7	A864329	22.1	<0.050	A864329	21.6	0.050	A864329
Total Magnesium (Mg)	mg/L	-	9.17	A864329	5.63	<0.050	A864329	5.68	0.050	A864329
Total Potassium (K)	mg/L	-	1.60	A864329	1.22	<0.050	A864329	1.23	0.050	A864329
Total Sodium (Na)	mg/L	-	9.48	A864329	19.7	<0.050	A864329	19.7	0.050	A864329
Total Sulphur (S)	mg/L	-	3.9	A864329	3.1	<3.0	A864329	3.8	3.0	A864329
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										



Bureau Veritas Job #: C305710
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV688		BKV689		BKV690		BKV691		
Sampling Date			2023/01/25 12:50		2023/01/25 10:30		2023/01/25 03:40		2023/01/25 03:15		
COC Number			39568		39566		39565		39567		
	UNITS	Criteria	B01	QC Batch	H02	QC Batch	H01	QC Batch	H03	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO ₃)	mg/L	-	37.7	A864328	86.4	A864328	101	A864328	103	0.50	A864328

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	A867872	<0.0019	A867820	0.0514	A867872	0.0369	0.0019	A867820

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	95.7	A864692	87.5	A864692	257	A864692	29.0	3.0	A864692
Total Antimony (Sb)	ug/L	-	<0.50	A864692	<0.50	A864692	<0.50	A864692	<0.50	0.50	A864692
Total Arsenic (As)	ug/L	5	0.85	A864692	0.80	A864692	1.00	A864692	0.50	0.10	A864692
Total Barium (Ba)	ug/L	-	25.4	A864692	16.6	A864692	19.2	A864692	17.6	1.0	A864692
Total Beryllium (Be)	ug/L	-	<0.10	A864692	<0.10	A864692	<0.10	A864692	<0.10	0.10	A864692
Total Bismuth (Bi)	ug/L	-	<1.0	A864692	<1.0	A864692	<1.0	A864692	<1.0	1.0	A864692
Total Boron (B)	ug/L	1500	<50	A864692	<50	A864692	<50	A864692	<50	50	A864692
Total Cadmium (Cd)	ug/L	-	0.054	A864692	0.013	A864692	0.034	A864692	0.023	0.010	A864692
Total Chromium (Cr)	ug/L	-	1.1	A864692	<1.0	A864692	<1.0	A864692	<1.0	1.0	A864692
Total Cobalt (Co)	ug/L	-	0.66	A864692	<0.20	A864692	0.24	A864692	<0.20	0.20	A864692
Total Copper (Cu)	ug/L	-	5.47	A864692	1.66	A864692	9.20	A864692	2.47	0.20	A864692
Total Iron (Fe)	ug/L	300	790	A864692	290	A864692	600	A864692	51.7	5.0	A864692
Total Lead (Pb)	ug/L	-	2.85	A864692	0.30	A864692	2.11	A864692	<0.20	0.20	A864692
Total Lithium (Li)	ug/L	-	<2.0	A864692	<2.0	A864692	<2.0	A864692	<2.0	2.0	A864692
Total Manganese (Mn)	ug/L	-	136	A864692	55.4	A864692	26.7	A864692	12.5	1.0	A864692
Total Molybdenum (Mo)	ug/L	73	<1.0	A864692	<1.0	A864692	<1.0	A864692	<1.0	1.0	A864692
Total Nickel (Ni)	ug/L	-	1.6	A864692	<1.0	A864692	<1.0	A864692	<1.0	1.0	A864692
Total Selenium (Se)	ug/L	1	<0.10	A864692	<0.10	A864692	0.22	A864692	0.15	0.10	A864692
Total Silicon (Si)	ug/L	-	4910	A864692	7340	A864692	9150	A864692	8100	100	A864692
Total Silver (Ag)	ug/L	0.25	<0.020	A864692	<0.020	A864692	<0.020	A864692	<0.020	0.020	A864692
Total Strontium (Sr)	ug/L	-	97.5	A864692	114	A864692	151	A864692	146	1.0	A864692
Total Thallium (Tl)	ug/L	0.8	<0.010	A864692	<0.010	A864692	<0.010	A864692	<0.010	0.010	A864692
Total Tin (Sn)	ug/L	-	<5.0	A864692	<5.0	A864692	<5.0	A864692	<5.0	5.0	A864692
Total Titanium (Ti)	ug/L	-	<5.0	A864692	<5.0	A864692	7.9	A864692	<5.0	5.0	A864692
Total Uranium (U)	ug/L	15	<0.10	A864692	<0.10	A864692	<0.10	A864692	<0.10	0.10	A864692
Total Vanadium (V)	ug/L	-	<5.0	A864692	<5.0	A864692	<5.0	A864692	<5.0	5.0	A864692
Total Zinc (Zn)	ug/L	30	40.9	A864692	14.0	A864692	27.8	A864692	26.5	5.0	A864692

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV688		BKV689		BKV690		BKV691		
Sampling Date			2023/01/25 12:50		2023/01/25 10:30		2023/01/25 03:40		2023/01/25 03:15		
COC Number			39568		39566		39565		39567		
	UNITS	Criteria	B01	QC Batch	H02	QC Batch	H01	QC Batch	H03	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	0.21	A864692	<0.10	A864692	0.10	A864692	<0.10	0.10	A864692
Total Calcium (Ca)	mg/L	-	11.1	A864329	24.9	A864329	28.4	A864329	29.6	0.050	A864329
Total Magnesium (Mg)	mg/L	-	2.39	A864329	5.87	A864329	7.30	A864329	7.03	0.050	A864329
Total Potassium (K)	mg/L	-	1.03	A864329	1.45	A864329	1.76	A864329	2.10	0.050	A864329
Total Sodium (Na)	mg/L	-	38.3	A864329	18.7	A864329	30.6	A864329	27.2	0.050	A864329
Total Sulphur (S)	mg/L	-	<3.0	A864329	4.4	A864329	5.0	A864329	6.3	3.0	A864329
No Fill	No Exceedance										
Grey	Exceeds 1 criteria policy/level										
Black	Exceeds both criteria/levels										
RDL = Reportable Detection Limit											



TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV692		
Sampling Date			2023/01/25 02:15		
COC Number			3956D		
	UNITS	Criteria	D01	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	-	79.8	0.50	A864328
Elements					
Total Mercury (Hg)	ug/L	0.026	<0.0019	0.0019	A867820
Total Metals by ICPMS					
Total Aluminum (Al)	ug/L	-	31.7	3.0	A864692
Total Antimony (Sb)	ug/L	-	<0.50	0.50	A864692
Total Arsenic (As)	ug/L	5	0.51	0.10	A864692
Total Barium (Ba)	ug/L	-	19.9	1.0	A864692
Total Beryllium (Be)	ug/L	-	<0.10	0.10	A864692
Total Bismuth (Bi)	ug/L	-	<1.0	1.0	A864692
Total Boron (B)	ug/L	1500	<50	50	A864692
Total Cadmium (Cd)	ug/L	-	<0.010	0.010	A864692
Total Chromium (Cr)	ug/L	-	<1.0	1.0	A864692
Total Cobalt (Co)	ug/L	-	<0.20	0.20	A864692
Total Copper (Cu)	ug/L	-	0.84	0.20	A864692
Total Iron (Fe)	ug/L	300	182	5.0	A864692
Total Lead (Pb)	ug/L	-	<0.20	0.20	A864692
Total Lithium (Li)	ug/L	-	<2.0	2.0	A864692
Total Manganese (Mn)	ug/L	-	34.9	1.0	A864692
Total Molybdenum (Mo)	ug/L	73	<1.0	1.0	A864692
Total Nickel (Ni)	ug/L	-	<1.0	1.0	A864692
Total Selenium (Se)	ug/L	1	0.14	0.10	A864692
Total Silicon (Si)	ug/L	-	7430	100	A864692
Total Silver (Ag)	ug/L	0.25	<0.020	0.020	A864692
Total Strontium (Sr)	ug/L	-	127	1.0	A864692
Total Thallium (Tl)	ug/L	0.8	<0.010	0.010	A864692
Total Tin (Sn)	ug/L	-	<5.0	5.0	A864692
Total Titanium (Ti)	ug/L	-	<5.0	5.0	A864692
Total Uranium (U)	ug/L	15	<0.10	0.10	A864692
Total Vanadium (V)	ug/L	-	<5.0	5.0	A864692
Total Zinc (Zn)	ug/L	30	<5.0	5.0	A864692
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					



TOT. METALS W/ CV HG FOR DRINKING WATER (WATER)

Bureau Veritas ID			BKV692		
Sampling Date			2023/01/25 02:15		
COC Number			3956D		
	UNITS	Criteria	D01	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	0.10	A864692
Total Calcium (Ca)	mg/L	-	21.8	0.050	A864329
Total Magnesium (Mg)	mg/L	-	6.14	0.050	A864329
Total Potassium (K)	mg/L	-	1.78	0.050	A864329
Total Sodium (Na)	mg/L	-	16.3	0.050	A864329
Total Sulphur (S)	mg/L	-	4.8	3.0	A864329
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					



Bureau Veritas Job #: C305710
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

GENERAL COMMENTS

Version #2: Additional parameter Lithium has been included in the Total Metals scan.
Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C305710
Report Date: 2023/04/21

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A864502	Total Phosphorus (P)	2023/01/26	94	N/A	110	80 - 120	<0.0030	mg/L	8.5	20
A864692	Total Aluminum (Al)	2023/01/26	101	80 - 120	103	80 - 120	<3.0	ug/L	15	20
A864692	Total Antimony (Sb)	2023/01/26	104	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A864692	Total Arsenic (As)	2023/01/26	101	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A864692	Total Barium (Ba)	2023/01/26	99	80 - 120	100	80 - 120	<1.0	ug/L	1.1	20
A864692	Total Beryllium (Be)	2023/01/26	105	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A864692	Total Bismuth (Bi)	2023/01/26	95	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A864692	Total Boron (B)	2023/01/26	102	80 - 120	98	80 - 120	<50	ug/L	NC	20
A864692	Total Cadmium (Cd)	2023/01/26	102	80 - 120	102	80 - 120	<0.010	ug/L	NC	20
A864692	Total Chromium (Cr)	2023/01/26	97	80 - 120	101	80 - 120	<1.0	ug/L	5.9	20
A864692	Total Cobalt (Co)	2023/01/26	97	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A864692	Total Copper (Cu)	2023/01/26	NC	80 - 120	99	80 - 120	<0.20	ug/L	0.24	20
A864692	Total Iron (Fe)	2023/01/26	100	80 - 120	105	80 - 120	<5.0	ug/L	5.6	20
A864692	Total Lead (Pb)	2023/01/26	99	80 - 120	102	80 - 120	<0.20	ug/L	0.0023	20
A864692	Total Lithium (Li)	2023/01/26	102	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
A864692	Total Manganese (Mn)	2023/01/26	98	80 - 120	101	80 - 120	<1.0	ug/L	4.2	20
A864692	Total Molybdenum (Mo)	2023/01/26	NC	80 - 120	104	80 - 120	<1.0	ug/L	6.1	20
A864692	Total Nickel (Ni)	2023/01/26	96	80 - 120	101	80 - 120	<1.0	ug/L	5.1	20
A864692	Total Selenium (Se)	2023/01/26	99	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A864692	Total Silicon (Si)	2023/01/26	134 (1)	80 - 120	111	80 - 120	<100	ug/L	2.3	20
A864692	Total Silver (Ag)	2023/01/26	100	80 - 120	102	80 - 120	<0.020	ug/L	NC	20
A864692	Total Strontium (Sr)	2023/01/26	99	80 - 120	101	80 - 120	<1.0	ug/L	0.93	20
A864692	Total Thallium (Tl)	2023/01/26	98	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A864692	Total Tin (Sn)	2023/01/26	97	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A864692	Total Titanium (Ti)	2023/01/26	102	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
A864692	Total Uranium (U)	2023/01/26	99	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A864692	Total Vanadium (V)	2023/01/26	98	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A864692	Total Zinc (Zn)	2023/01/26	102	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A864692	Total Zirconium (Zr)	2023/01/26	99	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A864956	Total Ammonia (N)	2023/01/26	104	80 - 120	111	80 - 120	<0.015	mg/L	4.8	20
A866029	pH	2023/01/26			102	97 - 103				
A866051	pH	2023/01/26			102	97 - 103			0.65	N/A

BUREAU
VERITAS

Bureau Veritas Job #: C305710

Report Date: 2023/04/21

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A866324	Nitrate plus Nitrite (N)	2023/01/27	NC	80 - 120	105	80 - 120	<0.0020	mg/L	1.4	25
A866325	Nitrite (N)	2023/01/27	107	80 - 120	102	80 - 120	<0.0020	mg/L	2.2	25
A867668	Dissolved Fluoride (F)	2023/01/30	107	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A867820	Total Mercury (Hg)	2023/01/30	92	80 - 120	97	80 - 120	<0.0019	ug/L	NC	20
A867872	Total Mercury (Hg)	2023/01/30	104	80 - 120	93	80 - 120	<0.0019	ug/L	5.6	20
A869455	Total Mercury (Hg)	2023/02/01	100	80 - 120	101	80 - 120	<0.0019	ug/L	NC	20

N/A = Not Applicable

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

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

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

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

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

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

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



Bureau Veritas Job #: C305710
Report Date: 2023/04/21

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas
4600 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734-7278 Toll-free: 800-563-5266 Fax: (604) 731-2386 www.bvna.com

Chain Of Custody Record

Page 2 of 2

INVOICE TO:		Report Information		Project Information		Laboratory Use Only								
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bureau Veritas Job #	Bottle Order #:							
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #										
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality									
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name		Chain Of Custody Record	Project Manager							
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #			Customer Solutions							
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:								
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other _____				Metals Field Filtered? (Y/N) CSR/CCME Tot. Metals in Water w/ Cu Hg Ammonia-N (Total) Fluoride Nitrate-Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus		Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)								
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS														
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ Cu Hg	Ammonia-N (Total)	Fluoride	Nitrate-Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles
1	FOR 41C84L D02	Jan 25	2:47			X	X	X	X	X	X	X	X	
2	DUPLICATE	11 "	10:59			X	X	X	X	X	X	X	X	
3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X	
4	FIELD BLANK (3AF05)		3:00			X	X	X	X	X	X	X	X	
5	BOD		10:50											
6	B01		12:50											
7	H02		10:30											
8	H01		3:40											
9	H03		3:15											
10	D01	11 "	2:15											
RELINQUISHED BY: (Signature/Print)		Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYMMDD)	Time	# Jars used and not submitted		Lab Use Only				
Madyson Adams		23/01/25	16:55	John R. Pilla		2023/1/25	17:00			Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?		
										☐	10.7, 8	☐ Yes ☒ No		
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORY/SOURCE/COOC-TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.														

ICE PACKS IN COOLER

Bureau Veritas Canada (2019) Inc.



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 687822-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 687822-02-01, 3AF04, 3AF05

Report Date: 2023/03/08
Report #: R3307717
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C313942

Received: 2023/02/28, 16:35

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	14	N/A	2023/03/06	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	14	N/A	2023/03/04	BBY WI-00033	Auto Calc
Mercury (Total) by CV	14	2023/03/02	2023/03/02	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	14	2023/03/01	2023/03/04	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	2	2023/03/01	2023/03/02	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	12	2023/03/02	2023/03/03	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	14	N/A	2023/03/01	AB SOP-00007	SM 23 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	14	N/A	2023/03/01	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	14	N/A	2023/03/01	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	14	N/A	2023/03/02	BBY WI-00033	Auto Calc
pH @25°C (2)	14	N/A	2023/03/02	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	14	2023/03/01	2023/03/02	BBY6SOP-00013	SM 23 4500-P E m

Remarks:

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

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

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



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 687822-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, 687822-02-01, 3AF04, 3AF05

Report Date: 2023/03/08
Report #: R3307717
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C313942

Received: 2023/02/28, 16:35

customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

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This report has been generated and distributed using a secure automated process.

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



BUREAU
VERITAS

Bureau Veritas Job #: C313942

Report Date: 2023/03/08

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BMP528	BMP529		BMP530		BMP531	BMP532		
Sampling Date			2023/02/28 14:45	2023/02/28 14:10		2023/02/28 14:30		2023/02/28 13:08	2023/02/28 13:45		
COC Number			39565	39566		39567		39568	39569		
	UNITS	Criteria	H01 (39565)	H02 (39566)	QC Batch	H03 (39567)	QC Batch	B01 (39568)	B02 (39569)	RDL	QC Batch

Calculated Parameters											
Nitrate (N)	mg/L	-	0.423	0.581	A895483	0.503	A895483	0.349	0.589	0.0020	A895483
Misc. Inorganics											
pH	pH	6.5:9.0	6.91	6.87	A896959	6.67	A896949	6.61	6.66	N/A	A896959
Anions											
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	A900298	<0.050	A900298	<0.050	<0.050	0.050	A900298
Nutrients											
Total Ammonia (N)	mg/L	-	0.33	0.31	A896231	0.40	A896231	0.43	0.42	0.015	A896231
Total Phosphorus (P)	mg/L	-	0.055	0.056	A895683	0.060	A895683	0.044	0.064	0.0030	A895683
Nitrate plus Nitrite (N)	mg/L	-	0.444	0.600	A896235	0.544	A896235	0.366	0.624	0.0020	A896235
Nitrite (N)	mg/L	0.06	0.0210	0.0190	A896236	0.0405	A896236	0.0168	0.0358	0.0020	A896236
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels										
Grey											
Black											
RDL = Reportable Detection Limit											
N/A = Not Applicable											

Bureau Veritas ID			BMP533	BMP534		BMP535		BMP536	BMP537		
Sampling Date			2023/02/28 15:35	2023/02/28 11:30		2023/02/28 11:49		2023/02/28 10:59	2023/02/28 10:00		
COC Number			3956A	3956D		3956D		3956B	3956C		
	UNITS	Criteria	W01 (3956A)	D01 (3956D)	QC Batch	D02 (3956D)	QC Batch	F01 (3956B)	F02 (3956C)	RDL	QC Batch

Calculated Parameters											
Nitrate (N)	mg/L	-	0.948	1.30	A895483	0.899	A895483	1.09	0.834	0.0020	A895483
Misc. Inorganics											
pH	pH	6.5:9.0	7.11	7.18	A896959	7.67	A896949	7.34	6.97	N/A	A896959
Anions											
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	A900298	<0.050	A900298	<0.050	<0.050	0.050	A900298
Nutrients											
Total Ammonia (N)	mg/L	-	0.27	0.060	A896231	0.026	A896231	0.12	0.053	0.015	A896231
Total Phosphorus (P)	mg/L	-	0.036	0.011	A895683	0.033	A895683	0.012	0.014	0.0030	A895683
Nitrate plus Nitrite (N)	mg/L	-	0.969	1.31	A896235	0.902	A896235	1.11	0.840	0.0020	A896235
Nitrite (N)	mg/L	0.06	0.0206	0.0110	A896236	0.0031	A896236	0.0151	0.0053	0.0020	A896236
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels										
Grey											
Black											
RDL = Reportable Detection Limit											
N/A = Not Applicable											

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Bureau Veritas ID			BMP548	BMP549	BMP550	BMP551		
Sampling Date			2023/02/28 10:30	2023/02/28 10:53	2023/02/28 16:35	2023/02/28 10:53		
COC Number			41C64	687822-02-01	3AF04	3AF05		
	UNITS	Criteria	FOF (41C64)	DUPLICATE	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	0.847	1.06	<0.0020	0.0036	0.0020	A895483
Misc. Inorganics								
pH	pH	6.5:9.0	7.00	7.26	6.66	7.70	N/A	A896949
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	0.050	A900298
Nutrients								
Total Ammonia (N)	mg/L	-	0.097	0.12	<0.015	<0.015	0.015	A896231
Total Phosphorus (P)	mg/L	-	0.018	0.014	<0.0030	<0.0030	0.0030	A895683
Nitrate plus Nitrite (N)	mg/L	-	0.857	1.08	<0.0020	0.0036	0.0020	A896235
Nitrite (N)	mg/L	0.06	0.0094	0.0140	<0.0020	<0.0020	0.0020	A896236
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels							
Grey								
Black								
RDL = Reportable Detection Limit N/A = Not Applicable								

**CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)**

Bureau Veritas ID			BMP528		BMP529	BMP530	BMP531	BMP532		
Sampling Date			2023/02/28 14:45		2023/02/28 14:10	2023/02/28 14:30	2023/02/28 13:08	2023/02/28 13:45		
COC Number			39565		39566	39567	39568	39569		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	RDL	QC Batch
Calculated Parameters										
Total Hardness (CaCO3)	mg/L	-	21.9	0.50	62.6	32.6	47.7	89.7	0.50	A895144
Elements										
Total Mercury (Hg)	ug/L	0.026	0.0329	0.0019	0.0025	0.0024	<0.0019	<0.0019	0.0019	A896731
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	-	857	3.0	1010	907	602	1140	6.0	A896419
Total Antimony (Sb)	ug/L	-	0.70	0.50	<1.0	<1.0	<1.0	<1.0	1.0	A896419
Total Arsenic (As)	ug/L	5	0.76	0.10	0.86	0.70	0.48	0.74	0.20	A896419
Total Barium (Ba)	ug/L	-	23.1	1.0	47.4	30.7	67.1	90.3	2.0	A896419
Total Beryllium (Be)	ug/L	-	<0.10	0.10	<0.20	<0.20	<0.20	<0.20	0.20	A896419
Total Bismuth (Bi)	ug/L	-	<1.0	1.0	<2.0	<2.0	<2.0	<2.0	2.0	A896419
Total Boron (B)	ug/L	1500	<50	50	<100	<100	<100	<100	100	A896419
Total Cadmium (Cd)	ug/L	-	0.062	0.010	0.082	0.074	0.330	0.158	0.020	A896419
Total Chromium (Cr)	ug/L	-	10.4	1.0	3.8	3.3	4.9	3.6	2.0	A896419
Total Cobalt (Co)	ug/L	-	0.57	0.20	0.65	0.60	1.53	0.99	0.40	A896419
Total Copper (Cu)	ug/L	-	9.16	0.50	6.4	8.2	6.2	5.9	1.0	A896419
Total Iron (Fe)	ug/L	300	1100	10	1440	1220	2060	2070	20	A896419
Total Lead (Pb)	ug/L	-	2.19	0.20	2.13	2.30	3.17	2.27	0.40	A896419
Total Lithium (Li)	ug/L	-	<2.0	2.0	<4.0	<4.0	<4.0	<4.0	4.0	A896419
Total Manganese (Mn)	ug/L	-	31.7	1.0	66.4	39.1	209	181	2.0	A896419
Total Molybdenum (Mo)	ug/L	73	9.0	1.0	3.4	5.7	<2.0	<2.0	2.0	A896419
Total Nickel (Ni)	ug/L	-	32.8	1.0	3.1	<2.0	2.7	2.7	2.0	A896419
Total Selenium (Se)	ug/L	1	<0.10	0.10	<0.20	<0.20	<0.20	<0.20	0.20	A896419
Total Silicon (Si)	ug/L	-	2570 (1)	100	4570	2800	3150	6070	200	A896419
Total Silver (Ag)	ug/L	0.25	0.073	0.020	<0.040	<0.040	<0.040	<0.040	0.040	A896419
Total Strontium (Sr)	ug/L	-	41.3	1.0	131	74.7	133	199	2.0	A896419
Total Thallium (Tl)	ug/L	0.8	<0.010	0.010	<0.020	<0.020	<0.020	<0.020	0.020	A896419
Total Tin (Sn)	ug/L	-	<5.0	5.0	<10	<10	<10	<10	10	A896419
Total Titanium (Ti)	ug/L	-	39.6 (1)	5.0	43	35	25	51	10	A896419
Total Uranium (U)	ug/L	15	<0.10	0.10	<0.20	<0.20	<0.20	<0.20	0.20	A896419
Total Vanadium (V)	ug/L	-	<5.0	5.0	<10	<10	<10	<10	10	A896419
Total Zinc (Zn)	ug/L	30	66.2	5.0	61	73	103	69	10	A896419
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
(1) Matrix Spike outside acceptance criteria due to sample matrix interference.										



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BMP528		BMP529	BMP530	BMP531	BMP532		
Sampling Date			2023/02/28 14:45		2023/02/28 14:10	2023/02/28 14:30	2023/02/28 13:08	2023/02/28 13:45		
COC Number			39565		39566	39567	39568	39569		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	0.50	0.10	0.72	0.57	0.59	0.73	0.20	A896419
Total Calcium (Ca)	mg/L	-	6.71	0.050	19.1	10.3	15.1	27.0	0.10	A895484
Total Magnesium (Mg)	mg/L	-	1.24	0.050	3.61	1.67	2.40	5.39	0.10	A895484
Total Potassium (K)	mg/L	-	1.10	0.050	3.00	3.08	1.80	2.08	0.10	A895484
Total Sodium (Na)	mg/L	-	295	0.050	580	465	435	677	0.10	A895484
Total Sulphur (S)	mg/L	-	<3.0	3.0	<6.0	<6.0	<6.0	<6.0	6.0	A895484
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										



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VERITAS

Bureau Veritas Job #: C313942

Report Date: 2023/03/08

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BMP533	BMP534	BMP535	BMP536	BMP537	BMP548		
Sampling Date			2023/02/28 15:35	2023/02/28 11:30	2023/02/28 11:49	2023/02/28 10:59	2023/02/28 10:00	2023/02/28 10:30		
COC Number			3956A	3956D	3956D	3956B	3956C	41C64		
	UNITS	Criteria	W01 (3956A)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	59.9	113	114	122	96.1	86.4	0.50	A895144

Elements

Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	0.0019	A896731

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	297	74.6	164	93.8	134	87.0	3.0	A896419
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A896419
Total Arsenic (As)	ug/L	5	0.83	0.55	2.03	0.58	0.20	0.49	0.10	A896419
Total Barium (Ba)	ug/L	-	38.6	45.7	16.2	47.5	47.0	39.5	1.0	A896419
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A896419
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A896419
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A896419
Total Cadmium (Cd)	ug/L	-	0.029	0.018	0.013	0.018	0.027	0.023	0.010	A896419
Total Chromium (Cr)	ug/L	-	1.5	<1.0	1.1	<1.0	4.8	<1.0	1.0	A896419
Total Cobalt (Co)	ug/L	-	0.29	<0.20	<0.20	<0.20	0.22	0.29	0.20	A896419
Total Copper (Cu)	ug/L	-	2.43	0.74	0.50	1.38	1.65	1.40	0.50	A896419
Total Iron (Fe)	ug/L	300	891	272	990	499	367	565	10	A896419
Total Lead (Pb)	ug/L	-	0.76	<0.20	<0.20	<0.20	<0.20	0.23	0.20	A896419
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A896419
Total Manganese (Mn)	ug/L	-	55.7	58.1	207	171	49.7	105	1.0	A896419
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A896419
Total Nickel (Ni)	ug/L	-	1.1	<1.0	1.0	<1.0	<1.0	<1.0	1.0	A896419
Total Selenium (Se)	ug/L	1	<0.10	0.16	0.24	0.12	<0.10	<0.10	0.10	A896419
Total Silicon (Si)	ug/L	-	6060	8120	11600	5470	3980	4330	100	A896419
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A896419
Total Strontium (Sr)	ug/L	-	130	222	163	249	181	165	1.0	A896419
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A896419
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A896419
Total Titanium (Ti)	ug/L	-	12.0	<5.0	7.4	<5.0	<5.0	<5.0	5.0	A896419
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A896419
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A896419
Total Zinc (Zn)	ug/L	30	20.8	<5.0	<5.0	9.8	20.3	39.8	5.0	A896419
Total Zirconium (Zr)	ug/L	-	0.20	<0.10	<0.10	<0.10	0.12	<0.10	0.10	A896419

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BMP533	BMP534	BMP535	BMP536	BMP537	BMP548		
Sampling Date			2023/02/28 15:35	2023/02/28 11:30	2023/02/28 11:49	2023/02/28 10:59	2023/02/28 10:00	2023/02/28 10:30		
COC Number			3956A	3956D	3956D	3956B	3956C	41C64		
	UNITS	Criteria	W01 (3956A)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	17.0	31.5	29.6	34.8	27.8	24.9	0.050	A895484
Total Magnesium (Mg)	mg/L	-	4.24	8.37	9.70	8.51	6.45	5.90	0.050	A895484
Total Potassium (K)	mg/L	-	4.23	2.32	1.63	3.34	2.25	2.17	0.050	A895484
Total Sodium (Na)	mg/L	-	285	246	28.7	248	200	149	0.050	A895484
Total Sulphur (S)	mg/L	-	<3.0	5.6	4.8	6.2	4.4	4.8	3.0	A895484
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										

BUREAU
VERITAS

Bureau Veritas Job #: C313942

Report Date: 2023/03/08

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BMP549		BMP550	BMP551		
Sampling Date			2023/02/28 10:53		2023/02/28 16:35	2023/02/28 10:53		
COC Number			687822-02-01		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	124	A895144	<0.50	<0.50	0.50	A895144
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	A896731	<0.0019	<0.0019	0.0019	A896731
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	94.6	A896419	<3.0	<3.0	3.0	A896098
Total Antimony (Sb)	ug/L	-	<0.50	A896419	<0.50	<0.50	0.50	A896098
Total Arsenic (As)	ug/L	5	0.64	A896419	<0.10	<0.10	0.10	A896098
Total Barium (Ba)	ug/L	-	49.5	A896419	<1.0	<1.0	1.0	A896098
Total Beryllium (Be)	ug/L	-	<0.10	A896419	<0.10	<0.10	0.10	A896098
Total Bismuth (Bi)	ug/L	-	<1.0	A896419	<1.0	<1.0	1.0	A896098
Total Boron (B)	ug/L	1500	<50	A896419	<50	<50	50	A896098
Total Cadmium (Cd)	ug/L	-	0.019	A896419	<0.010	<0.010	0.010	A896098
Total Chromium (Cr)	ug/L	-	<1.0	A896419	<1.0	<1.0	1.0	A896098
Total Cobalt (Co)	ug/L	-	<0.20	A896419	<0.20	<0.20	0.20	A896098
Total Copper (Cu)	ug/L	-	1.41	A896419	<0.50	<0.50	0.50	A896098
Total Iron (Fe)	ug/L	300	520	A896419	<10	<10	10	A896098
Total Lead (Pb)	ug/L	-	<0.20	A896419	<0.20	<0.20	0.20	A896098
Total Lithium (Li)	ug/L	-	<2.0	A896419	<2.0	<2.0	2.0	A896098
Total Manganese (Mn)	ug/L	-	175	A896419	<1.0	<1.0	1.0	A896098
Total Molybdenum (Mo)	ug/L	73	<1.0	A896419	<1.0	<1.0	1.0	A896098
Total Nickel (Ni)	ug/L	-	<1.0	A896419	<1.0	<1.0	1.0	A896098
Total Selenium (Se)	ug/L	1	0.12	A896419	<0.10	<0.10	0.10	A896098
Total Silicon (Si)	ug/L	-	5630	A896419	<100	<100	100	A896098
Total Silver (Ag)	ug/L	0.25	<0.020	A896419	<0.020	<0.020	0.020	A896098
Total Strontium (Sr)	ug/L	-	255	A896419	<1.0	<1.0	1.0	A896098
Total Thallium (Tl)	ug/L	0.8	<0.010	A896419	<0.010	<0.010	0.010	A896098
Total Tin (Sn)	ug/L	-	<5.0	A896419	<5.0	<5.0	5.0	A896098
Total Titanium (Ti)	ug/L	-	5.1	A896419	<5.0	<5.0	5.0	A896098
Total Uranium (U)	ug/L	15	<0.10	A896419	<0.10	<0.10	0.10	A896098
Total Vanadium (V)	ug/L	-	<5.0	A896419	<5.0	<5.0	5.0	A896098
Total Zinc (Zn)	ug/L	30	9.9	A896419	<5.0	<5.0	5.0	A896098
Total Zirconium (Zr)	ug/L	-	0.10	A896419	<0.10	<0.10	0.10	A896098
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BMP549		BMP550	BMP551		
Sampling Date			2023/02/28 10:53		2023/02/28 16:35	2023/02/28 10:53		
COC Number			687822-02-01		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	35.5	A895484	<0.050	<0.050	0.050	A895484
Total Magnesium (Mg)	mg/L	-	8.70	A895484	<0.050	<0.050	0.050	A895484
Total Potassium (K)	mg/L	-	3.51	A895484	<0.050	<0.050	0.050	A895484
Total Sodium (Na)	mg/L	-	256	A895484	<0.050	<0.050	0.050	A895484
Total Sulphur (S)	mg/L	-	6.1	A895484	<3.0	<3.0	3.0	A895484
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



Bureau Veritas Job #: C313942
Report Date: 2023/03/08

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

GENERAL COMMENTS

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



Bureau Veritas Job #: C313942
Report Date: 2023/03/08

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A895683	Total Phosphorus (P)	2023/03/02	98	N/A	91	80 - 120	<0.0030	mg/L	NC	20
A896098	Total Aluminum (Al)	2023/03/02	100	80 - 120	100	80 - 120	<3.0	ug/L	NC	20
A896098	Total Antimony (Sb)	2023/03/02	99	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
A896098	Total Arsenic (As)	2023/03/02	100	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A896098	Total Barium (Ba)	2023/03/02	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A896098	Total Beryllium (Be)	2023/03/02	99	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A896098	Total Bismuth (Bi)	2023/03/02	98	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A896098	Total Boron (B)	2023/03/02	100	80 - 120	101	80 - 120	<50	ug/L	NC	20
A896098	Total Cadmium (Cd)	2023/03/02	97	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A896098	Total Chromium (Cr)	2023/03/02	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A896098	Total Cobalt (Co)	2023/03/02	96	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
A896098	Total Copper (Cu)	2023/03/02	96	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
A896098	Total Iron (Fe)	2023/03/02	99	80 - 120	101	80 - 120	<10	ug/L	NC	20
A896098	Total Lead (Pb)	2023/03/02	100	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A896098	Total Lithium (Li)	2023/03/02	96	80 - 120	98	80 - 120	<2.0	ug/L	NC	20
A896098	Total Manganese (Mn)	2023/03/02	95	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A896098	Total Molybdenum (Mo)	2023/03/02	100	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
A896098	Total Nickel (Ni)	2023/03/02	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A896098	Total Selenium (Se)	2023/03/02	98	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A896098	Total Silicon (Si)	2023/03/02	108	80 - 120	108	80 - 120	<100	ug/L	NC	20
A896098	Total Silver (Ag)	2023/03/02	95	80 - 120	99	80 - 120	<0.020	ug/L	NC	20
A896098	Total Strontium (Sr)	2023/03/02	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A896098	Total Thallium (Tl)	2023/03/02	96	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A896098	Total Tin (Sn)	2023/03/02	97	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A896098	Total Titanium (Ti)	2023/03/02	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A896098	Total Uranium (U)	2023/03/02	101	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
A896098	Total Vanadium (V)	2023/03/02	98	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A896098	Total Zinc (Zn)	2023/03/02	100	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A896098	Total Zirconium (Zr)	2023/03/02	100	80 - 120	106	80 - 120	<0.10	ug/L	NC	20
A896231	Total Ammonia (N)	2023/03/01	110	80 - 120	107	80 - 120	<0.015	mg/L	1.3	20
A896235	Nitrate plus Nitrite (N)	2023/03/01	107	80 - 120	109	80 - 120	<0.0020	mg/L	NC	25
A896236	Nitrite (N)	2023/03/01	101	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
A896419	Total Aluminum (Al)	2023/03/03	NC	80 - 120	105	80 - 120	<3.0	ug/L	2.9	20



Bureau Veritas Job #: C313942
Report Date: 2023/03/08

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A896419	Total Antimony (Sb)	2023/03/03	107	80 - 120	105	80 - 120	<0.50	ug/L	3.2	20
A896419	Total Arsenic (As)	2023/03/03	110	80 - 120	104	80 - 120	<0.10	ug/L	0.95	20
A896419	Total Barium (Ba)	2023/03/03	107	80 - 120	102	80 - 120	<1.0	ug/L	0.63	20
A896419	Total Beryllium (Be)	2023/03/03	107	80 - 120	107	80 - 120	<0.10	ug/L	NC	20
A896419	Total Bismuth (Bi)	2023/03/03	99	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A896419	Total Boron (B)	2023/03/03	109	80 - 120	108	80 - 120	<50	ug/L	NC	20
A896419	Total Cadmium (Cd)	2023/03/03	101	80 - 120	101	80 - 120	<0.010	ug/L	5.8	20
A896419	Total Chromium (Cr)	2023/03/03	97	80 - 120	100	80 - 120	<1.0	ug/L	1.7	20
A896419	Total Cobalt (Co)	2023/03/03	91	80 - 120	95	80 - 120	<0.20	ug/L	4.6	20
A896419	Total Copper (Cu)	2023/03/03	89	80 - 120	97	80 - 120	<0.50	ug/L	1.7	20
A896419	Total Iron (Fe)	2023/03/03	NC	80 - 120	105	80 - 120	<10	ug/L	2.7	20
A896419	Total Lead (Pb)	2023/03/03	102	80 - 120	102	80 - 120	<0.20	ug/L	0.89	20
A896419	Total Lithium (Li)	2023/03/03	103	80 - 120	103	80 - 120	<2.0	ug/L	NC	20
A896419	Total Manganese (Mn)	2023/03/03	99	80 - 120	100	80 - 120	<1.0	ug/L	2.5	20
A896419	Total Molybdenum (Mo)	2023/03/03	NC	80 - 120	104	80 - 120	<1.0	ug/L	0.84	20
A896419	Total Nickel (Ni)	2023/03/03	92	80 - 120	98	80 - 120	<1.0	ug/L	2.7	20
A896419	Total Selenium (Se)	2023/03/03	99	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A896419	Total Silicon (Si)	2023/03/03	123 (1)	80 - 120	118	80 - 120	<100	ug/L	0.57	20
A896419	Total Silver (Ag)	2023/03/03	99	80 - 120	101	80 - 120	<0.020	ug/L	0.23	20
A896419	Total Strontium (Sr)	2023/03/03	114	80 - 120	103	80 - 120	<1.0	ug/L	2.5	20
A896419	Total Thallium (Tl)	2023/03/03	101	80 - 120	101	80 - 120	<0.010	ug/L	NC	20
A896419	Total Tin (Sn)	2023/03/03	104	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A896419	Total Titanium (Ti)	2023/03/03	125 (1)	80 - 120	103	80 - 120	<5.0	ug/L	11	20
A896419	Total Uranium (U)	2023/03/03	109	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
A896419	Total Vanadium (V)	2023/03/03	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
A896419	Total Zinc (Zn)	2023/03/03	NC	80 - 120	100	80 - 120	<5.0	ug/L	1.4	20
A896419	Total Zirconium (Zr)	2023/03/03	116	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A896731	Total Mercury (Hg)	2023/03/02	87	80 - 120	101	80 - 120	<0.0019	ug/L	NC	20
A896949	pH	2023/03/02			101	97 - 103			2.2	N/A
A896959	pH	2023/03/02			101	97 - 103			0.87	N/A

BUREAU
VERITAS

Bureau Veritas Job #: C313942

Report Date: 2023/03/08

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A900298	Dissolved Fluoride (F)	2023/03/06	104	80 - 120	102	80 - 120	<0.050	mg/L	NC	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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



Bureau Veritas Job #: C313942
Report Date: 2023/03/08

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in cursive script, appearing to read "Mauro Oselin", written in black ink.

Mauro Oselin, Team Leader

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free 800-563-6266 Fax: (604) 731 2385 www.bvna.com

Chain Of Custody Record

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INVOICE TO:		Report Information		Project Information		Laboratory Use Only									
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bureau Veritas Job #	687822								
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #		Chain Of Custody Record	Project Manager								
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality	Customer Solutions									
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name											
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #											
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:									
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other _____				Metals Field Filtered ? (Y/N) CSR/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate+Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc. pH @25°C Total Phosphorus		Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Solids are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc.	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	H01 (39565)	22/2/28	14:45			X	X	X	X	X	X	X	X		
2	H02 (39566)	22/2/28	14:10			X	X	X	X	X	X	X	X		
3	H03 (39567)		14:30			X	X	X	X	X	X	X	X		
4	B01 (39568)		13:08			X	X	X	X	X	X	X	X		
5	B02 (39569)		13:45			X	X	X	X	X	X	X	X		
6	W01 (3956A)	22/02/28	13:35			X	X	X	X	X	X	X	X		
7	D01 (3956D)	22/2/28	11:30			X	X	X	X	X	X	X	X		
8	D02 (3956D)		11:49			X	X	X	X	X	X	X	X		
9	F01 (3956B)	22/2/28	10:53			X	X	X	X	X	X	X	X		
10	F02 (3956C)	22/2/28	10:00			X	X	X	X	X	X	X	X		
RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted		Type: Bioactive		Temperature (°C) on Receipt		Chain of Custody Seal: Intact on Receipt?	
C. N. Chapa		22/02/28	5:35	J. J. Padua		2023/02/28	16:35			☐		10.8.7		☒ Yes ☐ No	
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COOC-TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															



C313942_COC

100 PAPER IN COOLER



Bureau Veritas
4000 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734 7276 Toll-free 800-563-6266 Fax: (604) 731 2386 www.bvna.com

Chain Of Custody Record

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INVOICE TO:		Report Information		Project Information		Laboratory Use Only									
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193	Bureau Veritas Job #	Bottle Order #:								
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #											
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality										
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name		Chain Of Custody Record	Project Manager								
Email	speters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #			Customer Solutions								
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:									
☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other _____				Metals Field Filtered? (Y/N) CSR/CCME Tot. Metals in Water w/ CV Hg Ammonia-N (Total) Fluoride Nitrate+Nitrite (N) (low level) Nitrite (N) (low level) Nitrogen - Nitrate (as N) Low Level Calc pH @25°C Total Phosphorus		Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BIO and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire subtaskset) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ Rush Confirmation Number: _____ (call lab for #)									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample Location/Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSR/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	FOF (41C64)	22/02/28	10:30			X	X	X	X	X	X	X	X		
2	DUPLICATE	22/02/28	10:53			X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)	22/02/28	11:53			X	X	X	X	X	X	X	X		
5															
6															
7															
8															
9															
10															
RELINQUISHED BY: (Signature/Print)		Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYMMDD)	Time	# Jars used and not submitted	Lab Use Only		Temp. (°C) on Receipt		Custody Seal Intact on Code?/		
Cyril Crow		23/02/28	5:35	J. J. J. J. J.		23/02/28	16:35				10.8.7		☐ Yes ☒ No		
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/4000-TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															



C313942_COC

108 P445 IN COOLER

Bureau Veritas Canada (2019) Inc.



Your Project #: Bevan #1 Creek Water Quality

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 689943-01-01, 39565, 39566, 39567, 39568, 39569,
3956D, 3956B, 3956C, 41C64, 689943-02-01, 3956A, 3AF04, 3AF05

Report Date: 2023/04/11
Report #: R3320891
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C321483

Received: 2023/03/28, 15:17

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	11	N/A	2023/03/31	BBY6SOP-00048	SM 23 4500-F C m
Fluoride	3	N/A	2023/04/05	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	10	N/A	2023/03/31	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	1	N/A	2023/04/03	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	1	N/A	2023/04/06	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	2	N/A	2023/04/08	BBY WI-00033	Auto Calc
Mercury (Total) by CV	11	2023/04/03	2023/04/03	AB SOP-00084	BCMOE BCLM Oct2013 m
Mercury (Total) by CV	3	2023/04/08	2023/04/08	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	10	2023/03/29	2023/03/31	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2023/03/29	2023/04/03	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2023/04/05	2023/04/06	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2023/04/05	2023/04/08	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	11	2023/03/30	2023/03/31	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	1	2023/04/05	2023/04/05	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	2	2023/04/06	2023/04/06	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	9	N/A	2023/03/29	AB SOP-00007	SM 23 4500 NH3 A G m
Ammonia-N (Total)	2	N/A	2023/03/31	AB SOP-00007	SM 23 4500 NH3 A G m
Ammonia-N (Total)	3	N/A	2023/04/06	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate+Nitrite (N) (low level)	11	N/A	2023/03/29	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	3	N/A	2023/04/05	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	11	N/A	2023/03/29	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) (low level)	3	N/A	2023/04/05	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	11	N/A	2023/03/30	BBY WI-00033	Auto Calc
Nitrogen - Nitrate (as N) Low Level Calc	3	N/A	2023/04/06	BBY WI-00033	Auto Calc
pH @25°C (2)	11	N/A	2023/03/29	BBY6SOP-00026	SM 23 4500-H+ B m



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3956D, 3956B, 3956C, 41C64, 689943-02-01, 3956A, 3AF04, 3AF05

Report Date: 2023/04/11
Report #: R3320891
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C321483

Received: 2023/03/28, 15:17

Sample Matrix: Water
Samples Received: 14

Analyses	Date		Date Analyzed	Laboratory Method	Analytical Method
	Quantity	Extracted			
pH @25°C (2)	3	N/A	2023/04/06	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	11	2023/03/29	2023/03/31	BBY6SOP-00013	SM 23 4500-P E m
Total Phosphorus	3	2023/04/05	2023/04/06	BBY6SOP-00013	SM 24 4500-P E m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.



Your Project #: Bevan #1 Creek Water Quality

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Your C.O.C. #: 689943-01-01, 39565, 39566, 39567, 39568, 39569,
3956D, 3956B, 3956C, 41C64, 689943-02-01, 3956A, 3AF04, 3AF05

Report Date: 2023/04/11
Report #: R3320891
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C321483

Received: 2023/03/28, 15:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Customer Solutions, Western Canada Customer Experience Team
Email: customersolutionswest@bureauveritas.com
Phone# (604) 734 7276

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

BUREAU
VERITAS

Bureau Veritas Job #: C321483

Report Date: 2023/04/11

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BOD900		BOD901		BOD902		
Sampling Date			2023/03/28 13:35		2023/03/28 11:40		2023/03/28 13:27		
COC Number			39565		39566		39567		
	UNITS	Criteria	H01 (39565)	RDL	H02 (39566)	RDL	H03 (39567)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	2.68	0.0040	1.35	0.0020	2.28	0.0040	A922725
Misc. Inorganics									
pH	pH	6.5:9.0	6.97	N/A	7.86	N/A	7.64	N/A	A923902
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	0.050	<0.050	0.050	<0.050	0.050	A924875
Nutrients									
Total Ammonia (N)	mg/L	-	<0.015	0.015	0.018	0.015	<0.015	0.015	A923365
Total Phosphorus (P)	mg/L	-	0.011	0.0030	0.033	0.0030	0.017	0.0030	A923050
Nitrate plus Nitrite (N)	mg/L	-	2.69	0.0040	1.35	0.0020	2.28	0.0040	A923323
Nitrite (N)	mg/L	0.06	0.0031	0.0020	0.0044	0.0020	0.0032	0.0020	A923325
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
N/A = Not Applicable									

Bureau Veritas ID			BOD903	BOD904	BOD905	BOD906	BOD907	BOD908		
Sampling Date			2023/03/28 12:30	2023/03/28 12:02	2023/03/28 10:08	2023/03/28 10:11	2023/03/28 09:40	2023/03/28 08:45		
COC Number			39568	39569	3956D	3956D	3956B	3956C		
	UNITS	Criteria	B01 (39568)	B02 (39569)	D01 (3956D)	D02 (3956D)	F01 (3956B)	F02 (3956C)	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	0.753	1.54	1.28	0.752	1.05	0.407	0.0020	A922725
Misc. Inorganics										
pH	pH	6.5:9.0	6.93	7.69	7.85	7.90	7.95	7.58	N/A	A923925
Anions										
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A924875
Nutrients										
Total Ammonia (N)	mg/L	-	0.21	0.038	<0.015	0.038	0.034	0.018	0.015	A923365
Total Phosphorus (P)	mg/L	-	0.055	0.0093	0.011	0.018	0.033	0.0093	0.0030	A923050
Nitrate plus Nitrite (N)	mg/L	-	0.764	1.54	1.28	0.755	1.07	0.407	0.0020	A923323
Nitrite (N)	mg/L	0.06	0.0110	0.0076	0.0021	0.0025	0.0132	<0.0020	0.0020	A923325
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										



Sampler Initials: MA

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BOD911		BOD912		BOM332		
Sampling Date			2023/03/28 09:20		2023/03/28 12:35		2023/03/28 12:49		
COC Number			41C64		689943-02-01		3956A		
	UNITS	Criteria	FOF (41C64)	QC Batch	DUPLICATE	QC Batch	W01 (3956A)	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	0.439	A922725	0.710	A922725	1.48	0.0020	A928545
Misc. Inorganics									
pH	pH	6.5:9.0	7.39	A923925	7.12	A923925	7.30	N/A	A930199
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	A924875	<0.050	A924878	0.052	0.050	A928642
Nutrients									
Total Ammonia (N)	mg/L	-	0.045	A925422	0.21	A925422	0.030	0.015	A930089
Total Phosphorus (P)	mg/L	-	0.033	A923050	0.024	A923050	0.028	0.0030	A929204
Nitrate plus Nitrite (N)	mg/L	-	0.444	A923323	0.720	A923323	1.50	0.0020	A928786
Nitrite (N)	mg/L	0.06	0.0051	A923325	0.0106	A923325	0.0160	0.0020	A928787
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
N/A = Not Applicable									

Bureau Veritas ID			BOM333	BOM334		
Sampling Date			2023/03/28	2023/03/28		
COC Number			3AF04	3AF05		
	UNITS	Criteria	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Calculated Parameters						
Nitrate (N)	mg/L	-	<0.0020	<0.0020	0.0020	A928545
Misc. Inorganics						
pH	pH	6.5:9.0	5.88	5.34	N/A	A930204
Anions						
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	0.050	A928642
Nutrients						
Total Ammonia (N)	mg/L	-	<0.015	<0.015	0.015	A930089
Total Phosphorus (P)	mg/L	-	<0.0030	<0.0030	0.0030	A929204
Nitrate plus Nitrite (N)	mg/L	-	<0.0020	<0.0020	0.0020	A928786
Nitrite (N)	mg/L	0.06	<0.0020	<0.0020	0.0020	A928787
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						
N/A = Not Applicable						



BUREAU
VERITAS

Bureau Veritas Job #: C321483

Report Date: 2023/04/11

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOD900	BOD901	BOD902	BOD903	BOD904	BOD905		
Sampling Date			2023/03/28 13:35	2023/03/28 11:40	2023/03/28 13:27	2023/03/28 12:30	2023/03/28 12:02	2023/03/28 10:08		
COC Number			39565	39566	39567	39568	39569	3956D		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	D01 (3956D)	RDL	QC Batch

Calculated Parameters

Total Hardness (CaCO3)	mg/L	-	114	113	124	78.4	111	82.2	0.50	A922723

Elements

Total Mercury (Hg)	ug/L	0.026	0.0676	<0.0019	0.0189	<0.0019	<0.0019	<0.0019	0.0019	A926724

Total Metals by ICPMS

Total Aluminum (Al)	ug/L	-	6.1	30.9	19.0	60.9	31.2	46.6	3.0	A924465
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A924465
Total Arsenic (As)	ug/L	5	0.45	0.76	0.55	0.63	0.49	0.45	0.10	A924465
Total Barium (Ba)	ug/L	-	15.1	14.6	15.2	35.8	18.3	17.5	1.0	A924465
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A924465
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A924465
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A924465
Total Cadmium (Cd)	ug/L	-	0.020	<0.010	0.014	0.054	0.011	<0.010	0.010	A924465
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	1.0	A924465
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	<0.20	1.08	<0.20	<0.20	0.20	A924465
Total Copper (Cu)	ug/L	-	1.46	0.53	2.10	2.92	<0.50	0.72	0.50	A924465
Total Iron (Fe)	ug/L	300	144	208	37	1090	410	193	10	A924465
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	3.27	<0.20	<0.20	0.20	A924465
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	A924465
Total Manganese (Mn)	ug/L	-	14.5	56.9	11.8	303	117	30.1	1.0	A924465
Total Molybdenum (Mo)	ug/L	73	<1.0	2.2	183	<1.0	<1.0	<1.0	1.0	A924465
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	2.8	<1.0	<1.0	1.0	A924465
Total Selenium (Se)	ug/L	1	0.25	0.16	0.20	<0.10	0.17	0.18	0.10	A924465
Total Silicon (Si)	ug/L	-	9710	9380	9400	8870	10500	7350	100	A924465
Total Silver (Ag)	ug/L	0.25	0.038	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A924465
Total Strontium (Sr)	ug/L	-	164	145	173	206	162	127	1.0	A924465
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	A924465
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A924465
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A924465
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A924465
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A924465
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	15.1	26.6	<5.0	<5.0	5.0	A924465

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



BUREAU
VERITAS

Bureau Veritas Job #: C321483
Report Date: 2023/04/11

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOD900	BOD901	BOD902	BOD903	BOD904	BOD905		
Sampling Date			2023/03/28 13:35	2023/03/28 11:40	2023/03/28 13:27	2023/03/28 12:30	2023/03/28 12:02	2023/03/28 10:08		
COC Number			39565	39566	39567	39568	39569	3956D		
	UNITS	Criteria	H01 (39565)	H02 (39566)	H03 (39567)	B01 (39568)	B02 (39569)	D01 (3956D)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	<0.10	0.17	<0.10	<0.10	0.10	A924465
Total Calcium (Ca)	mg/L	-	32.3	32.5	35.5	22.7	30.9	22.2	0.050	A922724
Total Magnesium (Mg)	mg/L	-	8.11	7.79	8.59	5.27	8.23	6.47	0.050	A922724
Total Potassium (K)	mg/L	-	1.59	1.57	2.05	1.47	1.46	1.49	0.050	A922724
Total Sodium (Na)	mg/L	-	19.8	12.8	21.3	38.3	13.3	15.1	0.050	A922724
Total Sulphur (S)	mg/L	-	5.9	5.8	7.3	<3.0	4.9	5.5	3.0	A922724
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										



Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOD906	BOD907	BOD908	BOD911		BOD912		
Sampling Date			2023/03/28 10:11	2023/03/28 09:40	2023/03/28 08:45	2023/03/28 09:20		2023/03/28 12:35		
COC Number			3956D	3956B	3956C	41C64		689943-02-01		
	UNITS	Criteria	D02 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	QC Batch	DUPLICATE	RDL	QC Batch

Calculated Parameters										
Total Hardness (CaCO3)	mg/L	-	113	111	69.1	76.4	A922723	74.7	0.50	A922723

Elements										
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	<0.0019	A926724	<0.0019	0.0019	A926724

Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	-	35.2	175	31.8	123	A924465	69.8	3.0	A924470
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	A924465	<0.50	0.50	A924470
Total Arsenic (As)	ug/L	5	1.58	1.12	0.30	0.80	A924465	0.69	0.10	A924470
Total Barium (Ba)	ug/L	-	12.9	25.0	23.0	24.4	A924465	35.2	1.0	A924470
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	A924465	<0.10	0.10	A924470
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	A924465	<1.0	1.0	A924470
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	A924465	<50	50	A924470
Total Cadmium (Cd)	ug/L	-	<0.010	0.014	<0.010	<0.010	A924465	0.053	0.010	A924470
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	<1.0	<1.0	A924465	1.3	1.0	A924470
Total Cobalt (Co)	ug/L	-	<0.20	0.26	<0.20	0.80	A924465	1.06	0.20	A924470
Total Copper (Cu)	ug/L	-	<0.50	2.09	1.34	1.72	A924465	3.00	0.50	A924470
Total Iron (Fe)	ug/L	300	645	846	227	879	A924465	1060	10	A924470
Total Lead (Pb)	ug/L	-	<0.20	<0.20	<0.20	0.22	A924465	3.42	0.20	A924470
Total Lithium (Li)	ug/L	-	<2.0	<2.0	<2.0	<2.0	A924465	<2.0	2.0	A924470
Total Manganese (Mn)	ug/L	-	265	190	45.3	125	A924465	290	1.0	A924470
Total Molybdenum (Mo)	ug/L	73	<1.0	1.6	<1.0	<1.0	A924465	<1.0	1.0	A924470
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	<1.0	<1.0	A924465	2.9	1.0	A924470
Total Selenium (Se)	ug/L	1	0.23	0.17	<0.10	<0.10	A924465	<0.10	0.10	A924470
Total Silicon (Si)	ug/L	-	11500	5680	2430	2360	A924465	8200	100	A924470
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	A924465	<0.020	0.020	A924470
Total Strontium (Sr)	ug/L	-	148	171	109	126	A924465	205	1.0	A924470
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	<0.010	<0.010	A924465	<0.010	0.010	A924470
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	A924465	<5.0	5.0	A924470
Total Titanium (Ti)	ug/L	-	<5.0	7.2	<5.0	<5.0	A924465	<5.0	5.0	A924470
Total Uranium (U)	ug/L	15	<0.10	<0.10	<0.10	<0.10	A924465	<0.10	0.10	A924470
Total Vanadium (V)	ug/L	-	<5.0	<5.0	<5.0	<5.0	A924465	<5.0	5.0	A924470
Total Zinc (Zn)	ug/L	30	<5.0	6.1	6.9	12.4	A924465	25.3	5.0	A924470

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



BUREAU
VERITAS

Bureau Veritas Job #: C321483
Report Date: 2023/04/11

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOD906	BOD907	BOD908	BOD911		BOD912		
Sampling Date			2023/03/28 10:11	2023/03/28 09:40	2023/03/28 08:45	2023/03/28 09:20		2023/03/28 12:35		
COC Number			3956D	3956B	3956C	41C64		689943-02-01		
	UNITS	Criteria	D02 (3956D)	F01 (3956B)	F02 (3956C)	FOF (41C64)	QC Batch	DUPLICATE	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	0.11	<0.10	<0.10	A924465	0.18	0.10	A924470
Total Calcium (Ca)	mg/L	-	29.8	30.6	19.6	21.5	A922724	21.3	0.050	A922724
Total Magnesium (Mg)	mg/L	-	9.30	8.35	4.92	5.53	A922724	5.20	0.050	A922724
Total Potassium (K)	mg/L	-	1.40	2.01	1.42	1.53	A922724	1.42	0.050	A922724
Total Sodium (Na)	mg/L	-	9.62	27.6	29.0	30.7	A922724	42.0	0.050	A922724
Total Sulphur (S)	mg/L	-	4.2	6.8	3.9	4.0	A922724	<3.0	3.0	A922724
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										

BUREAU
VERITAS

Bureau Veritas Job #: C321483

Report Date: 2023/04/11

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOM332		BOM333	BOM334		
Sampling Date			2023/03/28 12:49		2023/03/28	2023/03/28		
COC Number			3956A		3AF04	3AF05		
	UNITS	Criteria	W01 (3956A)	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch

Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	94.3	A928543	<0.50	<0.50	0.50	A928543
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	A930626	<0.0019	<0.0019	0.0019	A930626
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	128	A928951	<3.0	<3.0	3.0	A929535
Total Antimony (Sb)	ug/L	-	<0.50	A928951	<0.50	<0.50	0.50	A929535
Total Arsenic (As)	ug/L	5	0.93	A928951	<0.10	<0.10	0.10	A929535
Total Barium (Ba)	ug/L	-	29.4	A928951	<1.0	<1.0	1.0	A929535
Total Beryllium (Be)	ug/L	-	<0.10	A928951	<0.10	<0.10	0.10	A929535
Total Bismuth (Bi)	ug/L	-	<1.0	A928951	<1.0	<1.0	1.0	A929535
Total Boron (B)	ug/L	1500	<50	A928951	<50	<50	50	A929535
Total Cadmium (Cd)	ug/L	-	0.013	A928951	<0.010	<0.010	0.010	A929535
Total Chromium (Cr)	ug/L	-	1.3	A928951	<1.0	<1.0	1.0	A929535
Total Cobalt (Co)	ug/L	-	<0.20	A928951	<0.20	<0.20	0.20	A929535
Total Copper (Cu)	ug/L	-	0.68	A928951	<0.50	<0.50	0.50	A929535
Total Iron (Fe)	ug/L	300	737	A928951	<10	<10	10	A929535
Total Lead (Pb)	ug/L	-	0.40	A928951	<0.20	<0.20	0.20	A929535
Total Lithium (Li)	ug/L	-	<2.0	A928951	<2.0	<2.0	2.0	A929535
Total Manganese (Mn)	ug/L	-	49.7	A928951	<1.0	<1.0	1.0	A929535
Total Molybdenum (Mo)	ug/L	73	<1.0	A928951	<1.0	<1.0	1.0	A929535
Total Nickel (Ni)	ug/L	-	2.1	A928951	<1.0	<1.0	1.0	A929535
Total Selenium (Se)	ug/L	1	0.14	A928951	<0.10	<0.10	0.10	A929535
Total Silicon (Si)	ug/L	-	10500	A928951	<100	<100	100	A929535
Total Silver (Ag)	ug/L	0.25	<0.020	A928951	<0.020	<0.020	0.020	A929535
Total Strontium (Sr)	ug/L	-	178	A928951	<1.0	<1.0	1.0	A929535
Total Thallium (Tl)	ug/L	0.8	<0.010	A928951	<0.010	<0.010	0.010	A929535
Total Tin (Sn)	ug/L	-	<5.0	A928951	<5.0	<5.0	5.0	A929535
Total Titanium (Ti)	ug/L	-	6.3	A928951	<5.0	<5.0	5.0	A929535
Total Uranium (U)	ug/L	15	<0.10	A928951	<0.10	<0.10	0.10	A929535
Total Vanadium (V)	ug/L	-	<5.0	A928951	<5.0	<5.0	5.0	A929535
Total Zinc (Zn)	ug/L	30	<5.0	A928951	<5.0	<5.0	5.0	A929535

No Fill

No Exceedance

Grey

Exceeds 1 criteria policy/level

Black

Exceeds both criteria/levels

RDL = Reportable Detection Limit



BUREAU
VERITAS

Bureau Veritas Job #: C321483
Report Date: 2023/04/11

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BOM332		BOM333	BOM334		
Sampling Date			2023/03/28 12:49		2023/03/28	2023/03/28		
COC Number			3956A		3AF04	3AF05		
	UNITS	Criteria	W01 (3956A)	QC Batch	TRIP BLANK (3AF04)	FIELD BLANK (3AF05)	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	<0.10	A928951	<0.10	<0.10	0.10	A929535
Total Calcium (Ca)	mg/L	-	25.7	A928544	<0.050	<0.050	0.050	A928544
Total Magnesium (Mg)	mg/L	-	7.32	A928544	<0.050	<0.050	0.050	A928544
Total Potassium (K)	mg/L	-	1.30	A928544	<0.050	<0.050	0.050	A928544
Total Sodium (Na)	mg/L	-	15.7	A928544	<0.050	<0.050	0.050	A928544
Total Sulphur (S)	mg/L	-	3.2	A928544	<3.0	<3.0	3.0	A928544
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels							
Grey								
Black								
RDL = Reportable Detection Limit								



Sampler Initials: MA

GENERAL COMMENTS

Version #2: Report reissued to include samples, and results, for Duplicate, Trip Blank, and Field Blank received April 5, due to logistic error.

Sample BOM332 [W01 (3956A)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BOM333 [TRIP BLANK (3AF04)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample BOM334 [FIELD BLANK (3AF05)] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C321483

Report Date: 2023/04/11

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A923050	Total Phosphorus (P)	2023/03/31	101	N/A	106	80 - 120	<0.0030	mg/L	0.84	20
A923323	Nitrate plus Nitrite (N)	2023/03/29	NC	80 - 120	104	80 - 120	<0.0020	mg/L	0.84	25
A923325	Nitrite (N)	2023/03/29	100	80 - 120	100	80 - 120	<0.0020	mg/L	0.53	25
A923365	Total Ammonia (N)	2023/03/29	114	80 - 120	105	80 - 120	<0.015	mg/L	0.67	20
A923902	pH	2023/03/29			102	97 - 103				
A923925	pH	2023/03/29			101	97 - 103				
A924465	Total Aluminum (Al)	2023/03/31	101	80 - 120	100	80 - 120	<3.0	ug/L	0.068	20
A924465	Total Antimony (Sb)	2023/03/31	103	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A924465	Total Arsenic (As)	2023/03/31	107	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A924465	Total Barium (Ba)	2023/03/31	100	80 - 120	101	80 - 120	<1.0	ug/L	0.94	20
A924465	Total Beryllium (Be)	2023/03/31	95	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A924465	Total Bismuth (Bi)	2023/03/31	93	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A924465	Total Boron (B)	2023/03/31	97	80 - 120	96	80 - 120	<50	ug/L	NC	20
A924465	Total Cadmium (Cd)	2023/03/31	97	80 - 120	101	80 - 120	<0.010	ug/L	0.89	20
A924465	Total Chromium (Cr)	2023/03/31	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A924465	Total Cobalt (Co)	2023/03/31	91	80 - 120	95	80 - 120	<0.20	ug/L	1.2	20
A924465	Total Copper (Cu)	2023/03/31	89	80 - 120	95	80 - 120	<0.50	ug/L	NC	20
A924465	Total Iron (Fe)	2023/03/31	99	80 - 120	104	80 - 120	<10	ug/L	16	20
A924465	Total Lead (Pb)	2023/03/31	98	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A924465	Total Lithium (Li)	2023/03/31	91	80 - 120	91	80 - 120	<2.0	ug/L	5.9	20
A924465	Total Manganese (Mn)	2023/03/31	NC	80 - 120	99	80 - 120	<1.0	ug/L	1.6	20
A924465	Total Molybdenum (Mo)	2023/03/31	108	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A924465	Total Nickel (Ni)	2023/03/31	94	80 - 120	98	80 - 120	<1.0	ug/L	2.6	20
A924465	Total Selenium (Se)	2023/03/31	54 (1)	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A924465	Total Silicon (Si)	2023/03/31	NC	80 - 120	109	80 - 120	<100	ug/L	16	20
A924465	Total Silver (Ag)	2023/03/31	93	80 - 120	95	80 - 120	<0.020	ug/L	NC	20
A924465	Total Strontium (Sr)	2023/03/31	NC	80 - 120	100	80 - 120	<1.0	ug/L	2.4	20
A924465	Total Thallium (Tl)	2023/03/31	100	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A924465	Total Tin (Sn)	2023/03/31	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A924465	Total Titanium (Ti)	2023/03/31	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A924465	Total Uranium (U)	2023/03/31	103	80 - 120	99	80 - 120	<0.10	ug/L	NC	20

BUREAU
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Bureau Veritas Job #: C321483

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QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A924465	Total Vanadium (V)	2023/03/31	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
A924465	Total Zinc (Zn)	2023/03/31	NC	80 - 120	100	80 - 120	<5.0	ug/L	0.025	20
A924465	Total Zirconium (Zr)	2023/03/31	104	80 - 120	95	80 - 120	<0.10	ug/L	NC	20
A924470	Total Aluminum (Al)	2023/03/31	105	80 - 120	103	80 - 120	<3.0	ug/L	3.5	20
A924470	Total Antimony (Sb)	2023/03/31	101	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A924470	Total Arsenic (As)	2023/03/31	103	80 - 120	100	80 - 120	<0.10	ug/L	4.8	20
A924470	Total Barium (Ba)	2023/03/31	NC	80 - 120	100	80 - 120	<1.0	ug/L	0.72	20
A924470	Total Beryllium (Be)	2023/03/31	94	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A924470	Total Bismuth (Bi)	2023/03/31	96	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A924470	Total Boron (B)	2023/03/31	98	80 - 120	99	80 - 120	<50	ug/L	NC	20
A924470	Total Cadmium (Cd)	2023/03/31	98	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A924470	Total Chromium (Cr)	2023/03/31	97	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A924470	Total Cobalt (Co)	2023/03/31	92	80 - 120	96	80 - 120	<0.20	ug/L	1.8	20
A924470	Total Copper (Cu)	2023/03/31	90	80 - 120	97	80 - 120	<0.50	ug/L	0.37	20
A924470	Total Iron (Fe)	2023/03/31	NC	80 - 120	103	80 - 120	<10	ug/L	2.7	20
A924470	Total Lead (Pb)	2023/03/31	98	80 - 120	100	80 - 120	<0.20	ug/L	0.71	20
A924470	Total Lithium (Li)	2023/03/31	94	80 - 120	98	80 - 120	<2.0	ug/L	1.4	20
A924470	Total Manganese (Mn)	2023/03/31	NC	80 - 120	100	80 - 120	<1.0	ug/L	0.84	20
A924470	Total Molybdenum (Mo)	2023/03/31	NC	80 - 120	102	80 - 120	<1.0	ug/L	0.97	20
A924470	Total Nickel (Ni)	2023/03/31	93	80 - 120	100	80 - 120	<1.0	ug/L	3.4	20
A924470	Total Selenium (Se)	2023/03/31	102	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A924470	Total Silicon (Si)	2023/03/31	NC	80 - 120	112	80 - 120	<100	ug/L	1.1	20
A924470	Total Silver (Ag)	2023/03/31	99	80 - 120	99	80 - 120	<0.020	ug/L	NC	20
A924470	Total Strontium (Sr)	2023/03/31	NC	80 - 120	101	80 - 120	<1.0	ug/L	0.0088	20
A924470	Total Thallium (Tl)	2023/03/31	99	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A924470	Total Tin (Sn)	2023/03/31	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A924470	Total Titanium (Ti)	2023/03/31	102	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A924470	Total Uranium (U)	2023/03/31	104	80 - 120	101	80 - 120	<0.10	ug/L	1.1	20
A924470	Total Vanadium (V)	2023/03/31	100	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A924470	Total Zinc (Zn)	2023/03/31	NC	80 - 120	102	80 - 120	<5.0	ug/L	0.21	20
A924470	Total Zirconium (Zr)	2023/03/31	105	80 - 120	97	80 - 120	<0.10	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A924875	Dissolved Fluoride (F)	2023/03/31	108	80 - 120	104	80 - 120	<0.050	mg/L	0	20
A924878	Dissolved Fluoride (F)	2023/03/31	107	80 - 120	104	80 - 120	<0.050	mg/L	NC	20
A925422	Total Ammonia (N)	2023/03/31	101	80 - 120	106	80 - 120	<0.015	mg/L	4.8	20
A926724	Total Mercury (Hg)	2023/04/03	86	80 - 120	96	80 - 120	<0.0019	ug/L	1.8	20
A928642	Dissolved Fluoride (F)	2023/04/05	NC	80 - 120	104	80 - 120	<0.050	mg/L	0	20
A928786	Nitrate plus Nitrite (N)	2023/04/05	103	80 - 120	103	80 - 120	<0.0020	mg/L	0.14	25
A928787	Nitrite (N)	2023/04/05	100	80 - 120	100	80 - 120	<0.0020	mg/L	NC	25
A928951	Total Aluminum (Al)	2023/04/05	102	80 - 120	102	80 - 120	<3.0	ug/L	15	20
A928951	Total Antimony (Sb)	2023/04/05	100	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
A928951	Total Arsenic (As)	2023/04/05	103	80 - 120	102	80 - 120	<0.10	ug/L	1.4	20
A928951	Total Barium (Ba)	2023/04/05	100	80 - 120	102	80 - 120	<1.0	ug/L	0.31	20
A928951	Total Beryllium (Be)	2023/04/05	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A928951	Total Bismuth (Bi)	2023/04/05	95	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A928951	Total Boron (B)	2023/04/05	94	80 - 120	98	80 - 120	<50	ug/L	NC	20
A928951	Total Cadmium (Cd)	2023/04/05	97	80 - 120	98	80 - 120	<0.010	ug/L	15	20
A928951	Total Chromium (Cr)	2023/04/05	94	80 - 120	96	80 - 120	<1.0	ug/L	1.4	20
A928951	Total Cobalt (Co)	2023/04/05	93	80 - 120	95	80 - 120	<0.20	ug/L	5.1	20
A928951	Total Copper (Cu)	2023/04/05	89	80 - 120	93	80 - 120	<0.50	ug/L	3.6	20
A928951	Total Iron (Fe)	2023/04/05	NC	80 - 120	106	80 - 120	<10	ug/L	1.3	20
A928951	Total Lead (Pb)	2023/04/05	100	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
A928951	Total Lithium (Li)	2023/04/05	93	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
A928951	Total Manganese (Mn)	2023/04/05	NC	80 - 120	96	80 - 120	<1.0	ug/L	0.25	20
A928951	Total Molybdenum (Mo)	2023/04/05	NC	80 - 120	102	80 - 120	<1.0	ug/L	1.4	20
A928951	Total Nickel (Ni)	2023/04/05	93	80 - 120	95	80 - 120	<1.0	ug/L	0.94	20
A928951	Total Selenium (Se)	2023/04/05	99	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A928951	Total Silicon (Si)	2023/04/05	NC	80 - 120	114	80 - 120	<100	ug/L	1.2	20
A928951	Total Silver (Ag)	2023/04/05	97	80 - 120	96	80 - 120	<0.020	ug/L	NC	20
A928951	Total Strontium (Sr)	2023/04/05	NC	80 - 120	100	80 - 120	<1.0	ug/L	0.64	20
A928951	Total Thallium (Tl)	2023/04/05	99	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A928951	Total Tin (Sn)	2023/04/05	96	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A928951	Total Titanium (Ti)	2023/04/05	99	80 - 120	99	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C321483
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A928951	Total Uranium (U)	2023/04/05	101	80 - 120	101	80 - 120	<0.10	ug/L	1.8	20
A928951	Total Vanadium (V)	2023/04/05	95	80 - 120	95	80 - 120	<5.0	ug/L	NC	20
A928951	Total Zinc (Zn)	2023/04/05	93	80 - 120	96	80 - 120	<5.0	ug/L	1.3	20
A928951	Total Zirconium (Zr)	2023/04/05	101	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
A929204	Total Phosphorus (P)	2023/04/06	67 (2)	N/A	95	80 - 120	<0.0030	mg/L	NC	20
A929535	Total Aluminum (Al)	2023/04/06	94	80 - 120	92	80 - 120	<3.0	ug/L	NC	20
A929535	Total Antimony (Sb)	2023/04/06	103	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
A929535	Total Arsenic (As)	2023/04/06	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A929535	Total Barium (Ba)	2023/04/06	100	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A929535	Total Beryllium (Be)	2023/04/06	106	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A929535	Total Bismuth (Bi)	2023/04/06	77 (1)	80 - 120	94	80 - 120	<1.0	ug/L	NC	20
A929535	Total Boron (B)	2023/04/06	91	80 - 120	92	80 - 120	<50	ug/L	NC	20
A929535	Total Cadmium (Cd)	2023/04/06	100	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A929535	Total Chromium (Cr)	2023/04/06	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A929535	Total Cobalt (Co)	2023/04/06	100	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A929535	Total Copper (Cu)	2023/04/06	102	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
A929535	Total Iron (Fe)	2023/04/06	101	80 - 120	101	80 - 120	<10	ug/L	NC	20
A929535	Total Lead (Pb)	2023/04/06	97	80 - 120	96	80 - 120	<0.20	ug/L	NC	20
A929535	Total Lithium (Li)	2023/04/06	91	80 - 120	87	80 - 120	<2.0	ug/L	NC	20
A929535	Total Manganese (Mn)	2023/04/06	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A929535	Total Molybdenum (Mo)	2023/04/06	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A929535	Total Nickel (Ni)	2023/04/06	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A929535	Total Selenium (Se)	2023/04/06	112	80 - 120	108	80 - 120	<0.10	ug/L	NC	20
A929535	Total Silicon (Si)	2023/04/06	101	80 - 120	102	80 - 120	<100	ug/L	NC	20
A929535	Total Silver (Ag)	2023/04/06	101	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
A929535	Total Strontium (Sr)	2023/04/06	95	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
A929535	Total Thallium (Tl)	2023/04/06	98	80 - 120	97	80 - 120	<0.010	ug/L	NC	20
A929535	Total Tin (Sn)	2023/04/06	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A929535	Total Titanium (Ti)	2023/04/06	100	80 - 120	96	80 - 120	<5.0	ug/L	NC	20
A929535	Total Uranium (U)	2023/04/06	94	80 - 120	94	80 - 120	<0.10	ug/L	NC	20
A929535	Total Vanadium (V)	2023/04/06	103	80 - 120	101	80 - 120	<5.0	ug/L	NC	20



Bureau Veritas Job #: C321483
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A929535	Total Zinc (Zn)	2023/04/06	108	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A929535	Total Zirconium (Zr)	2023/04/06	100	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
A930089	Total Ammonia (N)	2023/04/06	105	80 - 120	106	80 - 120	<0.015	mg/L	0.40	20
A930199	pH	2023/04/06			102	97 - 103			0.40	N/A
A930204	pH	2023/04/06			101	97 - 103				
A930626	Total Mercury (Hg)	2023/04/08	70 (1)	80 - 120	96	80 - 120	<0.0019	ug/L	NC	20

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

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

(2) Matrix spike exceeds acceptance limits due to matrix interference.



Bureau Veritas Job #: C321483
Report Date: 2023/04/11

CITY OF ABBOTSFORD
Client Project #: Bevan #1 Creek Water Quality

Sampler Initials: MA

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to be "D. Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas
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Page 1 of 2



C321483_COC

Bottle Order #:



Project Manager

Customer Solutions

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	32315 SOUTH FRASER WAY	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Fax	(604) 850-6418	Fax		Site #	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Sampled By	
Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)	
☐ CSR					
☐ CCME					
☐ BC Water Quality					
☐ Other					
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS		Metals Field Filtered? (Y/N)			
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	
1	H01 (39565)	28-03-23	13:35		
2	H02 (39566)	11 /	11:40		
3	H03 (39567)		13:27		
4	B01 (39568)		12:30		
5	B02 (39569)		12:02		
6	W01 (3956A)	28-03-23	12:49		
7	D01 (3956D)	11 /	10:08		
8	D02 (3956D)		10:11		
9	F01 (3956B)		9:40		
10	F02 (3956C)	11 /	8:45		
RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	
T. M. Madafum Adams		23/03/23	15:13	ALME Am r Am r	
Date: (YY/MM/DD)		Time	Date: (YY/MM/DD)		Time
23/03/23		15:13	23/03/23		15:17
# Jars used and not submitted		Lab Use Only			
		Temperature (°C) on Receipt			
		10/10/12			
Custody Seal Intact on Cooler?		☐ Yes ☒ No			
White: Bureau Veritas Yellow: Client					

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2019) Inc.

IC:Y

INVOICE TO:		Report Information		Project Information	
Company Name: #1414 CITY OF ABBOTSFORD Contact Name: Amy Peters Address: 32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7 Phone: (778) 549-1240 Fax: (604) 850-6418 Email: apeters@abbotsford.ca		Company Name: Amy Peters Contact Name: Amy Peters Address: 32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7 Phone: (778) 549-1240 Fax: (604) 850-6418 Email: apeters@abbotsford.ca		Quotation #: C01193 P.O. #: Project #: Bevan #1 Creek Water Quality Project Name: Site #: Sampled By: Chain Of Custody Record: Customer Solutions:	
Regulatory Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other:		Special Instructions:		ANALYSIS REQUESTED (PLEASE BE SPECIFIC) Turnaround Time (TAT) Required: Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Data Required: ☐ Rush Confirmation Number: (call lab for #)	
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS		Metals Field Filtered? (Y/N)			
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	
1	FOF (41C64)	28-03-23	9:20		
2	DUPLICATE	28-03-23	12:35		
3	TRIP BLANK (3AF04)				
4	FIELD BLANK (3AF05)				
5					
6					
7					
8					
9					
10					
RELINQUISHED BY: (Signature/Print) [Signature] M. Adams		Date: (YYMMDD) 28/03/23		Time: 15:13	
RECEIVED BY: (Signature/Print) [Signature] AMT AMC		Date: (YYMMDD) 28/03/23		Time: 15:12	
# Jars used and not submitted:		Time Sampled:		Lab Use Only Temperature (°C) on Receipt: 6, 10, 12 Custody Seal Intact or Cooler? ☒ Yes ☐ No	
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS. * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.					



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 692000-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, F02, 3AF04, 3AF05

Report Date: 2023/05/03
Report #: R3331160
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C328924

Received: 2023/04/26, 08:00

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Fluoride	14	N/A	2023/04/27	BBY6SOP-00048	SM 23 4500-F C m
Hardness Total (calculated as CaCO ₃) (1)	2	N/A	2023/04/28	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO ₃) (1)	12	N/A	2023/05/01	BBY WI-00033	Auto Calc
Mercury (Total) by CV	14	2023/04/28	2023/04/28	AB SOP-00084	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2023/04/26	2023/04/28	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total)	12	2023/04/26	2023/05/01	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	1	2023/04/27	2023/04/27	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Elements by CRC ICPMS (total)	13	2023/04/27	2023/04/28	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N (Total)	14	N/A	2023/04/27	AB SOP-00007	SM 24 4500 NH ₃ A G m
Nitrate+Nitrite (N) (low level)	13	N/A	2023/04/27	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrate+Nitrite (N) (low level)	1	N/A	2023/05/03	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrite (N) (low level)	14	N/A	2023/04/27	BBY6SOP-00010	SM 23 4500-NO ₃ - I m
Nitrogen - Nitrate (as N) Low Level Calc	14	N/A	2023/04/28	BBY WI-00033	Auto Calc
pH @25°C (2)	14	N/A	2023/04/26	BBY6SOP-00026	SM 23 4500-H+ B m
Total Phosphorus	14	2023/04/29	2023/05/02	BBY6SOP-00013	SM 24 4500-P E m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or



Your Project #: BEVAN #1 CREEK WATER QUALITY

Attention: Amy Peters

CITY OF ABBOTSFORD
CITYOABB-ABB
32315 SOUTH FRASER WAY
ABBOTSFORD, BC
Canada V2T 1W7

Your C.O.C. #: 692000-01-01, 39565, 39566, 39567, 39568, 39569,
3956A, 3956D, 3956B, 3956C, 41C64, F02, 3AF04, 3AF05

Report Date: 2023/05/03

Report #: R3331160

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C328924

Received: 2023/04/26, 08:00

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).

(2) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Customer Solutions, Western Canada Customer Experience Team

Email: customersolutionswest@bureauveritas.com

Phone# (604) 734 7276

=====

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BUREAU
VERITAS

Bureau Veritas Job #: C328924

Report Date: 2023/05/03

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BPJ737	BPJ738	BPJ739	BPJ740	BPJ741		
Sampling Date			2023/04/25 16:08	2023/04/25 15:02	2023/04/25 15:50	2023/04/25 15:30	2023/04/25 14:45		
COC Number			39565	39566	39567	39568	39569		
	UNITS	Criteria	H01	H02	H03	B01	B02	RDL	QC Batch
Calculated Parameters									
Nitrate (N)	mg/L	-	1.59	1.17	1.96	0.969	1.40	0.0020	A944923
Misc. Inorganics									
pH	pH	6.5:9.0	6.77	7.64	7.34	6.85	7.52	N/A	A945951
Anions									
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A945989
Nutrients									
Total Ammonia (N)	mg/L	-	0.037	0.027	<0.015	0.097	0.034	0.015	A946202
Total Phosphorus (P)	mg/L	-	0.24	0.013	0.018	0.036	0.026	0.0030	A948243
Nitrate plus Nitrite (N)	mg/L	-	1.60	1.17	1.97	0.981	1.40	0.0020	A946166
Nitrite (N)	mg/L	0.06	0.0066	0.0053	0.0064	0.0122	0.0021	0.0020	A946170
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels								
Grey									
Black									
RDL = Reportable Detection Limit									
N/A = Not Applicable									

Bureau Veritas ID			BPJ742	BPJ743	BPJ744	BPJ745	BPJ746	BPJ747		
Sampling Date			2023/04/25 17:03	2023/04/25 16:43	2023/04/25 16:34	2023/04/25 14:13	2023/04/25 13:14	2023/04/25 18:13		
COC Number			3956A	3956D	3956D	3956B	3956C	41C64		
	UNITS	Criteria	W01	D01	D02	F01	F02	FOF	RDL	QC Batch
Calculated Parameters										
Nitrate (N)	mg/L	-	0.654	1.23	0.124	1.43	0.527	0.638	0.0020	A944923
Misc. Inorganics										
pH	pH	6.5:9.0	6.83	7.47	7.27	7.60	7.27	7.24	N/A	A945958
Anions										
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	A945989
Nutrients										
Total Ammonia (N)	mg/L	-	0.061	<0.015	0.097	0.028	<0.015	0.024	0.015	A946202
Total Phosphorus (P)	mg/L	-	0.024	0.011	0.095	0.057	0.012	0.027	0.0030	A948243
Nitrate plus Nitrite (N)	mg/L	-	0.662	1.23	0.127	1.43	0.530	0.643	0.0020	A946166
Nitrite (N)	mg/L	0.06	0.0079	0.0031	0.0027	0.0083	0.0028	0.0054	0.0020	A946170
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										
N/A = Not Applicable										

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Bureau Veritas ID			BPJ748	BPJ749		BPJ750		
Sampling Date			2023/04/25 13:35	2023/04/25		2023/04/25		
COC Number			F02	3AF04		3AF05		
	UNITS	Criteria	DUPLICATE	TRIP BLANK	QC Batch	FIELD BLANK	RDL	QC Batch
Calculated Parameters								
Nitrate (N)	mg/L	-	0.528	<0.0020	A944923	0.0085	0.0020	A944923
Misc. Inorganics								
pH	pH	6.5:9.0	7.15	6.70	A945958	5.80	N/A	A945958
Anions								
Dissolved Fluoride (F)	mg/L	0.12	<0.050	<0.050	A945989	<0.050	0.050	A945989
Nutrients								
Total Ammonia (N)	mg/L	-	<0.015	<0.015	A946202	<0.015	0.015	A946202
Total Phosphorus (P)	mg/L	-	0.011	<0.0030	A948243	<0.0030	0.0030	A948243
Nitrate plus Nitrite (N)	mg/L	-	0.530	<0.0020	A946166	0.0085	0.0020	A951789
Nitrite (N)	mg/L	0.06	0.0021	<0.0020	A946170	<0.0020	0.0020	A946170
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ737		BPJ738	BPJ739	BPJ740	BPJ741		
Sampling Date			2023/04/25 16:08		2023/04/25 15:02	2023/04/25 15:50	2023/04/25 15:30	2023/04/25 14:45		
COC Number			39565		39566	39567	39568	39569		
	UNITS	Criteria	H01	RDL	H02	H03	B01	B02	RDL	QC Batch
Calculated Parameters										
Total Hardness (CaCO3)	mg/L	-	129	0.50	104	105	57.2	94.9	0.50	A944795
Elements										
Total Mercury (Hg)	ug/L	0.026	0.0193	0.0019	0.0058	0.0297	0.0019	0.0026	0.0019	A947471
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	-	9260	6.0	40.3	73.0	132	63.8	3.0	A946466
Total Antimony (Sb)	ug/L	-	<1.0	1.0	<0.50	<0.50	<0.50	<0.50	0.50	A946466
Total Arsenic (As)	ug/L	5	1.59	0.20	0.96	0.56	1.03	0.78	0.10	A946466
Total Barium (Ba)	ug/L	-	39.6	2.0	14.3	15.5	25.6	18.1	1.0	A946466
Total Beryllium (Be)	ug/L	-	<0.20	0.20	<0.10	<0.10	<0.10	<0.10	0.10	A946466
Total Bismuth (Bi)	ug/L	-	<2.0	2.0	<1.0	<1.0	<1.0	<1.0	1.0	A946466
Total Boron (B)	ug/L	1500	<100	100	<50	<50	<50	<50	50	A946466
Total Cadmium (Cd)	ug/L	-	0.079	0.020	<0.010	0.022	0.036	0.014	0.010	A946466
Total Chromium (Cr)	ug/L	-	50.6	2.0	<1.0	<1.0	2.2	6.5	1.0	A946466
Total Cobalt (Co)	ug/L	-	13.7	0.40	<0.20	<0.20	0.54	<0.20	0.20	A946466
Total Copper (Cu)	ug/L	-	32.8	1.0	1.13	2.70	5.22	1.42	0.50	A946466
Total Iron (Fe)	ug/L	300	17200	20	272	117	825	791	10	A946466
Total Lead (Pb)	ug/L	-	2.29	0.40	<0.20	<0.20	3.77	0.25	0.20	A946466
Total Lithium (Li)	ug/L	-	7.7	4.0	<2.0	<2.0	<2.0	<2.0	2.0	A946466
Total Manganese (Mn)	ug/L	-	303	2.0	37.4	11.4	123	103	1.0	A946466
Total Molybdenum (Mo)	ug/L	73	<2.0	2.0	2.6	5.9	<1.0	5.8	1.0	A946466
Total Nickel (Ni)	ug/L	-	31.7	2.0	<1.0	<1.0	3.4	24.1	1.0	A946466
Total Selenium (Se)	ug/L	1	0.25	0.20	0.18	0.18	<0.10	0.21	0.10	A946466
Total Silicon (Si)	ug/L	-	22500	200	8340	7860	6320	9210	100	A946466
Total Silver (Ag)	ug/L	0.25	0.461	0.040	<0.020	0.024	<0.020	<0.020	0.020	A946466
Total Strontium (Sr)	ug/L	-	121	2.0	130	142	157	141	1.0	A946466
Total Thallium (Tl)	ug/L	0.8	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	A946466
Total Tin (Sn)	ug/L	-	<10	10	<5.0	<5.0	<5.0	<5.0	5.0	A946466
Total Titanium (Ti)	ug/L	-	342	10	<5.0	<5.0	5.3	<5.0	5.0	A946466
Total Uranium (U)	ug/L	15	<0.20	0.20	<0.10	<0.10	<0.10	<0.10	0.10	A946466
Total Vanadium (V)	ug/L	-	25	10	<5.0	<5.0	<5.0	<5.0	5.0	A946466
Total Zinc (Zn)	ug/L	30	61	10	6.9	20.4	23.4	6.5	5.0	A946466
Total Zirconium (Zr)	ug/L	-	0.49	0.20	<0.10	<0.10	0.24	<0.10	0.10	A946466
Total Calcium (Ca)	mg/L	-	26.7	0.10	30.3	30.7	16.9	26.8	0.050	A944921
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ737		BPJ738	BPJ739	BPJ740	BPJ741		
Sampling Date			2023/04/25 16:08		2023/04/25 15:02	2023/04/25 15:50	2023/04/25 15:30	2023/04/25 14:45		
COC Number			39565		39566	39567	39568	39569		
	UNITS	Criteria	H01	RDL	H02	H03	B01	B02	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	15.2	0.10	6.84	6.86	3.65	6.79	0.050	A944921
Total Potassium (K)	mg/L	-	1.85	0.10	1.58	1.98	1.09	1.33	0.050	A944921
Total Sodium (Na)	mg/L	-	14.1	0.10	13.6	17.2	22.1	15.9	0.050	A944921
Total Sulphur (S)	mg/L	-	<6.0	6.0	5.5	6.2	<3.0	4.0	3.0	A944921
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria/levels									
RDL = Reportable Detection Limit										



**BUREAU
VERITAS**

Bureau Veritas Job #: C328924

Report Date: 2023/05/03

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ742	BPJ743	BPJ744	BPJ745	BPJ746	BPJ747		
Sampling Date			2023/04/25 17:03	2023/04/25 16:43	2023/04/25 16:34	2023/04/25 14:13	2023/04/25 13:14	2023/04/25 18:13		
COC Number			3956A	3956D	3956D	3956B	3956C	41C64		
	UNITS	Criteria	W01	D01	D02	F01	F02	FOF	RDL	QC Batch

Calculated Parameters										
Total Hardness (CaCO3)	mg/L	-	37.7	68.9	88.0	96.3	53.0	61.1	0.50	A944795
Elements										
Total Mercury (Hg)	ug/L	0.026	<0.0019	<0.0019	<0.0019	0.0022	<0.0019	0.0047	0.0019	A947471
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	-	53.4	78.2	2950	91.3	45.8	110	3.0	A946466
Total Antimony (Sb)	ug/L	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	A946466
Total Arsenic (As)	ug/L	5	0.68	0.51	9.22	0.93	0.34	0.84	0.10	A946466
Total Barium (Ba)	ug/L	-	16.8	17.7	53.8	22.4	16.6	18.8	1.0	A946466
Total Beryllium (Be)	ug/L	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	A946466
Total Bismuth (Bi)	ug/L	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	A946466
Total Boron (B)	ug/L	1500	<50	<50	<50	<50	<50	<50	50	A946466
Total Cadmium (Cd)	ug/L	-	<0.010	<0.010	0.104	0.010	<0.010	0.011	0.010	A946466
Total Chromium (Cr)	ug/L	-	<1.0	<1.0	7.5	<1.0	<1.0	<1.0	1.0	A946466
Total Cobalt (Co)	ug/L	-	<0.20	<0.20	3.07	<0.20	<0.20	0.22	0.20	A946466
Total Copper (Cu)	ug/L	-	1.11	1.13	8.28	2.34	1.63	3.43	0.50	A946466
Total Iron (Fe)	ug/L	300	447	285	9240	469	198	513	10	A946466
Total Lead (Pb)	ug/L	-	0.34	<0.20	2.20	<0.20	<0.20	0.24	0.20	A946466
Total Lithium (Li)	ug/L	-	<2.0	<2.0	2.2	<2.0	<2.0	<2.0	2.0	A946466
Total Manganese (Mn)	ug/L	-	30.8	24.6	1360	125	23.0	57.0	1.0	A946466
Total Molybdenum (Mo)	ug/L	73	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	1.0	A946466
Total Nickel (Ni)	ug/L	-	<1.0	<1.0	6.5	7.9	<1.0	<1.0	1.0	A946466
Total Selenium (Se)	ug/L	1	<0.10	0.14	0.39	0.14	<0.10	<0.10	0.10	A946466
Total Silicon (Si)	ug/L	-	3510	5920	13500	5400	1950	1930	100	A946466
Total Silver (Ag)	ug/L	0.25	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	A946466
Total Strontium (Sr)	ug/L	-	67.4	111	109	153	83.1	102	1.0	A946466
Total Thallium (Tl)	ug/L	0.8	<0.010	<0.010	0.016	<0.010	<0.010	<0.010	0.010	A946466
Total Tin (Sn)	ug/L	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	A946466
Total Titanium (Ti)	ug/L	-	<5.0	<5.0	125	<5.0	<5.0	5.0	5.0	A946466
Total Uranium (U)	ug/L	15	<0.10	<0.10	0.16	<0.10	<0.10	<0.10	0.10	A946466
Total Vanadium (V)	ug/L	-	<5.0	<5.0	9.9	<5.0	<5.0	<5.0	5.0	A946466
Total Zinc (Zn)	ug/L	30	10.0	<5.0	36.8	<5.0	5.4	8.0	5.0	A946466
Total Zirconium (Zr)	ug/L	-	<0.10	<0.10	0.51	0.10	<0.10	0.11	0.10	A946466
Total Calcium (Ca)	mg/L	-	10.4	19.4	22.5	27.5	15.4	17.5	0.050	A944921

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ742	BPJ743	BPJ744	BPJ745	BPJ746	BPJ747		
Sampling Date			2023/04/25 17:03	2023/04/25 16:43	2023/04/25 16:34	2023/04/25 14:13	2023/04/25 13:14	2023/04/25 18:13		
COC Number			3956A	3956D	3956D	3956B	3956C	41C64		
	UNITS	Criteria	W01	D01	D02	F01	F02	FOF	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	2.82	5.00	7.71	6.71	3.53	4.20	0.050	A944921
Total Potassium (K)	mg/L	-	0.908	1.48	1.57	1.77	1.07	1.34	0.050	A944921
Total Sodium (Na)	mg/L	-	42.3	13.2	9.61	19.0	13.4	16.0	0.050	A944921
Total Sulphur (S)	mg/L	-	<3.0	4.3	3.9	6.0	3.2	3.5	3.0	A944921
No Fill	No Exceedance Exceeds 1 criteria policy/level Exceeds both criteria/levels									
Grey										
Black										
RDL = Reportable Detection Limit										

CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ748		BPJ749	BPJ750		
Sampling Date			2023/04/25 13:35		2023/04/25	2023/04/25		
COC Number			F02		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK	FIELD BLANK	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	52.1	A944795	<0.50	<0.50	0.50	A944795
Elements								
Total Mercury (Hg)	ug/L	0.026	<0.0019	A947471	<0.0019	<0.0019	0.0019	A947471
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	49.3	A946466	<3.0	<3.0	3.0	A946106
Total Antimony (Sb)	ug/L	-	<0.50	A946466	<0.50	<0.50	0.50	A946106
Total Arsenic (As)	ug/L	5	0.34	A946466	<0.10	<0.10	0.10	A946106
Total Barium (Ba)	ug/L	-	16.7	A946466	<1.0	<1.0	1.0	A946106
Total Beryllium (Be)	ug/L	-	<0.10	A946466	<0.10	<0.10	0.10	A946106
Total Bismuth (Bi)	ug/L	-	<1.0	A946466	<1.0	<1.0	1.0	A946106
Total Boron (B)	ug/L	1500	<50	A946466	<50	<50	50	A946106
Total Cadmium (Cd)	ug/L	-	<0.010	A946466	<0.010	<0.010	0.010	A946106
Total Chromium (Cr)	ug/L	-	<1.0	A946466	<1.0	<1.0	1.0	A946106
Total Cobalt (Co)	ug/L	-	<0.20	A946466	<0.20	<0.20	0.20	A946106
Total Copper (Cu)	ug/L	-	1.61	A946466	<0.50	0.90	0.50	A946106
Total Iron (Fe)	ug/L	300	199	A946466	<10	<10	10	A946106
Total Lead (Pb)	ug/L	-	<0.20	A946466	<0.20	<0.20	0.20	A946106
Total Lithium (Li)	ug/L	-	<2.0	A946466	<2.0	<2.0	2.0	A946106
Total Manganese (Mn)	ug/L	-	23.0	A946466	<1.0	<1.0	1.0	A946106
Total Molybdenum (Mo)	ug/L	73	<1.0	A946466	<1.0	<1.0	1.0	A946106
Total Nickel (Ni)	ug/L	-	<1.0	A946466	<1.0	<1.0	1.0	A946106
Total Selenium (Se)	ug/L	1	<0.10	A946466	<0.10	<0.10	0.10	A946106
Total Silicon (Si)	ug/L	-	1930	A946466	<100	<100	100	A946106
Total Silver (Ag)	ug/L	0.25	<0.020	A946466	<0.020	<0.020	0.020	A946106
Total Strontium (Sr)	ug/L	-	82.2	A946466	<1.0	<1.0	1.0	A946106
Total Thallium (Tl)	ug/L	0.8	<0.010	A946466	<0.010	<0.010	0.010	A946106
Total Tin (Sn)	ug/L	-	<5.0	A946466	<5.0	<5.0	5.0	A946106
Total Titanium (Ti)	ug/L	-	<5.0	A946466	<5.0	<5.0	5.0	A946106
Total Uranium (U)	ug/L	15	<0.10	A946466	<0.10	<0.10	0.10	A946106
Total Vanadium (V)	ug/L	-	<5.0	A946466	<5.0	<5.0	5.0	A946106
Total Zinc (Zn)	ug/L	30	5.5	A946466	<5.0	<5.0	5.0	A946106
Total Zirconium (Zr)	ug/L	-	<0.10	A946466	<0.10	<0.10	0.10	A946106
Total Calcium (Ca)	mg/L	-	15.1	A944921	<0.050	<0.050	0.050	A944921
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



CSR/CCME TOT. METALS IN WATER W/ CV HG (WATER)

Bureau Veritas ID			BPJ748		BPJ749	BPJ750		
Sampling Date			2023/04/25 13:35		2023/04/25	2023/04/25		
COC Number			F02		3AF04	3AF05		
	UNITS	Criteria	DUPLICATE	QC Batch	TRIP BLANK	FIELD BLANK	RDL	QC Batch
Total Magnesium (Mg)	mg/L	-	3.51	A944921	<0.050	<0.050	0.050	A944921
Total Potassium (K)	mg/L	-	1.08	A944921	<0.050	<0.050	0.050	A944921
Total Sodium (Na)	mg/L	-	13.4	A944921	<0.050	<0.050	0.050	A944921
Total Sulphur (S)	mg/L	-	3.2	A944921	<3.0	<3.0	3.0	A944921
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								



GENERAL COMMENTS

Sample BPJ750 [FIELD BLANK] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.
Criteria: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME). Freshwater Long Term Guidelines.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C328924

Report Date: 2023/05/03

QUALITY ASSURANCE REPORT

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A945951	pH	2023/04/26			102	97 - 103			0	N/A
A945958	pH	2023/04/26			101	97 - 103			0.72	N/A
A945989	Dissolved Fluoride (F)	2023/04/27	101	80 - 120	98	80 - 120	<0.050	mg/L	NC	20
A946106	Total Aluminum (Al)	2023/04/28	100	80 - 120	99	80 - 120	<3.0	ug/L	NC	20
A946106	Total Antimony (Sb)	2023/04/28	101	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
A946106	Total Arsenic (As)	2023/04/28	103	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
A946106	Total Barium (Ba)	2023/04/28	100	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A946106	Total Beryllium (Be)	2023/04/28	102	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A946106	Total Bismuth (Bi)	2023/04/28	40 (1)	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A946106	Total Boron (B)	2023/04/28	98	80 - 120	107	80 - 120	<50	ug/L	NC	20
A946106	Total Cadmium (Cd)	2023/04/28	102	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A946106	Total Chromium (Cr)	2023/04/28	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A946106	Total Cobalt (Co)	2023/04/28	92	80 - 120	94	80 - 120	<0.20	ug/L	NC	20
A946106	Total Copper (Cu)	2023/04/28	96	80 - 120	100	80 - 120	<0.50	ug/L	4.7	20
A946106	Total Iron (Fe)	2023/04/28	97	80 - 120	99	80 - 120	<10	ug/L	NC	20
A946106	Total Lead (Pb)	2023/04/28	98	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
A946106	Total Lithium (Li)	2023/04/28	100	80 - 120	100	80 - 120	<2.0	ug/L	NC	20
A946106	Total Manganese (Mn)	2023/04/28	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A946106	Total Molybdenum (Mo)	2023/04/28	92	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A946106	Total Nickel (Ni)	2023/04/28	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
A946106	Total Selenium (Se)	2023/04/28	102	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
A946106	Total Silicon (Si)	2023/04/28	103	80 - 120	106	80 - 120	<100	ug/L	NC	20
A946106	Total Silver (Ag)	2023/04/28	89	80 - 120	102	80 - 120	<0.020	ug/L	NC	20
A946106	Total Strontium (Sr)	2023/04/28	102	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A946106	Total Thallium (Tl)	2023/04/28	98	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A946106	Total Tin (Sn)	2023/04/28	97	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A946106	Total Titanium (Ti)	2023/04/28	99	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A946106	Total Uranium (U)	2023/04/28	99	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
A946106	Total Vanadium (V)	2023/04/28	98	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
A946106	Total Zinc (Zn)	2023/04/28	109	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A946106	Total Zirconium (Zr)	2023/04/28	100	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A946166	Nitrate plus Nitrite (N)	2023/04/27	106	80 - 120	106	80 - 120	<0.0020	mg/L	7.0	25
A946170	Nitrite (N)	2023/04/27	100	80 - 120	100	80 - 120	<0.0020	mg/L	3.8	25

BUREAU
VERITAS

Bureau Veritas Job #: C328924

Report Date: 2023/05/03

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A946202	Total Ammonia (N)	2023/04/27	NC	80 - 120	108	80 - 120	<0.015	mg/L	0.24	20
A946466	Total Aluminum (Al)	2023/04/28	93	80 - 120	95	80 - 120	<3.0	ug/L	4.2	20
A946466	Total Antimony (Sb)	2023/04/28	102	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
A946466	Total Arsenic (As)	2023/04/28	102	80 - 120	102	80 - 120	<0.10	ug/L	7.3	20
A946466	Total Barium (Ba)	2023/04/28	99	80 - 120	100	80 - 120	<1.0	ug/L	1.4	20
A946466	Total Beryllium (Be)	2023/04/28	95	80 - 120	96	80 - 120	<0.10	ug/L	NC	20
A946466	Total Bismuth (Bi)	2023/04/28	95	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
A946466	Total Boron (B)	2023/04/28	92	80 - 120	93	80 - 120	<50	ug/L	NC	20
A946466	Total Cadmium (Cd)	2023/04/28	100	80 - 120	100	80 - 120	<0.010	ug/L	NC	20
A946466	Total Chromium (Cr)	2023/04/28	99	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
A946466	Total Cobalt (Co)	2023/04/28	95	80 - 120	97	80 - 120	<0.20	ug/L	NC	20
A946466	Total Copper (Cu)	2023/04/28	98	80 - 120	100	80 - 120	<0.50	ug/L	15	20
A946466	Total Iron (Fe)	2023/04/28	100	80 - 120	101	80 - 120	<10	ug/L	5.0	20
A946466	Total Lead (Pb)	2023/04/28	97	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
A946466	Total Lithium (Li)	2023/04/28	100	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
A946466	Total Manganese (Mn)	2023/04/28	98	80 - 120	101	80 - 120	<1.0	ug/L	2.0	20
A946466	Total Molybdenum (Mo)	2023/04/28	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
A946466	Total Nickel (Ni)	2023/04/28	99	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
A946466	Total Selenium (Se)	2023/04/28	104	80 - 120	104	80 - 120	<0.10	ug/L	NC	20
A946466	Total Silicon (Si)	2023/04/28	110	80 - 120	108	80 - 120	<100	ug/L	2.9	20
A946466	Total Silver (Ag)	2023/04/28	98	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
A946466	Total Strontium (Sr)	2023/04/28	95	80 - 120	99	80 - 120	<1.0	ug/L	3.1	20
A946466	Total Thallium (Tl)	2023/04/28	98	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
A946466	Total Tin (Sn)	2023/04/28	102	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
A946466	Total Titanium (Ti)	2023/04/28	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
A946466	Total Uranium (U)	2023/04/28	101	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A946466	Total Vanadium (V)	2023/04/28	100	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A946466	Total Zinc (Zn)	2023/04/28	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
A946466	Total Zirconium (Zr)	2023/04/28	100	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
A947471	Total Mercury (Hg)	2023/04/28	67 (1)	80 - 120	90	80 - 120	<0.0019	ug/L	NC	20
A948243	Total Phosphorus (P)	2023/05/02	NC	80 - 120	99	80 - 120	<0.0030	mg/L	0.080	20



BUREAU
VERITAS

Bureau Veritas Job #: C328924

Report Date: 2023/05/03

QUALITY ASSURANCE REPORT(CONT'D)

CITY OF ABBOTSFORD

Client Project #: BEVAN #1 CREEK WATER QUALITY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
A951789	Nitrate plus Nitrite (N)	2023/05/03	101	80 - 120	111	80 - 120	<0.0020	mg/L	NC	25

N/A = Not Applicable

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

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

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

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

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

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

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



Bureau Veritas Job #: C328924
Report Date: 2023/05/03

CITY OF ABBOTSFORD
Client Project #: BEVAN #1 CREEK WATER QUALITY

VALIDATION SIGNATURE PAGE

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

A handwritten signature in black ink, appearing to read "David Huang", written over a horizontal line.

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Page 1 of 2



Bureau Veritas
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C328924_COC

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	speters@abbotsford.ca	Email	speters@abbotsford.ca	Site #	
Fax: (604) 850-6418		Fax:		Sampled By	

Regulatory Criteria:

☐ CSR

☐ CCME

☐ BC Water Quality

☐ Other _____

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metals Field Filtered? (Y/N)	CSRIC/CCME Tot. Metals in Water w/ Cu Hg	Ammonia-N (Total)	Fluoride	Nitrate-Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix
✓ 1	H01 (39585)			
✓ 2	H02 (39586)			
✓ 3	H03 (39587)			
✓ 4	B01 (39588)			
✓ 5	B02 (39589)			
✓ 6	W01 (3958A)			
✓ 7	D01 (3958D)			
✓ 8	D02 (3958D)			
✓ 9	F01 (3958B)			
✓ 10	F02 (3958C)			

RELINQUISHED BY: (Signature/Print) Radysan Adams Date: (YY/MM/DD) 23/04/25 Time: 19:20

RECEIVED BY: (Signature/Print) Danyan Gill Doreau Date: (YY/MM/DD) 2023/04/26 Time: 08:00

Jars used and not submitted

Temperature (°C) on Receipt: 10, 10, 10

White: Bureau Veritas Yellow: Client

Lab Use Only

Custody Seal intact on Receipt? ☒ Yes ☐ No

Comments: Ice: yes

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/EN/WORKING/INTL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
 * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.



Bureau Veritas
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Page 2 of 2

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
				Sampled by	

Regulatory Criteria:		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
☐ CSR														Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dissolved Oxygen are > 5 days - contact your Project Manager for details.	
☐ OCME														Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 3 Day ☐ 5 Day ☐ Days Required: _____	
☐ BC Water Quality														Rush Confirmation Number: _____ (not lab. for #)	
☐ Other _____															

SAMPLES MUST BE KEPT COOL (< 4°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS															
Sample Barcode Label	Sample Location/Identifier	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	CSF/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus	# of Bottles	Comments
1	FOF (41C64)					X	X	X	X	X	X	X	X		
2	DUPLICATE (H04) F62					X	X	X	X	X	X	X	X		
3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X		
4	FIELD BLANK (3AF05)					X	X	X	X	X	X	X	X		
5															
6															
7															
8															
9															
10															

RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Lab Use Only	
Tina Woodison Adams		25/04/16	17:20	Danyel Gill		26/04/16	08:00		Time Received	Temperature (°C) on Receipt
									☐	10, 10, 10
										Custom Seal Intact on Cooler?
										☐ Yes ☒ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/EN/WORKING WITH LABS/RATECHES/RESOURCES/DOC/TERMS AND CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Bureau Veritas Canada (2015) Inc.

10, 10, 9
Ice: yes

Page 2 of 2



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C328924_COC

INVOICE TO:		Report Information		Project Information	
Company Name	#1414 CITY OF ABBOTSFORD	Company Name	Amy Peters	Quotation #	C01193
Contact Name	Amy Peters	Contact Name	Amy Peters	P.O. #	
Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Address	32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7	Project #	Bevan #1 Creek Water Quality
Phone	(778) 549-1240	Phone	(778) 549-1240	Project Name	
Email	apeters@abbotsford.ca	Email	apeters@abbotsford.ca	Site #	
Fax: (604) 850-5418		Fax:		Sampled By	

Regulatory Criteria:

☐ CSR

☐ CCME

☐ BC Water Quality

☐ Other _____

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metal Field Filtered? (Y/N)	CSPCCME Tot. Metals in Water w/ CV Fg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X

Turnaround Time (TAT) Required:

Please provide service needs for rush projects

Regular (Standard) TAT: ☐

(will be applied if Rush TAT is not specified)

Standard TAT - 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dissolved Furs are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission)

1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required:

Rush Confirmation Number: _____ (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS				
Sample Barcode Label	Sample Location Identification	Date Sampled	Time Sampled	Matrix
1	FOF (41C64)			
2	DUPLICATE (FOF) F02			
3	TRIP BLANK (3AF04)			
4	FIELD BLANK (3AF05)			
5				
6				
7				
8				
9				
10				

RELINQUISHED BY: (Signature/Print)

Amy Peters

Date: (YY/MM/DD)

23/04/16

Time

17:20

RECEIVED BY: (Signature/Print)

Danley Gill

Date: (YY/MM/DD)

23/04/16

Time

08:00

Jars used and not submitted

Lab Use Only

Test Results: ☐ Temperature (°C) on Receipt: 10, 10, 10

Custody Seal Intact on Cooler? ☐ Yes ☒ No

White: Bureau Veritas Yellow: Client

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGEMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Ice: yes



Bureau Veritas
4506 Canada Way, Burnaby, British Columbia Canada V6G 1K5 Tel: (604) 734 7278 Toll-free 800-563-6286 Fax: (604) 731 2368 www.bvna.com

Page 1 of 2

INVOICE TO:

Company Name: #1414 CITY OF ABBOTSFORD
 Contact Name: Amy Peters
 Address: 32315 SOUTH FRASER WAY
 ABBOTSFORD BC V2T 1W7
 Phone: (778) 549-1240 Fax: (604) 850-6418
 Email: apeters@abbotsford.ca

Report Information

Company Name: Amy Peters
 Contact Name: Amy Peters
 Address: 32315 SOUTH FRASER WAY
 ABBOTSFORD BC V2T 1W7
 Phone: (778) 549-1240 Fax: _____
 Email: apeters@abbotsford.ca

Project Information

Quotation #: C01193
 P.O. #: _____
 Project #: Bevan #1 Creek Water Quality
 Project Name: _____
 Site #: _____
 Sampled By: _____

Regulatory Criteria:

☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other _____

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Metals Field Filtered? (Y/N)	CSRIC/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate-Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc	pH @25°C	Total Phosphorus
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix
✓ 1	H01 (39585)			
✓ 2	H02 (39586)			
✓ 3	H03 (39587)			
✓ 4	B01 (39588)			
✓ 5	B02 (39589)			
✓ 6	W01 (3958A)			
✓ 7	D01 (3958D)			
✓ 8	D02 (3958D)			
✓ 9	F01 (3958B)			
✓ 10	F02 (3958C)			

RELINQUISHED BY: (Signature/Print)
 [Signature] Radosyn Adams

RECEIVED BY: (Signature/Print)
 [Signature] Danyan Gill Doreau

DATE/TIME
 23/04/25 19:20

DATE/TIME
 2023/04/26 08:00

Temp used and not submitted

Lab Use Only

Temperature (°C) on Receipt: 10, 10, 10
 Custody Seal Intact on Receipt? ☒ Yes ☐ No

10, 10, 9
Ice: yes



Bureau Veritas
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Page 2 of 2

INVOICE TO:		Report Information		Project Information																																																																																																																																																									
Company Name: #1414 CITY OF ABBOTSFORD		Company Name: Amy Peters		Quotation #: C01193																																																																																																																																																									
Contact Name: Amy Peters		Contact Name: Amy Peters		P.O. #: 																																																																																																																																																									
Address: 32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7		Address: 32315 SOUTH FRASER WAY ABBOTSFORD BC V2T 1W7		Project #: Bevan #1 Creek Water Quality																																																																																																																																																									
Phone: (778) 549-1240 Fax: (604) 850-6418		Phone: (778) 549-1240 Fax: 		Project Manager: 																																																																																																																																																									
Email: apeters@abbotsford.ca		Email: apeters@abbotsford.ca		Site #: 																																																																																																																																																									
Regulatory Criteria:		Special Instructions:		Chain Of Custody Record																																																																																																																																																									
☐ CCR ☐ CCME ☐ BC Water Quality ☐ Other: 				 C328924_COC 090000 Customer Solutions																																																																																																																																																									
Turnaround Time (TAT) Required: Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 8 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: Rush Confirmation Number: (call lab for #)		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)																																																																																																																																																											
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Barcode Label</th> <th>Sample (Location) Identification</th> <th>Date Sampled</th> <th>Time Sampled</th> <th>Matrix</th> <th>Needs Field Filtered? (Y/N)</th> <th>CSF/CCME Tot. Metals in Water w/ CV Hg</th> <th>Ammonia-N (Total)</th> <th>Fluoride</th> <th>Nitrate+Nitrite (N) (low level)</th> <th>Nitrite (N) (low level)</th> <th>Nitrogen - Nitrate (as N) Low Level Calc.</th> <th>pH @25°C</th> <th>Total Phosphorus</th> </tr> </thead> <tbody> <tr><td>1</td><td>FOF (41C64)</td><td></td><td></td><td></td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>2</td><td>DUPLICATE (41C64) F02</td><td></td><td></td><td></td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>3</td><td>TRIP BLANK (3AF04)</td><td></td><td></td><td></td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>4</td><td>FIELD BLANK (3AF05)</td><td></td><td></td><td></td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>				Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Needs Field Filtered? (Y/N)	CSF/CCME Tot. Metals in Water w/ CV Hg	Ammonia-N (Total)	Fluoride	Nitrate+Nitrite (N) (low level)	Nitrite (N) (low level)	Nitrogen - Nitrate (as N) Low Level Calc.	pH @25°C	Total Phosphorus	1	FOF (41C64)					X	X	X	X	X	X	X	X	2	DUPLICATE (41C64) F02					X	X	X	X	X	X	X	X	3	TRIP BLANK (3AF04)					X	X	X	X	X	X	X	X	4	FIELD BLANK (3AF05)					X	X	X	X	X	X	X	X	5														6														7														8														9														10											
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RELINQUISHED BY: (Signature/Print) A. M. Adams Date: (YY/MM/DD) 25/04/16 Time: 17:20		RECEIVED BY: (Signature/Print) Danyel Gill Date: (YY/MM/DD) 26/04/16 Time: 08:00		# jars used and not submitted: 																																																																																																																																																									
Time Sensitive: ☐		Temperature (°C) on Receipt: 10, 10, 10		Custody Seal intact on Cooler? ☐ Yes ☒ No																																																																																																																																																									
White: Bureau Veritas Yellow: Client		Ice: yes																																																																																																																																																											

Bureau Veritas Canada (2019) Inc.

APPENDIX F

Temporal Water Quality Graphs

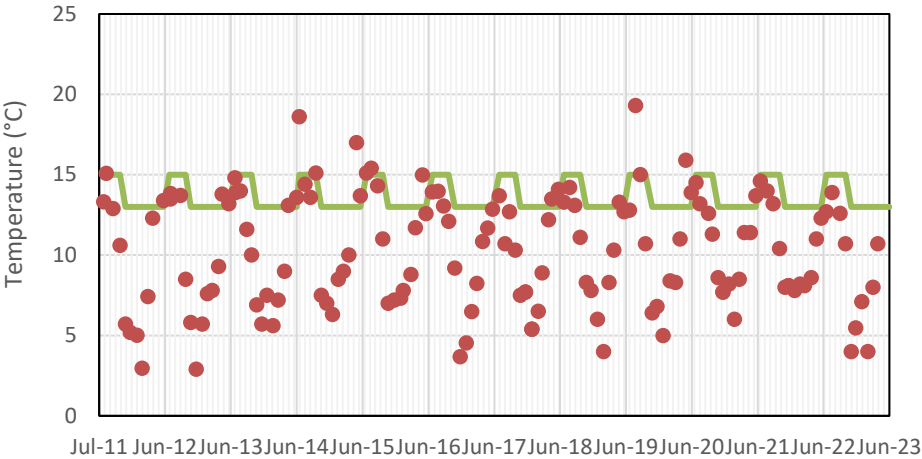
Legend for Water Quality Graphs

• Measurement

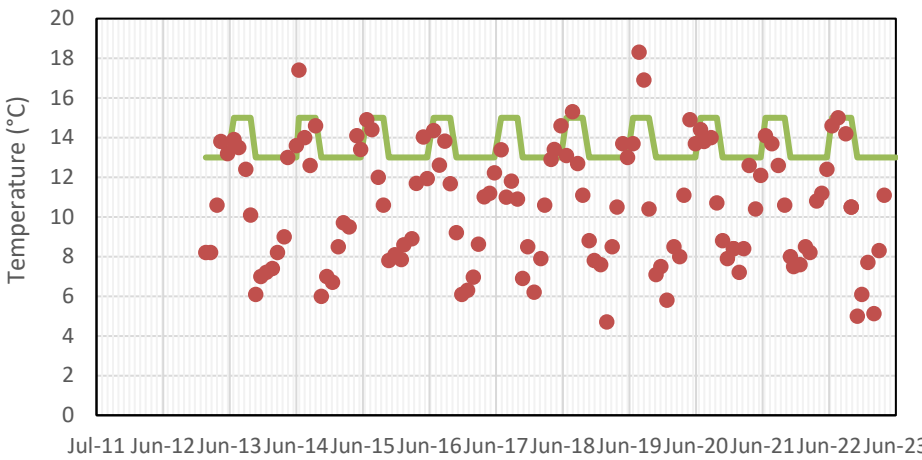
— Guideline

Water Temperature, 2011-2023

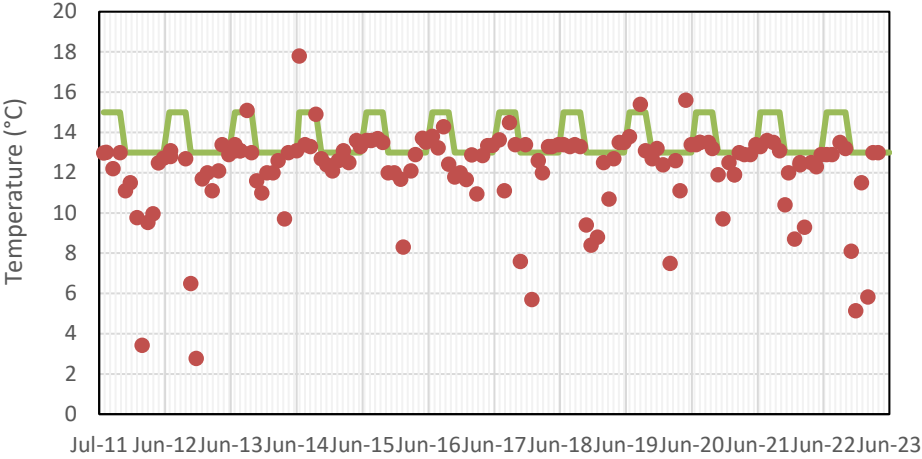
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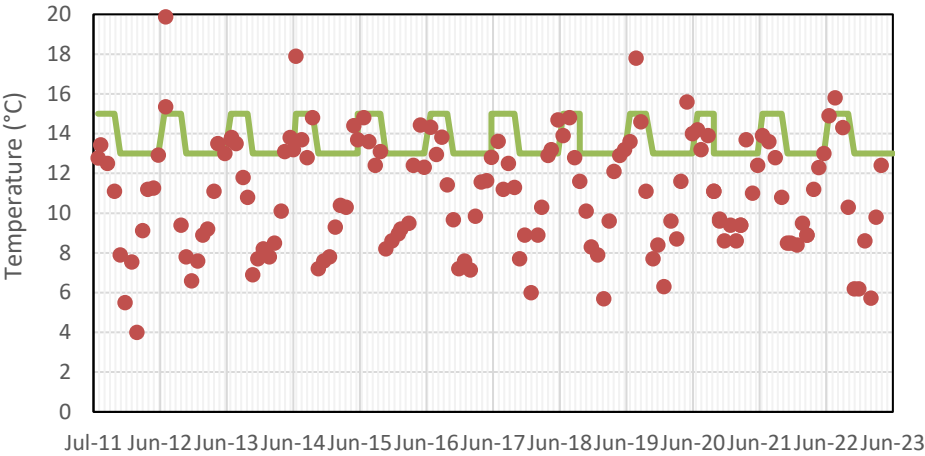


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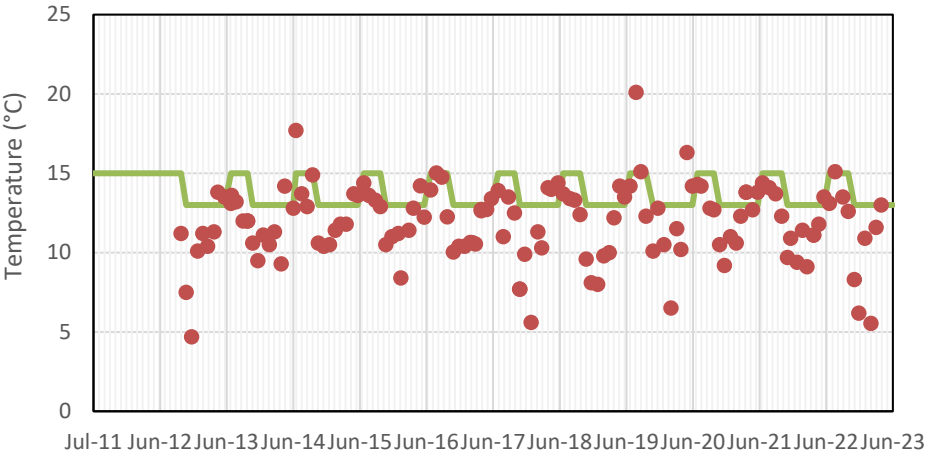


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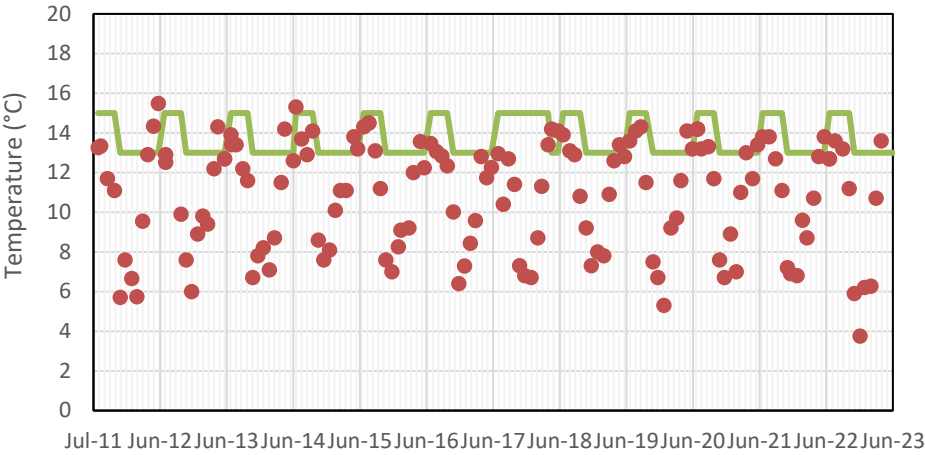
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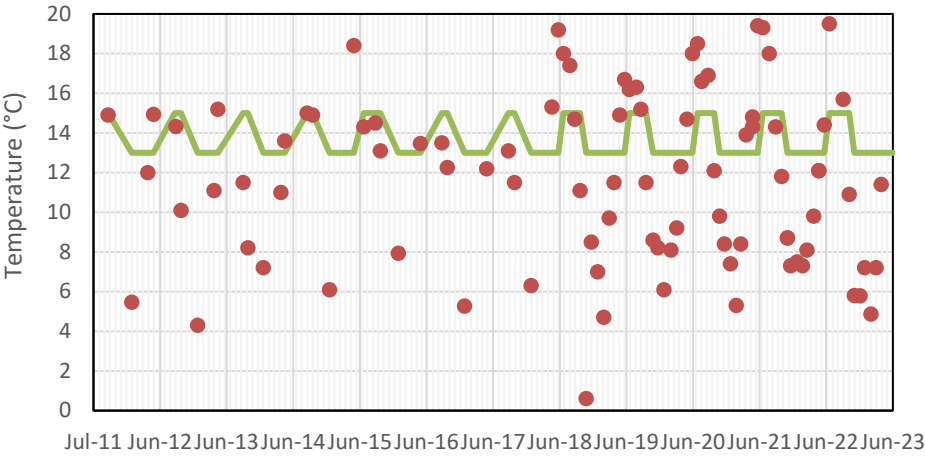


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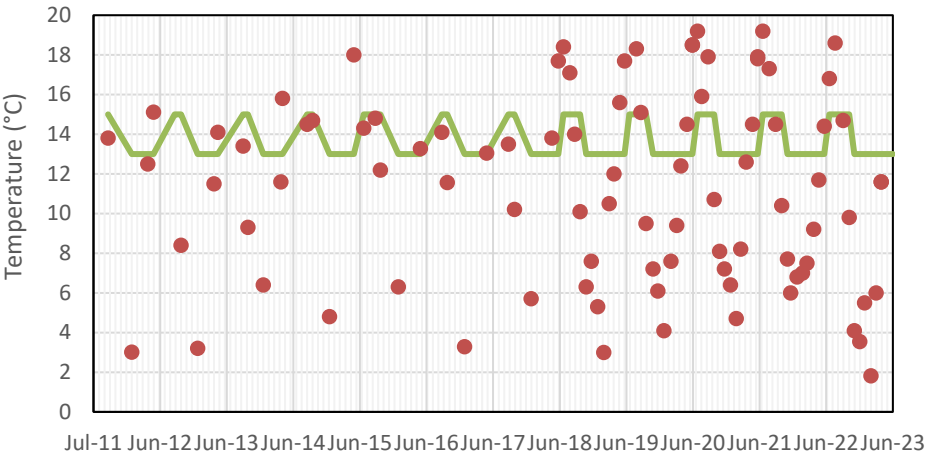


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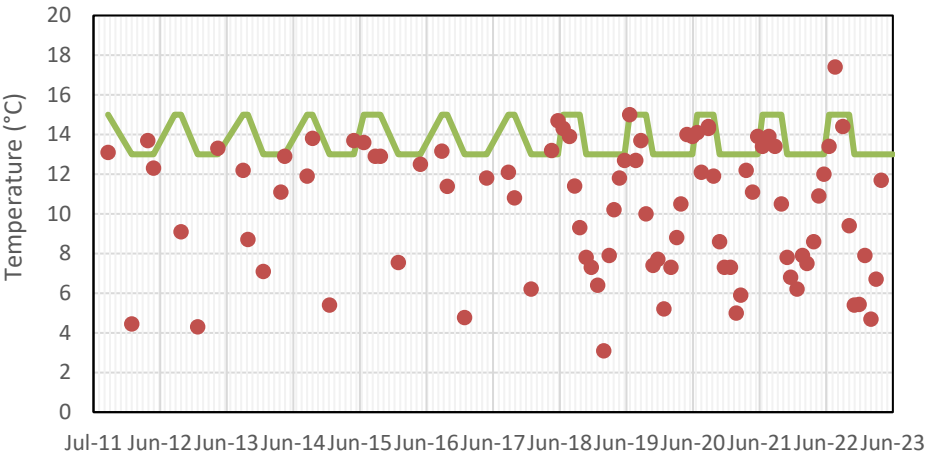
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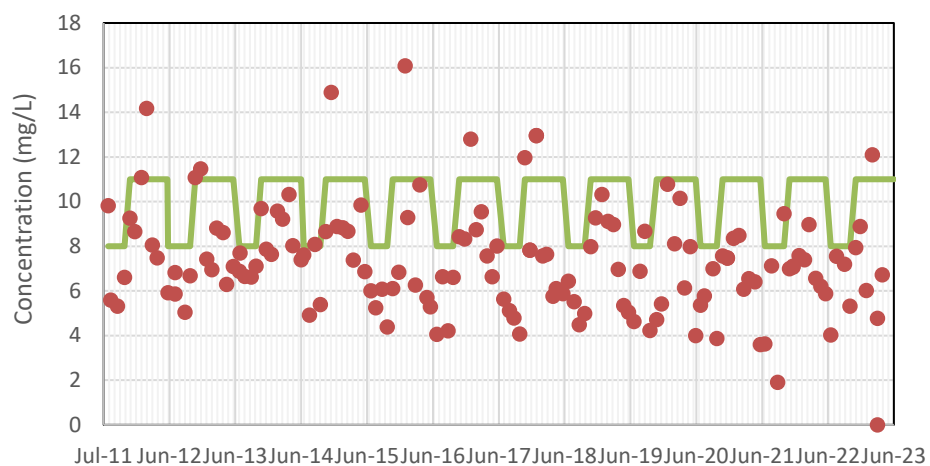


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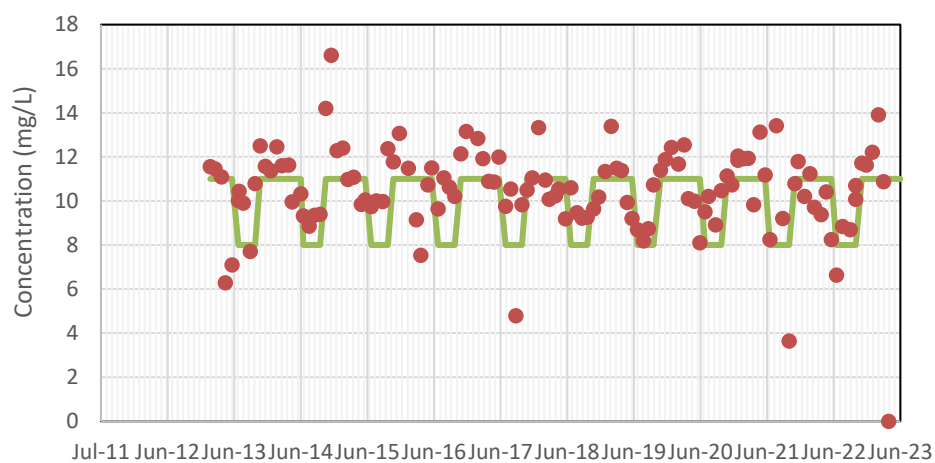


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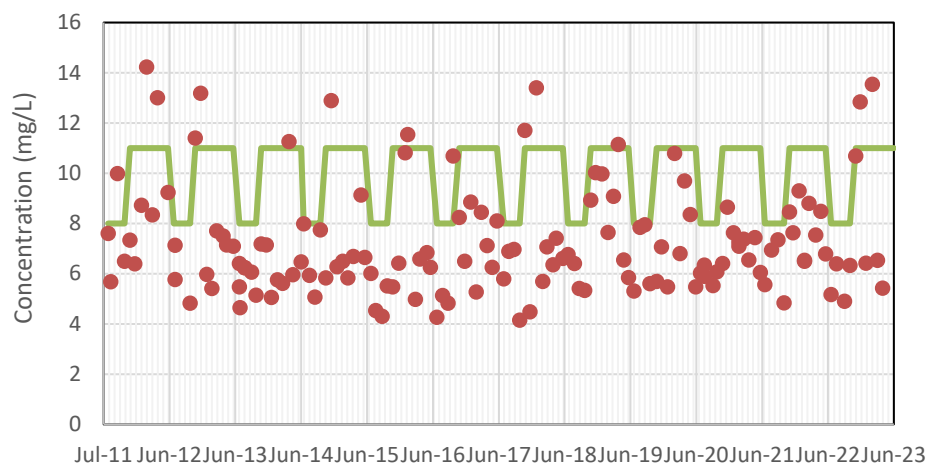
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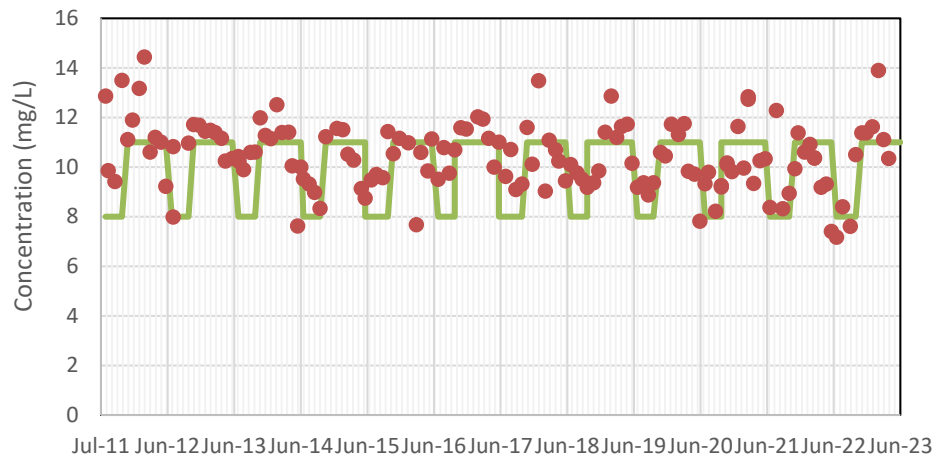


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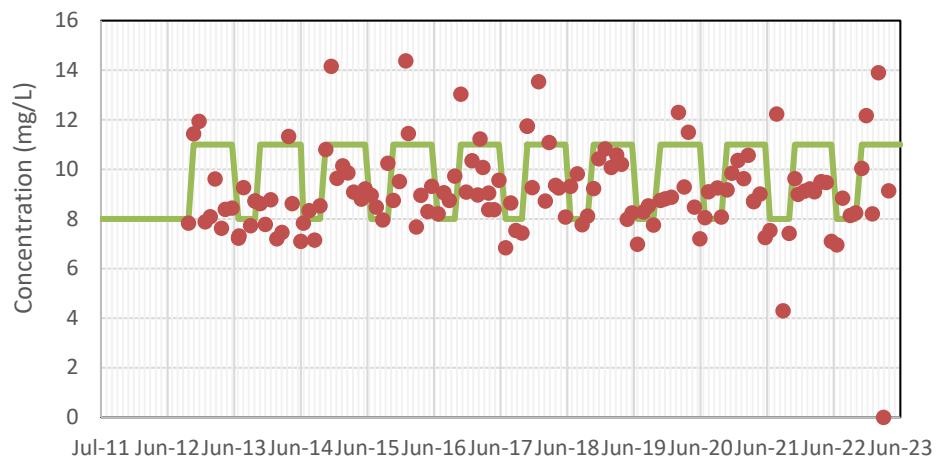


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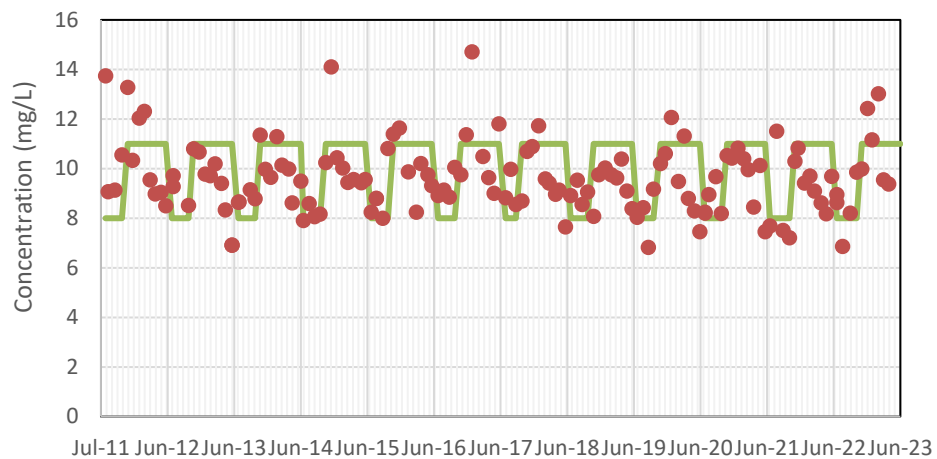
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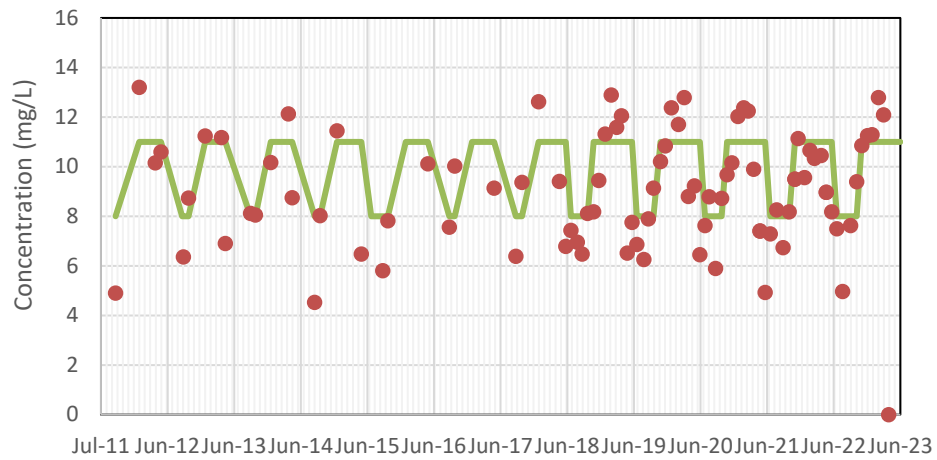


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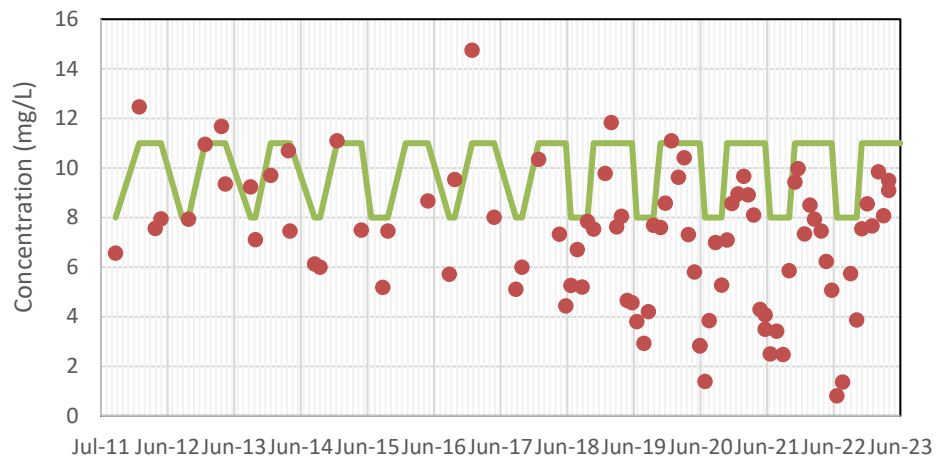


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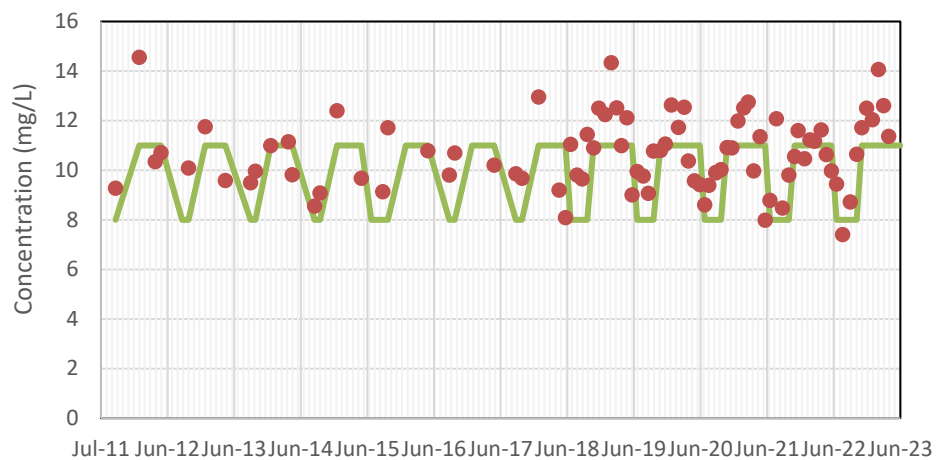
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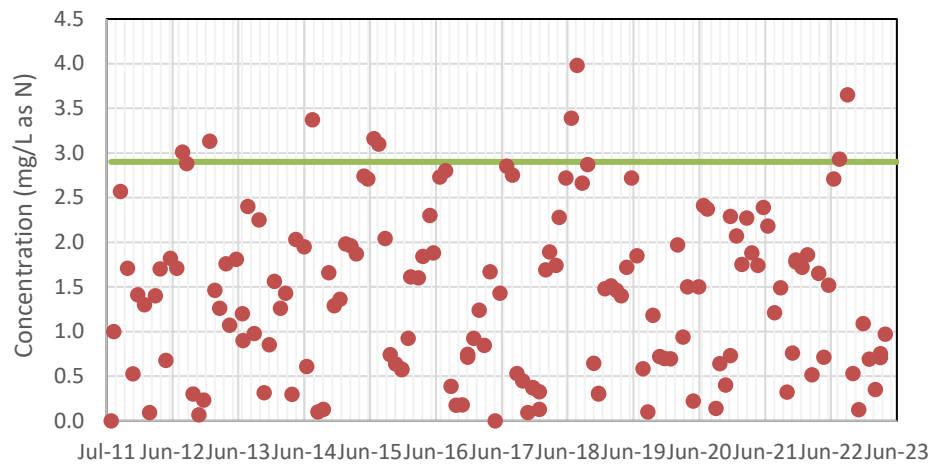


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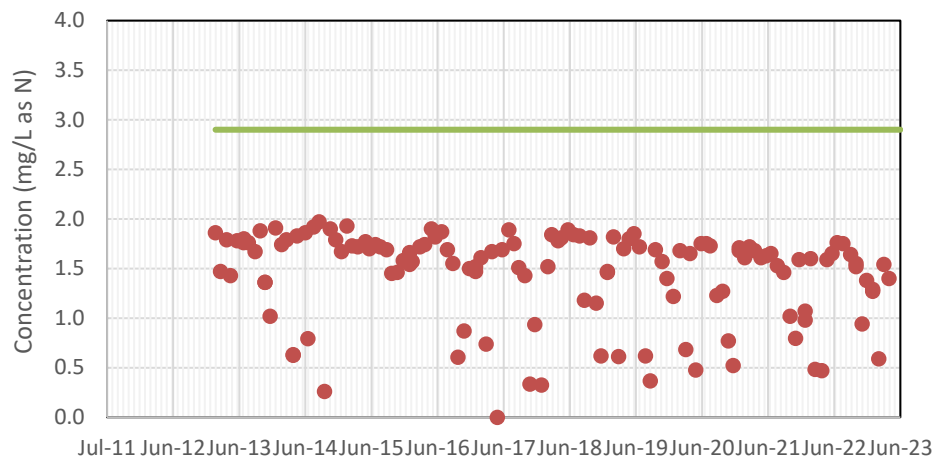


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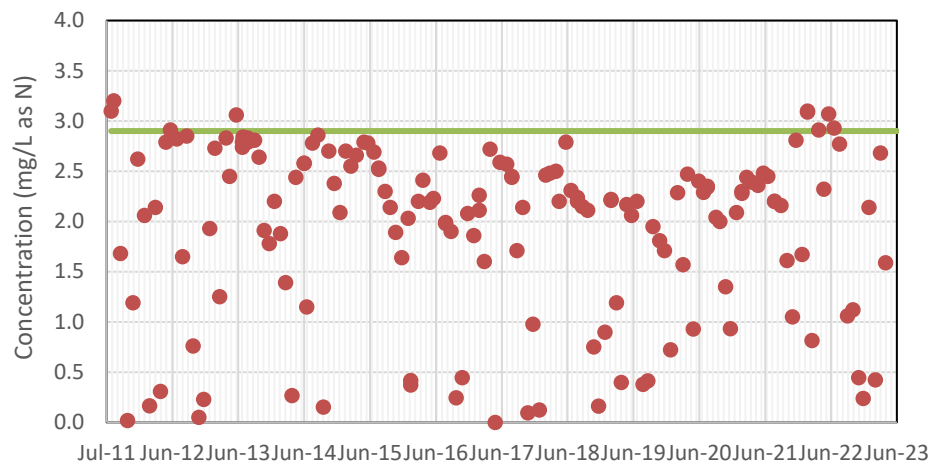
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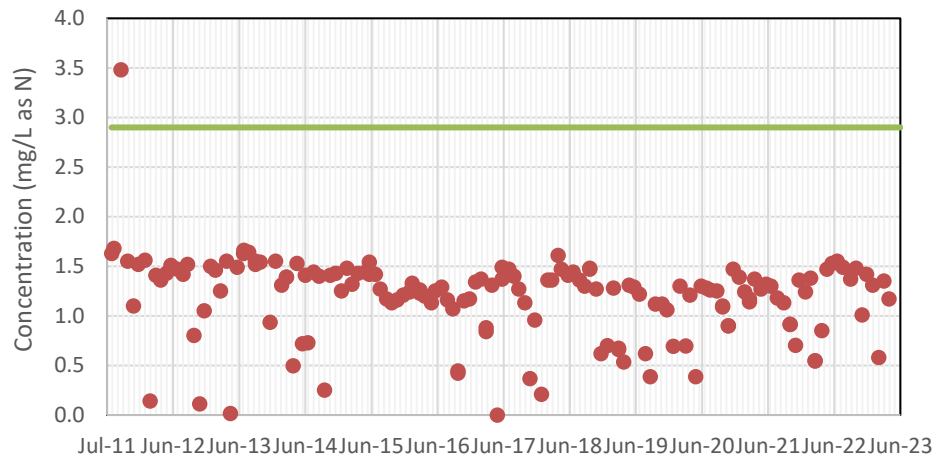


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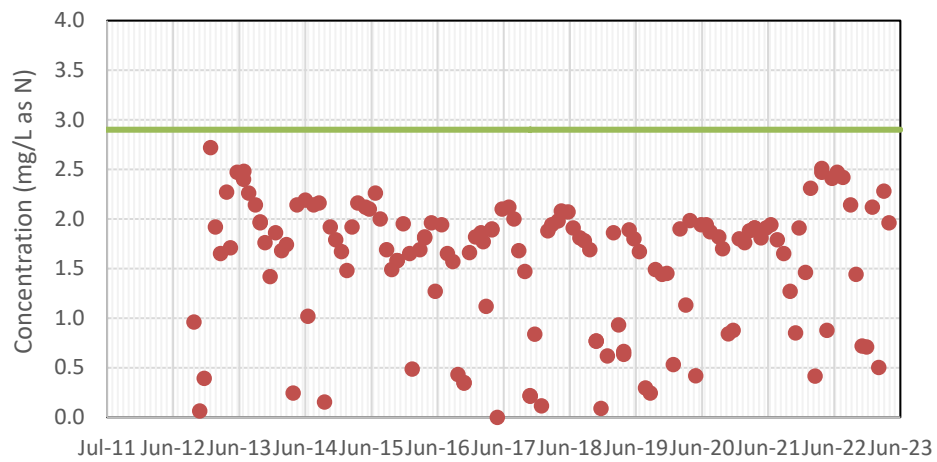


Nitrate Concentrations, 2011-2023

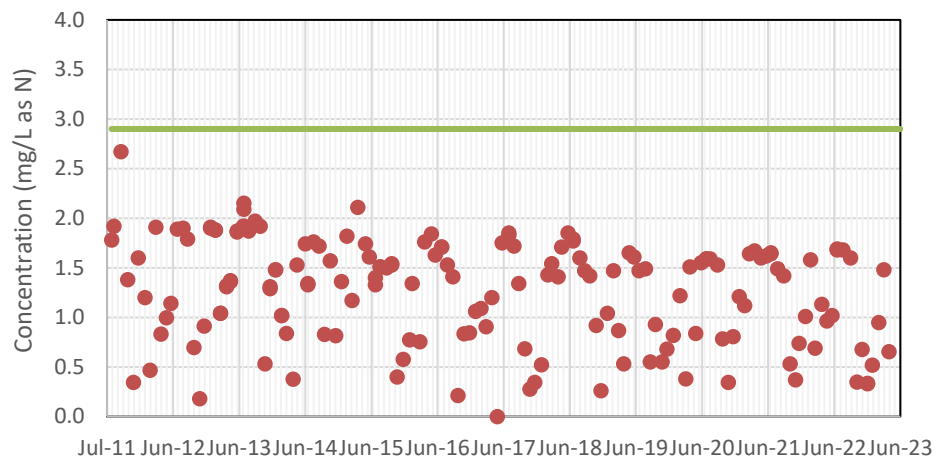
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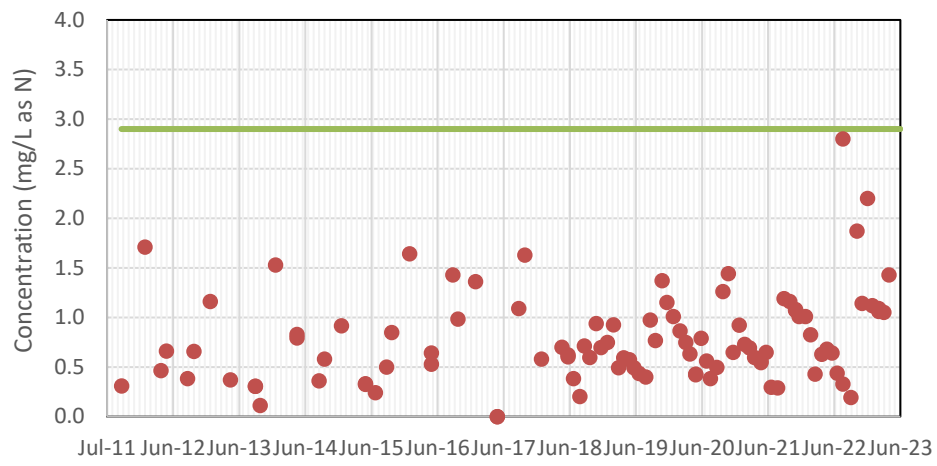


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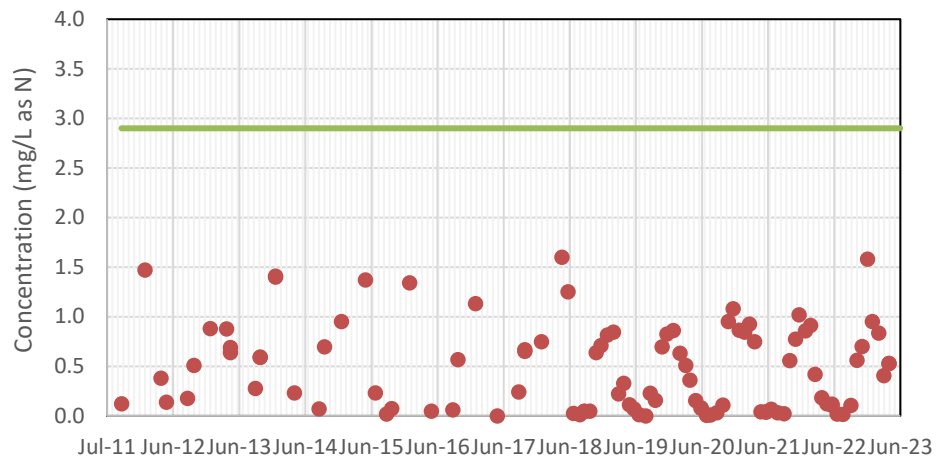


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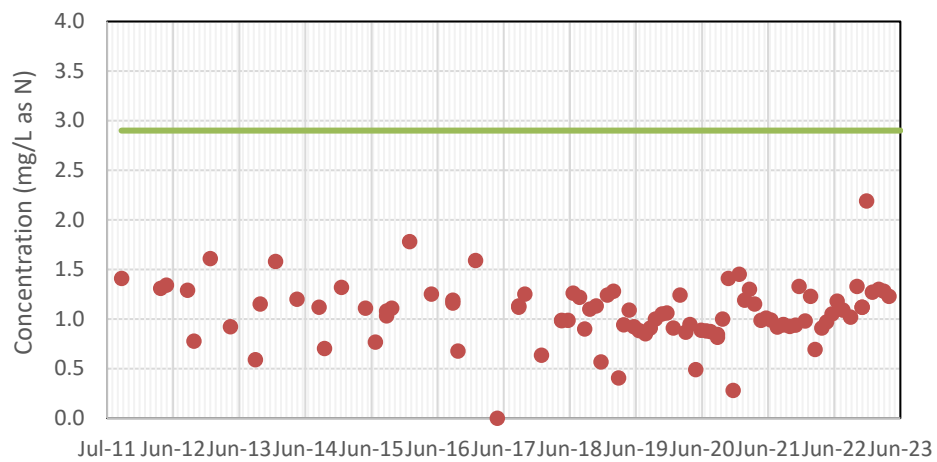
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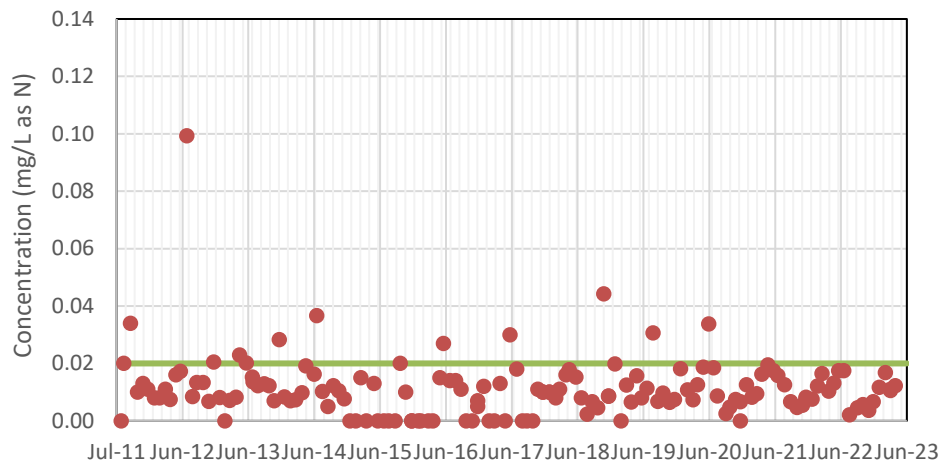


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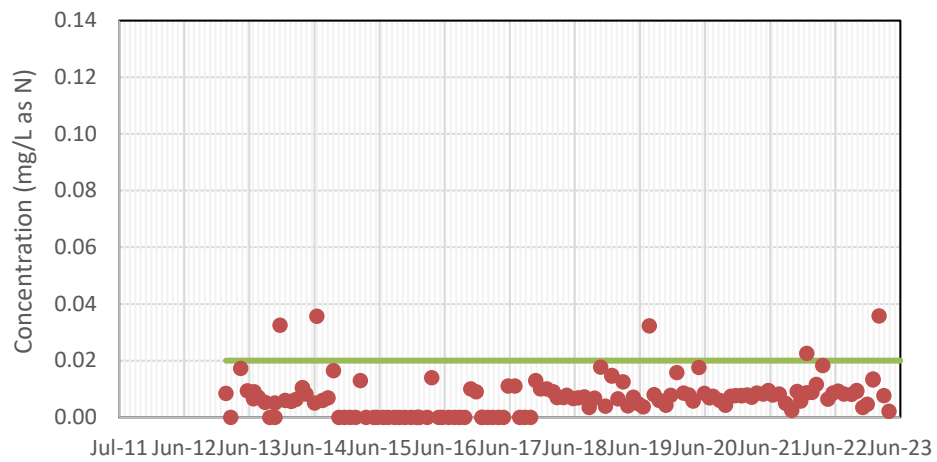


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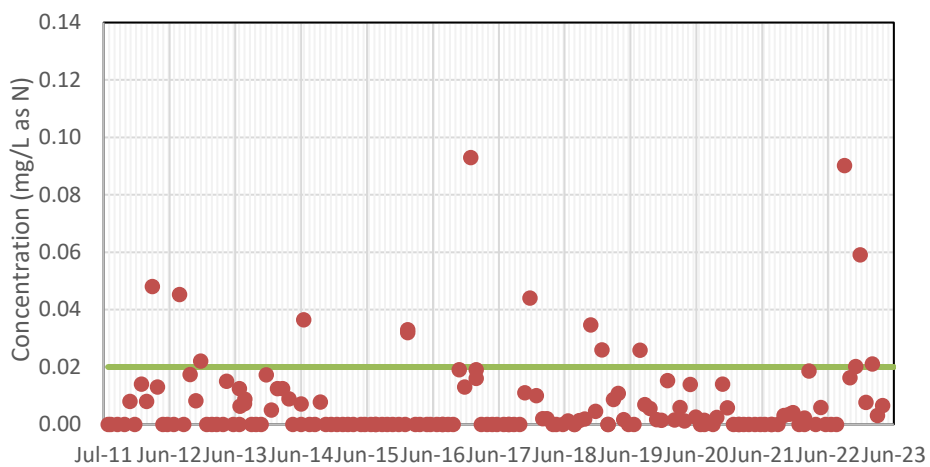
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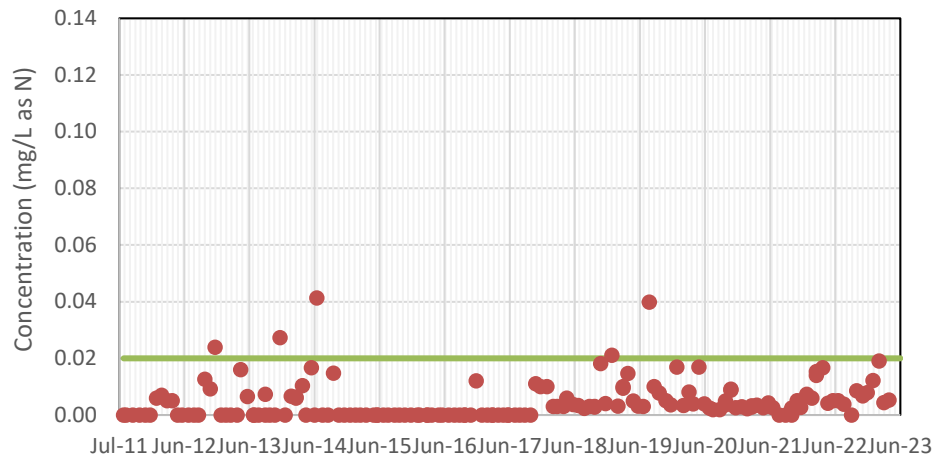


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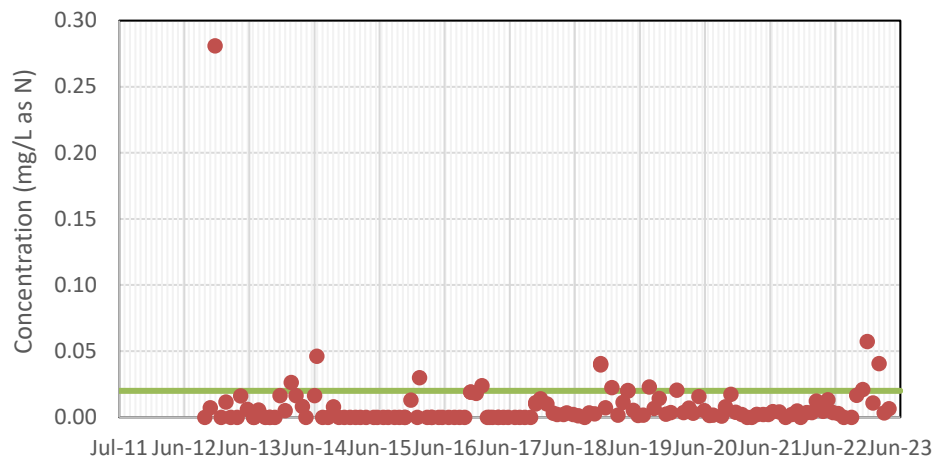


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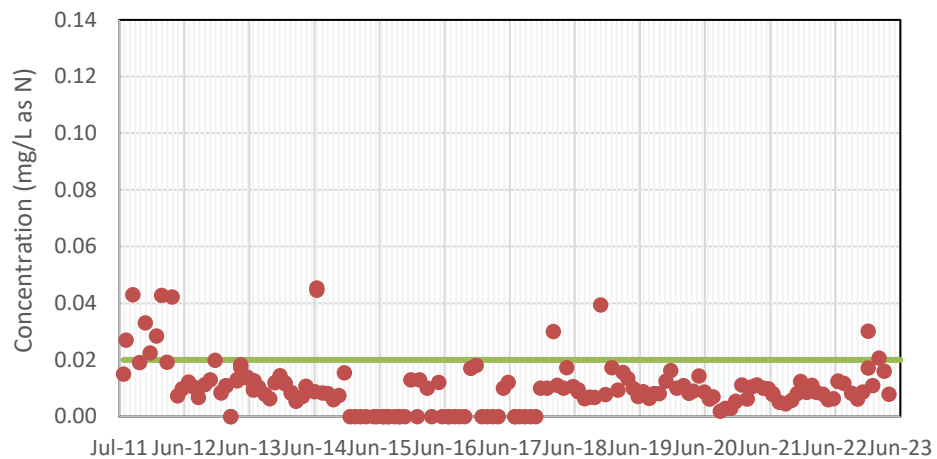
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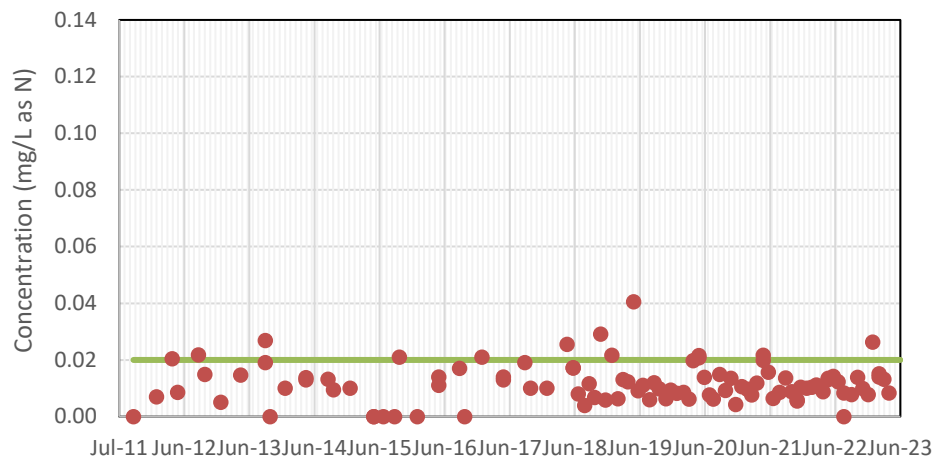


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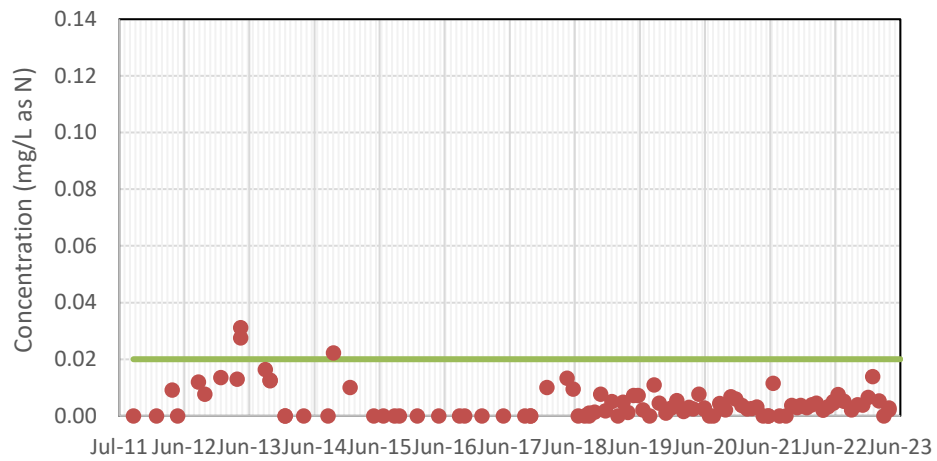


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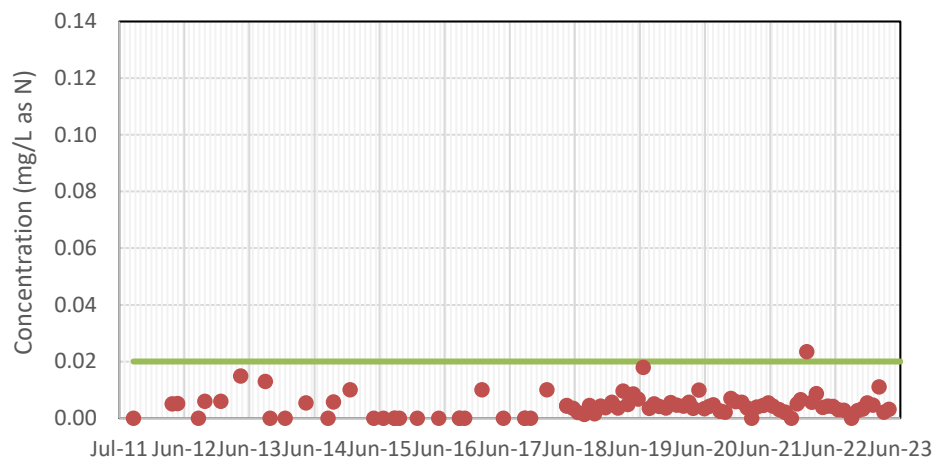
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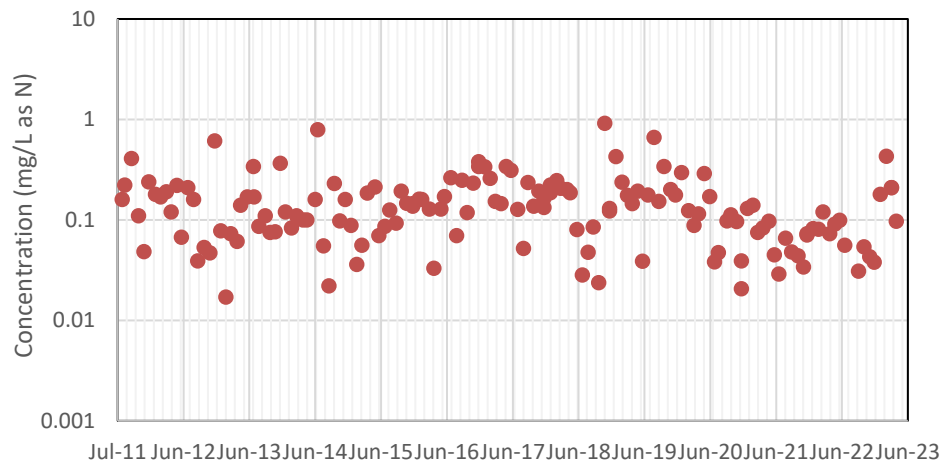


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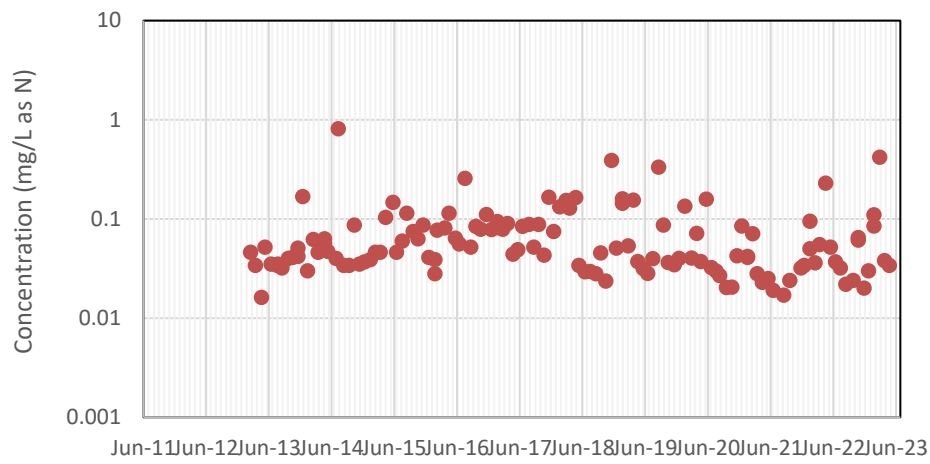


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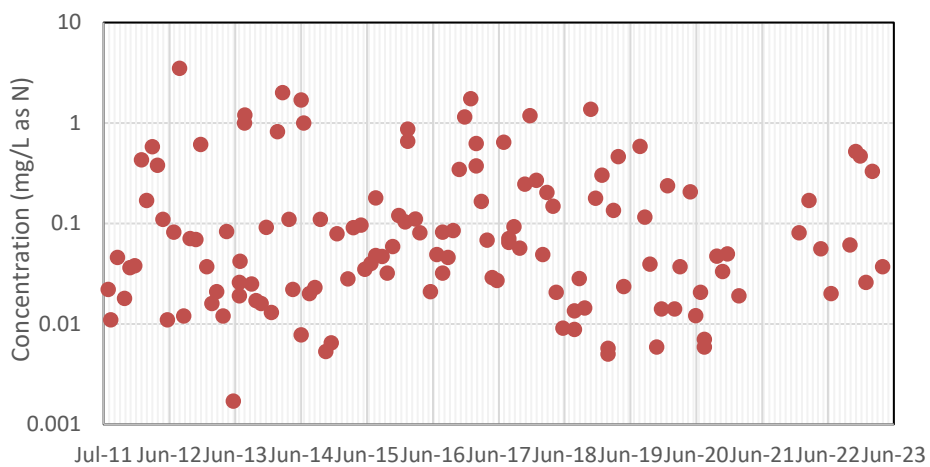
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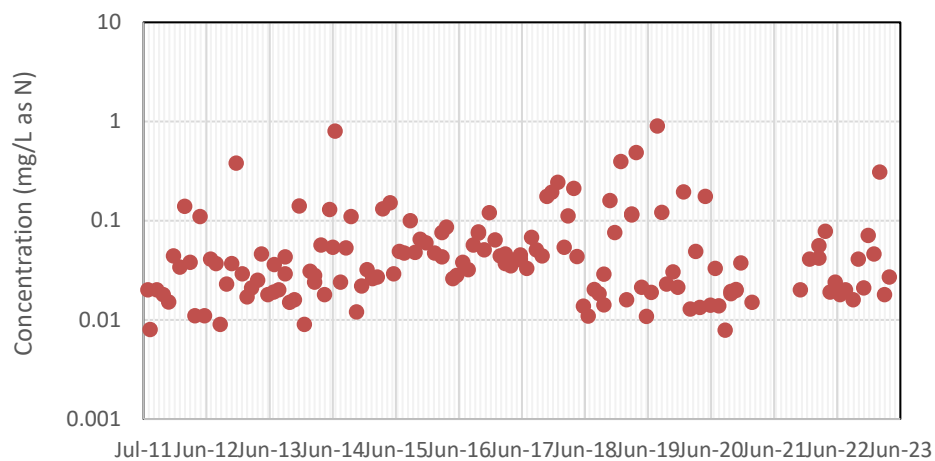


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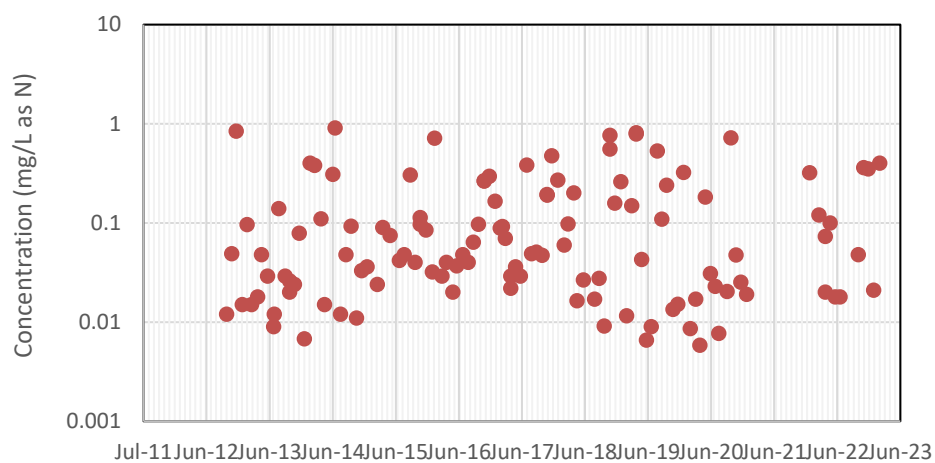


Ammonia Concentrations, 2011-2023

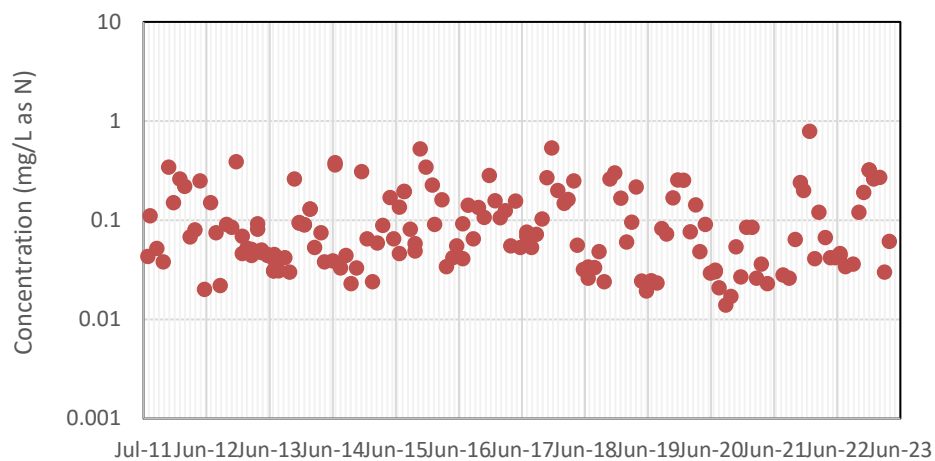
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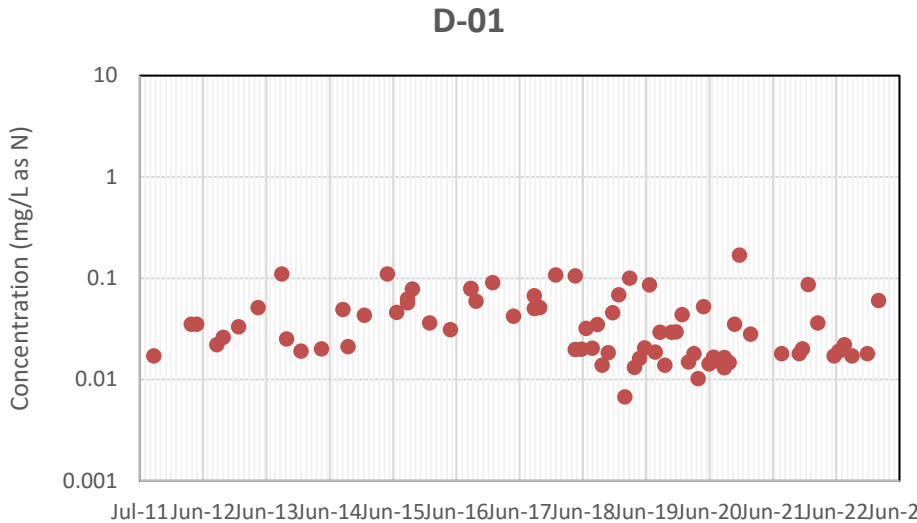
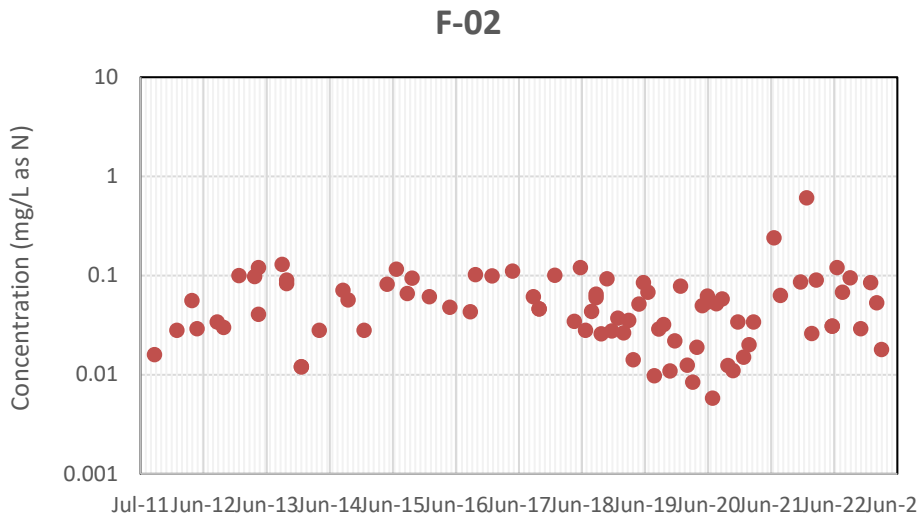
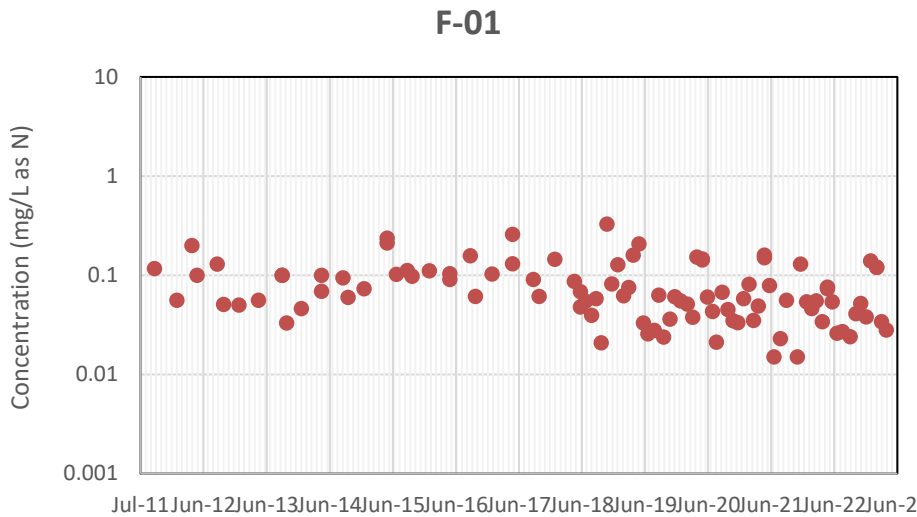
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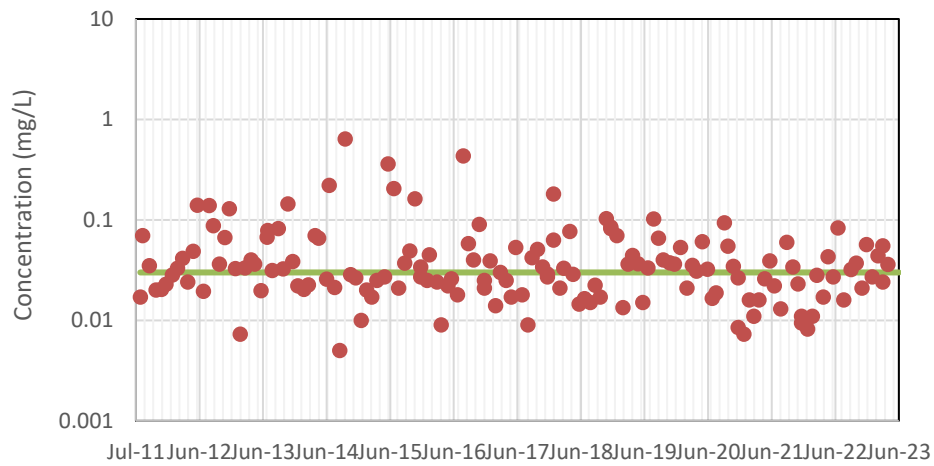


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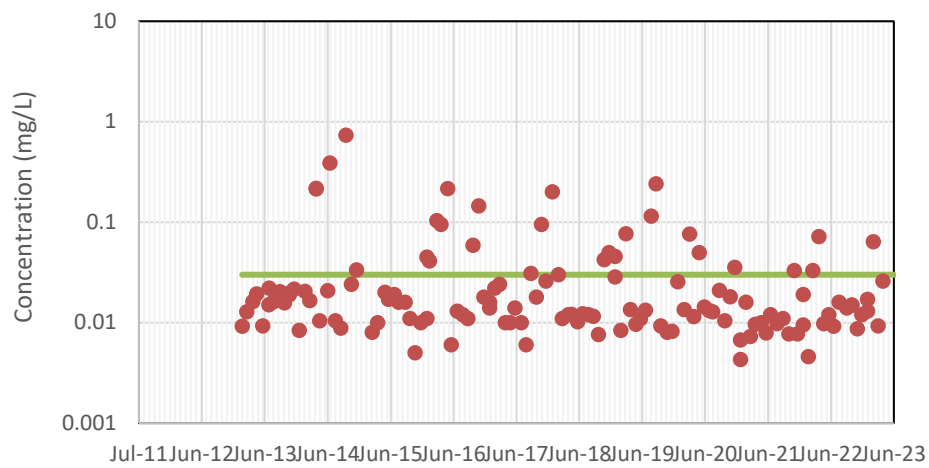


Total Phosphorus Concentrations, 2011-2023

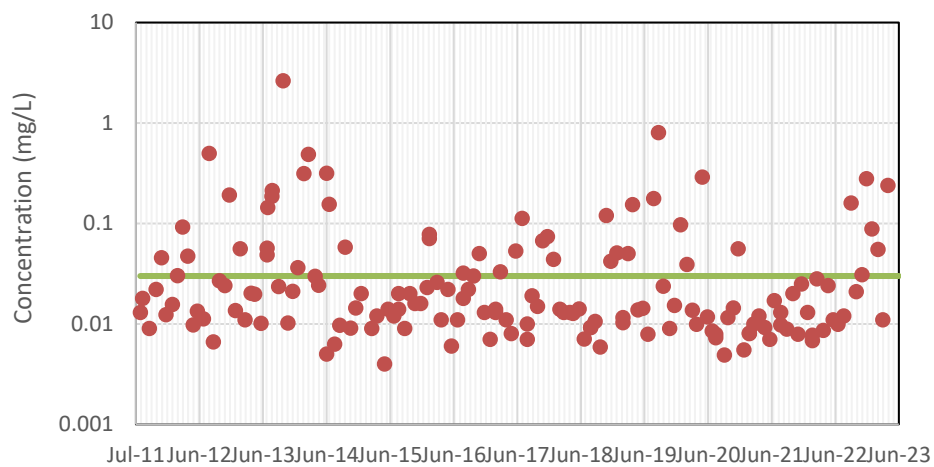
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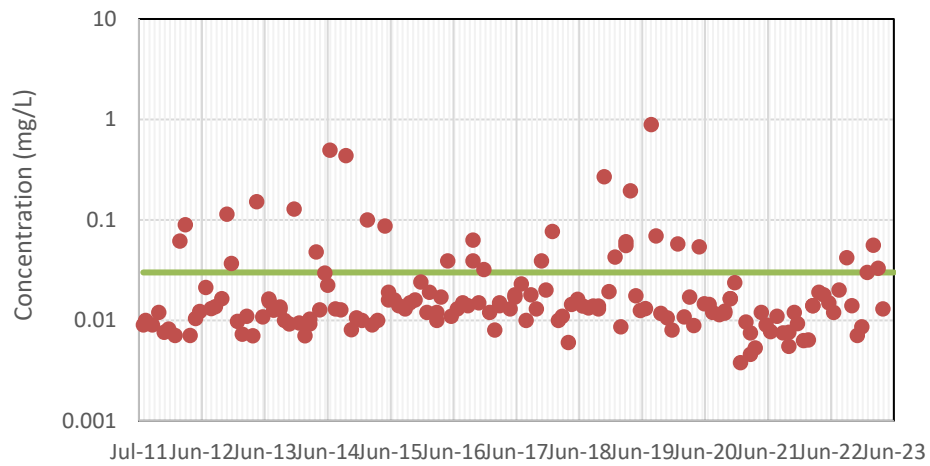


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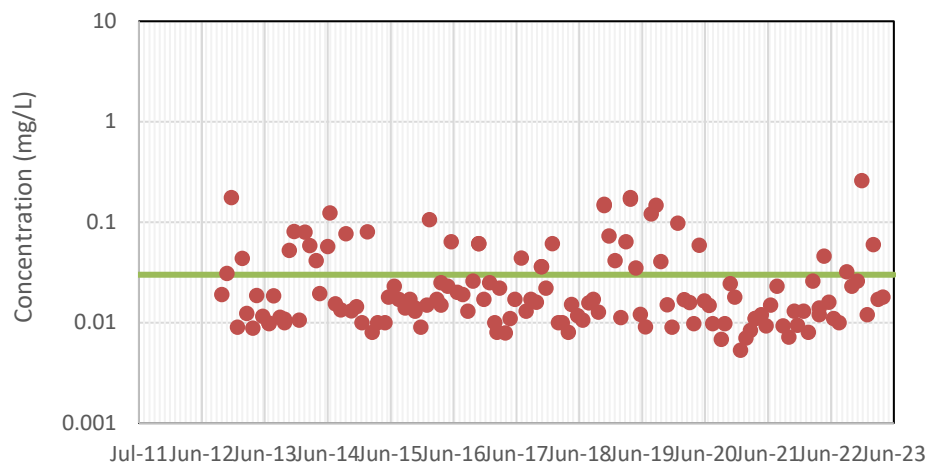


Total Phosphorus Concentrations, 2011-2023

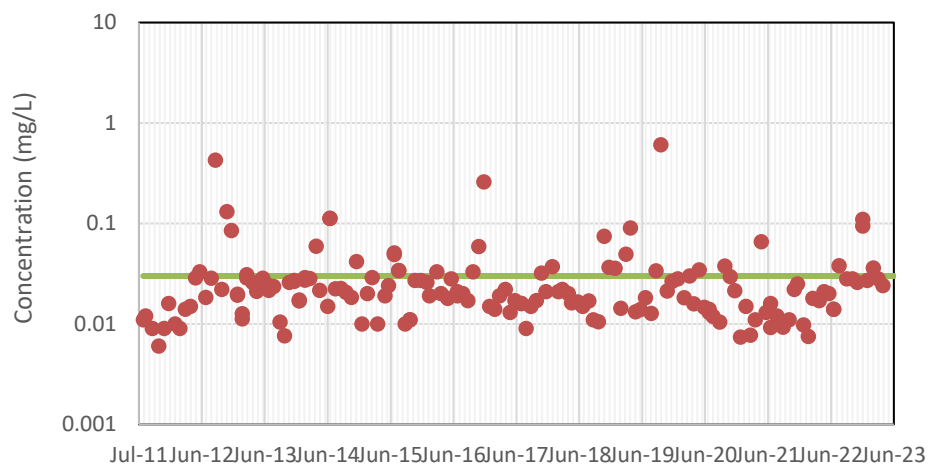
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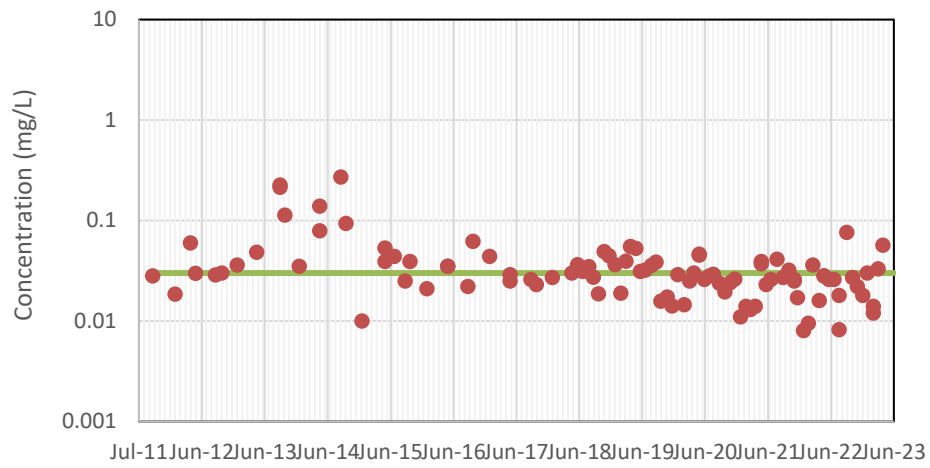


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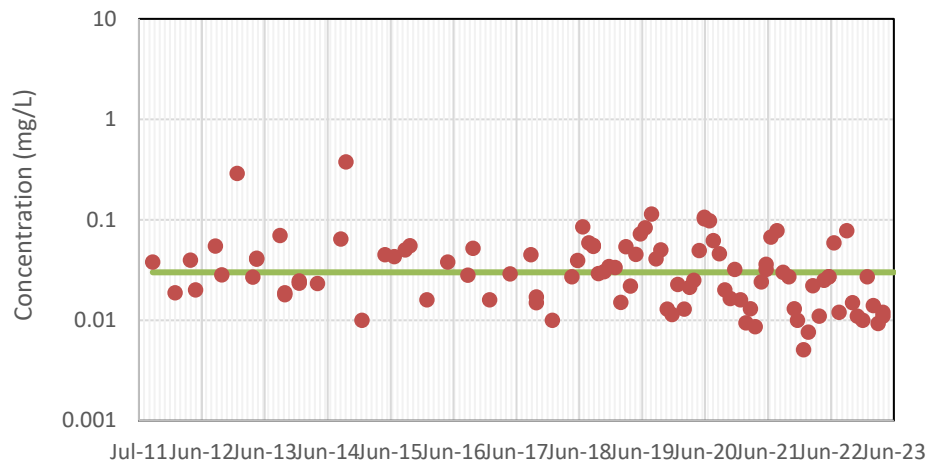


Total Phosphorus Concentrations, 2011-2023

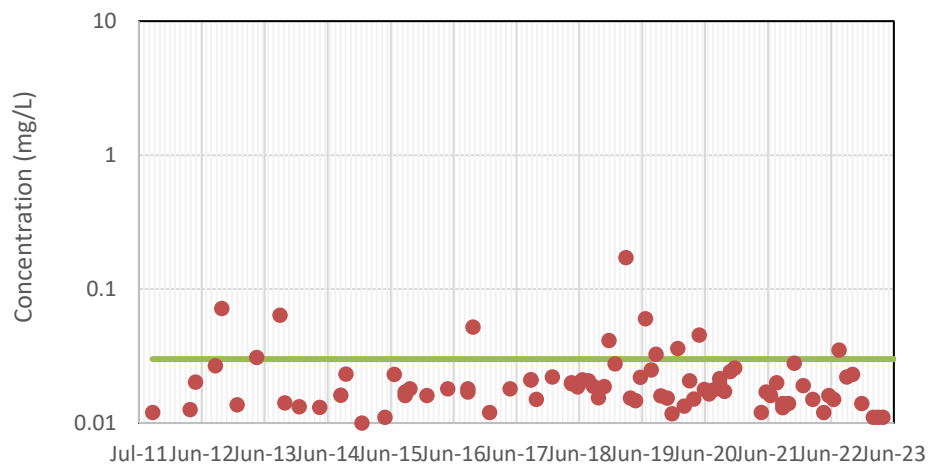
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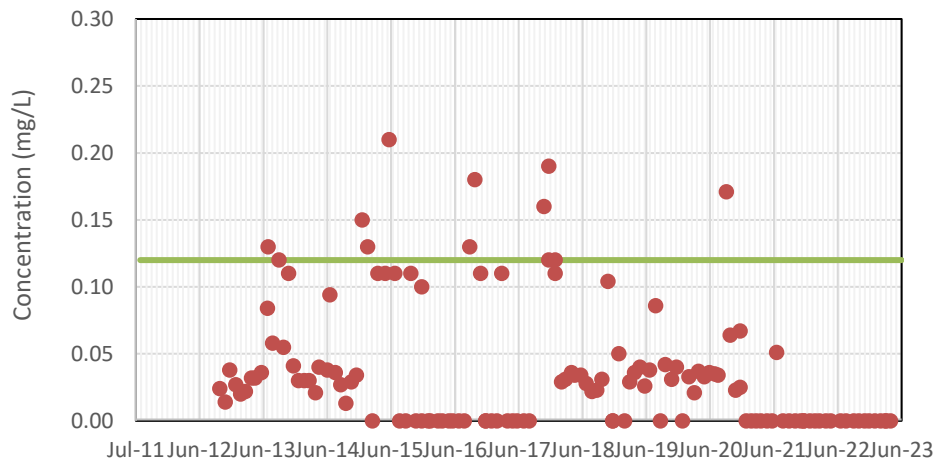


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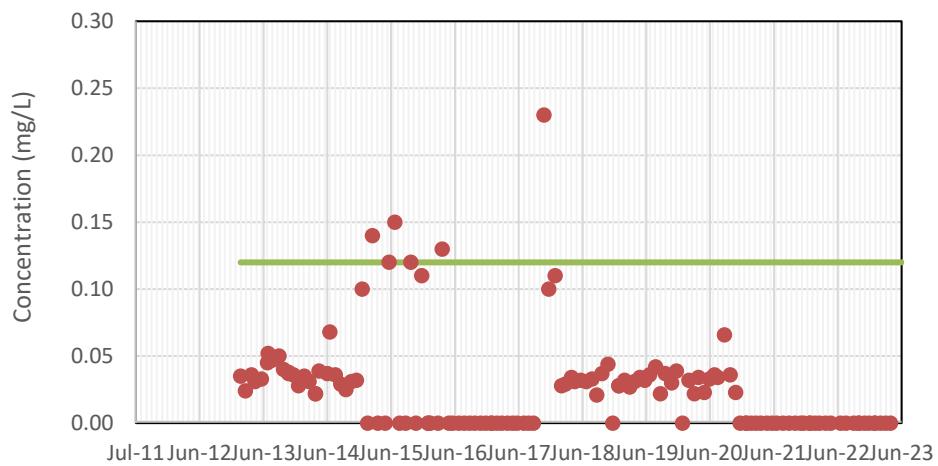


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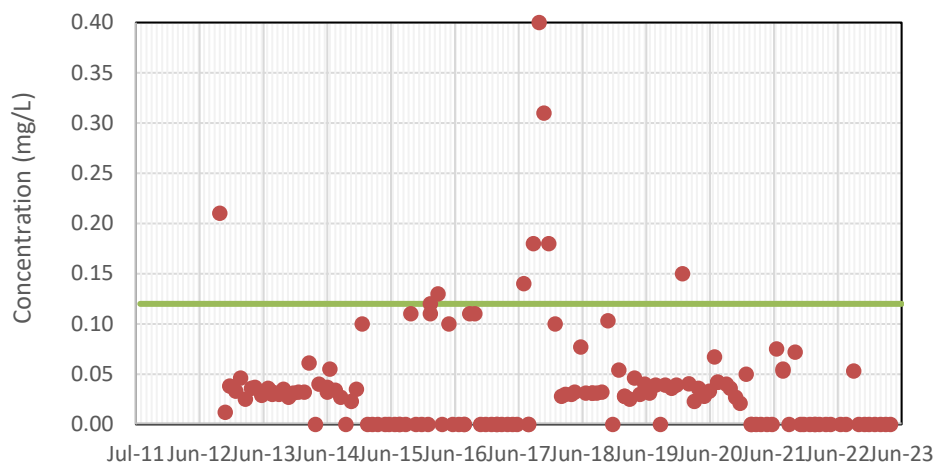
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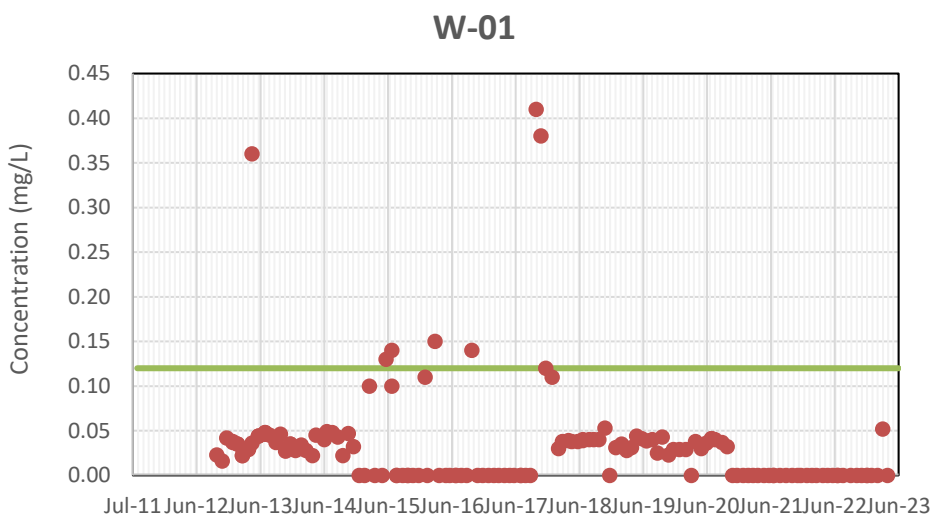
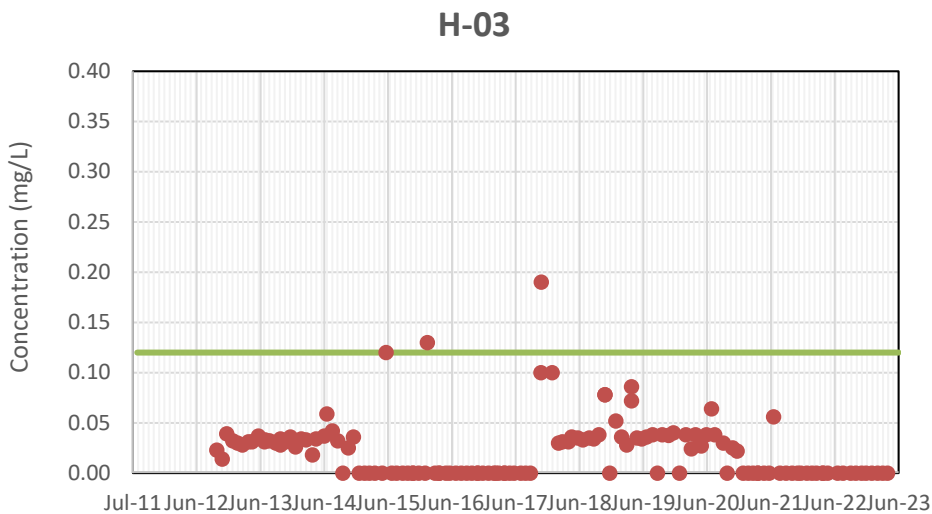
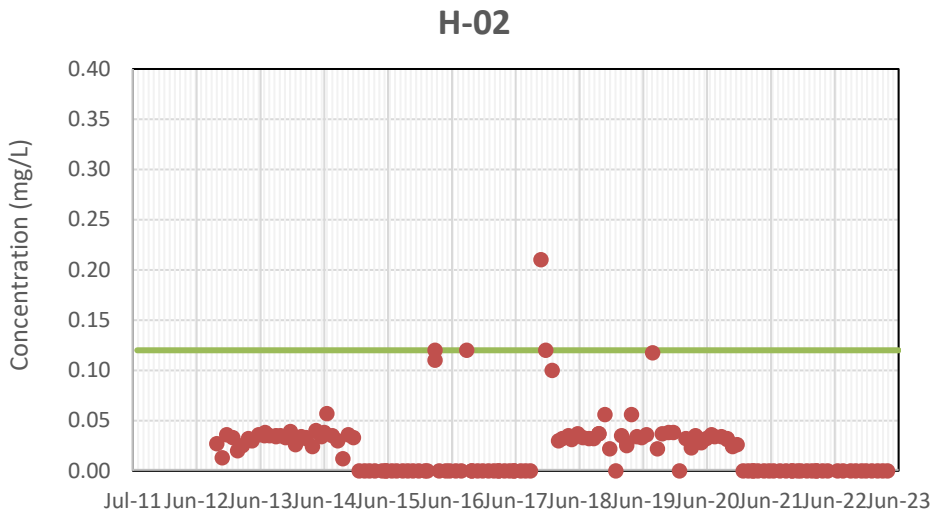
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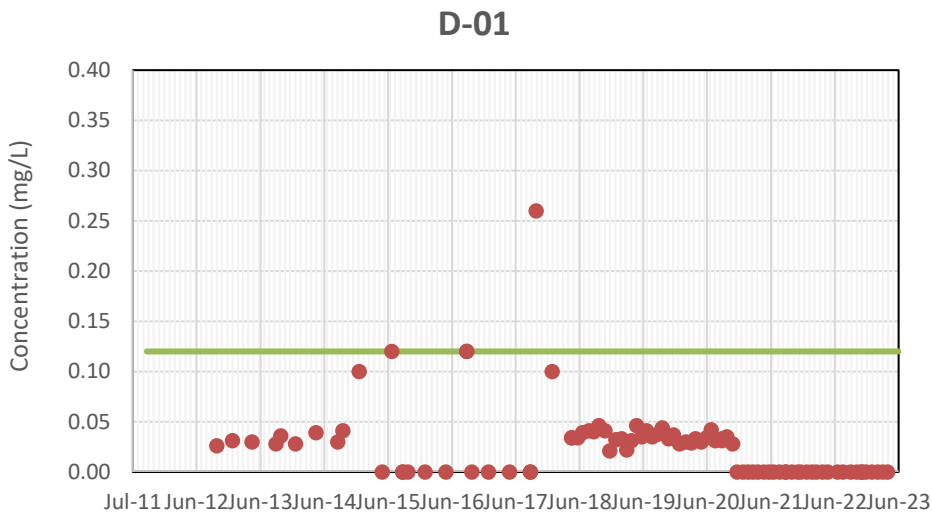
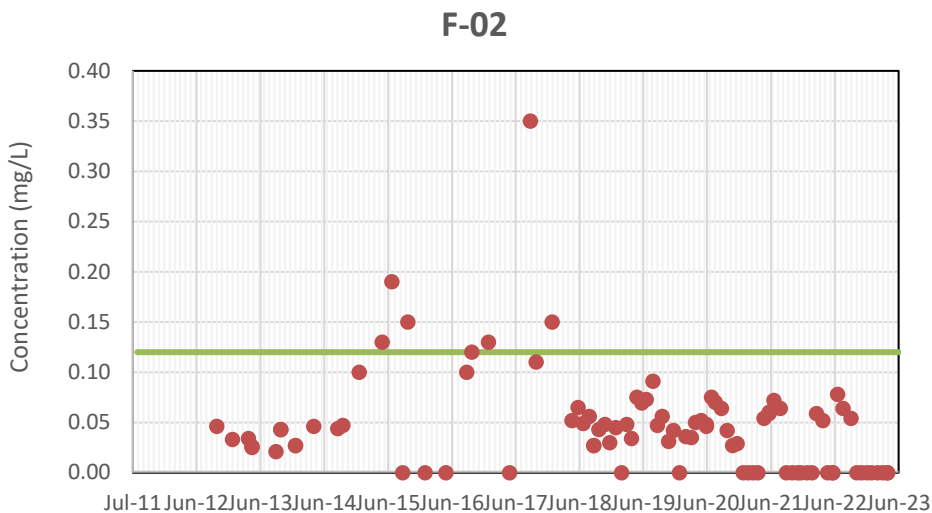
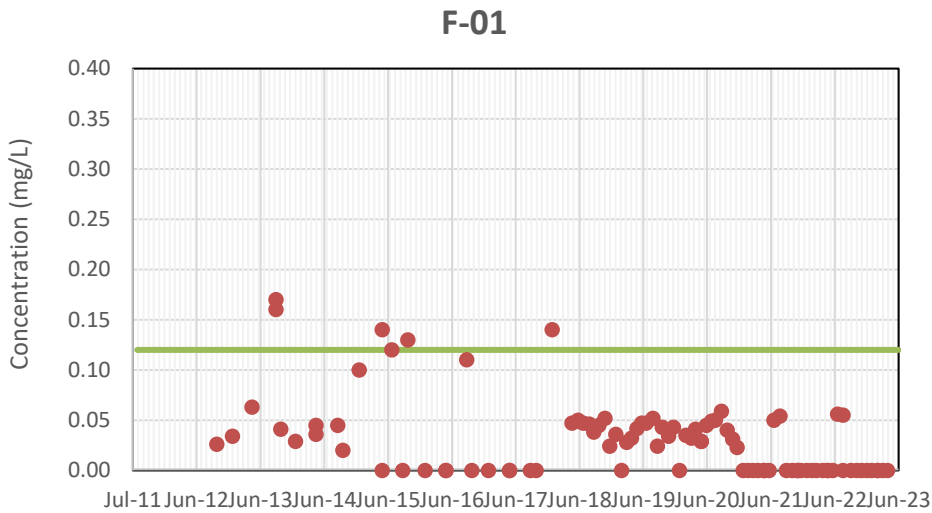
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Fluoride Concentrations, 2011-2023

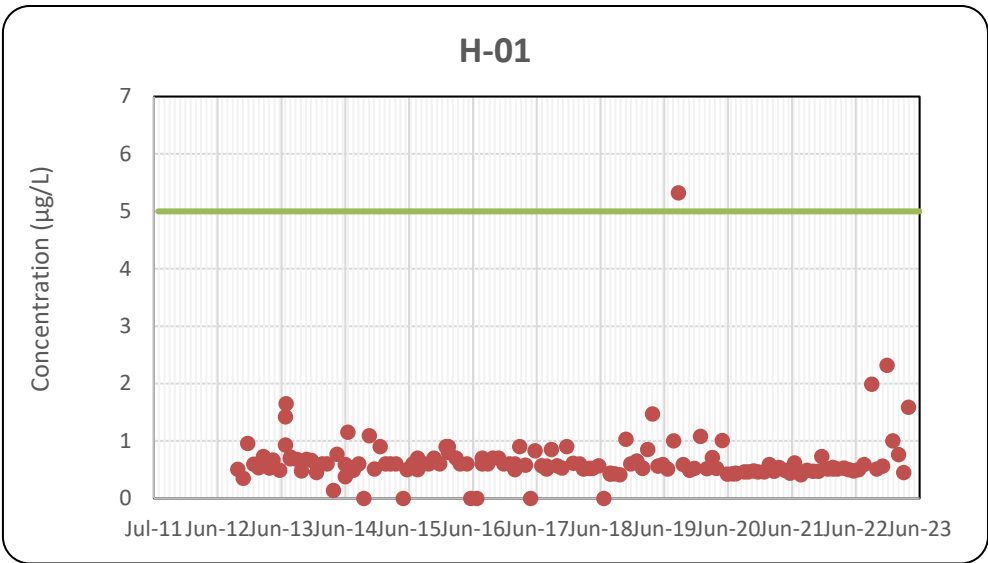
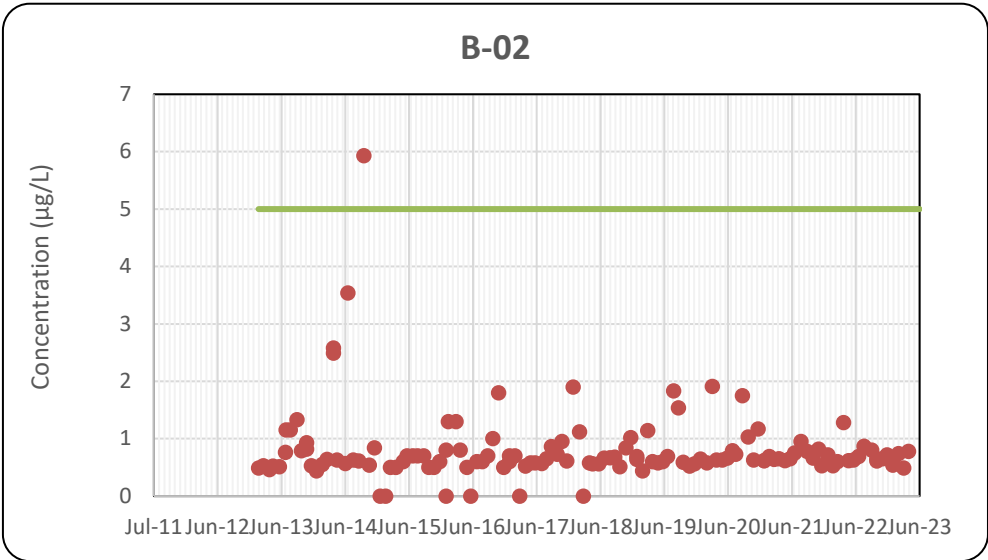
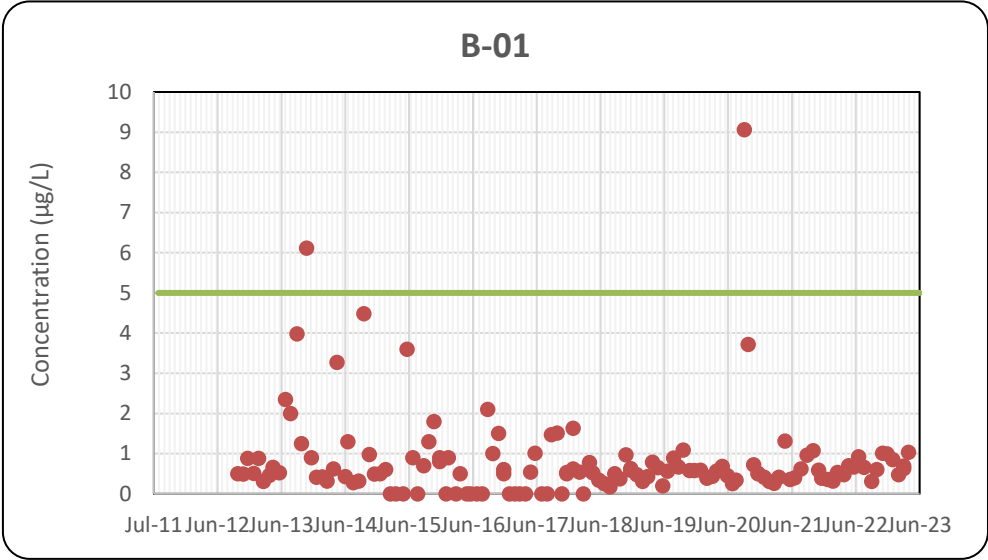


Fluoride Concentrations, 2011-2023

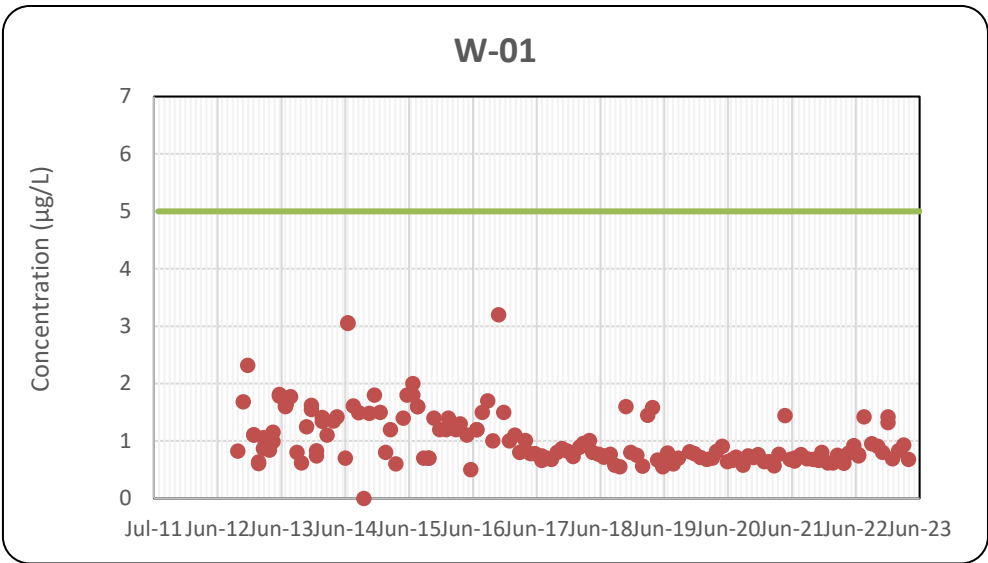
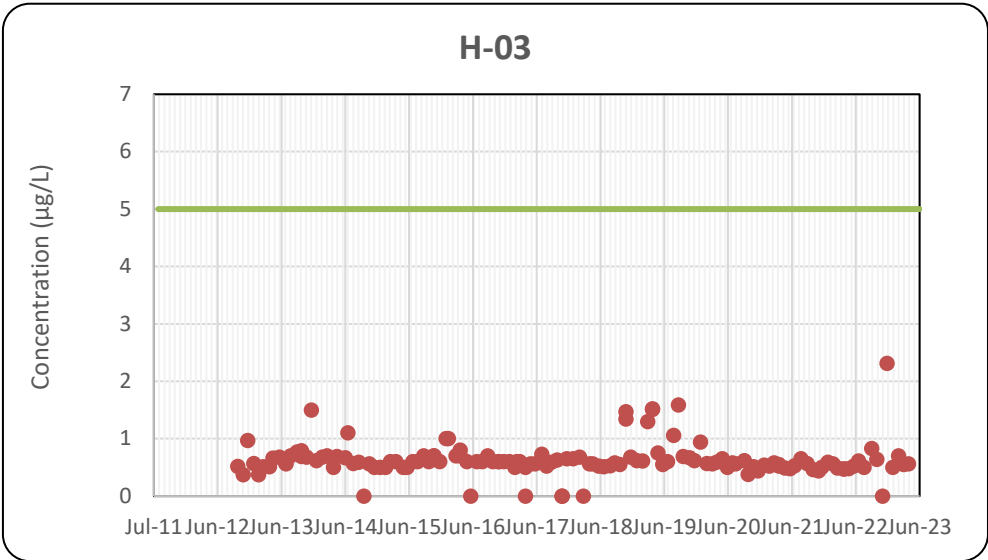
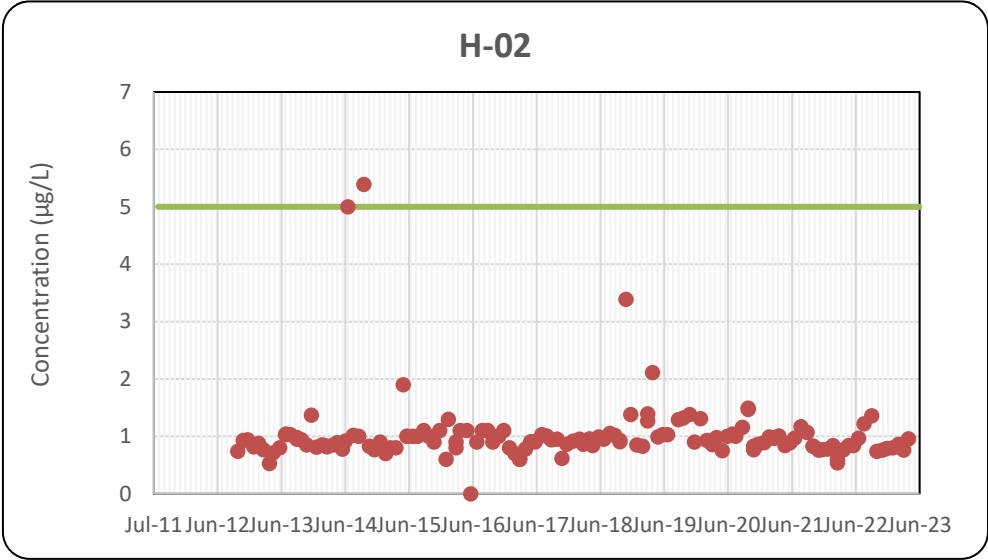


F-22

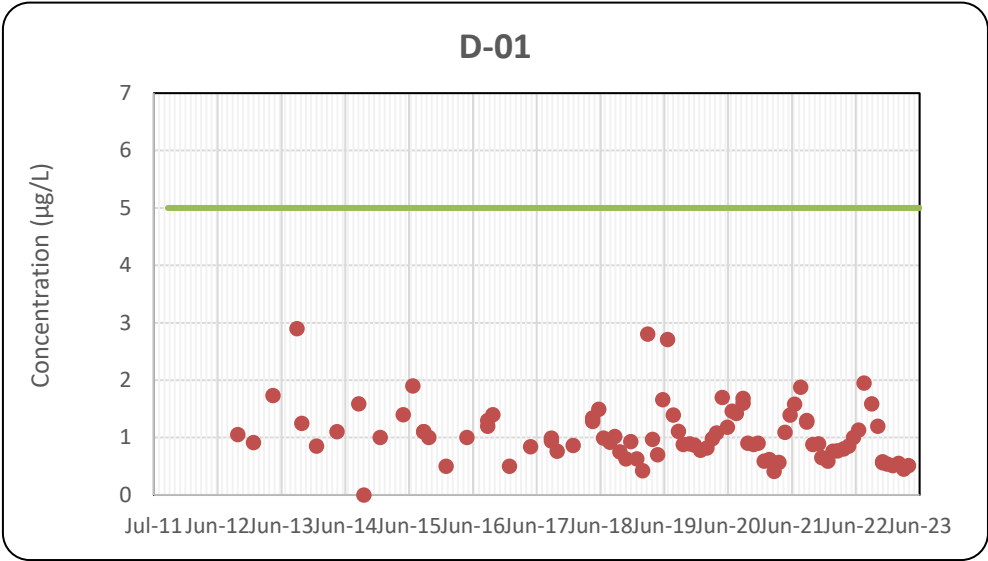
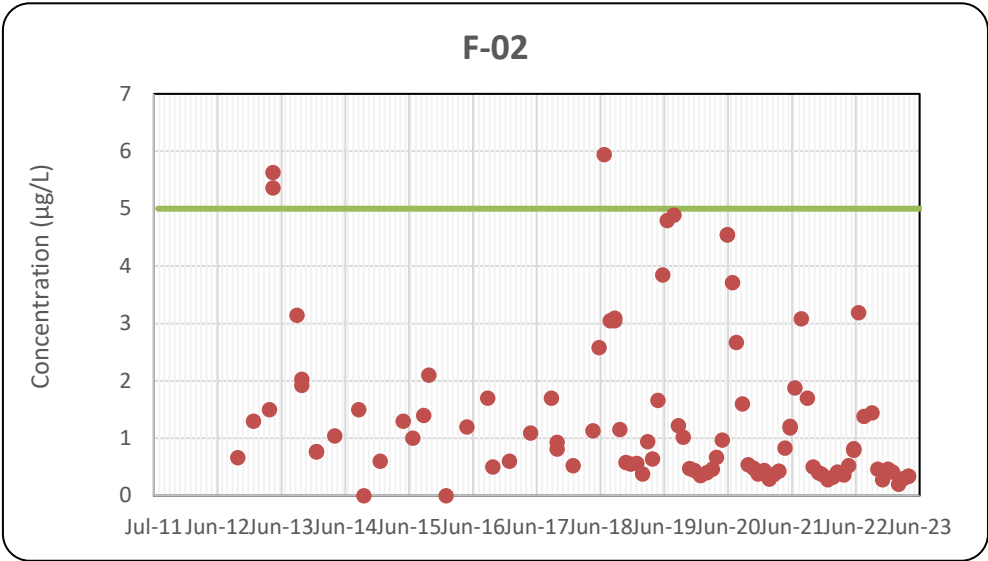
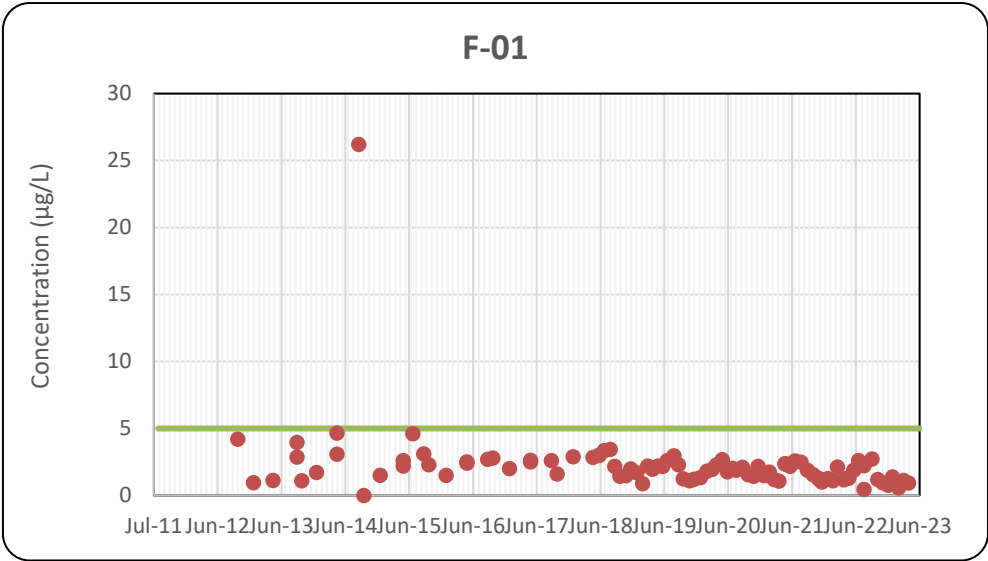
Total Arsenic Concentrations, 2011-2023



Total Arsenic Concentrations, 2011-2023

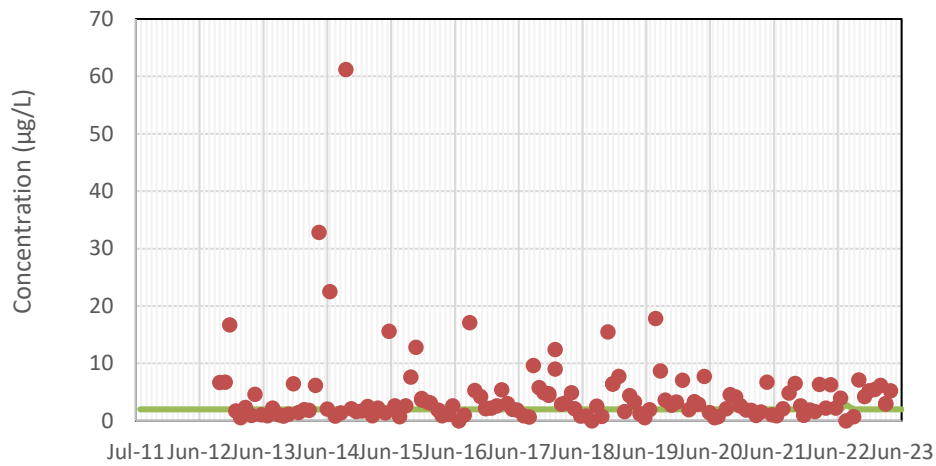


Total Arsenic Concentrations, 2011-2023

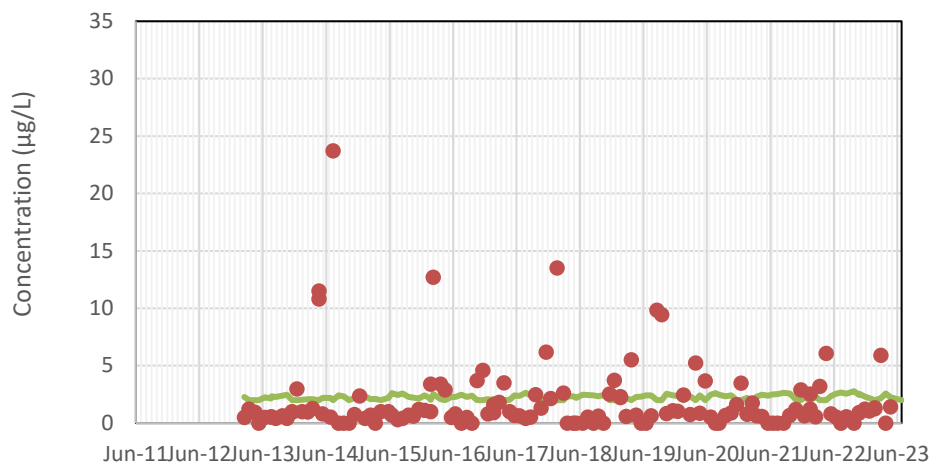


Total Copper Concentrations, 2011-2023

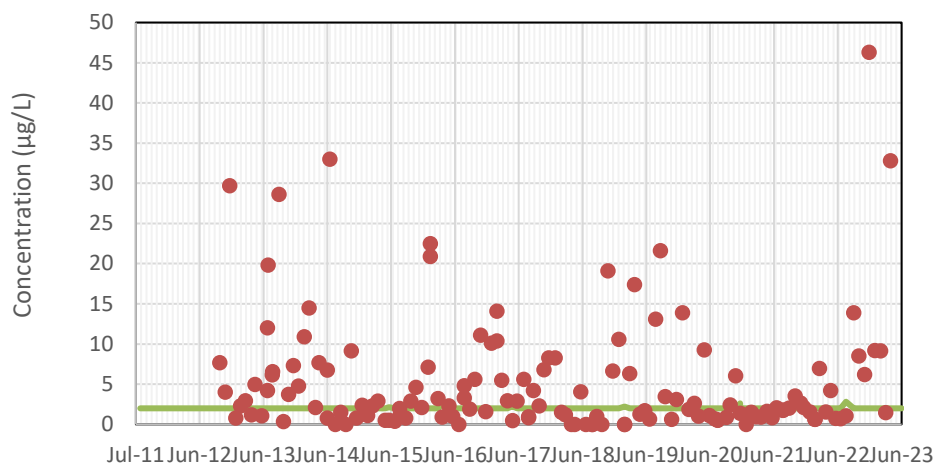
B-01



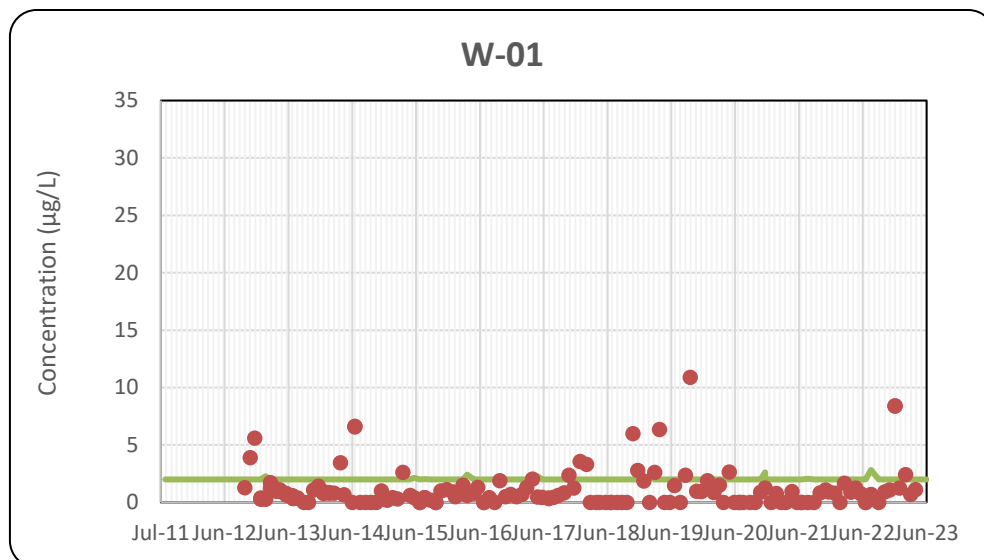
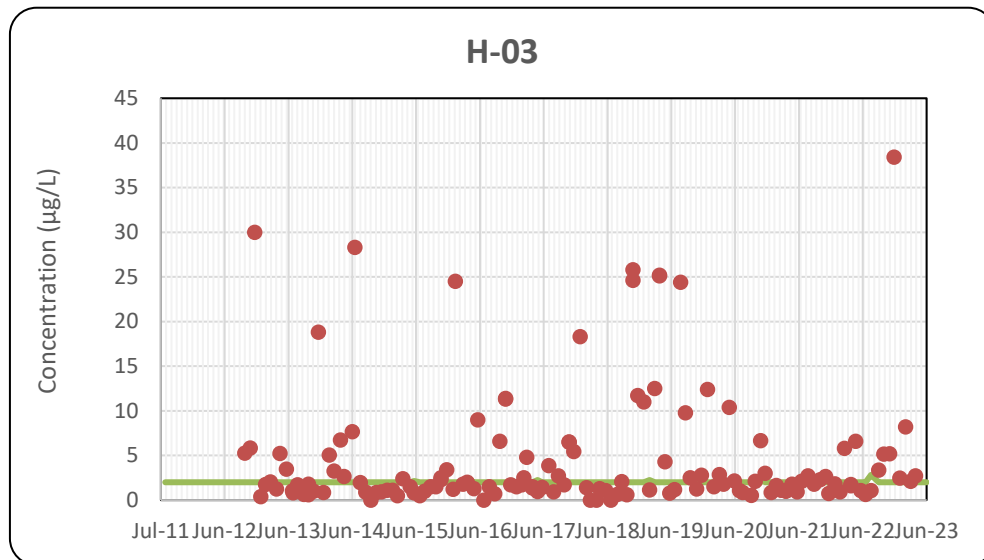
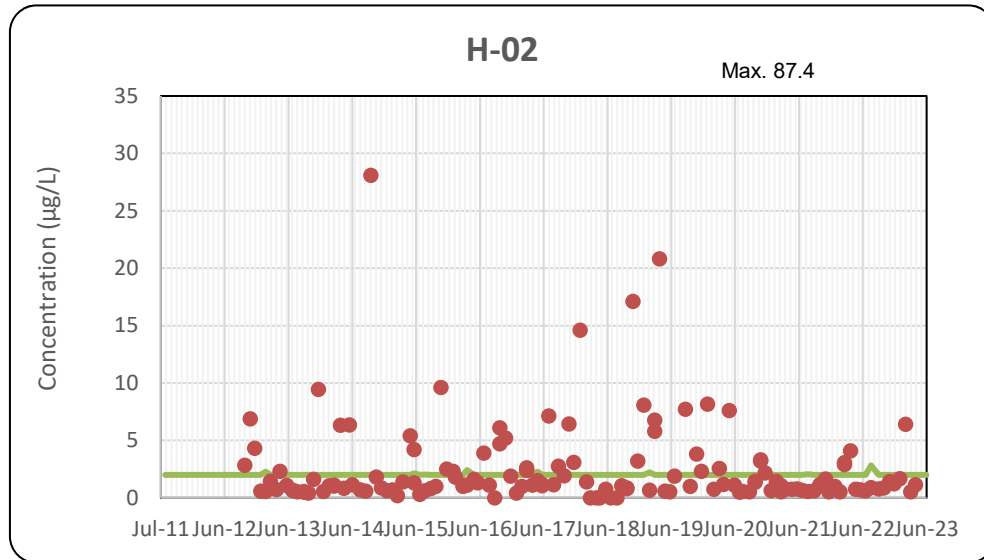
B-02



H-01

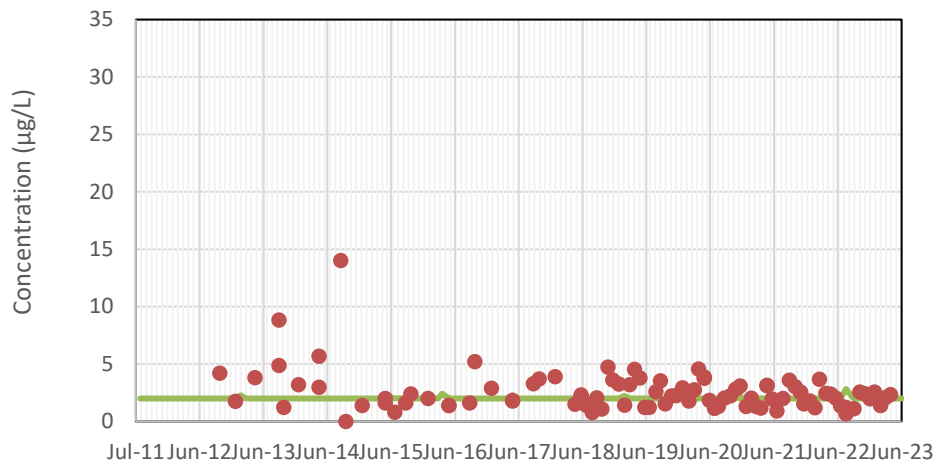


Total Copper Concentrations, 2011-2023

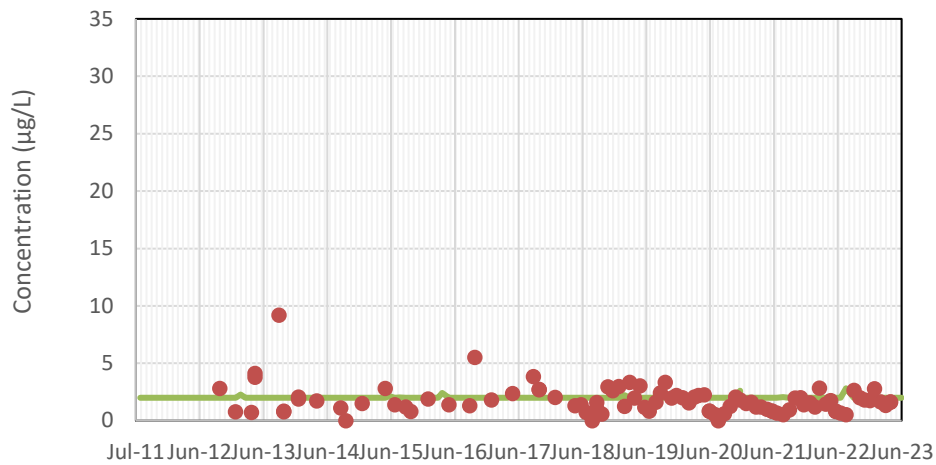


Total Copper Concentrations, 2011-2023

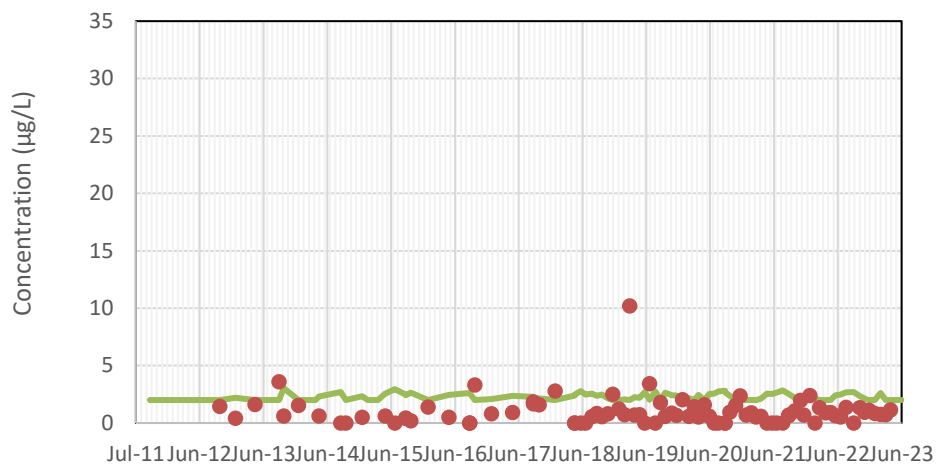
F-01



F-02

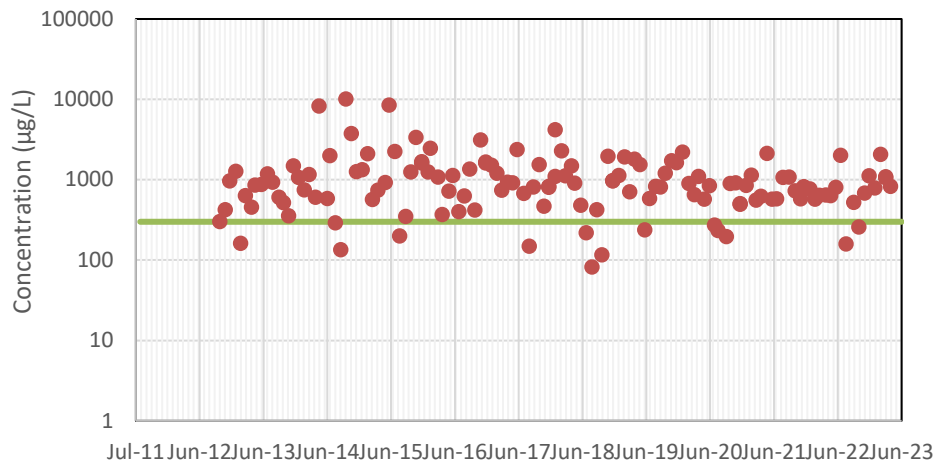


D-01

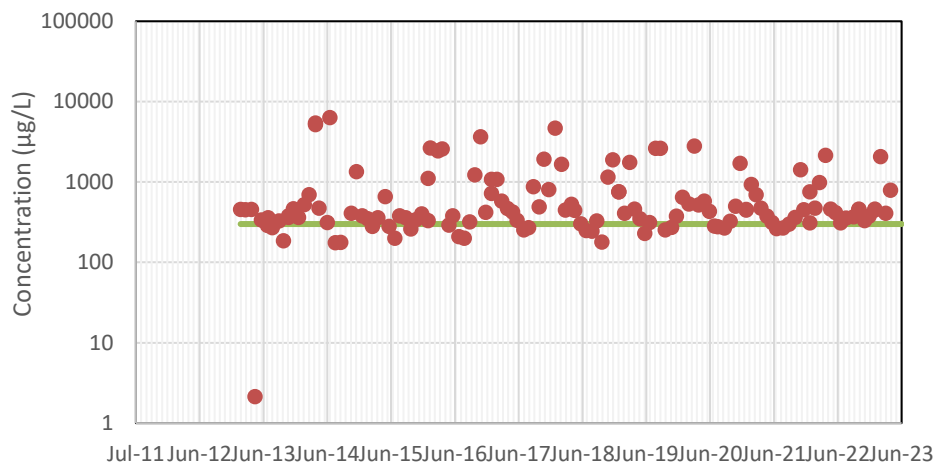


Total Iron Concentrations, 2011-2023

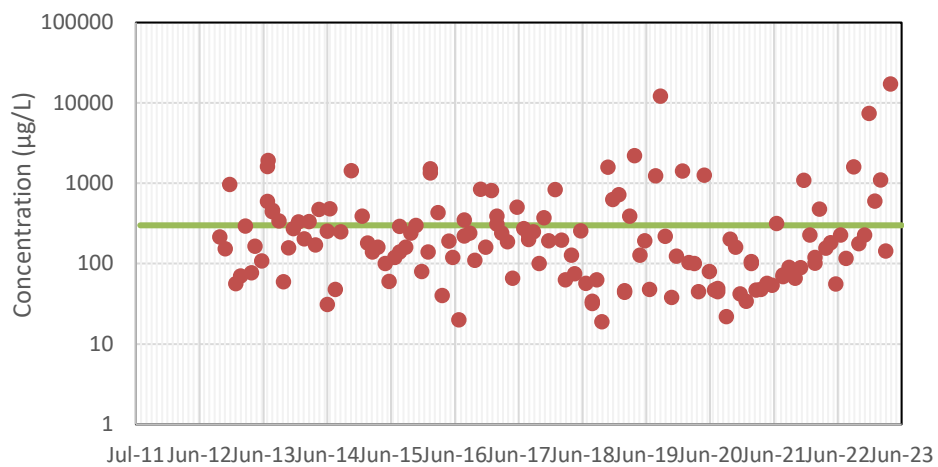
B-01



B-02

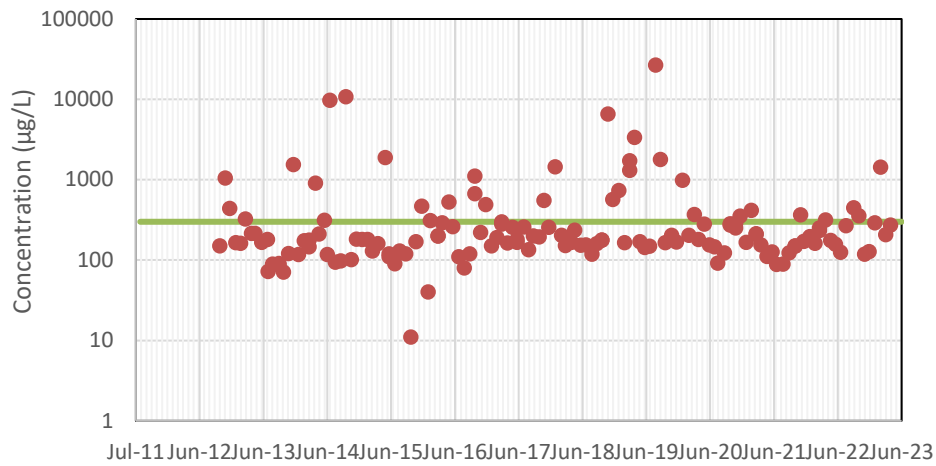


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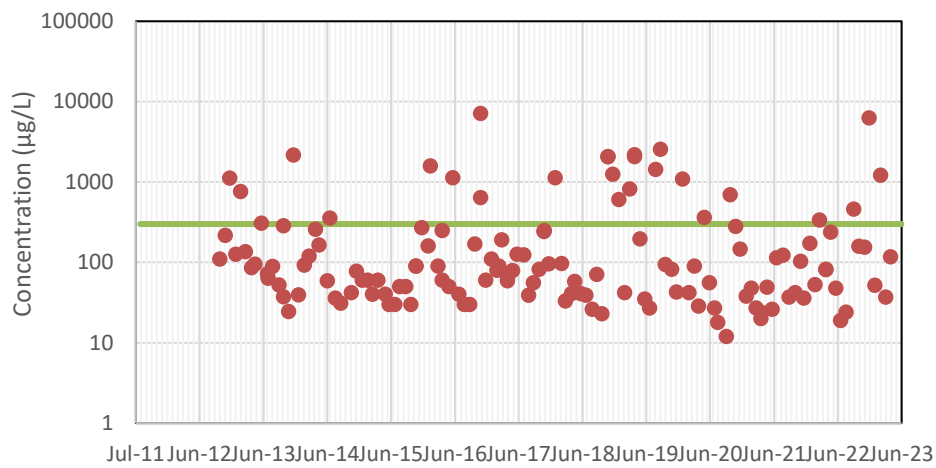


Total Iron Concentrations, 2011-2023

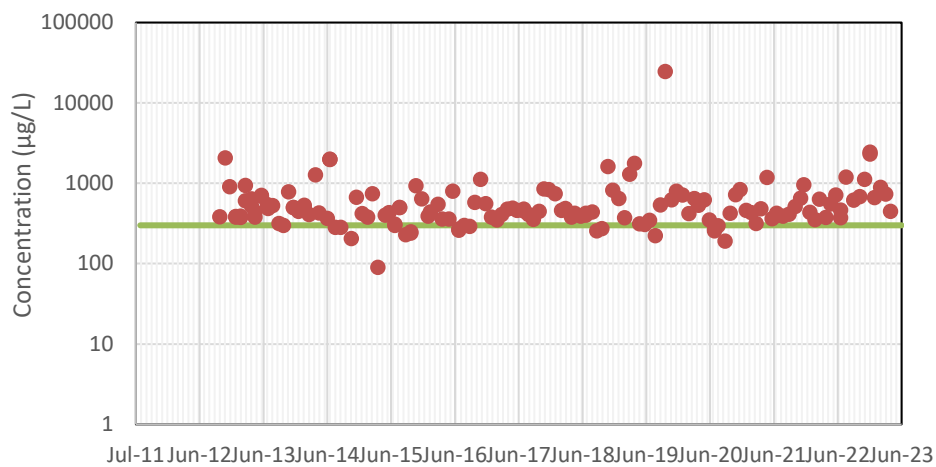
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H-03

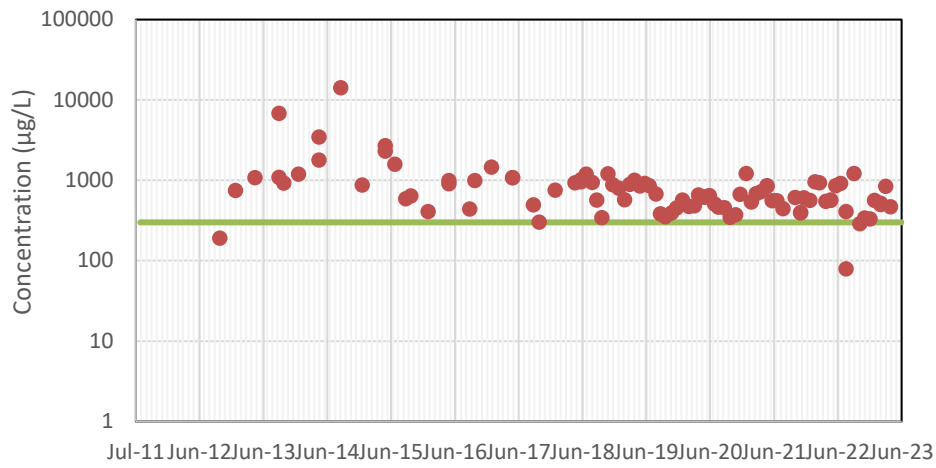


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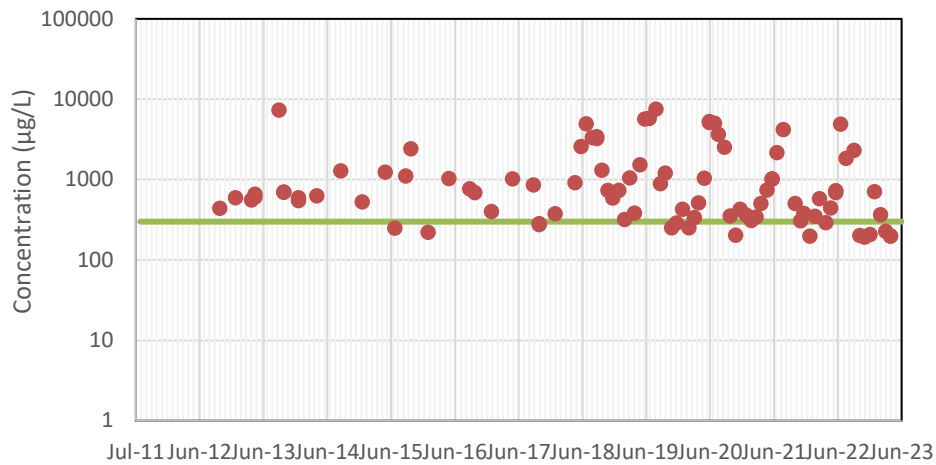


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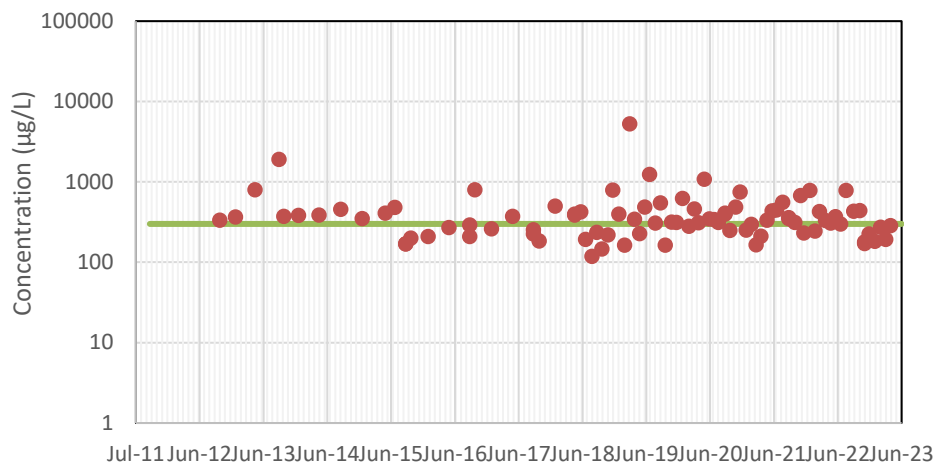
F-01



F-02

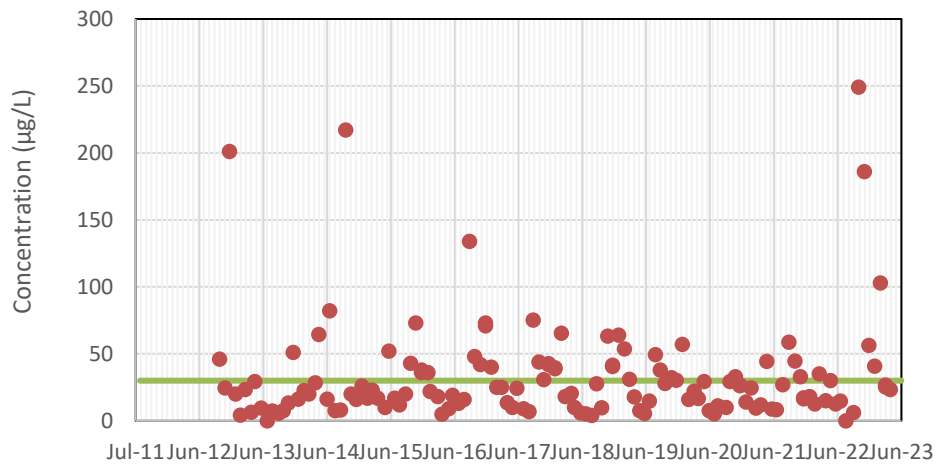


D-01

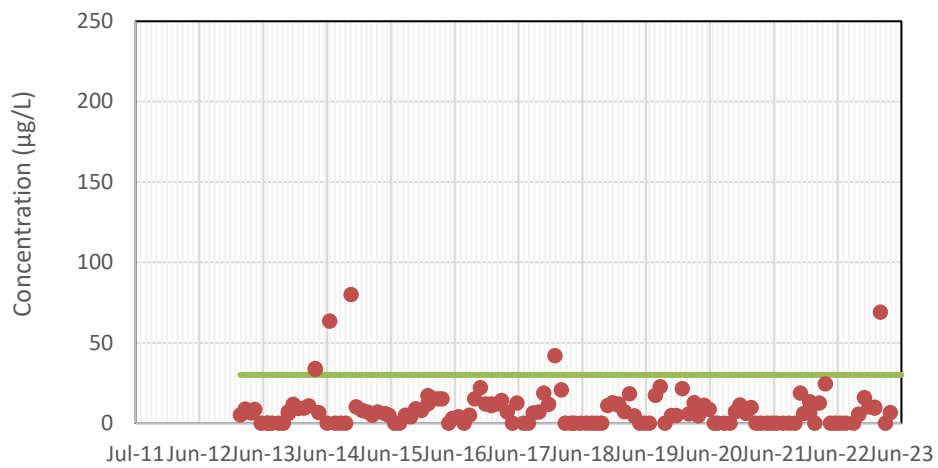


Total Zinc Concentrations, 2011-2023

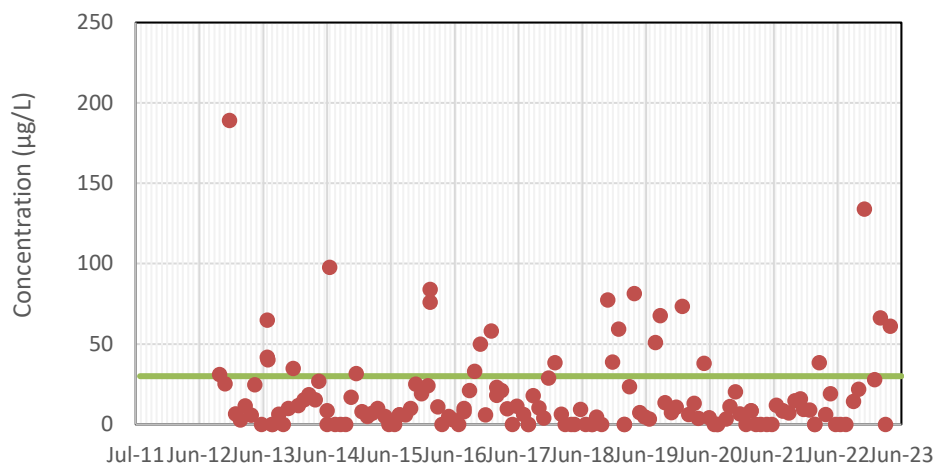
B-01



B-02

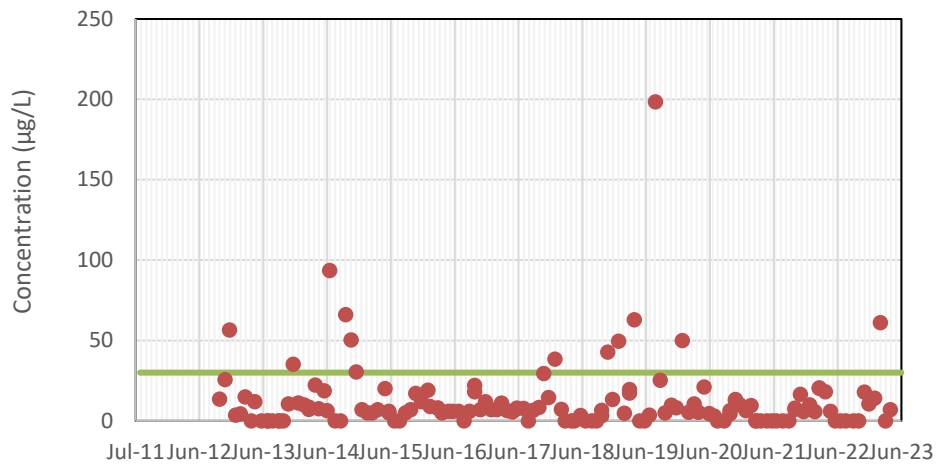


H-01

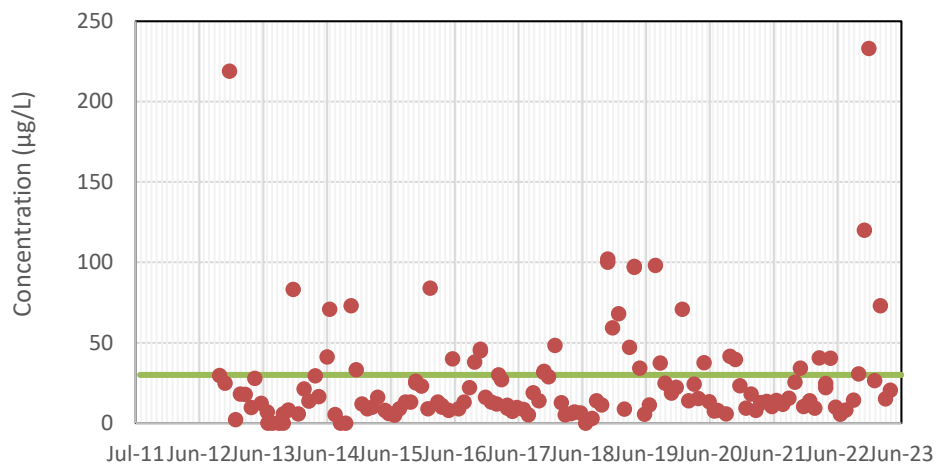


Total Zinc Concentrations, 2011-2023

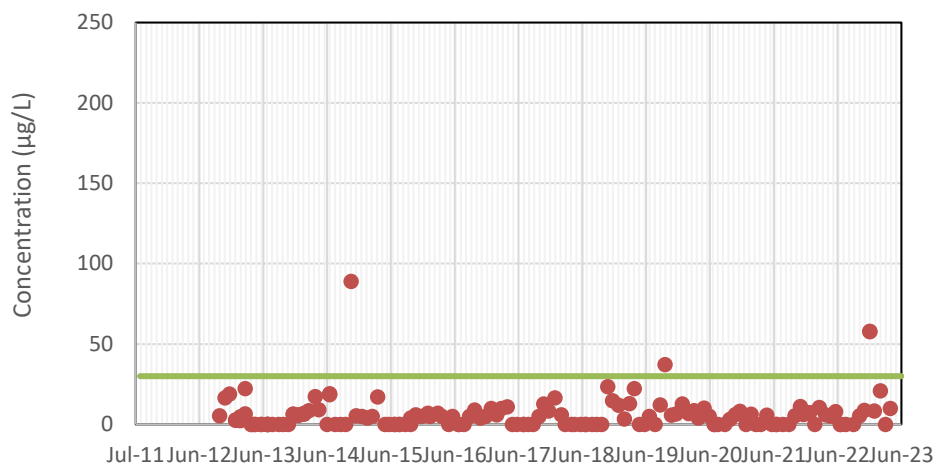
H-02



H-03

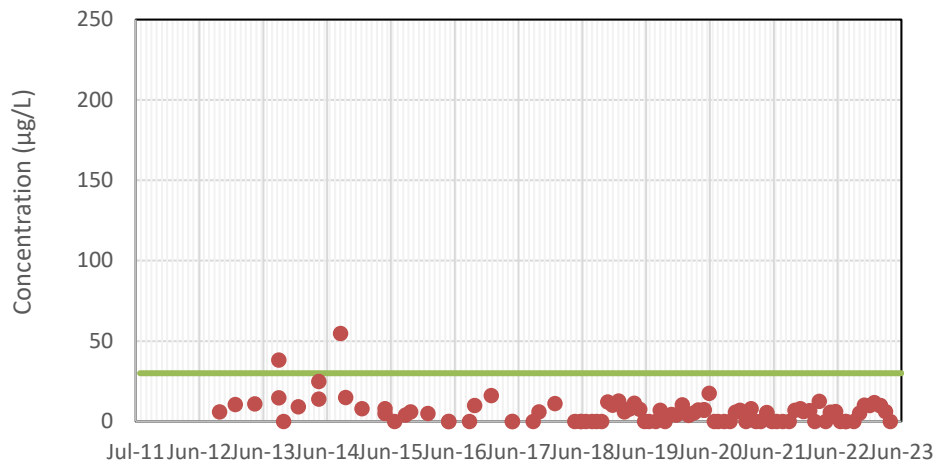


W-01

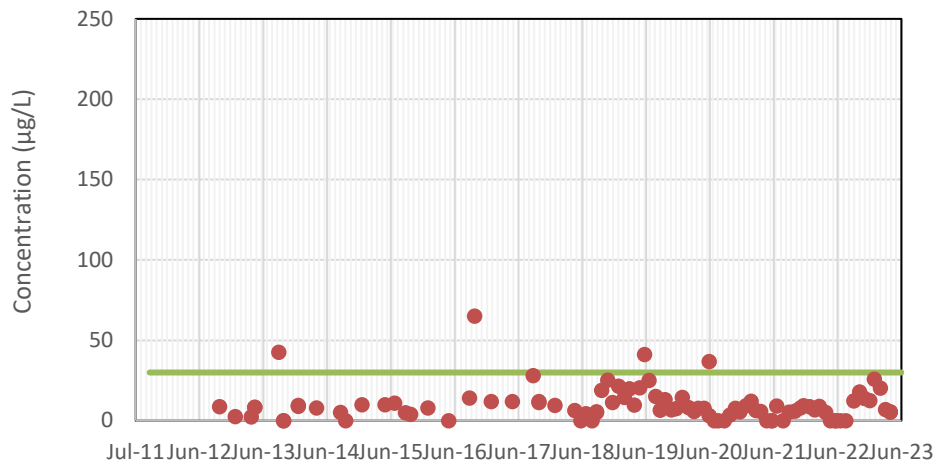


Total Zinc Concentrations, 2011-2023

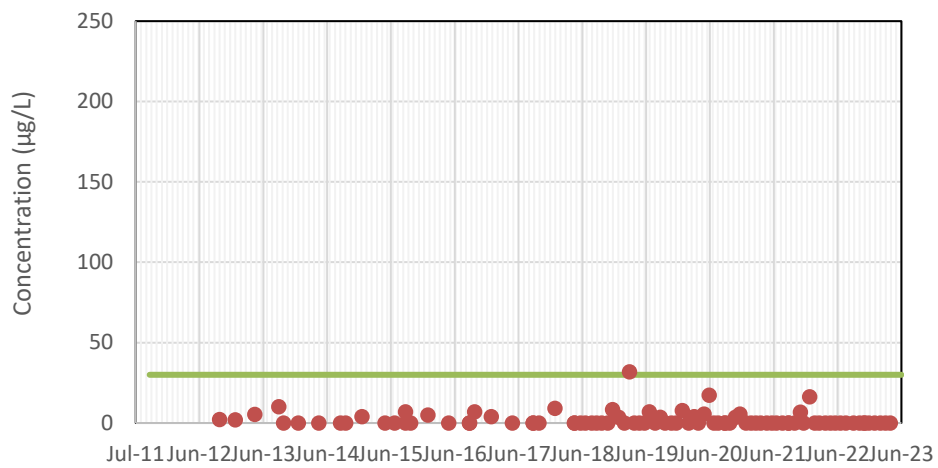
F-01



F-02



D-01



APPENDIX G

Water Quality Site Exceedances

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Dissolved Oxygen	Temperature	pH	Nitrate	Nitrite	Ammonia	Phosphorus
B-01	Year 2	83.3	8.3	0	25	8.3	0	87.5
B-01	Year 3	100	16.7	0	0	0	0	66.7
B-01	Year 4	83.3	33.3	0	8.3	0	0	25
B-01	Year 5	91.7	33.3	16.7	16.7	0	0	58.3
B-01	Year 6	91.7	8.3	25	0	0	0	41.7
B-01	Year 7	83.3	0	0	0	0	0	58.3
B-01	Year 8	100	16.7	16.7	16.7	0	0	41.7
B-01	Year 9	91.7	16.7	66.7	0	0	0	83.3
B-01	Year 10	100	16.7	75	0	0	0	41.7
B-01	Year 11	100	33.3	75	0	0	0	25
B-01	Year 12	91.7	0	58.3	16.7	0	0	66.7
B-02	Year 2	0	0	0	0	33.3	0	0
B-02	Year 3	25	16.7	0	0	0	0	8.3
B-02	Year 4	25	16.7	0	0	0	0	25
B-02	Year 5	33.3	16.7	0	0	0	0	25
B-02	Year 6	16.7	8.3	0	0	0	0	25
B-02	Year 7	50	0	0	0	0	0	25
B-02	Year 8	33.3	25	0	0	0	0	33.3
B-02	Year 9	25	25	0	0	0	0	25
B-02	Year 10	33.3	16.7	0	0	0	0	16.7
B-02	Year 11	41.7	16.7	8.3	0	0	0	25
B-02	Year 12	36.4	0	0	0	0	0	8.3
D-01	Year 2	33.3	0	0	0	0	0	33.3
D-01	Year 3	50	25	0	0	0	0	50
D-01	Year 4	25	0	0	0	0	0	0
D-01	Year 5	25	20	0	0	0	0	0
D-01	Year 6	25	0	0	0	0	0	25
D-01	Year 7	25	0	0	0	0	0	0
D-01	Year 8	33.3	16.7	0	0	0	0	16.7
D-01	Year 9	25	0	0	0	0	0	25
D-01	Year 10	41.7	16.7	0	0	0	0	8.3
D-01	Year 11	33.3	33.3	0	0	0	0	0
D-01	Year 12	33.3	8.3	0	0	0	0	8.3
F-01	Year 2	40	20	0	0	0	0	33.3
F-01	Year 3	50	25	0	0	0	0	100
F-01	Year 4	50	25	0	0	0	0	75
F-01	Year 5	75	20	0	0	0	0	60

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Dissolved Oxygen	Temperature	pH	Nitrate	Nitrite	Ammonia	Phosphorus
F-01	Year 6	50	25	0	0	0	0	75
F-01	Year 7	50	0	0	0	0	0	0
F-01	Year 8	58.3	33.3	0	0	0	0	66.7
F-01	Year 9	66.7	41.7	0	0	0	0	41.7
F-01	Year 10	58.3	50	0	0	0	0	8.3
F-01	Year 11	66.7	41.7	8.3	0	0	0	33.3
F-01	Year 12	63.6	33.3	0	0	0	0	25
F-02	Year 2	75	25	0	0	0	0	33.3

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Dissolved Oxygen	Temperature	pH	Nitrate	Nitrite	Ammonia	Phosphorus
F-02	Year 3	75	25	0	0	0	0	50
F-02	Year 4	75	25	0	0	0	0	50
F-02	Year 5	75	20	0	0	0	0	80
F-02	Year 6	50	25	0	0	0	0	50
F-02	Year 7	100	25	0	0	0	0	25
F-02	Year 8	91.7	33.3	0	0	0	0	66.7
F-02	Year 9	91.7	41.7	16.7	0	0	0	50
F-02	Year 10	100	41.7	8.3	0	0	0	50
F-02	Year 11	75	41.7	16.7	0	0	0	25
F-02	Year 12	100	25	0	0	0	0	16.7
H-01	Year 2	80	0	8.3	8.3	0	0	25
H-01	Year 3	91.7	16.7	8.3	8.3	0	8.3	50
H-01	Year 4	91.7	25	8.3	0	0	0	16.7
H-01	Year 5	91.7	16.7	8.3	0	0	0	8.3
H-01	Year 6	100	16.7	8.3	0	8.3	0	16.7
H-01	Year 7	83.3	33.3	16.7	0	0	0	41.7
H-01	Year 8	91.7	16.7	0	0	0	0	41.7
H-01	Year 9	100	41.7	83.3	0	0	0	33.3
H-01	Year 10	100	16.7	91.7	0	0	0	16.7
H-01	Year 11	83.3	41.7	91.7	16.7	0	0	0
H-01	Year 12	83.3	0	83.3	16.7	8.3	0	50
H-02	Year 2	18.2	18.2	0	8.3	0	0	25
H-02	Year 3	16.7	8.3	0	8.3	0	0	25
H-02	Year 4	38.5	30.8	0	0	0	0	23.1
H-02	Year 5	50	16.7	0	0	0	0	8.3
H-02	Year 6	8.3	8.3	0	0	0	0	25
H-02	Year 7	33.3	0	8.3	0	0	0	16.7
H-02	Year 8	33.3	16.7	0	0	0	0	33.3
H-02	Year 9	33.3	16.7	0	0	0	0	25
H-02	Year 10	50	25	0	0	0	0	8.3
H-02	Year 11	58.3	16.7	0	0	0	0	0
H-02	Year 12	41.7	8.3	0	0	0	0	25
H-03	Year 2	71.4	0	0	0	0	0	66.7
H-03	Year 3	66.7	0	0	0	0	0	41.7
H-03	Year 4	75	16.7	0	0	0	0	33.3
H-03	Year 5	58.3	16.7	0	0	0	0	8.3

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Dissolved Oxygen	Temperature	pH	Nitrate	Nitrite	Ammonia	Phosphorus
H-03	Year 6	58.3	16.7	0	0	0	0	16.7
H-03	Year 7	66.7	16.7	0	0	0	0	25
H-03	Year 8	75	16.7	0	0	0	0	41.7
H-03	Year 9	66.7	33.3	16.7	0	0	0	41.7
H-03	Year 10	66.7	25	0	0	0	0	8.3
H-03	Year 11	58.3	33.3	16.7	0	0	0	0
H-03	Year 12	54.5	16.7	8.3	0	0	0	33.3
W-01	Year 2	72.7	18.2	0	0	0	0	50
W-01	Year 3	54.5	8.3	0	0	0	0	8.3
W-01	Year 4	7	1	0	0	0	0	1
W-01	Year 5	41.7	16.7	0	0	0	0	25
W-01	Year 6	41.7	8.3	0	0	0	0	25
W-01	Year 7	50	8.3	0	0	0	0	16.7
W-01	Year 8	66.7	16.7	0	0	0	0	41.7
W-01	Year 9	58.3	8.3	8.3	0	0	0	16.7
W-01	Year 10	66.7	16.7	0	0	0	0	16.7
W-01	Year 11	58.3	25	8.3	0	0	0	8.3
W-01	Year 12	58.3	16.7	0	0	0	0	25

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Fluoride	Arsenic	Cadmium	Chromium	Copper	Mercury	Iron
B-01	Year 2	0	0	28.6	71.4	57.1	0	85.7
B-01	Year 3	0	8.3	0	83.3	33.3	0	100
B-01	Year 4	16.7	0	25	100	58.3	0	83.3
B-01	Year 5	8.3	0	16.7	91.7	66.7	0	91.7
B-01	Year 6	16.7	0	25	91.7	75	0	100
B-01	Year 7	33.3	0	16.7	100	66.7	0	91.7
B-01	Year 8	0	0	8.3	83.3	58.3	0	75
B-01	Year 9	0	0	8.3	100	66.7	0	91.7
B-01	Year 10	8.3	8.3	0	66.7	41.7	0	75
B-01	Year 11	0	0	0	91.7	58.3	0	100
B-01	Year 12	0	0	33.3	100	83.3	0	83.3
B-02	Year 2	0	0	0	0	0	0	100
B-02	Year 3	0	0	8.3	33.3	16.7	0	63.6
B-02	Year 4	8.3	8.3	16.7	25	25	0	75
B-02	Year 5	16.7	0	0	58.3	33.3	0	75
B-02	Year 6	0	0	0	58.3	25	0	75
B-02	Year 7	16.7	0	8.3	58.3	41.7	0	83.3
B-02	Year 8	0	0	0	50	33.3	0	75
B-02	Year 9	0	0	8.3	25	33.3	0	75
B-02	Year 10	0	0	0	25	16.7	0	75
B-02	Year 11	0	0	0	33.3	25	0	75
B-02	Year 12	0	0	8.3	25	8.3	0	100
D-01	Year 2	0	0	0	0	0	0	100
D-01	Year 3	0	0	0	75	25	0	100
D-01	Year 4	0	0	0	25	0	0	100
D-01	Year 5	0	0	0	0	0	0	40
D-01	Year 6	0	0	0	50	25	0	25
D-01	Year 7	25	0	0	25	25	0	50
D-01	Year 8	0	0	0	16.7	16.7	0	50
D-01	Year 9	0	0	0	8.3	16.7	0	75
D-01	Year 10	0	0	0	8.3	8.3	0	58.3
D-01	Year 11	0	0	0	8.3	8.3	0	83.3
D-01	Year 12	0	0	0	8.3	0	0	41.7
F-01	Year 2	0	0	0	50	50	0	50
F-01	Year 3	25	0	0	75	75	0	100
F-01	Year 4	0	25	0	75	75	0	100
F-01	Year 5	20	0	0	20	0	0	100

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Fluoride	Arsenic	Cadmium	Chromium	Copper	Mercury	Iron
F-01	Year 6	0	0	0	75	25	0	100
F-01	Year 7	25	0	0	50	75	0	100
F-01	Year 8	0	0	0	41.7	41.7	0	100
F-01	Year 9	0	0	0	50	50	0	100
F-01	Year 10	0	0	0	16.7	33.3	0	100
F-01	Year 11	0	0	0	25	50	0	100
F-01	Year 12	0	0	0	8.3	41.7	0	91.7
F-02	Year 2	0	0	0	0	50	0	100

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Fluoride	Arsenic	Cadmium	Chromium	Copper	Mercury	Iron
F-02	Year 3	25	25	0	50	75	0	100
F-02	Year 4	0	0	25	75	25	0	100
F-02	Year 5	60	0	0	0	20	0	60
F-02	Year 6	25	0	25	25	25	0	100
F-02	Year 7	75	0	0	25	100	0	75
F-02	Year 8	0	8.3	0	25	33.3	0	100
F-02	Year 9	0	0	0	0	41.7	0	75
F-02	Year 10	0	0	0	0	16.7	0	91.7
F-02	Year 11	0	0	0	0	8.3	0	83.3
F-02	Year 12	0	0	0	25	16.7	0	58.3
H-01	Year 2	0	0	14.3	14.3	71.4	0	14.3
H-01	Year 3	0	0	0	0	83.3	8.3	41.7
H-01	Year 4	0	0	8.3	33.3	50	8.3	41.7
H-01	Year 5	8.3	0	8.3	16.7	41.7	16.7	16.7
H-01	Year 6	0	0	8.3	33.3	58.3	0	25
H-01	Year 7	41.7	0	0	33.3	58.3	0	25
H-01	Year 8	0	0	16.7	41.7	50	8.3	41.7
H-01	Year 9	8.3	8.3	16.7	25	50	0	25
H-01	Year 10	0	0	8.3	8.3	16.7	0	8.3
H-01	Year 11	0	0	0	16.7	25	0	25
H-01	Year 12	0	0	25	33.3	66.7	41.7	41.7
H-02	Year 2	0	0	14.3	28.6	42.9	0	42.9
H-02	Year 3	0	0	0	16.7	25	0	16.7
H-02	Year 4	0	7.7	15.4	23.1	23.1	7.7	23.1
H-02	Year 5	0	0	0	8.3	41.7	0	25
H-02	Year 6	0	0	0	25	33.3	0	25
H-02	Year 7	16.7	0	0	25	41.7	0	16.7
H-02	Year 8	0	0	0	41.7	41.7	0	41.7
H-02	Year 9	0	8.3	8.3	25	41.7	8.3	33.3
H-02	Year 10	0	0	0	0	25	0	16.7
H-02	Year 11	0	0	0	0	16.7	0	16.7
H-02	Year 12	0	0	0	25	8.3	0	25
H-03	Year 2	0	0	14.3	42.9	57.1	0	28.6
H-03	Year 3	0	0	0	16.7	50	0	9.1
H-03	Year 4	0	0	16.7	16.7	41.7	0	16.7
H-03	Year 5	8.3	0	8.3	16.7	25	0	8.3

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Fluoride	Arsenic	Cadmium	Chromium	Copper	Mercury	Iron
H-03	Year 6	0	0	0	16.7	33.3	0	16.7
H-03	Year 7	25	0	0	16.7	41.7	0	8.3
H-03	Year 8	0	0	16.7	50	41.7	8.3	41.7
H-03	Year 9	0	0	8.3	25	58.3	0	25
H-03	Year 10	0	0	0	8.3	25	0	16.7
H-03	Year 11	0	0	0	16.7	33.3	0	8.3
H-03	Year 12	0	0	25	16.7	66.7	16.7	25
W-01	Year 2	0	0	14.3	42.9	28.6	0	100
W-01	Year 3	0	0	0	41.7	8.3	0	91.7
W-01	Year 4	0	0	0	0	1	0	0
W-01	Year 5	16.7	0	0	8.3	0	0	83.3
W-01	Year 6	8.3	0	0	25	8.3	0	75
W-01	Year 7	16.7	0	0	41.7	25	0	100
W-01	Year 8	0	0	0	50	33.3	0	83.3
W-01	Year 9	0	8.3	0	8.3	16.7	0	91.7
W-01	Year 10	0	0	0	0	8.3	0	75
W-01	Year 11	0	0	0	8.3	0	0	100
W-01	Year 12	0	0	0	41.7	16.7	0	100

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Lead	Nickel	Selenium	Silver	Zinc
B-01	Year 2	57.1	0	0	0	28.6
B-01	Year 3	33.3	0	0	0	8.3
B-01	Year 4	41.7	0	0	0	25
B-01	Year 5	58.3	0	0	0	41.7
B-01	Year 6	50	0	0	0	41.7
B-01	Year 7	58.3	0	0	0	50
B-01	Year 8	33.3	0	0	0	41.7
B-01	Year 9	50	0	0	0	41.7
B-01	Year 10	25	0	0	0	8.3
B-01	Year 11	33.3	0	0	0	41.7
B-01	Year 12	66.7	0	0	0	50
B-02	Year 2	0	0	0	0	0
B-02	Year 3	9.1	0	0	0	8.3
B-02	Year 4	16.7	0	0	0	25
B-02	Year 5	8.3	0	0	0	0
B-02	Year 6	25	0	0	0	0
B-02	Year 7	16.7	0	0	0	8.3
B-02	Year 8	8.3	0	0	0	0
B-02	Year 9	16.7	0	0	0	0
B-02	Year 10	8.3	0	0	0	0
B-02	Year 11	8.3	0	0	0	0
B-02	Year 12	8.3	0	0	0	8.3
D-01	Year 2	0	0	0	0	0
D-01	Year 3	0	0	0	0	0
D-01	Year 4	0	0	0	0	0
D-01	Year 5	0	0	0	0	0
D-01	Year 6	0	0	0	0	0
D-01	Year 7	0	0	0	0	0
D-01	Year 8	8.3	0	0	0	8.3
D-01	Year 9	0	0	0	0	0
D-01	Year 10	0	0	0	0	0
D-01	Year 11	0	0	0	0	0
D-01	Year 12	0	0	0	0	0
F-01	Year 2	0	0	0	0	0
F-01	Year 3	0	0	0	0	0
F-01	Year 4	0	0	0	0	25
F-01	Year 5	0	0	0	0	0

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Lead	Nickel	Selenium	Silver	Zinc
F-01	Year 6	0	0	0	0	0
F-01	Year 7	0	0	0	0	0
F-01	Year 8	0	0	0	0	0
F-01	Year 9	0	0	0	0	0
F-01	Year 10	0	0	0	0	0
F-01	Year 11	0	0	0	0	0
F-01	Year 12	0	0	0	0	0
F-02	Year 2	0	0	0	0	0

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Lead	Nickel	Selenium	Silver	Zinc
F-02	Year 3	25	0	0	0	25
F-02	Year 4	25	0	0	0	25
F-02	Year 5	0	0	0	0	0
F-02	Year 6	25	0	0	0	25
F-02	Year 7	0	0	0	0	0
F-02	Year 8	0	0	0	0	0
F-02	Year 9	0	0	0	0	8.3
F-02	Year 10	0	0	0	0	0
F-02	Year 11	0	0	0	0	0
F-02	Year 12	0	0	0	0	0
H-01	Year 2	42.9	0	0	0	28.6
H-01	Year 3	0	0	0	0	16.7
H-01	Year 4	25	0	0	0	25
H-01	Year 5	8.3	0	0	0	8.3
H-01	Year 6	16.7	0	0	0	25
H-01	Year 7	16.7	0	0	0	8.3
H-01	Year 8	41.7	0	0	0	33.3
H-01	Year 9	25	0	0	0	25
H-01	Year 10	8.3	0	0	0	8.3
H-01	Year 11	8.3	0	0	0	8.3
H-01	Year 12	25	8.3	0	25	33.3
H-02	Year 2	14.3	0	0	0	14.3
H-02	Year 3	16.7	0	0	0	8.3
H-02	Year 4	15.4	0	0	0	30.8
H-02	Year 5	0	0	0	0	0
H-02	Year 6	0	0	0	0	0
H-02	Year 7	16.7	0	0	0	8.3
H-02	Year 8	25	0	0	0	25
H-02	Year 9	25	0	0	8.3	16.7
H-02	Year 10	0	0	0	0	0
H-02	Year 11	0	0	0	0	0
H-02	Year 12	8.3	0	0	0	8.3
H-03	Year 2	42.9	0	0	0	14.3
H-03	Year 3	16.7	0	0	0	8.3
H-03	Year 4	16.7	0	0	0	41.7
H-03	Year 5	8.3	0	0	0	8.3

Values are percentages.

Frequencies of Parameters Not Meeting Water Quality Guidelines

Station	Date	Lead	Nickel	Selenium	Silver	Zinc
H-03	Year 6	16.7	0	0	0	25
H-03	Year 7	8.3	0	0	0	16.7
H-03	Year 8	41.7	0	0	0	41.7
H-03	Year 9	25	0	0	0	33.3
H-03	Year 10	0	0	0	0	25
H-03	Year 11	0	0	0	0	16.7
H-03	Year 12	16.7	0	0	0	41.7
W-01	Year 2	28.6	0	0	0	14.3
W-01	Year 3	8.3	0	0	8.3	0
W-01	Year 4	0	0	0	0	1
W-01	Year 5	0	0	0	0	0
W-01	Year 6	0	0	0	0	0
W-01	Year 7	0	0	0	0	0
W-01	Year 8	16.7	0	0	0	0
W-01	Year 9	8.3	0	0	0	8.3
W-01	Year 10	0	0	0	0	0
W-01	Year 11	0	0	0	0	0
W-01	Year 12	8.3	0	0	0	8.3

Values are percentages.

APPENDIX H
Fish Habitat Site Data

Notes: D = Dominant S = Subdominant T = Trace, N = None
 ST = Straight SI = Sinuous IM = Intermediate Meandering
 UN = Unconfined CO = Confined FC = Frequently Confined

Sampling Details												
Stream	Site	Sample Date (d/mmm/yy)	D95 (cm)	SWD	LWD	B	U	DP	OV	IV	Gradient (%)	Pattern
Boa	4A	20-Jul-2022	All fines	D	T	N	N	N	T	N	2	IR
Boa	4A	19-Aug-2022	Na	D	S	N	S	N	N	N	2	ME
Boa	4A	27-Sep-2022	All Fines	S	S	N	N	N	N	N	2	IR
Boa	4A	27-Oct-2022	N/A; only fines	S	T	N	N	N	T	N	2	IR
Boa	4B	20-Jul-2022	All fines	D	T	N	T	N	N	N	4	IR
Boa	4B	19-Aug-2022	Na	D	S	N	N	N	N	N	4	ME
Boa	4B	27-Sep-2022	All Fines	S	D	N	N	N	N	N	4	IR
Boa	4B	26-Oct-2022	n/a; only fines	S	T	N	S	N	N	N	4	IR
Boa	5A	21-Jul-2022	26	T	N	T	S	N	T	N	4	IR
Boa	5A	18-Aug-2022	18	T	N	S	S	N	T	N	4	ST
Boa	5A	27-Sep-2022	All Fines	s	S	T	D	N	T	N	4	IR
Boa	5A	25-Oct-2022	14	T	N	T	T	N	D	N	4	ST
Boa	5B	21-Jul-2022	10	T	N	N	T	N	D	N	4	ME
Boa	5B	18-Aug-2022	12	N	N	N	S	N	D	N	4	ME
Boa	5B	27-Sep-2022	17	T	N	N	T	N	D	N	4	IR
Boa	5B	25-Oct-2022	13	T	N	T	T	N	T	N	4	ME
Boa	5C	21-Jul-2022	33	T	T	T	D	N	T	N	2	ME
Boa	5C	18-Aug-2022	20	T	S	S	D	N	T	N	2	ME
Boa	5C	27-Sep-2022	9	T	S	T	D	N	T	N	2	IR
Boa	5C	25-Oct-2022	16	T	N	T	D	N	D	N	2	ME
Boa	5D	21-Jul-2022	20	S	T	T	N	N	D	T	4	ME
Boa	5D	18-Aug-2022	12	D	T	S	T	S	S	N	4	ME
Boa	5D	27-Sep-2022	20	S	T	S	T	N	D	N	4	IR
Boa	5D	25-Oct-2022	17	T	N	N	S	D	D	T	4	ME
Downes	D-02 pool	19-Jul-2022	All fines	S	N	N	N	N	D	T	0.5	ST

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Sampling Details												
Stream	Site	Sample Date (d/mmm/yy)	D95 (cm)	SWD	LWD	B	U	DP	OV	IV	Gradient (%)	Pattern
Downes	D-02 pool	19-Aug-2022	na	N	N	N	T	N	D	N	0.5	ST
Downes	D-02 pool	26-Sep-2022	All Fines	S	N	N	N	N	D	T	0.5	ST
Downes	D-02 pool	31-Oct-2022	All Fines	T	N	N	T	T	D	T	0.5	ST
Downes	D-02 riffle	19-Jul-2022	3	S	T	N	N	N	D	N	1	ST
Downes	D-02 riffle	16-Aug-2022	4	S	N	N	T	N	D	N	1	ST
Downes	D-02 riffle	26-Sep-2022	3	T	T	N	T	N	D	N	1	ST
Downes	D-02 riffle	31-Oct-2022	4.5	T	N	N	T	N	D	T	1	ST
Downes	D-03 pool	19-Jul-2022	7	S	N	N	N	N	D	N	4	SI
Downes	D-03 pool	16-Aug-2022	17	S	N	N	T	N	D	N	4	SI
Downes	D-03 pool	26-Sep-2022	21 cm	D	T	T	S	N	D	N	4	SI
Downes	D-03 pool	24-Oct-2022	9.6	T	N	T	T	N	S	N	4	SI
Downes	D-03 riffle	19-Jul-2022	7	S	T	T	N	N	D	N	5	SI
Downes	D-03 riffle	16-Aug-2022	23	S	T	T	D	N	D	N	5	SI
Downes	D-03 riffle	26-Sep-2022		D	T	T	S	N	D	N	5	SI
Downes	D-03 riffle	24-Oct-2022	7	S	T	T	N	N	D	N	5	SI
Downes	D-04 pool	19-Jul-2022	11	S	N	N	N	N	D	N	2	SI
Downes	D-04 pool	16-Aug-2022	7	D	N	N	T	N	D	N	2	SI
Downes	D-04 pool	26-Sep-2022	11	T	N	T	D	N	D	N	2	SI
Downes	D-04 pool	24-Oct-2022	12	S	N	N	N	N	D	N	2	SI
Downes	D-04 riffle	19-Jul-2022	14	D	S	S	S	N	D	N	8	SI
Downes	D-04 riffle	16-Aug-2022	15	S	T	T	D	N	D	N	8	SI
Downes	D-04 riffle	26-Sep-2022	9	S	T	T	D	N	D	N	8	SI
Downes	D-04 riffle	24-Oct-2022	14	D	S	S	S	N	D	N	8	SI
Fishtrap	F-01 pool	20-Jul-2022	31	S	T	S	N	D	S	N	0	SI

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Sampling Details												
Stream	Site	Sample Date (d/mmm/yy)	D95 (cm)	SWD	LWD	B	U	DP	OV	IV	Gradient (%)	Pattern
Fishtrap	F-01 pool	17-Aug-2022	30	S	T	T	N	D	S	N	0	SI
Fishtrap	F-01 pool	28-Sep-2022	33	S	T	S	N	S	D	S	0	SI
Fishtrap	F-01 pool	1-Nov-2022	28	S	T	S	N	D	S	N	0	SI
Fishtrap	F-01 riffle	20-Jul-2022	34	T	N	S	N	N	D	T	5	SI
Fishtrap	F-01 riffle	17-Aug-2022	11	T	N	D	N	N	S	T	5	ST
Fishtrap	F-01 riffle	28-Sep-2022	30	T	N	S	N	N	D	T	5	SI
Fishtrap	F-01 riffle	1-Nov-2022	34	T	N	S	N	N	D	T	5	SI
Fishtrap	F-02 pool	20-Jul-2022	NA	N	N	N	T	D	S	D	3	ST
Fishtrap	F-02 pool	17-Aug-2022	NA	T	N	N	S	N	S	D	3	ST
Fishtrap	F-02 pool	28-Sep-2022	na	N	N	N	S	T	S	D	3	ST
Fishtrap	F-02 pool	1-Nov-2022	NA; too deep	T	N	N	T	D	S	D	3	ST
Fishtrap	F-02 riffle	20-Jul-2022	All fines	D	S	N	T	D	S	S		SI
Fishtrap	F-02 riffle	17-Aug-2022	NA	D	S	N	T	D	S	S	0	SI
Fishtrap	F-02 riffle	28-Sep-2022	na	T	T	D	N	T	S	S		ST
Fishtrap	F-02 riffle	1-Nov-2022	NA; just fines	D	S	N	T	D	S	S		SI
Fishtrap	F-03 pool	20-Jul-2022	NA	T	N	N	N	D	N	D		ME
Fishtrap	F-03 pool	17-Aug-2022	Too deep	T	T	N	D	D	N	D	0	ME
Fishtrap	F-03 pool	28-Sep-2022	na	T	N	T	T	S	T	S		IM
Fishtrap	F-03 pool	1-Nov-2022	NA; too deep	T	N	N	N	D	N	D		ME
Fishtrap	F-04 pool	20-Jul-2022		S	T	N	N	T	S	D		ME
Fishtrap	F-04 pool	17-Aug-2022	NA	D	T	N	T	D	S	S	0	ME
Fishtrap	F-04 pool	28-Sep-2022	na	S	N	N	N	D	D	D		ME

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Sampling Details												
Stream	Site	Sample Date (d/mmm/yy)	D95 (cm)	SWD	LWD	B	U	DP	OV	IV	Gradient (%)	Pattern
Fishtrap	F-04 pool	27-Oct-2022	NA	S	S	N	T	D	S	D		ME
Fishtrap	F-04 riffle	21-Jul-2022	5	T	N	N	N	N	S	D		ST
Fishtrap	F-04 riffle	17-Aug-2022	5	N	N	N	S	N	T	D	0	ST
Fishtrap	F-04 riffle	28-Sep-2022	3.5	T	N	N	N	N	S	D		ST
Fishtrap	F-04 riffle	27-Oct-2022	NA	T	N	N	N	N	T	N		ST
Horn	1A	20-Jul-2022	10	T	S	N	S	T	S	N	2	ST
Horn	1A	18-Aug-2022	11	T	T	N	D	T	D	N	2	ST
Horn	1A	29-Sep-2022	12	T	N	N	S	N	D	N	2	ST
Horn	1A	25-Oct-2022	12	T	T	N	S	N	S	N	2	ST
Horn	1B	20-Jul-2022	13	T	T	N	T	N	D	N	4	ST
Horn	1B	18-Aug-2022	10.5	T	N	N	T	N	D	N	4	ST
Horn	1B	29-Sep-2022	9	T	N	N	S	N	D	N	4	ST
Horn	1B	25-Oct-2022	12	T	N	N	S	N	S	N	4	ST
Horn	2A	19-Jul-2022	13	D	S	N	N	S	S	N	4	IR
Horn	2A	19-Aug-2022	14	S	D	N	N	N	S	N	4	IR
Horn	2A	27-Sep-2022	15	S	D	N	T	N	T	N	4	IR
Horn	2A	26-Oct-2022	15	T	N	T	T	N	D	T	4	SI
Horn	2B	19-Jul-2022	14	T	N	N	T	N	D	N	5	IR
Horn	2B	19-Aug-2022	10	T	T	N	T	N	S	N	5	IR
Horn	2B	27-Sep-2022	12	T	T	N	D	N	S	N	5	IR
Horn	2B	26-Oct-2022	18	T	S	T	T	T	S	T	5	SI
Horn	2C	19-Jul-2022	13	D	T	N	T	N	D	N	4	IR
Horn	2C	19-Aug-2022	13	T	S	N	N	N	T	N	4	IR
Horn	2C	28-Sep-2022	12	D	S	N	T	N	T	N	4	ST
Horn	2C	26-Oct-2022	14	T	T	T	T	N	S	N	4	ST
Horn	3A	19-Jul-2022	21	N	T	T	N	N	D	N	4	SI
Horn	3A	18-Aug-2022	23	N	T	T	T	N	D	N	4	SI

Notes: D = Dominant S = Subdominant T = Trace, N = None
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 UN = Unconfined CO = Confined FC = Frequently Confined

Sampling Details												
Stream	Site	Sample Date (d/mmm/yy)	D95 (cm)	SWD	LWD	B	U	DP	OV	IV	Gradient (%)	Pattern
Horn	3A	27-Sep-2022	18	N	T	T	S	N	D	N	4	SI
Horn	3A	25-Oct-2022	13	T	T	T	T	N	S	N	4	SI
Horn	3B	19-Jul-2022	14	T	N	T	S	N	D	N	5	SI
Horn	3B	18-Aug-2022	12	T	N	N	T	N	D	N	5	SI
Horn	3B	27-Sep-2022	11	N	T	N	D	N	D	N	5	SI
Horn	3B	26-Oct-2022	11	T	T	T	S	N	S	N	5	SI
Horn	3C	19-Jul-2022	12	T	N	N	S	D	S	N	2	SI
Horn	3C	18-Aug-2022	11	T	N	T	D	D	D	N	2	SI
Horn	3C	27-Sep-2022	14	T	N	S	D	T	S	N	2	SI
Horn	3C	26-Oct-2022	18	T	N	T	S	T	S	T	2	SI
Horn	6A	20-Jul-2022	23	S	T	T	T	N	D	N	5	ME
Horn	6A	19-Aug-2022	10	S	T	T	N	N	S	T	5	ME
Horn	6A	27-Sep-2022	23	S	T	T	T	N	D	B	5	ME
Horn	6A	26-Oct-2022	19	N	T	T	D	N	D	N	5	ME
Horn	6B	20-Jul-2022	49	S	T	S	N	N	D	N	4	IR
Horn	6B	19-Aug-2022	49	T	N	D	N	N	D	S	4	IM
Horn	6B	27-Sep-2022	45	S	T	S	N	N	D	N	4	IR
Horn	6B	26-Oct-2022	35	T	N	S	S	T	S	T	4	IR

Notes: D = Dominant S = Subdominant T = Trace, N = None
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Sampling Details			Mesohabitat									
Stream	Site	Sample Date (d/mmm/yy)	Islands	Bars	Confinement	Crown Closure (%)	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)	Embeddness (%)	Channel Width (m)
Boa	4A	20-Jul-2022	N	BR	FC	65	100	0	0	0	only fines	5.42
Boa	4A	19-Aug-2022	N	SPAN	FC	75	100	0	0	0	0	7
Boa	4A	27-Sep-2022	N	BR	FC	65	100	0	0	0	0	5.4
Boa	4A	27-Oct-2022	N	BR	CO	75	100	0	0	0	0	4.3
Boa	4B	20-Jul-2022	N	BR	FC	75	100	0	0	0	only fines	6.22
Boa	4B	19-Aug-2022	S	SPAN	FC	55	100	0	0	0	0	6.25
Boa	4B	27-Sep-2022	N	BR	FC	60	100	0	0	0	0	6.22
Boa	4B	26-Oct-2022	N	SIDE	CO	70	100	0	0	0	only fines	3.75
Boa	5A	21-Jul-2022	N	SIDE	CO	65	50	20	15	15	35	3.39
Boa	5A	18-Aug-2022	N	SIDE	FC	70	25	60	13	2	5	3.66
Boa	5A	27-Sep-2022	N	SIDE	FC	70	40	20	20	10	8	1.6
Boa	5A	25-Oct-2022	N	SIDE	CO	65	55	25	15	5	35	3.33
Boa	5B	21-Jul-2022	N	SIDE	CO	25	35	45	20	0	25	2.92
Boa	5B	18-Aug-2022	N	SIDE	FC	30	20	50	30	0	2	2.55
Boa	5B	27-Sep-2022	N	N	CO	20	5	50	45	0	10	2.9
Boa	5B	25-Oct-2022	N	SIDE	CO	25	35	45	25	5	35	2.56
Boa	5C	21-Jul-2022	N	SIDE	CO	80	70	10	10	10	40	3.37
Boa	5C	18-Aug-2022	N	SIDE	FC	60	50	20	20	10	15	4.45
Boa	5C	27-Sep-2022	N	SIDE	FC	67	70	10	15	5	25	3.4
Boa	5C	25-Oct-2022	N	SIDE	CO	65	70	10	10	10	40	1.5
Boa	5D	21-Jul-2022	N	SPAN	CO	40	85	5	5	5	20	
Boa	5D	18-Aug-2022	N	SPAN	FC	15	80	5	5	5	5	3.83
Boa	5D	27-Sep-2022	N	SIDE	CO	20	90	0	2	8	na	3.55
Boa	5D	25-Oct-2022	N	SPAN	CO	45	85	10	5	0	20	3.2
Downes	D-02 pool	19-Jul-2022	N	N	CO	5	100	0	0	0	only fines	2.8

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Sampling Details			Mesohabitat									
Stream	Site	Sample Date (d/mmm/yy)	Islands	Bars	Confinement	Crown Closure (%)	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)	Embeddness (%)	Channel Width (m)
Downes	D-02 pool	19-Aug-2022	N	SIDE	FC	35	100	0	0	0	0	2.8
Downes	D-02 pool	26-Sep-2022	N	N	CO	5	100	0	0	0	NA	2.8
Downes	D-02 pool	31-Oct-2022	N	N	CO	5	100	0	0	0	0	6.8
Downes	D-02 riffle	19-Jul-2022	N	N	CO	70	95	5	0	0	0	2
Downes	D-02 riffle	16-Aug-2022	N	SIDE	CO	65	35	45	10	0	0	2.5
Downes	D-02 riffle	26-Sep-2022	N	SIDE	CO	65	60	30	10	0	5	2.7
Downes	D-02 riffle	31-Oct-2022	N	N	CO	70	85	15	0	0	25	2
Downes	D-03 pool	19-Jul-2022	N	N	CO	30	20	45	30	5	0	2.25
Downes	D-03 pool	16-Aug-2022	N	N	CO	35	20	40	35	5	0	1.9
Downes	D-03 pool	26-Sep-2022	N	SIDE	CO	30	60	15	10	5	10	2.15
Downes	D-03 pool	24-Oct-2022	N	N	CO	35	40	25	25	10	5	1.9
Downes	D-03 riffle	19-Jul-2022	N	N	CO	25	5	65	25	5	15	2.2
Downes	D-03 riffle	16-Aug-2022	N	N	CO	30	10	20	65	5	20	1.28
Downes	D-03 riffle	26-Sep-2022	N	SIDE	CO	20	15	60	15	5	10	1.1
Downes	D-03 riffle	24-Oct-2022	N	N	CO	40	30	30	30	10	5	2.35
Downes	D-04 pool	19-Jul-2022	O	SIDE	CO	75	45	35	20	0	10	3
Downes	D-04 pool	16-Aug-2022	O	SIDE	CO	75	50	30	20	0	15	3.6
Downes	D-04 pool	26-Sep-2022	O	SIDE	CO	65	70	15	15	0	5	2.55
Downes	D-04 pool	24-Oct-2022	O	SIDE	CO	75	45	35	20	0	10	3
Downes	D-04 riffle	19-Jul-2022	N	N	CO	65	20	50	20	10	15	2.35
Downes	D-04 riffle	16-Aug-2022	N	N	CO	60	10	15	55	20	35	1.43
Downes	D-04 riffle	26-Sep-2022	N	SIDE	CO	45	60	15	10	15	15	1.43
Downes	D-04 riffle	24-Oct-2022	N	N	CO	65	20	50	20	10	15	2.35
Fishtrap	F-01 pool	20-Jul-2022	N	N	CO	0	40	40	0	10	5	4.37

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Sampling Details			Mesohabitat									
Stream	Site	Sample Date (d/mmm/yy)	Islands	Bars	Confinement	Crown Closure (%)	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)	Embeddness (%)	Channel Width (m)
Fishtrap	F-01 pool	17-Aug-2022	N	N	CO	0	40	40	0	20	10	4.3
Fishtrap	F-01 pool	28-Sep-2022	N	N	CO	20	100	0	0	0	0	4.37
Fishtrap	F-01 pool	1-Nov-2022	N	N	CO	10	40	40	10	10	5	5.5
Fishtrap	F-01 riffle	20-Jul-2022	N	N	UN	30	5	32	32	32	20	8.3
Fishtrap	F-01 riffle	17-Aug-2022	N	N	EN	75		33.3	33.3	33.3	30	3
Fishtrap	F-01 riffle	28-Sep-2022	N	N	UN	65	50	5	25	20	15	3.9
Fishtrap	F-01 riffle	1-Nov-2022	N	N	UN	30	5	30	30	35	20	8.3
Fishtrap	F-02 pool	20-Jul-2022	N	N	CO	5	40	60	0	0	30	3.9
Fishtrap	F-02 pool	17-Aug-2022	N	N	CO	5	20	80	0	0	4	3.67
Fishtrap	F-02 pool	28-Sep-2022	N	N	FC	30	100	0	0	0	0	8
Fishtrap	F-02 pool	1-Nov-2022	N	N	CO	5	40	60	0	0	30	3.9
Fishtrap	F-02 riffle	20-Jul-2022	N	N	UN	30	100	0	0	0	0	13.1
Fishtrap	F-02 riffle	17-Aug-2022	N	N	UN	100	0	0	0	0	0	13.1
Fishtrap	F-02 riffle	28-Sep-2022	N	N	FC	15	100	0	0	0	0	14.2
Fishtrap	F-02 riffle	1-Nov-2022	N	N	UN	30	100	0	0	0	0	13.1
Fishtrap	F-03 pool	20-Jul-2022	N	N		0	pool dominated by fines				NA	18ft
Fishtrap	F-03 pool	17-Aug-2022	N	N	CO	0	Visible	NA	NA	NA	NA	5.48
Fishtrap	F-03 pool	28-Sep-2022	N	N	FC	0	45	45	0	10	0	43ft
Fishtrap	F-03 pool	1-Nov-2022	N	N	CO	0	N/A	N/A	N/A	N/A	N/A	5.48
Fishtrap	F-04 pool	20-Jul-2022	N	N	FC	55	80	20	0	0	0	9.95
Fishtrap	F-04 pool	17-Aug-2022	N	N	FC	50	80	20	0	0	0	9.1
Fishtrap	F-04 pool	28-Sep-2022	N	SIDE	FC	20	40	60	0	0	5	9.2

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Sampling Details			Mesohabitat									
Stream	Site	Sample Date (d/mmm/yy)	Islands	Bars	Confinement	Crown Closure (%)	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)	Embeddness (%)	Channel Width (m)
Fishtrap	F-04 pool	27-Oct-2022	N	N	FC	40	80	20	0	0	0	9.9
Fishtrap	F-04 riffle	21-Jul-2022	N	N	FC	0	50	50	0	0	20	13.75
Fishtrap	F-04 riffle	17-Aug-2022	N	N	FC	0	50	50	0	0	0	11.6
Fishtrap	F-04 riffle	28-Sep-2022	N	N	FC	0	40	60	0	0	5	13.75
Fishtrap	F-04 riffle	27-Oct-2022	N	N	FC	0	50	50	0	0	0	13.75
Horn	1A	20-Jul-2022	N	N	CO	65	50	25	25	0	20	5.5
Horn	1A	18-Aug-2022	N	N	CO	55	30	20	20	0	20	5.9
Horn	1A	29-Sep-2022	N	N	FC	70	33	33	33	0	20	5.3
Horn	1A	25-Oct-2022	N	N	CO	45	10	30	50	10	35	4
Horn	1B	20-Jul-2022	N	N	CO	40	40	40	20	0	20	6.31
Horn	1B	18-Aug-2022	N	N	CO	60	50	25	25	0	40	5.4
Horn	1B	29-Sep-2022	N	N	FC	75	40	30	30	0	0	5.9
Horn	1B	25-Oct-2022	N	N	CO	45	10	25	55	10	40	6.25
Horn	2A	19-Jul-2022	N	SIDE	FC	70	50	40	10	0	0	4.24
Horn	2A	19-Aug-2022	N	SIDE	FC	55	50	25	25	0	5	4.6
Horn	2A	27-Sep-2022	N	SIDE	FC	50	40	30	30	0	5	4.65
Horn	2A	26-Oct-2022	N	SPAN	FC	65	5	10	75	10	45	8.2
Horn	2B	19-Jul-2022	O	SIDE	FC	70	33	33	33	0	8	7.54
Horn	2B	19-Aug-2022	O	SIDE	FC	65	50	25	25	0	20	10.7
Horn	2B	27-Sep-2022	O	SIDE	FC	80	33	33	33	0	15	7.2
Horn	2B	26-Oct-2022	N	MID	FC	60	0	15	80	5	45	4.5
Horn	2C	19-Jul-2022	O	SIDE	FC	60	33	23	43	0	10	3.59
Horn	2C	19-Aug-2022	O	SIDE	FC	75	10	45	45	0	10	9.2
Horn	2C	28-Sep-2022	N	SIDE	FC	65	33	33	33	0	15	3.9
Horn	2C	26-Oct-2022	N	N	FC	70	0	10	80	10	45	3.1
Horn	3A	19-Jul-2022	N	SIDE	FC	50	33	33	33	0	10	5.1
Horn	3A	18-Aug-2022	N	N	FC	65	5	45	45	5	15	6.5

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Sampling Details			Mesohabitat									
Stream	Site	Sample Date (d/mmm/yy)	Islands	Bars	Confinement	Crown Closure (%)	Fines (%)	Gravel (%)	Cobble (%)	Boulder (%)	Embeddness (%)	Channel Width (m)
Horn	3A	27-Sep-2022	N	SIDE	FC	65	10	30	49	20	15	6.05
Horn	3A	25-Oct-2022	N	N	FC	40	10	40	40	10	35	5.5
Horn	3B	19-Jul-2022	N	SIDE	FC	50	33	33	33	0	10	5.77
Horn	3B	18-Aug-2022	N	SIDE	FC	40	10	40	40	0	5	6.73
Horn	3B	27-Sep-2022	N	SIDE	FC	45	5	30	65	0	7	5.2
Horn	3B	26-Oct-2022	N	SIDE	FC	40	0	40	50	10	60	5.55
Horn	3C	19-Jul-2022	N	SIDE	FC	30	60	30	10	0	20	4.73
Horn	3C	18-Aug-2022	N	SIDE	FC	50	85	5	5	5	20	5.2
Horn	3C	27-Sep-2022	N	SIDE	FC	20	70	15	5	10	10	5.65
Horn	3C	26-Oct-2022	N	SIDE	FC	30	60	30	10	0	20	4.5
Horn	6A	20-Jul-2022	N	SIDE	FC	40	30	30	30	10	3	7.8
Horn	6A	19-Aug-2022	N	SIDE	FC	30	33	33	33	0	30	7.8
Horn	6A	27-Sep-2022	N	SIDE	FC	40	30	30	30	10	3	7.8
Horn	6A	26-Oct-2022	N	SIDE	FC	45	20	30	45	5	35	5.3
Horn	6B	20-Jul-2022	N	SIDE	FC	40	25	25	25	25	35	9
Horn	6B	19-Aug-2022	N	SIDE	FC	20	10	30	30	30	10	9
Horn	6B	27-Sep-2022	N	SIDE	FC	40	25	25	25	25	35	9
Horn	6B	26-Oct-2022	N	SIDE	FC	35	5	10	60	25	70	4.7

Sampling Details						Comments
Stream	Site	Sample Date (d/mmm/yy)	Wetted Width (m)	Bankful Depth (m)	Residual Pool Depth	
Boa	4A	20-Jul-2022	1.33	0.74	no pool	
Boa	4A	19-Aug-2022	1.55	0.74	no pool	
Boa	4A	27-Sep-2022	0.9	1.8	na	
Boa	4A	27-Oct-2022	1.6	1.3	na	
Boa	4B	20-Jul-2022	1.71	0.65	0.11	
Boa	4B	19-Aug-2022	1.09	0.65	0.1	
Boa	4B	27-Sep-2022	1.35		na	Bankfull depth 2.35 invalid
Boa	4B	26-Oct-2022	1.5	0.65	0.11	
Boa	5A	21-Jul-2022	2.01	0.89	0.12	
Boa	5A	18-Aug-2022	1.7	0.91	0.27	
Boa	5A	27-Sep-2022	1.85	1.2	na	
Boa	5A	25-Oct-2022	2	1.85	no pool	observed shrew/black like creature seen swimming here
Boa	5B	21-Jul-2022	1.96	0.77	no pool	
Boa	5B	18-Aug-2022	1.85	0.78	0.26	
Boa	5B	27-Sep-2022	1.75	0.86	na	
Boa	5B	25-Oct-2022	1.6	0.76	no pool	
Boa	5C	21-Jul-2022	1.65	0.85	0.11	
Boa	5C	18-Aug-2022	1.32	0.86	no pool	
Boa	5C	27-Sep-2022	1.75	1.05	na	
Boa	5C	25-Oct-2022	1.8	0.78	no pool	deep over hang here approx 30 cm
Boa	5D	21-Jul-2022	1.95	0.94	0.29	
Boa	5D	18-Aug-2022	1.85	0.94	0.33	
Boa	5D	27-Sep-2022	1.85	1.2	na	
Boa	5D	25-Oct-2022	1.7	0.78	no pool	
Downes	D-02 pool	19-Jul-2022	2.8	0.38	0	app 10 juvenile salmonids.

Sampling Details						Comments
Stream	Site	Sample Date (d/mmm/yy)	Wetted Width (m)	Bankful Depth (m)	Residual Pool Depth	
Downes	D-02 pool	19-Aug-2022	2.8	0.39	0.21	app 10 juvenile salmonids.
Downes	D-02 pool	26-Sep-2022	2.8	0.4	0	app 10 juvenile salmonids.
Downes	D-02 pool	31-Oct-2022	6.8	0.38	0	many juvenile salmonids present; saw ~6, 10-15cm in length
Downes	D-02 riffle	19-Jul-2022	1.35	0.55	0.21	
Downes	D-02 riffle	16-Aug-2022	1.5	0.55	no pool	app 5 small fish (4-8 cm in length)
Downes	D-02 riffle	26-Sep-2022	1.5	0.48	no deep pool	spotted one little black fish about 4cm long; 20cm is max depth
Downes	D-02 riffle	31-Oct-2022	1.35	0.45	no pool	spotted two chum salmon swimming upstream towards D01
Downes	D-03 pool	19-Jul-2022	1.2	0.9	0.12	
Downes	D-03 pool	16-Aug-2022	0.96	0.95	0.1	
Downes	D-03 pool	26-Sep-2022	0.93	1.2	no deep pool	tree fell between the trail and the creek
Downes	D-03 pool	24-Oct-2022	1.09	1.3	no pool	tree fell between the trail and the creek
Downes	D-03 riffle	19-Jul-2022	1.02	1	no pool	
Downes	D-03 riffle	16-Aug-2022	0.79	1	no pool	
Downes	D-03 riffle	26-Sep-2022	1.02	1.49	no deep pool	
Downes	D-03 riffle	24-Oct-2022	0.77	0.93	no pool	
Downes	D-04 pool	19-Jul-2022	1.95	0.95	0.11	
Downes	D-04 pool	16-Aug-2022	2.11	0.95	no pool	
Downes	D-04 pool	26-Sep-2022	2.21	0.95	no deep pool	
Downes	D-04 pool	24-Oct-2022	1.95	0.95	0.11	
Downes	D-04 riffle	19-Jul-2022	1.05	0.74	0.095	
Downes	D-04 riffle	16-Aug-2022	1.05	0.74	no pool	
Downes	D-04 riffle	26-Sep-2022	1.05	0.68	0.09	
Downes	D-04 riffle	24-Oct-2022	1.05	0.74	0.095	
Fishtrap	F-01 pool	20-Jul-2022	3	1.86	0.49	fish obs in pool; re d95: a lot of the substrate was placed to reinforce this roadside ditch so large boulders are anthropogenic

Sampling Details						Comments
Stream	Site	Sample Date (d/mmm/yy)	Wetted Width (m)	Bankful Depth (m)	Residual Pool Depth	
Fishtrap	F-01 pool	17-Aug-2022	2.5	1.86	0.46	fish obs in pool; re d95: a lot of the substrate was placed to reinforce this roadside ditch so large boulders are anthropogenic
Fishtrap	F-01 pool	28-Sep-2022	3	1.86	0.47	lots of little fry in pool area
Fishtrap	F-01 pool	1-Nov-2022	4.37	1.87	0.41	
Fishtrap	F-01 riffle	20-Jul-2022	2.83	1.8	0.12	
Fishtrap	F-01 riffle	17-Aug-2022	2.05	1.8	no pool	Fish and tadpoles observed
Fishtrap	F-01 riffle	28-Sep-2022	2.8	1.8	0.11	Fish and tadpoles observed
Fishtrap	F-01 riffle	1-Nov-2022	4.6	1.8	0.12	
Fishtrap	F-02 pool	20-Jul-2022	2.8	0.62	0.26	
Fishtrap	F-02 pool	17-Aug-2022	2.25	0.6	no pool	
Fishtrap	F-02 pool	28-Sep-2022	2.4.	1.5	0.3	
Fishtrap	F-02 pool	1-Nov-2022	3.5	1.2	0.17	took measurements slightly upstream as pool was too deep and flow was extremely rapid--unsafe
Fishtrap	F-02 riffle	20-Jul-2022	10.36	2	NA	No hydraulic control bc entire creek is flooded
Fishtrap	F-02 riffle	17-Aug-2022	10.36	2	0.25	No hydraulic control bc entire creek is flooded
Fishtrap	F-02 riffle	28-Sep-2022	4.68	3.2	na	creek water levels dropped my over a meter in 1 month.
Fishtrap	F-02 riffle	1-Nov-2022	10.36	2	N/A	water levels have risen approx 1.5m since last month; well over 2m in depth--too high for waders
Fishtrap	F-03 pool	20-Jul-2022	12ft	1.5	Na	Too deep to enter watercourse
Fishtrap	F-03 pool	17-Aug-2022	3.65	1.5	no pool	Too deep to enter watercourse
Fishtrap	F-03 pool	28-Sep-2022	3.9	2.69	NA	
Fishtrap	F-03 pool	1-Nov-2022	3.66	>1.3	N/A	too deep to conduct measurements; bottom substrate obscured by turbid water
Fishtrap	F-04 pool	20-Jul-2022	7.6	1.7	0.85	
Fishtrap	F-04 pool	17-Aug-2022	6.3	1.7	0.82	
Fishtrap	F-04 pool	28-Sep-2022	4.9	1.7	0.34	

Sampling Details						Comments
Stream	Site	Sample Date (d/mmm/yy)	Wetted Width (m)	Bankful Depth (m)	Residual Pool Depth	
Fishtrap	F-04 pool	27-Oct-2022	7.5	1.7	0.65	
Fishtrap	F-04 riffle	21-Jul-2022	2.4	5.1	NA	bed of creek is obscured by grass unable to see all rocks
Fishtrap	F-04 riffle	17-Aug-2022	3.14	5.1	NA	bed of creek is obscured by grass unable to see all rocks
Fishtrap	F-04 riffle	28-Sep-2022	3.6	5.1	na	bed of creek is obscured by grass unable to see all rocks
Fishtrap	F-04 riffle	27-Oct-2022	3	5.1	0.2	bed of creek is obscured by grass unable to see all rocks
Horn	1A	20-Jul-2022	5.72	0.56	0.38	
Horn	1A	18-Aug-2022	3.9	0.56	0.54	
Horn	1A	29-Sep-2022	3.69	0.52		
Horn	1A	25-Oct-2022	3.5	0.51	N/A	
Horn	1B	20-Jul-2022	5.32	0.63	0.17	
Horn	1B	18-Aug-2022	4	0.65	0.14	
Horn	1B	29-Sep-2022	4.5	0.61	0.17	
Horn	1B	25-Oct-2022	3.3	0.62	N/A	
Horn	2A	19-Jul-2022	3.46	1.33	0.32	
Horn	2A	19-Aug-2022	3.4	1.3	0.3	
Horn	2A	27-Sep-2022	3.4	1.3	0.3	
Horn	2A	26-Oct-2022	2.3	0.78	0.32	
Horn	2B	19-Jul-2022	1.73	0.97	no pool	fish obs in undercut bank
Horn	2B	19-Aug-2022	1.67	0.85	no pool	fish obs in undercut bank
Horn	2B	27-Sep-2022	1.7	1.1	NA	fish obs in undercut bank
Horn	2B	26-Oct-2022	3.35	0.48		fish obs in undercut bank
Horn	2C	19-Jul-2022	3.31	0.6	no pool	
Horn	2C	19-Aug-2022	3.61	0.6	no pool	Ivy, knotweed and policemen helmet present
Horn	2C	28-Sep-2022	3.35	0.58	Na	Ivy, knotweed and policemen helmet percent
Horn	2C	26-Oct-2022	1.6	0.64	no deep pool	Ivy, knotweed and policemen helmet present
Horn	3A	19-Jul-2022	4.77	1.04	no pool	
Horn	3A	18-Aug-2022	4.5	1.04	no pool	

Sampling Details						Comments
Stream	Site	Sample Date (d/mmm/yy)	Wetted Width (m)	Bankful Depth (m)	Residual Pool Depth	
Horn	3A	27-Sep-2022	4.6	1.65	Na	
Horn	3A	25-Oct-2022	4.7	0.85	0.74	
Horn	3B	19-Jul-2022	1.65	1	no pool	
Horn	3B	18-Aug-2022	1.4	1	no pool	
Horn	3B	27-Sep-2022	1.35	1.35	Na	
Horn	3B	26-Oct-2022	1.05	1.02	0.17	
Horn	3C	19-Jul-2022	2.45	1.22	0.43	
Horn	3C	18-Aug-2022	1.9	1.22	41.5	observed at least 5 fish approx 10-12 cm in length
Horn	3C	27-Sep-2022	2.03	1.24	43	observed at least 5 fish approx 10-12 cm in length
Horn	3C	26-Oct-2022	1.8	1.57	0.55	observed at least 5 fish approx 10-12 cm in length
Horn	6A	20-Jul-2022	4.36	3.3	0.28	
Horn	6A	19-Aug-2022	2.25	3.28	no pool	
Horn	6A	27-Sep-2022	4.36	3.3	0.27	
Horn	6A	26-Oct-2022	1.9	0.55	no pool	
Horn	6B	20-Jul-2022	2.2	2.7	no pool	
Horn	6B	19-Aug-2022	1.9	2.5	no pool	
Horn	6B	27-Sep-2022	2.3	2.7	No Pool	
Horn	6B	26-Oct-2022	2	0.44	no pool	

APPENDIX I

Pressure (Level) and Temperature in Monitoring Wells

TW06-1

Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	48.1057	11.917
2022-05-02	48.1926	11.911
2022-05-03	48.2002	11.909
2022-05-04	47.1366	11.909
2022-05-05	48.2636	11.909
2022-05-06	48.2811	11.91
2022-05-07	48.3051	11.916
2022-05-08	48.3194	11.919
2022-05-09	48.3099	11.91
2022-05-10	48.3085	11.91
2022-05-11	48.3873	11.916
2022-05-12	47.3274	11.9
2022-05-13	48.1888	11.915
2022-05-14	48.1733	11.921
2022-05-15	48.1614	11.908
2022-05-16	48.2594	11.901
2022-05-17	47.2364	11.904
2022-05-18	46.7918	11.903
2022-05-19	48.1995	11.911
2022-05-20	46.9503	11.91
2022-05-21	47.5851	11.913
2022-05-22	46.6066	11.909
2022-05-23	47.7812	11.915
2022-05-24	48.1098	11.91
2022-05-25	46.6111	11.903
2022-05-26	46.5337	11.902
2022-05-27	47.0843	11.913
2022-05-28	43.5975	11.902
2022-05-29	44.2441	11.908
2022-05-30	44.2100	11.918
2022-05-31	47.3594	11.934
2022-06-01	47.7717	11.917
2022-06-02	46.3664	11.908
2022-06-03	46.7969	11.909
2022-06-04	47.9095	11.911
2022-06-05	47.7128	11.912
2022-06-06	47.9215	11.914
2022-06-07	47.7639	11.9
2022-06-08	47.7200	11.906
2022-06-09	46.4021	11.895
2022-06-10	47.6452	11.912
2022-06-11	47.4805	11.914
2022-06-12	47.0546	11.91
2022-06-13	46.2185	11.905
2022-06-14	46.6930	11.9

TW06-1

Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	43.4587	11.892
2022-06-16	47.4447	11.908
2022-06-17	47.5240	11.908
2022-06-18	47.6203	11.901
2022-06-19	47.5439	11.905
2022-06-20	47.2942	11.934
2022-06-21	46.5681	11.901
2022-06-22	47.0781	11.905
2022-06-23	47.0320	11.904
2022-06-24	47.0300	11.906
2022-06-25	46.9207	11.907
2022-06-26	43.4127	11.898
2022-06-27	43.5238	11.901
2022-06-28	44.4849	11.904
2022-06-29	46.5496	11.909
2022-06-30	46.6266	11.911
2022-07-01	46.3135	11.915
2022-07-02	45.4193	11.909
2022-07-03	46.3126	11.916
2022-07-04	46.6492	11.917
2022-07-05	46.6301	11.904
2022-07-06	45.7498	11.903
2022-07-07	45.6942	11.91
2022-07-08	45.1880	11.895
2022-07-09	45.3546	11.914
2022-07-10	45.1378	11.906
2022-07-11	44.2508	11.903
2022-07-12	43.5003	11.894
2022-07-13	43.8403	11.9
2022-07-14	44.1751	11.91
2022-07-15	43.7177	11.893
2022-07-16	46.0083	11.915
2022-07-17	46.1993	11.912
2022-07-18	46.1677	11.905
2022-07-19	46.2056	11.908
2022-07-20	43.1871	11.89
2022-07-21	42.3109	11.891
2022-07-22	42.8155	11.899
2022-07-23	43.7245	11.895
2022-07-24	43.6222	11.901
2022-07-25	42.9640	11.903
2022-07-26	42.5172	11.907
2022-07-27	42.4178	11.903
2022-07-28	41.7439	11.897
2022-07-29	41.6023	11.906

TW06-1

Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	41.5912	11.899
2022-07-31	41.4735	11.918
2022-08-01	42.6159	11.921
2022-08-02	41.8257	11.909
2022-08-03	41.8624	11.91
2022-08-04	41.9153	11.911
2022-08-05	45.2340	11.918
2022-08-06	42.9808	11.907
2022-08-07	43.3148	11.916
2022-08-08	41.6450	11.895
2022-08-09	42.9637	11.903
2022-08-10	44.3142	11.919
2022-08-11	44.9918	11.912
2022-08-12	43.1253	11.901
2022-08-13	43.2370	11.913
2022-08-14	42.8560	11.904
2022-08-15	42.6327	11.908
2022-08-16	42.5170	11.911
2022-08-17	42.8352	11.905
2022-08-18	41.1348	11.914
2022-08-19	41.2070	11.904
2022-08-20	42.4012	11.914
2022-08-21	42.3214	11.91
2022-08-22	42.7080	11.907
2022-08-23	41.2204	11.9
2022-08-24	41.1105	11.9
2022-08-25	40.9011	11.912
2022-08-26	40.7624	11.92
2022-08-27	41.9409	11.924
2022-08-28	44.0255	11.936
2022-08-29	40.8648	11.904
2022-08-30	40.8008	11.914
2022-08-31	40.7081	11.91
2022-09-01	40.6055	11.913
2022-09-02	41.8529	11.938
2022-09-03	41.9448	11.92
2022-09-04	44.1205	11.931
2022-09-05	44.1608	11.906
2022-09-06	42.4634	11.902
2022-09-07	42.5435	11.91
2022-09-08	41.8014	11.917
2022-09-09	41.9087	11.912
2022-09-10	42.3617	11.903
2022-09-11	40.7120	11.901
2022-09-12	41.8682	11.907

TW06-1

Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	42.2944	11.903
2022-09-14	40.8287	11.89
2022-09-15	41.8006	11.908
2022-09-16	42.2627	11.905
2022-09-17	44.5213	11.906
2022-09-18	42.5580	11.901
2022-09-19	41.9475	11.902
2022-09-20	41.3279	11.899
2022-09-21	41.1329	11.9
2022-09-22	41.4852	11.903
2022-09-23	41.8939	11.906
2022-09-24	42.0473	11.904
2022-09-25	43.9728	11.924
2022-09-26	44.1067	11.919
2022-09-27	41.5722	11.899
2022-09-28	41.6824	11.904
2022-09-29	41.6027	11.907
2022-09-30	42.0963	11.899
2022-10-01	41.6105	11.908
2022-10-02	42.0251	11.905
2022-10-03	41.9335	11.906
2022-10-04	41.5459	11.909
2022-10-05	40.8921	11.9
2022-10-06	40.7460	11.914
2022-10-07	41.9117	11.907
2022-10-08	41.4245	11.903
2022-10-09	41.3620	11.915
2022-10-10	41.7761	11.905
2022-10-11	40.6574	11.911
2022-10-12	40.6299	11.904
2022-10-13	40.5644	11.914
2022-10-14	41.0998	11.901
2022-10-15	43.2126	11.912
2022-10-16	41.3339	11.9
2022-10-17	43.3110	11.913
2022-10-18	40.7432	11.899
2022-10-19	43.2223	11.912
2022-10-20	43.3319	11.91
2022-10-21	43.3545	11.915
2022-10-22	43.4241	11.904
2022-10-23	43.4485	11.907
2022-10-24	43.4737	11.905
2022-10-25	43.5067	11.906
2022-10-26	43.5707	11.904
2022-10-27	43.5899	11.909

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	43.5489	11.904
2022-10-29	43.4226	11.908
2022-10-30	43.5518	11.908
2022-10-31	41.5089	11.902
2022-11-01	43.6572	11.901
2022-11-02	43.7173	11.905
2022-11-03	43.6262	11.912
2022-11-04	43.6608	11.908
2022-11-05	44.0789	11.905
2022-11-06	43.6747	11.906
2022-11-07	43.7456	11.904
2022-11-08	43.7243	11.906
2022-11-09	43.7610	11.904
2022-11-10	43.5899	11.91
2022-11-11	43.5853	11.907
2022-11-12	44.0057	11.913
2022-11-13	43.6563	11.912
2022-11-14	43.7145	11.916
2022-11-15	43.6765	11.909
2022-11-16	43.6856	11.917
2022-11-17	43.7103	11.904
2022-11-18	43.7782	11.908
2022-11-19	43.8155	11.915
2022-11-20	43.8603	11.919
2022-11-21	43.8206	11.91
2022-11-22	43.7938	11.91
2022-11-23	43.8342	11.907
2022-11-24	43.7655	11.916
2022-11-25	43.7832	11.9
2022-11-26	43.8515	11.911
2022-11-27	43.8486	11.913
2022-11-28	43.6199	11.911
2022-11-29	43.6481	11.907
2022-11-30	43.7554	11.913
2022-12-01	43.6994	11.912
2022-12-02	43.8180	11.916
2022-12-03	43.7663	11.913
2022-12-04	43.7791	11.919
2022-12-05	43.7243	11.916
2022-12-06	43.7163	11.907
2022-12-07	43.7571	11.911
2022-12-08	43.6906	11.913
2022-12-09	43.7965	11.914
2022-12-10	43.6994	11.913
2022-12-11	43.7361	11.924

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	43.6728	11.916
2022-12-13	43.6857	11.919
2022-12-14	43.7159	11.915
2022-12-15	43.6588	11.92
2022-12-16	43.6446	11.925
2022-12-17	43.5249	11.917
2022-12-18	42.7095	11.91
2022-12-19	42.6552	11.916
2022-12-20	40.6834	11.917
2022-12-21	40.6756	11.906
2022-12-22	41.7055	11.907
2022-12-23	42.3500	11.921
2022-12-24	41.1941	11.919
2022-12-25	40.5636	11.922
2022-12-26	40.4775	11.916
2022-12-27	40.4351	11.923
2022-12-28	40.4041	11.921
2022-12-29	40.3473	11.924
2022-12-30	40.4094	11.929
2022-12-31	40.5112	11.921
2023-01-01	40.5959	11.922
2023-01-02	40.7257	11.913
2023-01-03	40.6557	11.922
2023-01-04	43.4137	11.937
2023-01-05	43.4135	11.918
2023-01-06	40.8897	11.908
2023-01-07	42.4649	11.925
2023-01-08	42.4165	11.936
2023-01-09	42.3402	11.933
2023-01-10	43.0215	11.928
2023-01-11	43.5898	11.936
2023-01-12	42.6473	11.929
2023-01-13	41.1050	11.913
2023-01-14	43.0339	11.933
2023-01-15	43.5219	11.941
2023-01-16	43.6747	11.92
2023-01-17	43.7976	11.92
2023-01-18	41.2081	11.911
2023-01-19	41.1170	11.912
2023-01-20	41.0395	11.921
2023-01-21	41.0171	11.916
2023-01-22	42.1878	11.932
2023-01-23	41.0181	11.918
2023-01-24	41.3965	11.936
2023-01-25	41.5434	11.929

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	40.9661	11.924
2023-01-27	40.9832	11.926
2023-01-28	41.0512	11.921
2023-01-29	41.0370	11.919
2023-01-30	41.0215	11.927
2023-01-31	41.0147	11.925
2023-02-01	41.0191	11.926
2023-02-02	41.0182	11.917
2023-02-03	41.4612	11.922
2023-02-04	41.4323	11.928
2023-02-05	41.0578	11.924
2023-02-06	41.0625	11.919
2023-02-07	41.0507	11.922
2023-02-08	41.1053	11.919
2023-02-09	41.0343	11.931
2023-02-10	42.1144	11.932
2023-02-11	42.7409	11.933
2023-02-12	42.3740	11.934
2023-02-13	42.8581	11.923
2023-02-14	41.8239	11.925
2023-02-15	41.7885	11.918
2023-02-16	41.8145	11.927
2023-02-17	42.2526	11.925
2023-02-18	42.8829	11.932
2023-02-19	42.5558	11.927
2023-02-20	42.3163	11.92
2023-02-21	41.8848	11.914
2023-02-22	41.9003	11.922
2023-02-23	42.3135	11.928
2023-02-24	41.1751	11.927
2023-02-25	41.1431	11.922
2023-02-26	41.9047	11.927
2023-02-27	41.1060	11.926
2023-02-28	40.9948	11.926
2023-03-01	40.9391	11.923
2023-03-02	40.9021	11.939
2023-03-03	40.8770	11.928
2023-03-04	40.8585	11.938
2023-03-05	40.8652	11.928
2023-03-06	40.8669	11.924
2023-03-07	40.7772	11.933
2023-03-08	40.7245	11.937
2023-03-09	40.6919	11.934
2023-03-10	40.6962	11.94
2023-03-11	40.6751	11.942

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	40.7360	11.93
2023-03-13	40.7783	11.929
2023-03-14	40.7746	11.934
2023-03-15	40.7678	11.936
2023-03-16	40.7432	11.933
2023-03-17	40.7280	11.937
2023-03-18	40.7341	11.931
2023-03-19	40.8105	11.934
2023-03-20	40.8386	11.932
2023-03-21	40.8128	11.936
2023-03-22	40.8051	11.935
2023-03-23	40.7727	11.942
2023-03-24	40.7573	11.944
2023-03-25	40.7492	11.932
2023-03-26	41.2268	11.933
2023-03-27	41.7636	11.943
2023-03-28	41.8509	11.939
2023-03-29	40.7754	11.934
2023-03-30	40.7170	11.945
2023-03-31	40.6835	11.941
2023-04-01	40.8909	11.94
2023-04-02	40.9319	11.937
2023-04-03	40.9087	11.949
2023-04-04	40.8615	11.946
2023-04-05	40.8269	11.938
2023-04-06	40.8434	11.94
2023-04-07	40.8778	11.936
2023-04-08	40.8969	11.933
2023-04-09	41.4315	11.941
2023-04-10	40.9333	11.935
2023-04-11	40.7944	11.943
2023-04-12	40.8171	11.95
2023-04-13	40.7850	11.944
2023-04-14	40.7692	11.945
2023-04-15	40.7706	11.943
2023-04-16	40.8211	11.942
2023-04-17	40.8282	11.946
2023-04-18	40.8106	11.944
2023-04-19	43.2979	11.943
2023-04-20	40.2459	11.942
2023-04-21	42.6739	11.949
2023-04-22	43.4598	11.946
2023-04-23	43.7110	11.941
2023-04-24	43.6823	11.94
2023-04-25	43.7173	11.936

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	43.7663	11.94
2023-04-27	41.1223	11.929
2023-04-28	40.9910	11.944
2023-04-29	40.9999	11.936
2023-04-30	41.2134	11.939

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	50.997	11.049
2022-05-02	50.991	11.054
2022-05-03	50.961	11.049
2022-05-04	50.930	11.054
2022-05-05	50.916	11.036
2022-05-06	50.913	11.04
2022-05-07	50.916	11.033
2022-05-08	50.900	11.02
2022-05-09	50.889	11.026
2022-05-10	50.870	11.009
2022-05-11	50.851	11.007
2022-05-12	50.840	11.001
2022-05-13	50.826	11.004
2022-05-14	50.820	10.999
2022-05-15	50.805	10.987
2022-05-16	50.816	10.988
2022-05-17	50.800	10.988
2022-05-18	50.797	10.979
2022-05-19	50.785	10.966
2022-05-20	50.766	10.967
2022-05-21	50.757	10.967
2022-05-22	50.744	10.952
2022-05-23	50.735	10.954
2022-05-24	50.726	10.946
2022-05-25	50.715	10.942
2022-05-26	50.701	10.942
2022-05-27	50.692	10.95
2022-05-28	50.678	10.935
2022-05-29	50.665	10.933
2022-05-30	50.640	10.905
2022-05-31	50.620	10.914
2022-06-01	50.625	10.919
2022-06-02	50.612	10.914
2022-06-03	50.609	10.924
2022-06-04	50.605	10.892
2022-06-05	50.605	10.905
2022-06-06	50.593	10.9
2022-06-07	50.586	10.905
2022-06-08	50.569	10.901
2022-06-09	50.546	10.897
2022-06-10	50.539	10.891
2022-06-11	50.542	10.905
2022-06-12	50.535	10.893
2022-06-13	50.538	10.873
2022-06-14	50.533	10.877

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	50.532	10.879
2022-06-16	50.523	10.879
2022-06-17	50.519	10.876
2022-06-18	50.503	10.873
2022-06-19	50.477	10.87
2022-06-20	50.457	10.878
2022-06-21	50.449	10.867
2022-06-22	50.453	10.874
2022-06-23	50.451	10.87
2022-06-24	50.437	10.87
2022-06-25	50.427	10.858
2022-06-26	50.414	10.857
2022-06-27	50.403	10.856
2022-06-28	50.381	10.884
2022-06-29	50.359	10.86
2022-06-30	50.341	10.847
2022-07-01	50.322	10.856
2022-07-02	50.299	10.858
2022-07-03	50.282	10.876
2022-07-04	50.266	10.855
2022-07-05	50.248	10.855
2022-07-06	50.232	10.851
2022-07-07	50.214	10.853
2022-07-08	50.193	10.85
2022-07-09	50.174	10.853
2022-07-10	50.151	10.848
2022-07-11	50.132	10.841
2022-07-12	50.115	10.856
2022-07-13	50.083	10.859
2022-07-14	50.047	10.852
2022-07-15	50.016	10.852
2022-07-16	49.982	10.849
2022-07-17	49.964	10.866
2022-07-18	49.951	10.854
2022-07-19	49.936	10.852
2022-07-20	49.922	10.864
2022-07-21	49.907	10.859
2022-07-22	49.882	10.867
2022-07-23	49.858	10.87
2022-07-24	49.837	10.864
2022-07-25	49.816	10.878
2022-07-26	49.790	10.87
2022-07-27	49.748	10.881
2022-07-28	49.710	10.874
2022-07-29	49.671	10.882

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	49.634	10.875
2022-07-31	49.600	10.882
2022-08-01	49.564	10.869
2022-08-02	49.527	10.875
2022-08-03	49.498	10.894
2022-08-04	49.468	10.896
2022-08-05	49.437	10.9
2022-08-06	49.413	10.896
2022-08-07	49.385	10.891
2022-08-08	49.356	10.897
2022-08-09	49.329	10.903
2022-08-10	49.298	10.905
2022-08-11	49.268	10.907
2022-08-12	49.244	10.905
2022-08-13	49.218	10.915
2022-08-14	49.190	10.904
2022-08-15	49.167	10.909
2022-08-16	49.144	10.914
2022-08-17	49.116	10.922
2022-08-18	49.093	10.913
2022-08-19	49.071	10.915
2022-08-20	49.050	10.92
2022-08-21	49.023	10.927
2022-08-22	49.002	10.925
2022-08-23	48.981	10.932
2022-08-24	48.960	10.933
2022-08-25	48.941	10.925
2022-08-26	48.918	10.929
2022-08-27	48.894	10.935
2022-08-28	48.874	10.942
2022-08-29	48.858	10.935
2022-08-30	48.835	10.94
2022-08-31	48.809	10.946
2022-09-01	48.789	10.939
2022-09-02	48.769	10.95
2022-09-03	48.750	10.954
2022-09-04	48.727	10.951
2022-09-05	48.713	10.948
2022-09-06	48.699	10.959
2022-09-07	48.679	10.952
2022-09-08	48.656	10.954
2022-09-09	48.640	10.962
2022-09-10	48.621	10.96
2022-09-11	48.606	10.956
2022-09-12	48.587	10.959

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	48.567	10.964
2022-09-14	48.549	10.966
2022-09-15	48.531	10.969
2022-09-16	48.512	10.965
2022-09-17	48.499	10.962
2022-09-18	48.486	10.969
2022-09-19	48.468	10.964
2022-09-20	48.449	10.967
2022-09-21	48.428	10.968
2022-09-22	48.404	10.977
2022-09-23	48.388	10.973
2022-09-24	48.372	10.973
2022-09-25	48.361	10.972
2022-09-26	48.353	10.975
2022-09-27	48.341	10.976
2022-09-28	48.325	10.976
2022-09-29	48.313	10.98
2022-09-30	48.294	10.977
2022-10-01	48.273	10.982
2022-10-02	48.255	10.98
2022-10-03	48.235	10.98
2022-10-04	48.216	10.983
2022-10-05	48.196	10.984
2022-10-06	48.179	10.985
2022-10-07	48.162	10.984
2022-10-08	48.143	10.985
2022-10-09	48.122	10.985
2022-10-10	48.102	10.985
2022-10-11	48.082	10.988
2022-10-12	48.065	10.987
2022-10-13	48.048	10.987
2022-10-14	48.030	10.988
2022-10-15	48.014	10.987
2022-10-16	47.997	10.988
2022-10-17	47.981	10.988
2022-10-18	47.965	10.988
2022-10-19	47.947	10.989
2022-10-20	47.934	10.989
2022-10-21	47.923	10.99
2022-10-22	47.910	10.99
2022-10-23	47.896	10.991
2022-10-24	47.887	10.992
2022-10-25	47.880	10.993
2022-10-26	47.875	10.994
2022-10-27	47.869	10.994

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	47.864	10.996
2022-10-29	47.881	10.997
2022-10-30	47.877	10.997
2022-10-31	47.914	10.998
2022-11-01	47.952	10.998
2022-11-02	47.972	11
2022-11-03	47.983	11.001
2022-11-04	47.995	11.002
2022-11-05	48.038	11.003
2022-11-06	48.075	11.004
2022-11-07	48.113	11.004
2022-11-08	48.148	11.005
2022-11-09	48.184	11.006
2022-11-10	48.203	11.007
2022-11-11	48.212	11.009
2022-11-12	48.220	11.01
2022-11-13	48.225	11.012
2022-11-14	48.230	11.013
2022-11-15	48.229	11.014
2022-11-16	48.227	11.015
2022-11-17	48.223	11.016
2022-11-18	48.215	11.017
2022-11-19	48.214	11.018
2022-11-20	48.207	11.018
2022-11-21	48.203	11.019
2022-11-22	48.196	11.018
2022-11-23	48.212	11.02
2022-11-24	48.231	11.019
2022-11-25	48.242	11.019
2022-11-26	48.257	11.019
2022-11-27	48.273	11.02
2022-11-28	48.284	11.021
2022-11-29	48.291	11.021
2022-11-30	48.307	11.028
2022-12-01	48.315	11.041
2022-12-02	48.316	11.057
2022-12-03	48.316	11.07
2022-12-04	48.317	11.071
2022-12-05	48.320	11.069
2022-12-06	48.322	11.065
2022-12-07	48.323	11.063
2022-12-08	48.329	11.062
2022-12-09	48.331	11.059
2022-12-10	48.337	11.059
2022-12-11	48.344	11.058

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	48.352	11.056
2022-12-13	48.362	11.056
2022-12-14	48.368	11.056
2022-12-15	48.375	11.054
2022-12-16	48.383	11.055
2022-12-17	48.396	11.063
2022-12-18	48.409	11.077
2022-12-19	48.415	11.069
2022-12-20	48.420	11.048
2022-12-21	48.423	11.073
2022-12-22	48.422	11.078
2022-12-23	48.433	11.077
2022-12-24	48.436	11.076
2022-12-25	48.447	11.073
2022-12-26	48.474	11.072
2022-12-27	48.541	11.069
2022-12-28	48.647	11.068
2022-12-29	48.812	11.066
2022-12-30	48.994	11.063
2022-12-31	49.099	11.06
2023-01-01	49.171	11.061
2023-01-02	49.229	11.061
2023-01-03	49.290	11.06
2023-01-04	49.333	11.061
2023-01-05	49.370	11.059
2023-01-06	49.394	11.058
2023-01-07	49.410	11.058
2023-01-08	49.426	11.057
2023-01-09	49.432	11.056
2023-01-10	49.437	11.055
2023-01-11	49.439	11.056
2023-01-12	49.432	11.054
2023-01-13	49.435	11.052
2023-01-14	49.448	11.052
2023-01-15	49.465	11.05
2023-01-16	49.467	11.049
2023-01-17	49.478	11.048
2023-01-18	49.500	11.046
2023-01-19	49.534	11.046
2023-01-20	49.379	11.055
2023-01-21	49.598	11.064
2023-01-22	49.618	11.062
2023-01-23	49.638	11.058
2023-01-24	49.653	11.055
2023-01-25	49.663	11.051

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	49.673	11.049
2023-01-27	49.691	11.047
2023-01-28	49.698	11.046
2023-01-29	49.694	11.044
2023-01-30	49.698	11.043
2023-01-31	49.703	11.042
2023-02-01	49.704	11.042
2023-02-02	49.699	11.041
2023-02-03	49.700	11.04
2023-02-04	49.690	11.04
2023-02-05	49.693	11.039
2023-02-06	49.669	11.039
2023-02-07	49.664	11.038
2023-02-08	49.662	11.037
2023-02-09	49.647	11.036
2023-02-10	49.644	11.035
2023-02-11	49.623	11.03
2023-02-12	49.615	11.027
2023-02-13	49.620	11.023
2023-02-14	49.609	11.021
2023-02-15	49.594	11.019
2023-02-16	49.589	11.017
2023-02-17	49.583	11.017
2023-02-18	49.583	11.017
2023-02-19	49.581	11.018
2023-02-20	49.587	11.017
2023-02-21	49.607	11.017
2023-02-22	49.600	11.018
2023-02-23	49.589	11.02
2023-02-24	49.572	11.021
2023-02-25	49.569	11.021
2023-02-26	49.587	11.024
2023-02-27	49.570	11.025
2023-02-28	49.577	11.025
2023-03-01	49.558	11.028
2023-03-02	49.556	11.029
2023-03-03	49.547	11.027
2023-03-04	49.552	11.03
2023-03-05	49.543	11.034
2023-03-06	49.531	11.036
2023-03-07	49.523	11.033
2023-03-08	49.516	11.028
2023-03-09	49.506	11.036
2023-03-10	49.509	11.038
2023-03-11	49.489	11.036

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	49.478	11.039
2023-03-13	49.476	11.041
2023-03-14	49.479	11.041
2023-03-15	49.477	11.038
2023-03-16	49.462	11.039
2023-03-17	49.458	11.039
2023-03-18	49.450	11.043
2023-03-19	49.445	11.033
2023-03-20	49.443	11.031
2023-03-21	49.432	11.034
2023-03-22	49.425	11.04
2023-03-23	49.416	11.037
2023-03-24	49.405	11.042
2023-03-25	49.393	11.035
2023-03-26	49.388	11.034
2023-03-27	49.380	11.037
2023-03-28	49.376	11.031
2023-03-29	49.368	11.041
2023-03-30	49.359	11.029
2023-03-31	49.348	11.031
2023-04-01	49.337	11.032
2023-04-02	49.325	11.027
2023-04-03	49.314	11.026
2023-04-04	49.304	11.029
2023-04-05	49.291	11.03
2023-04-06	49.281	11.029
2023-04-07	49.274	11.021
2023-04-08	49.268	11.025
2023-04-09	49.260	11.022
2023-04-10	49.253	11.018
2023-04-11	49.254	11.016
2023-04-12	49.244	11.017
2023-04-13	49.238	11.003
2023-04-14	49.231	11.002
2023-04-15	49.223	11.001
2023-04-16	49.218	11.002
2023-04-17	49.215	10.992
2023-04-18	49.222	11.005
2023-04-19	49.210	10.988
2023-04-20	49.201	10.997
2023-04-21	49.197	10.98
2023-04-22	49.194	10.988
2023-04-23	49.203	10.979
2023-04-24	49.209	10.976
2023-04-25	49.220	10.974

DND

Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	49.227	10.971
2023-04-27	49.233	10.969
2023-04-28	49.244	10.973
2023-04-29	49.250	10.959
2023-04-30	49.255	10.953

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	56.524	12.368
2022-05-02	56.513	12.366
2022-05-03	56.493	12.363
2022-05-04	56.484	12.36
2022-05-05	56.479	12.357
2022-05-06	56.474	12.355
2022-05-07	56.463	12.353
2022-05-08	56.453	12.349
2022-05-09	56.439	12.347
2022-05-10	56.424	12.344
2022-05-11	56.413	12.341
2022-05-12	56.404	12.339
2022-05-13	56.393	12.336
2022-05-14	56.386	12.333
2022-05-15	56.381	12.331
2022-05-16	56.377	12.328
2022-05-17	56.368	12.326
2022-05-18	56.368	12.323
2022-05-19	56.357	12.32
2022-05-20	56.351	12.318
2022-05-21	56.344	12.316
2022-05-22	56.337	12.313
2022-05-23	56.330	12.31
2022-05-24	56.324	12.308
2022-05-25	56.317	12.305
2022-05-26	56.310	12.303
2022-05-27	56.308	12.3
2022-05-28	56.306	12.298
2022-05-29	56.297	12.295
2022-05-30	56.287	12.293
2022-05-31	56.279	12.29
2022-06-01	56.274	12.288
2022-06-02	56.268	12.286
2022-06-03	56.262	12.283
2022-06-04	56.259	12.281
2022-06-05	56.253	12.278
2022-06-06	56.247	12.276
2022-06-07	56.251	12.274
2022-06-08	56.243	12.271
2022-06-09	56.239	12.269
2022-06-10	56.241	12.266
2022-06-11	56.240	12.264
2022-06-12	56.240	12.262
2022-06-13	56.232	12.26
2022-06-14	56.226	12.257

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	56.225	12.255
2022-06-16	56.221	12.253
2022-06-17	56.218	12.25
2022-06-18	56.211	12.248
2022-06-19	56.203	12.246
2022-06-20	56.196	12.243
2022-06-21	56.190	12.241
2022-06-22	56.186	12.239
2022-06-23	56.179	12.237
2022-06-24	56.170	12.235
2022-06-25	56.163	12.233
2022-06-26	56.154	12.231
2022-06-27	56.146	12.229
2022-06-28	56.134	12.227
2022-06-29	56.122	12.225
2022-06-30	56.113	12.223
2022-07-01	56.103	12.22
2022-07-02	56.093	12.219
2022-07-03	56.082	12.217
2022-07-04	56.071	12.215
2022-07-05	56.061	12.214
2022-07-06	56.049	12.211
2022-07-07	56.037	12.21
2022-07-08	56.024	12.208
2022-07-09	56.011	12.206
2022-07-10	55.998	12.205
2022-07-11	55.987	12.203
2022-07-12	55.976	12.201
2022-07-13	55.962	12.199
2022-07-14	55.949	12.198
2022-07-15	55.936	12.197
2022-07-16	55.923	12.195
2022-07-17	55.911	12.194
2022-07-18	55.898	12.193
2022-07-19	55.886	12.191
2022-07-20	55.873	12.19
2022-07-21	55.860	12.189
2022-07-22	55.846	12.188
2022-07-23	55.833	12.186
2022-07-24	55.819	12.186
2022-07-25	55.807	12.184
2022-07-26	55.793	12.183
2022-07-27	55.779	12.182
2022-07-28	55.765	12.181
2022-07-29	55.752	12.18

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	55.738	12.179
2022-07-31	55.724	12.178
2022-08-01	55.710	12.177
2022-08-02	55.696	12.176
2022-08-03	55.683	12.176
2022-08-04	55.669	12.175
2022-08-05	55.656	12.173
2022-08-06	55.643	12.173
2022-08-07	55.630	12.172
2022-08-08	55.617	12.171
2022-08-09	55.602	12.17
2022-08-10	55.588	12.17
2022-08-11	55.574	12.169
2022-08-12	55.561	12.169
2022-08-13	55.547	12.168
2022-08-14	55.534	12.167
2022-08-15	55.521	12.167
2022-08-16	55.506	12.167
2022-08-17	55.493	12.166
2022-08-18	55.479	12.165
2022-08-19	55.465	12.165
2022-08-20	55.451	12.165
2022-08-21	55.436	12.165
2022-08-22	55.422	12.164
2022-08-23	55.409	12.164
2022-08-24	55.395	12.164
2022-08-25	55.382	12.163
2022-08-26	55.368	12.163
2022-08-27	55.353	12.163
2022-08-28	55.339	12.163
2022-08-29	55.325	12.163
2022-08-30	55.312	12.162
2022-08-31	55.298	12.162
2022-09-01	55.284	12.162
2022-09-02	55.271	12.162
2022-09-03	55.256	12.162
2022-09-04	55.243	12.162
2022-09-05	55.230	12.162
2022-09-06	55.218	12.162
2022-09-07	55.207	12.162
2022-09-08	55.195	12.162
2022-09-09	55.184	12.162
2022-09-10	55.172	12.163
2022-09-11	55.160	12.163
2022-09-12	55.147	12.163

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	55.135	12.163
2022-09-14	55.123	12.164
2022-09-15	55.110	12.164
2022-09-16	55.097	12.164
2022-09-17	55.085	12.164
2022-09-18	55.073	12.165
2022-09-19	55.062	12.165
2022-09-20	55.050	12.166
2022-09-21	55.040	12.166
2022-09-22	55.029	12.166
2022-09-23	55.016	12.167
2022-09-24	55.004	12.167
2022-09-25	54.992	12.168
2022-09-26	54.980	12.168
2022-09-27	54.969	12.169
2022-09-28	54.957	12.169
2022-09-29	54.945	12.171
2022-09-30	54.933	12.171
2022-10-01	54.922	12.172
2022-10-02	54.910	12.173
2022-10-03	54.899	12.173
2022-10-04	54.887	12.174
2022-10-05	54.876	12.175
2022-10-06	54.864	12.176
2022-10-07	54.853	12.177
2022-10-08	54.841	12.178
2022-10-09	54.830	12.179
2022-10-10	54.819	12.18
2022-10-11	54.807	12.181
2022-10-12	54.796	12.182
2022-10-13	54.785	12.183
2022-10-14	54.773	12.185
2022-10-15	54.762	12.186
2022-10-16	54.751	12.187
2022-10-17	54.740	12.189
2022-10-18	54.729	12.189
2022-10-19	54.718	12.192
2022-10-20	54.708	12.193
2022-10-21	54.697	12.194
2022-10-22	54.687	12.196
2022-10-23	54.677	12.197
2022-10-24	54.668	12.199
2022-10-25	54.661	12.2
2022-10-26	54.654	12.201
2022-10-27	54.648	12.203

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	54.644	12.205
2022-10-29	54.641	12.207
2022-10-30	54.636	12.208
2022-10-31	54.646	12.21
2022-11-01	54.667	12.211
2022-11-02	54.680	12.213
2022-11-03	54.681	12.215
2022-11-04	54.679	12.217
2022-11-05	54.688	12.219
2022-11-06	54.701	12.221
2022-11-07	54.711	12.223
2022-11-08	54.719	12.225
2022-11-09	54.725	12.227
2022-11-10	54.729	12.229
2022-11-11	54.730	12.232
2022-11-12	54.731	12.234
2022-11-13	54.730	12.236
2022-11-14	54.728	12.238
2022-11-15	54.725	12.241
2022-11-16	54.722	12.243
2022-11-17	54.717	12.245
2022-11-18	54.712	12.247
2022-11-19	54.706	12.25
2022-11-20	54.700	12.252
2022-11-21	54.693	12.255
2022-11-22	54.687	12.258
2022-11-23	54.685	12.26
2022-11-24	54.682	12.263
2022-11-25	54.679	12.266
2022-11-26	54.680	12.268
2022-11-27	54.683	12.271
2022-11-28	54.686	12.273
2022-11-29	54.690	12.276
2022-11-30	54.692	12.279
2022-12-01	54.692	12.283
2022-12-02	54.691	12.286
2022-12-03	54.691	12.288
2022-12-04	54.690	12.292
2022-12-05	54.689	12.294
2022-12-06	54.687	12.297
2022-12-07	54.685	12.301
2022-12-08	54.684	12.304
2022-12-09	54.685	12.307
2022-12-10	54.686	12.31
2022-12-11	54.691	12.313

Bible College

Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	54.698	12.315
2022-12-13	54.702	12.319
2022-12-14	54.706	12.322
2022-12-15	54.709	12.325
2022-12-16	54.711	12.328
2022-12-17	54.714	12.331
2022-12-18	54.716	12.333
2022-12-19	54.717	12.337
2022-12-20	54.718	12.34
2022-12-21	54.719	12.343
2022-12-22	54.719	12.346
2022-12-23	54.720	12.349
2022-12-24	54.721	12.352
2022-12-25	54.730	12.354
2022-12-26	54.747	12.357
2022-12-27	54.777	12.359
2022-12-28	54.828	12.362
2022-12-29	54.902	12.364
2022-12-30	54.969	12.366
2022-12-31	55.023	12.369
2023-01-01	55.075	12.37
2023-01-02	55.127	12.373
2023-01-03	55.187	12.375
2023-01-04	55.257	12.378
2023-01-05	55.296	12.38
2023-01-06	55.327	12.383
2023-01-07	55.357	12.385
2023-01-08	55.385	12.387
2023-01-09	55.410	12.389
2023-01-10	55.439	12.392
2023-01-11	55.462	12.393
2023-01-12	55.477	12.395
2023-01-13	55.495	12.398
2023-01-14	55.517	12.4
2023-01-15	55.537	12.401
2023-01-16	55.551	12.403
2023-01-17	55.568	12.405
2023-01-18	55.585	12.406
2023-01-19	55.598	12.408
2023-01-20	55.614	12.41
2023-01-21	55.632	12.411
2023-01-22	55.643	12.412
2023-01-23	55.657	12.414
2023-01-24	55.669	12.414
2023-01-25	55.678	12.415

Bible College

Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	55.690	12.416
2023-01-27	55.701	12.417
2023-01-28	55.709	12.417
2023-01-29	55.711	12.418
2023-01-30	55.716	12.418
2023-01-31	55.720	12.419
2023-02-01	55.722	12.419
2023-02-02	55.722	12.419
2023-02-03	55.724	12.419
2023-02-04	55.718	12.419
2023-02-05	55.715	12.419
2023-02-06	55.701	12.419
2023-02-07	55.704	12.419
2023-02-08	55.708	12.418
2023-02-09	55.716	12.418
2023-02-10	55.714	12.417
2023-02-11	55.709	12.417
2023-02-12	55.711	12.417
2023-02-13	55.716	12.416
2023-02-14	55.706	12.415
2023-02-15	55.700	12.414
2023-02-16	55.701	12.414
2023-02-17	55.696	12.412
2023-02-18	55.697	12.412
2023-02-19	55.695	12.411
2023-02-20	55.699	12.41
2023-02-21	55.711	12.409
2023-02-22	55.706	12.408
2023-02-23	55.698	12.407
2023-02-24	55.690	12.406
2023-02-25	55.694	12.405
2023-02-26	55.696	12.404
2023-02-27	55.691	12.403
2023-02-28	55.685	12.402
2023-03-01	55.673	12.401
2023-03-02	55.673	12.399
2023-03-03	55.671	12.398
2023-03-04	55.674	12.397
2023-03-05	55.664	12.396
2023-03-06	55.655	12.394
2023-03-07	55.649	12.393
2023-03-08	55.644	12.391
2023-03-09	55.641	12.39
2023-03-10	55.637	12.389
2023-03-11	55.624	12.387

Bible College

Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	55.619	12.386
2023-03-13	55.620	12.384
2023-03-14	55.618	12.383
2023-03-15	55.609	12.381
2023-03-16	55.603	12.38
2023-03-17	55.599	12.378
2023-03-18	55.595	12.377
2023-03-19	55.593	12.375
2023-03-20	55.587	12.373
2023-03-21	55.580	12.372
2023-03-22	55.574	12.37
2023-03-23	55.567	12.368
2023-03-24	55.558	12.366
2023-03-25	55.554	12.365
2023-03-26	55.549	12.363
2023-03-27	55.545	12.361
2023-03-28	55.542	12.36
2023-03-29	55.536	12.358
2023-03-30	55.529	12.356
2023-03-31	55.522	12.354
2023-04-01	55.515	12.352
2023-04-02	55.508	12.35
2023-04-03	55.500	12.348
2023-04-04	55.493	12.346
2023-04-05	55.486	12.344
2023-04-06	55.481	12.342
2023-04-07	55.478	12.34
2023-04-08	55.474	12.338
2023-04-09	55.470	12.336
2023-04-10	55.469	12.334
2023-04-11	55.467	12.332
2023-04-12	55.463	12.33
2023-04-13	55.460	12.328
2023-04-14	55.457	12.326
2023-04-15	55.454	12.323
2023-04-16	55.452	12.321
2023-04-17	55.456	12.319
2023-04-18	55.454	12.317
2023-04-19	55.449	12.315
2023-04-20	55.448	12.313
2023-04-21	55.444	12.31
2023-04-22	55.447	12.308
2023-04-23	55.452	12.306
2023-04-24	55.461	12.303
2023-04-25	55.471	12.301

Bible College

Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	55.478	12.299
2023-04-27	55.482	12.296
2023-04-28	55.488	12.294
2023-04-29	55.493	12.291
2023-04-30	55.494	12.289

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	43.556	10.934
2022-05-02	43.548	10.934
2022-05-03	43.519	10.932
2022-05-04	43.527	10.932
2022-05-05	43.528	10.931
2022-05-06	43.510	10.929
2022-05-07	43.492	10.929
2022-05-08	43.484	10.928
2022-05-09	43.461	10.927
2022-05-10	43.438	10.926
2022-05-11	43.430	10.925
2022-05-12	43.421	10.924
2022-05-13	43.399	10.923
2022-05-14	43.390	10.922
2022-05-15	43.379	10.921
2022-05-16	43.354	10.921
2022-05-17	43.336	10.92
2022-05-18	43.337	10.919
2022-05-19	43.307	10.918
2022-05-20	43.292	10.917
2022-05-21	43.276	10.916
2022-05-22	43.260	10.915
2022-05-23	43.245	10.914
2022-05-24	43.234	10.913
2022-05-25	43.217	10.912
2022-05-26	43.205	10.911
2022-05-27	43.183	10.91
2022-05-28	43.172	10.909
2022-05-29	43.143	10.909
2022-05-30	43.116	10.908
2022-05-31	43.103	10.907
2022-06-01	43.091	10.906
2022-06-02	43.079	10.905
2022-06-03	43.062	10.904
2022-06-04	43.047	10.903
2022-06-05	43.025	10.903
2022-06-06	42.995	10.902
2022-06-07	42.991	10.901
2022-06-08	42.971	10.9
2022-06-09	42.961	10.899
2022-06-10	42.941	10.898
2022-06-11	42.927	10.898
2022-06-12	42.913	10.896
2022-06-13	42.886	10.896
2022-06-14	42.867	10.895

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	42.859	10.894
2022-06-16	42.843	10.893
2022-06-17	42.831	10.892
2022-06-18	42.806	10.891
2022-06-19	42.783	10.89
2022-06-20	42.764	10.89
2022-06-21	42.752	10.888
2022-06-22	42.739	10.888
2022-06-23	42.717	10.887
2022-06-24	42.693	10.886
2022-06-25	42.668	10.885
2022-06-26	42.639	10.884
2022-06-27	42.610	10.884
2022-06-28	42.581	10.883
2022-06-29	42.565	10.882
2022-06-30	42.543	10.882
2022-07-01	42.504	10.88
2022-07-02	42.469	10.88
2022-07-03	42.463	10.879
2022-07-04	42.452	10.878
2022-07-05	42.437	10.877
2022-07-06	42.404	10.877
2022-07-07	42.369	10.875
2022-07-08	42.344	10.874
2022-07-09	42.322	10.874
2022-07-10	42.286	10.873
2022-07-11	42.258	10.873
2022-07-12	42.220	10.871
2022-07-13	42.192	10.87
2022-07-14	42.151	10.87
2022-07-15	42.115	10.869
2022-07-16	42.106	10.868
2022-07-17	42.100	10.867
2022-07-18	42.084	10.866
2022-07-19	42.073	10.865
2022-07-20	42.045	10.864
2022-07-21	41.999	10.863
2022-07-22	41.970	10.863
2022-07-23	41.933	10.862
2022-07-24	41.897	10.862
2022-07-25	41.869	10.861
2022-07-26	41.820	10.86
2022-07-27	41.785	10.859
2022-07-28	41.753	10.858
2022-07-29	41.714	10.858

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	41.674	10.856
2022-07-31	41.640	10.856
2022-08-01	41.602	10.855
2022-08-02	41.576	10.854
2022-08-03	41.556	10.853
2022-08-04	41.530	10.853
2022-08-05	41.523	10.852
2022-08-06	41.495	10.851
2022-08-07	41.463	10.85
2022-08-08	41.446	10.849
2022-08-09	41.413	10.849
2022-08-10	41.369	10.848
2022-08-11	41.346	10.848
2022-08-12	41.337	10.847
2022-08-13	41.323	10.846
2022-08-14	41.304	10.846
2022-08-15	41.280	10.845
2022-08-16	41.256	10.845
2022-08-17	41.218	10.844
2022-08-18	41.188	10.844
2022-08-19	41.162	10.843
2022-08-20	41.137	10.843
2022-08-21	41.114	10.842
2022-08-22	41.103	10.842
2022-08-23	41.073	10.841
2022-08-24	41.050	10.84
2022-08-25	41.033	10.84
2022-08-26	41.012	10.84
2022-08-27	41.005	10.839
2022-08-28	40.977	10.839
2022-08-29	40.941	10.838
2022-08-30	40.908	10.838
2022-08-31	40.869	10.838
2022-09-01	40.838	10.837
2022-09-02	40.830	10.837
2022-09-03	40.814	10.836
2022-09-04	40.804	10.836
2022-09-05	40.799	10.836
2022-09-06	40.785	10.835
2022-09-07	40.759	10.835
2022-09-08	40.741	10.835
2022-09-09	40.725	10.835
2022-09-10	40.700	10.834
2022-09-11	40.676	10.834
2022-09-12	40.657	10.834

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	40.643	10.834
2022-09-14	40.635	10.833
2022-09-15	40.615	10.833
2022-09-16	40.607	10.833
2022-09-17	40.595	10.833
2022-09-18	40.576	10.832
2022-09-19	40.554	10.832
2022-09-20	40.531	10.832
2022-09-21	40.502	10.832
2022-09-22	40.480	10.832
2022-09-23	40.468	10.832
2022-09-24	40.448	10.832
2022-09-25	40.427	10.832
2022-09-26	40.410	10.832
2022-09-27	40.393	10.831
2022-09-28	40.372	10.831
2022-09-29	40.364	10.831
2022-09-30	40.353	10.831
2022-10-01	40.341	10.831
2022-10-02	40.323	10.831
2022-10-03	40.297	10.831
2022-10-04	40.272	10.831
2022-10-05	40.251	10.831
2022-10-06	40.242	10.831
2022-10-07	40.224	10.831
2022-10-08	40.204	10.831
2022-10-09	40.185	10.831
2022-10-10	40.173	10.831
2022-10-11	40.157	10.831
2022-10-12	40.143	10.831
2022-10-13	40.129	10.83
2022-10-14	40.108	10.831
2022-10-15	40.086	10.831
2022-10-16	40.061	10.831
2022-10-17	40.039	10.831
2022-10-18	40.015	10.831
2022-10-19	40.000	10.831
2022-10-20	39.999	10.831
2022-10-21	39.997	10.831
2022-10-22	39.988	10.832
2022-10-23	39.979	10.831
2022-10-24	39.977	10.831
2022-10-25	39.970	10.831
2022-10-26	39.960	10.831
2022-10-27	39.955	10.831

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	39.943	10.831
2022-10-29	39.935	10.831
2022-10-30	39.931	10.831
2022-10-31	39.925	10.831
2022-11-01	39.918	10.831
2022-11-02	39.907	10.831
2022-11-03	39.905	10.831
2022-11-04	39.908	10.831
2022-11-05	39.897	10.831
2022-11-06	39.900	10.832
2022-11-07	39.892	10.832
2022-11-08	39.891	10.832
2022-11-09	39.885	10.831
2022-11-10	39.881	10.832
2022-11-11	39.881	10.832
2022-11-12	39.875	10.832
2022-11-13	39.871	10.832
2022-11-14	39.868	10.832
2022-11-15	39.863	10.832
2022-11-16	39.860	10.832
2022-11-17	39.855	10.833
2022-11-18	39.852	10.833
2022-11-19	39.849	10.833
2022-11-20	39.844	10.833
2022-11-21	39.841	10.833
2022-11-22	39.839	10.833
2022-11-23	39.829	10.833
2022-11-24	39.828	10.833
2022-11-25	39.822	10.833
2022-11-26	39.821	10.834
2022-11-27	39.820	10.833
2022-11-28	39.811	10.833
2022-11-29	39.813	10.834
2022-11-30	39.807	10.834
2022-12-01	39.800	10.834
2022-12-02	39.796	10.834
2022-12-03	39.793	10.834
2022-12-04	39.790	10.834
2022-12-05	39.784	10.835
2022-12-06	39.779	10.835
2022-12-07	39.776	10.835
2022-12-08	39.773	10.835
2022-12-09	39.772	10.835
2022-12-10	39.767	10.836
2022-12-11	39.759	10.835

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	39.754	10.835
2022-12-13	39.751	10.836
2022-12-14	39.746	10.835
2022-12-15	39.743	10.835
2022-12-16	39.741	10.835
2022-12-17	39.739	10.836
2022-12-18	39.734	10.835
2022-12-19	39.729	10.836
2022-12-20	39.727	10.836
2022-12-21	39.717	10.836
2022-12-22	39.718	10.836
2022-12-23	39.713	10.836
2022-12-24	39.708	10.836
2022-12-25	39.702	10.836
2022-12-26	39.705	10.836
2022-12-27	39.704	10.836
2022-12-28	39.695	10.836
2022-12-29	39.710	10.836
2022-12-30	39.726	10.835
2022-12-31	39.738	10.835
2023-01-01	39.757	10.836
2023-01-02	39.786	10.835
2023-01-03	39.803	10.835
2023-01-04	39.828	10.835
2023-01-05	39.851	10.835
2023-01-06	39.866	10.835
2023-01-07	39.892	10.835
2023-01-08	39.914	10.835
2023-01-09	39.938	10.834
2023-01-10	39.959	10.835
2023-01-11	39.981	10.834
2023-01-12	40.003	10.834
2023-01-13	40.026	10.835
2023-01-14	40.051	10.834
2023-01-15	40.072	10.834
2023-01-16	40.089	10.833
2023-01-17	40.112	10.833
2023-01-18	40.135	10.833
2023-01-19	40.151	10.832
2023-01-20	40.174	10.832
2023-01-21	40.201	10.832
2023-01-22	40.219	10.831
2023-01-23	40.241	10.831
2023-01-24	40.262	10.831
2023-01-25	40.283	10.83

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	40.311	10.83
2023-01-27	40.336	10.83
2023-01-28	40.355	10.83
2023-01-29	40.376	10.829
2023-01-30	40.400	10.829
2023-01-31	40.424	10.829
2023-02-01	40.445	10.829
2023-02-02	40.468	10.828
2023-02-03	40.492	10.828
2023-02-04	40.511	10.828
2023-02-05	40.529	10.828
2023-02-06	40.544	10.828
2023-02-07	40.566	10.828
2023-02-08	40.579	10.828
2023-02-09	40.607	10.827
2023-02-10	40.621	10.827
2023-02-11	40.638	10.827
2023-02-12	40.661	10.827
2023-02-13	40.683	10.827
2023-02-14	40.688	10.827
2023-02-15	40.704	10.827
2023-02-16	40.723	10.827
2023-02-17	40.737	10.828
2023-02-18	40.754	10.827
2023-02-19	40.768	10.827
2023-02-20	40.790	10.828
2023-02-21	40.807	10.828
2023-02-22	40.815	10.828
2023-02-23	40.822	10.828
2023-02-24	40.831	10.829
2023-02-25	40.852	10.829
2023-02-26	40.864	10.829
2023-02-27	40.877	10.829
2023-02-28	40.879	10.83
2023-03-01	40.880	10.83
2023-03-02	40.896	10.83
2023-03-03	40.905	10.831
2023-03-04	40.918	10.831
2023-03-05	40.918	10.832
2023-03-06	40.922	10.832
2023-03-07	40.929	10.832
2023-03-08	40.937	10.833
2023-03-09	40.948	10.833
2023-03-10	40.952	10.834
2023-03-11	40.945	10.835

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	40.961	10.835
2023-03-13	40.964	10.836
2023-03-14	40.967	10.836
2023-03-15	40.956	10.836
2023-03-16	40.965	10.837
2023-03-17	40.973	10.837
2023-03-18	40.980	10.838
2023-03-19	40.989	10.839
2023-03-20	40.987	10.84
2023-03-21	40.988	10.839
2023-03-22	40.991	10.84
2023-03-23	40.988	10.841
2023-03-24	40.983	10.841
2023-03-25	40.981	10.842
2023-03-26	40.982	10.842
2023-03-27	40.988	10.843
2023-03-28	40.997	10.844
2023-03-29	40.997	10.844
2023-03-30	40.992	10.844
2023-03-31	40.989	10.845
2023-04-01	40.987	10.846
2023-04-02	40.983	10.846
2023-04-03	40.977	10.846
2023-04-04	40.971	10.847
2023-04-05	40.971	10.848
2023-04-06	40.980	10.848
2023-04-07	40.974	10.848
2023-04-08	40.963	10.849
2023-04-09	40.961	10.85
2023-04-10	40.960	10.85
2023-04-11	40.956	10.85
2023-04-12	40.951	10.851
2023-04-13	40.949	10.851
2023-04-14	40.944	10.851
2023-04-15	40.939	10.852
2023-04-16	40.942	10.852
2023-04-17	40.943	10.853
2023-04-18	40.931	10.853
2023-04-19	40.917	10.853
2023-04-20	40.916	10.853
2023-04-21	40.906	10.854
2023-04-22	40.916	10.854
2023-04-23	40.918	10.854
2023-04-24	40.900	10.854
2023-04-25	40.908	10.854

Heritage

Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	40.919	10.855
2023-04-27	40.916	10.855
2023-04-28	40.920	10.855
2023-04-29	40.914	10.855
2023-04-30	40.908	10.855

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	33.100	9.59
2022-05-02	33.107	9.618
2022-05-03	33.100	9.647
2022-05-04	33.112	9.671
2022-05-05	33.172	9.702
2022-05-06	33.124	9.706
2022-05-07	33.111	9.74
2022-05-08	33.110	9.772
2022-05-09	33.107	9.805
2022-05-10	33.103	9.839
2022-05-11	33.104	9.878
2022-05-12	33.118	9.919
2022-05-13	33.132	9.927
2022-05-14	33.115	9.995
2022-05-15	33.160	10.035
2022-05-16	33.138	10.051
2022-05-17	33.123	10.085
2022-05-18	33.137	10.116
2022-05-19	33.116	10.148
2022-05-20	33.116	10.187
2022-05-21	33.111	10.221
2022-05-22	33.109	10.263
2022-05-23	33.106	10.302
2022-05-24	33.107	10.341
2022-05-25	33.107	10.38
2022-05-26	33.119	10.416
2022-05-27	33.170	10.423
2022-05-28	33.121	10.469
2022-05-29	33.120	10.499
2022-05-30	33.110	10.531
2022-05-31	33.108	10.565
2022-06-01	33.107	10.6
2022-06-02	33.106	10.637
2022-06-03	33.139	10.678
2022-06-04	33.117	10.705
2022-06-05	33.158	10.754
2022-06-06	33.129	10.779
2022-06-07	33.123	10.822
2022-06-08	33.121	10.859
2022-06-09	33.154	10.91
2022-06-10	33.146	10.942
2022-06-11	33.135	10.986
2022-06-12	33.121	11.039
2022-06-13	33.117	11.093
2022-06-14	33.112	11.151

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	33.113	11.214
2022-06-16	33.118	11.28
2022-06-17	33.119	11.345
2022-06-18	33.118	11.412
2022-06-19	33.114	11.482
2022-06-20	33.105	11.552
2022-06-21	33.105	11.622
2022-06-22	33.114	11.68
2022-06-23	33.100	11.756
2022-06-24	33.097	11.821
2022-06-25	33.095	11.881
2022-06-26	33.093	11.937
2022-06-27	33.091	11.99
2022-06-28	33.089	12.039
2022-06-29	33.089	12.084
2022-06-30	33.090	12.126
2022-07-01	33.088	12.166
2022-07-02	33.087	12.205
2022-07-03	33.102	12.242
2022-07-04	33.089	12.278
2022-07-05	33.085	12.313
2022-07-06	33.082	12.347
2022-07-07	33.080	12.385
2022-07-08	33.078	12.422
2022-07-09	33.077	12.459
2022-07-10	33.077	12.495
2022-07-11	33.079	12.533
2022-07-12	33.077	12.57
2022-07-13	33.074	12.609
2022-07-14	33.075	12.647
2022-07-15	33.074	12.687
2022-07-16	33.076	12.726
2022-07-17	33.074	12.765
2022-07-18	33.077	12.803
2022-07-19	33.073	12.84
2022-07-20	33.072	12.878
2022-07-21	33.071	12.915
2022-07-22	33.070	12.953
2022-07-23	33.069	12.989
2022-07-24	33.069	13.026
2022-07-25	33.068	13.065
2022-07-26	33.066	13.102
2022-07-27	33.065	13.135
2022-07-28	33.065	13.166
2022-07-29	33.064	13.198

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	33.062	13.229
2022-07-31	33.061	13.258
2022-08-01	33.061	13.285
2022-08-02	33.060	13.313
2022-08-03	33.062	13.34
2022-08-04	33.078	13.366
2022-08-05	33.058	13.392
2022-08-06	33.056	13.42
2022-08-07	33.055	13.451
2022-08-08	33.053	13.483
2022-08-09	33.053	13.516
2022-08-10	33.052	13.552
2022-08-11	33.052	13.588
2022-08-12	33.051	13.625
2022-08-13	33.048	13.664
2022-08-14	33.049	13.703
2022-08-15	33.047	13.742
2022-08-16	33.046	13.778
2022-08-17	33.046	13.813
2022-08-18	33.045	13.845
2022-08-19	33.043	13.875
2022-08-20	33.043	13.901
2022-08-21	33.042	13.926
2022-08-22	33.042	13.948
2022-08-23	33.040	13.968
2022-08-24	33.038	13.987
2022-08-25	33.036	14.005
2022-08-26	33.037	14.021
2022-08-27	33.035	14.038
2022-08-28	33.034	14.055
2022-08-29	33.032	14.074
2022-08-30	33.031	14.092
2022-08-31	33.031	14.111
2022-09-01	33.031	14.13
2022-09-02	33.030	14.15
2022-09-03	33.028	14.169
2022-09-04	33.028	14.188
2022-09-05	33.027	14.206
2022-09-06	33.026	14.224
2022-09-07	33.023	14.24
2022-09-08	33.023	14.255
2022-09-09	33.022	14.27
2022-09-10	33.020	14.284
2022-09-11	33.019	14.299
2022-09-12	33.020	14.315

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	33.019	14.331
2022-09-14	33.016	14.344
2022-09-15	33.015	14.357
2022-09-16	33.016	14.367
2022-09-17	33.017	14.374
2022-09-18	33.013	14.378
2022-09-19	33.012	14.38
2022-09-20	33.010	14.379
2022-09-21	33.007	14.375
2022-09-22	33.006	14.375
2022-09-23	33.007	14.369
2022-09-24	33.007	14.365
2022-09-25	33.007	14.359
2022-09-26	33.006	14.353
2022-09-27	33.005	14.345
2022-09-28	33.005	14.335
2022-09-29	33.005	14.322
2022-09-30	33.005	14.308
2022-10-01	33.004	14.291
2022-10-02	33.002	14.273
2022-10-03	33.001	14.255
2022-10-04	33.001	14.235
2022-10-05	33.001	14.216
2022-10-06	33.000	14.197
2022-10-07	32.998	14.18
2022-10-08	32.998	14.163
2022-10-09	32.997	14.147
2022-10-10	32.997	14.132
2022-10-11	32.996	14.117
2022-10-12	32.996	14.104
2022-10-13	32.995	14.091
2022-10-14	32.994	14.078
2022-10-15	32.993	14.064
2022-10-16	32.991	14.05
2022-10-17	32.990	14.035
2022-10-18	32.991	14.021
2022-10-19	32.993	14.007
2022-10-20	32.988	13.992
2022-10-21	33.014	13.976
2022-10-22	32.980	13.96
2022-10-23	32.972	13.943
2022-10-24	33.058	13.918
2022-10-25	33.016	13.906
2022-10-26	33.005	13.886
2022-10-27	33.018	13.868

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	33.034	13.841
2022-10-29	32.976	13.828
2022-10-30	33.096	13.804
2022-10-31	33.086	13.776
2022-11-01	33.016	13.772
2022-11-02	32.994	13.75
2022-11-03	33.020	13.719
2022-11-04	33.116	13.681
2022-11-05	33.039	13.655
2022-11-06	33.053	13.631
2022-11-07	33.015	13.59
2022-11-08	33.002	13.544
2022-11-09	32.996	13.491
2022-11-10	32.993	13.434
2022-11-11	32.991	13.374
2022-11-12	32.988	13.31
2022-11-13	32.985	13.243
2022-11-14	32.985	13.166
2022-11-15	32.983	13.084
2022-11-16	32.981	12.994
2022-11-17	32.985	12.898
2022-11-18	32.980	12.794
2022-11-19	32.979	12.685
2022-11-20	32.978	12.574
2022-11-21	32.978	12.459
2022-11-22	33.050	12.346
2022-11-23	32.998	12.237
2022-11-24	32.981	12.14
2022-11-25	33.039	12.037
2022-11-26	33.007	11.942
2022-11-27	33.010	11.854
2022-11-28	33.018	11.765
2022-11-29	32.990	11.684
2022-11-30	32.997	11.595
2022-12-01	32.981	11.508
2022-12-02	32.976	11.42
2022-12-03	32.978	11.331
2022-12-04	32.974	11.245
2022-12-05	32.972	11.164
2022-12-06	32.978	11.084
2022-12-07	32.988	11.005
2022-12-08	32.998	10.927
2022-12-09	32.985	10.85
2022-12-10	33.035	10.767
2022-12-11	33.018	10.691

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	32.990	10.619
2022-12-13	32.981	10.543
2022-12-14	32.976	10.463
2022-12-15	32.973	10.378
2022-12-16	32.971	10.291
2022-12-17	32.972	10.201
2022-12-18	32.967	10.111
2022-12-19	32.965	10.017
2022-12-20	32.964	9.929
2022-12-21	32.964	9.843
2022-12-22	32.962	9.757
2022-12-23	32.965	9.674
2022-12-24	33.079	9.596
2022-12-25	33.084	9.526
2022-12-26	33.128	9.468
2022-12-27	33.173	9.41
2022-12-28	33.171	9.362
2022-12-29	33.075	9.31
2022-12-30	33.108	9.227
2022-12-31	33.103	9.145
2023-01-01	33.061	9.035
2023-01-02	33.031	8.968
2023-01-03	33.021	8.894
2023-01-04	33.009	8.813
2023-01-05	33.004	8.723
2023-01-06	32.999	8.629
2023-01-07	33.021	8.521
2023-01-08	33.028	8.403
2023-01-09	33.011	8.287
2023-01-10	32.999	8.168
2023-01-11	32.999	8.063
2023-01-12	33.070	7.959
2023-01-13	33.077	7.864
2023-01-14	33.066	7.782
2023-01-15	33.035	7.706
2023-01-16	33.068	7.635
2023-01-17	33.034	7.571
2023-01-18	33.049	7.539
2023-01-19	33.022	7.488
2023-01-20	33.013	7.45
2023-01-21	33.031	7.448
2023-01-22	33.019	7.405
2023-01-23	33.005	7.409
2023-01-24	33.017	7.421
2023-01-25	33.011	7.415

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	33.012	7.435
2023-01-27	33.022	7.435
2023-01-28	33.000	7.465
2023-01-29	32.996	7.485
2023-01-30	32.994	7.507
2023-01-31	32.997	7.53
2023-02-01	32.998	7.554
2023-02-02	32.988	7.578
2023-02-03	32.992	7.605
2023-02-04	32.994	7.619
2023-02-05	32.995	7.646
2023-02-06	32.992	7.681
2023-02-07	33.070	7.707
2023-02-08	33.018	7.709
2023-02-09	33.017	7.73
2023-02-10	33.025	7.77
2023-02-11	33.004	7.742
2023-02-12	33.024	7.754
2023-02-13	33.031	7.746
2023-02-14	33.003	7.766
2023-02-15	32.999	7.776
2023-02-16	33.003	7.784
2023-02-17	33.023	7.773
2023-02-18	33.019	7.791
2023-02-19	33.009	7.803
2023-02-20	33.043	7.804
2023-02-21	33.014	7.806
2023-02-22	33.002	7.817
2023-02-23	32.995	7.824
2023-02-24	32.991	7.834
2023-02-25	32.991	7.844
2023-02-26	33.010	7.853
2023-02-27	33.000	7.858
2023-02-28	33.001	7.87
2023-03-01	32.987	7.882
2023-03-02	33.005	7.891
2023-03-03	32.986	7.899
2023-03-04	32.985	7.908
2023-03-05	32.982	7.913
2023-03-06	32.980	7.916
2023-03-07	32.979	7.915
2023-03-08	32.977	7.908
2023-03-09	32.978	7.893
2023-03-10	32.974	7.866
2023-03-11	32.986	7.845

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	32.999	7.805
2023-03-13	33.047	7.823
2023-03-14	32.996	7.803
2023-03-15	32.989	7.777
2023-03-16	32.982	7.751
2023-03-17	32.978	7.679
2023-03-18	32.976	7.673
2023-03-19	32.974	7.681
2023-03-20	32.975	7.648
2023-03-21	32.970	7.649
2023-03-22	32.967	7.649
2023-03-23	32.984	7.67
2023-03-24	32.988	7.672
2023-03-25	33.002	7.744
2023-03-26	32.974	7.736
2023-03-27	32.970	7.725
2023-03-28	32.969	7.775
2023-03-29	32.966	7.826
2023-03-30	32.965	7.816
2023-03-31	32.973	7.912
2023-04-01	32.970	7.855
2023-04-02	32.997	7.933
2023-04-03	32.965	8.009
2023-04-04	32.961	8.058
2023-04-05	32.961	8.084
2023-04-06	32.994	8.136
2023-04-07	33.026	8.176
2023-04-08	32.988	8.255
2023-04-09	33.027	8.347
2023-04-10	32.996	8.269
2023-04-11	32.998	8.224
2023-04-12	32.978	8.223
2023-04-13	32.980	8.244
2023-04-14	32.971	8.282
2023-04-15	32.973	8.338
2023-04-16	33.005	8.413
2023-04-17	32.996	8.434
2023-04-18	32.984	8.441
2023-04-19	32.971	8.492
2023-04-20	32.987	8.521
2023-04-21	32.984	8.534
2023-04-22	32.976	8.568
2023-04-23	33.027	8.573
2023-04-24	33.034	8.578
2023-04-25	32.993	8.616

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	32.989	8.628
2023-04-27	32.975	8.648
2023-04-28	32.970	8.675
2023-04-29	32.965	8.703
2023-04-30	32.963	8.731

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	9.879	8.095
2022-05-02	9.870	8.108
2022-05-03	9.859	8.126
2022-05-04	9.867	8.138
2022-05-05	9.953	8.149
2022-05-06	10.090	8.144
2022-05-07	10.053	8.151
2022-05-08	10.001	8.17
2022-05-09	9.961	8.188
2022-05-10	9.923	8.205
2022-05-11	9.887	8.221
2022-05-12	9.861	8.237
2022-05-13	9.905	8.249
2022-05-14	9.903	8.257
2022-05-15	9.947	8.27
2022-05-16	10.094	8.269
2022-05-17	10.042	8.276
2022-05-18	10.012	8.294
2022-05-19	9.976	8.31
2022-05-20	9.935	8.325
2022-05-21	9.898	8.34
2022-05-22	9.854	8.354
2022-05-23	9.822	8.368
2022-05-24	9.805	8.381
2022-05-25	9.791	8.392
2022-05-26	9.773	8.405
2022-05-27	9.897	8.417
2022-05-28	9.965	8.419
2022-05-29	9.932	8.431
2022-05-30	9.894	8.444
2022-05-31	9.863	8.456
2022-06-01	9.822	8.469
2022-06-02	9.789	8.483
2022-06-03	9.786	8.498
2022-06-04	9.826	8.508
2022-06-05	9.859	8.519
2022-06-06	9.987	8.529
2022-06-07	9.955	8.538
2022-06-08	9.906	8.551
2022-06-09	9.892	8.565
2022-06-10	10.038	8.577
2022-06-11	10.023	8.587
2022-06-12	9.966	8.602
2022-06-13	9.917	8.616
2022-06-14	9.867	8.632

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	9.835	8.646
2022-06-16	9.814	8.66
2022-06-17	9.789	8.676
2022-06-18	9.766	8.691
2022-06-19	9.749	8.706
2022-06-20	9.737	8.721
2022-06-21	9.718	8.736
2022-06-22	9.719	8.752
2022-06-23	9.689	8.767
2022-06-24	9.663	8.783
2022-06-25	9.636	8.798
2022-06-26	9.607	8.814
2022-06-27	9.581	8.83
2022-06-28	9.563	8.846
2022-06-29	9.554	8.861
2022-06-30	9.545	8.877
2022-07-01	9.529	8.894
2022-07-02	9.516	8.909
2022-07-03	9.514	8.925
2022-07-04	9.527	8.942
2022-07-05	9.514	8.96
2022-07-06	9.493	8.977
2022-07-07	9.480	8.994
2022-07-08	9.464	9.012
2022-07-09	9.449	9.03
2022-07-10	9.433	9.049
2022-07-11	9.419	9.067
2022-07-12	9.405	9.085
2022-07-13	9.392	9.104
2022-07-14	9.380	9.122
2022-07-15	9.370	9.141
2022-07-16	9.364	9.161
2022-07-17	9.358	9.181
2022-07-18	9.353	9.202
2022-07-19	9.350	9.222
2022-07-20	9.343	9.243
2022-07-21	9.340	9.264
2022-07-22	9.336	9.286
2022-07-23	9.333	9.308
2022-07-24	9.330	9.331
2022-07-25	9.329	9.355
2022-07-26	9.327	9.377
2022-07-27	9.326	9.386
2022-07-28	9.324	9.412
2022-07-29	9.320	9.435

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	9.318	9.46
2022-07-31	9.316	9.485
2022-08-01	9.318	9.51
2022-08-02	9.317	9.535
2022-08-03	9.323	9.56
2022-08-04	9.327	9.584
2022-08-05	9.327	9.61
2022-08-06	9.330	9.635
2022-08-07	9.331	9.66
2022-08-08	9.333	9.688
2022-08-09	9.324	9.716
2022-08-10	9.323	9.742
2022-08-11	9.317	9.773
2022-08-12	9.315	9.803
2022-08-13	9.307	9.833
2022-08-14	9.306	9.861
2022-08-15	9.307	9.891
2022-08-16	9.302	9.919
2022-08-17	9.301	9.95
2022-08-18	9.301	9.98
2022-08-19	9.296	10.011
2022-08-20	9.298	10.038
2022-08-21	9.296	10.065
2022-08-22	9.295	10.097
2022-08-23	9.295	10.125
2022-08-24	9.292	10.155
2022-08-25	9.290	10.183
2022-08-26	9.286	10.213
2022-08-27	9.285	10.243
2022-08-28	9.281	10.276
2022-08-29	9.280	10.307
2022-08-30	9.276	10.335
2022-08-31	9.274	10.364
2022-09-01	9.268	10.395
2022-09-02	9.265	10.426
2022-09-03	9.254	10.465
2022-09-04	9.254	10.488
2022-09-05	9.258	10.519
2022-09-06	9.259	10.548
2022-09-07	9.254	10.581
2022-09-08	9.248	10.611
2022-09-09	9.246	10.637
2022-09-10	9.235	10.669
2022-09-11	9.220	10.717
2022-09-12	9.217	10.736

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	9.218	10.766
2022-09-14	9.219	10.791
2022-09-15	9.214	10.822
2022-09-16	9.210	10.855
2022-09-17	9.208	10.884
2022-09-18	9.200	10.92
2022-09-19	9.189	10.949
2022-09-20	9.178	10.97
2022-09-21	9.203	11
2022-09-22	9.221	10.994
2022-09-23	9.214	11.012
2022-09-24	9.216	11.034
2022-09-25	9.215	11.062
2022-09-26	9.219	11.091
2022-09-27	9.216	11.118
2022-09-28	9.213	11.141
2022-09-29	9.220	11.169
2022-09-30	9.221	11.196
2022-10-01	9.227	11.223
2022-10-02	9.225	11.247
2022-10-03	9.216	11.279
2022-10-04	9.211	11.31
2022-10-05	9.210	11.332
2022-10-06	9.210	11.351
2022-10-07	9.206	11.381
2022-10-08	9.204	11.405
2022-10-09	9.203	11.435
2022-10-10	9.204	11.455
2022-10-11	9.199	11.47
2022-10-12	9.199	11.487
2022-10-13	9.201	11.518
2022-10-14	9.203	11.532
2022-10-15	9.202	11.555
2022-10-16	9.196	11.586
2022-10-17	9.188	11.609
2022-10-18	9.191	11.634
2022-10-19	9.198	11.666
2022-10-20	9.211	11.681
2022-10-21	9.222	11.702
2022-10-22	9.262	11.732
2022-10-23	9.272	11.77
2022-10-24	9.301	11.786
2022-10-25	9.347	11.817
2022-10-26	9.515	11.841
2022-10-27	9.634	11.938

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	9.763	12.001
2022-10-29	9.799	12.07
2022-10-30	9.904	12.102
2022-10-31	10.223	12.22
2022-11-01	10.174	12.305
2022-11-02	10.103	12.299
2022-11-03	10.070	12.302
2022-11-04	10.307	12.331
2022-11-05	10.318	12.451
2022-11-06	10.248	12.43
2022-11-07	10.202	12.412
2022-11-08	10.144	12.378
2022-11-09	10.095	12.345
2022-11-10	10.056	12.318
2022-11-11	10.029	12.291
2022-11-12	10.005	12.262
2022-11-13	9.983	12.233
2022-11-14	9.965	12.206
2022-11-15	9.948	12.182
2022-11-16	9.933	12.158
2022-11-17	9.922	12.137
2022-11-18	9.909	12.112
2022-11-19	9.898	12.088
2022-11-20	9.888	12.065
2022-11-21	9.878	12.039
2022-11-22	9.951	12.012
2022-11-23	10.079	11.975
2022-11-24	10.040	11.916
2022-11-25	10.100	11.874
2022-11-26	10.140	11.804
2022-11-27	10.125	11.766
2022-11-28	10.147	11.728
2022-11-29	10.097	11.683
2022-11-30	10.062	11.655
2022-12-01	10.033	11.626
2022-12-02	10.002	11.588
2022-12-03	9.975	11.552
2022-12-04	9.955	11.512
2022-12-05	9.937	11.478
2022-12-06	9.918	11.449
2022-12-07	9.912	11.411
2022-12-08	9.938	11.37
2022-12-09	9.975	11.316
2022-12-10	10.062	11.265
2022-12-11	10.163	11.166

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	10.121	11.082
2022-12-13	10.065	11.068
2022-12-14	10.024	11.043
2022-12-15	9.991	11.018
2022-12-16	9.966	10.987
2022-12-17	9.946	10.955
2022-12-18	9.932	10.921
2022-12-19	9.911	10.892
2022-12-20	9.893	10.875
2022-12-21	9.879	10.854
2022-12-22	9.866	10.827
2022-12-23	9.861	10.803
2022-12-24	10.192	10.787
2022-12-25	10.449	10.25
2022-12-26	10.455	10.08
2022-12-27	10.486	9.879
2022-12-28	10.457	9.723
2022-12-29	10.363	9.68
2022-12-30	10.415	9.684
2022-12-31	10.436	9.435
2023-01-01	10.355	9.415
2023-01-02	10.282	9.445
2023-01-03	10.214	9.481
2023-01-04	10.163	9.48
2023-01-05	10.125	9.465
2023-01-06	10.088	9.444
2023-01-07	10.072	9.415
2023-01-08	10.099	9.374
2023-01-09	10.145	9.276
2023-01-10	10.094	9.254
2023-01-11	10.034	8.692
2023-01-12	10.083	8.676
2023-01-13	10.238	8.563
2023-01-14	10.286	8.444
2023-01-15	10.200	8.459
2023-01-16	10.219	8.53
2023-01-17	10.157	8.512
2023-01-18	10.135	8.548
2023-01-19	10.114	8.53
2023-01-20	10.060	8.55
2023-01-21	10.031	8.571
2023-01-22	10.035	8.554
2023-01-23	9.999	8.556
2023-01-24	9.969	8.561
2023-01-25	9.963	8.579

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	9.946	8.568
2023-01-27	9.980	8.56
2023-01-28	9.960	8.524
2023-01-29	9.929	8.544
2023-01-30	9.906	8.548
2023-01-31	9.884	8.546
2023-02-01	9.867	8.548
2023-02-02	9.855	8.544
2023-02-03	9.845	8.531
2023-02-04	9.841	8.521
2023-02-05	9.843	8.513
2023-02-06	9.834	8.499
2023-02-07	9.988	8.48
2023-02-08	10.094	8.332
2023-02-09	10.031	8.357
2023-02-10	10.023	8.383
2023-02-11	9.994	8.372
2023-02-12	9.964	8.379
2023-02-13	10.003	8.377
2023-02-14	9.986	8.351
2023-02-15	9.942	8.356
2023-02-16	9.913	8.359
2023-02-17	9.920	8.359
2023-02-18	9.937	8.343
2023-02-19	9.934	8.322
2023-02-20	9.959	8.314
2023-02-21	10.029	8.279
2023-02-22	9.984	8.267
2023-02-23	9.935	8.282
2023-02-24	9.889	8.29
2023-02-25	9.860	8.296
2023-02-26	9.849	8.296
2023-02-27	9.844	8.289
2023-02-28	9.840	8.278
2023-03-01	9.840	8.255
2023-03-02	9.861	8.242
2023-03-03	9.913	8.192
2023-03-04	9.923	8.155
2023-03-05	9.901	8.141
2023-03-06	9.872	8.131
2023-03-07	9.848	8.127
2023-03-08	9.830	8.128
2023-03-09	9.817	8.125
2023-03-10	9.809	8.119
2023-03-11	9.804	8.116

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	9.807	8.106
2023-03-13	10.004	8.092
2023-03-14	10.029	7.97
2023-03-15	9.973	7.982
2023-03-16	9.929	7.994
2023-03-17	9.895	8.008
2023-03-18	9.867	8.012
2023-03-19	9.847	8.013
2023-03-20	9.831	8.016
2023-03-21	9.819	8.019
2023-03-22	9.808	8.023
2023-03-23	9.806	8.032
2023-03-24	9.811	8.038
2023-03-25	9.924	8.029
2023-03-26	9.925	7.972
2023-03-27	9.890	7.984
2023-03-28	9.865	8.001
2023-03-29	9.841	8.009
2023-03-30	9.823	8.019
2023-03-31	9.809	8.028
2023-04-01	9.809	8.031
2023-04-02	9.827	8.034
2023-04-03	9.832	8.025
2023-04-04	9.815	8.029
2023-04-05	9.801	8.036
2023-04-06	9.809	8.039
2023-04-07	9.961	8.03
2023-04-08	10.020	7.982
2023-04-09	10.035	7.991
2023-04-10	10.063	7.979
2023-04-11	10.021	7.99
2023-04-12	9.982	8.005
2023-04-13	9.944	8.015
2023-04-14	9.914	8.027
2023-04-15	9.888	8.037
2023-04-16	9.892	8.046
2023-04-17	9.958	8.045
2023-04-18	9.972	8.041
2023-04-19	9.932	8.047
2023-04-20	9.900	8.062
2023-04-21	9.915	8.072
2023-04-22	9.903	8.076
2023-04-23	9.983	8.087
2023-04-24	10.156	8.068
2023-04-25	10.078	8.059

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Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	10.005	8.099
2023-04-27	9.957	8.063
2023-04-28	9.912	8.063
2023-04-29	9.869	8.079
2023-04-30	9.834	8.102

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-05-01	46.548	11.559
2022-05-02	46.476	11.561
2022-05-03	46.524	11.557
2022-05-04	46.538	11.559
2022-05-05	46.551	11.565
2022-05-06	46.544	11.561
2022-05-07	46.531	11.563
2022-05-08	46.523	11.568
2022-05-09	46.515	11.573
2022-05-10	46.500	11.582
2022-05-11	46.500	11.591
2022-05-12	46.502	11.576
2022-05-13	46.490	11.562
2022-05-14	46.493	11.566
2022-05-15	46.492	11.568
2022-05-16	46.480	11.571
2022-05-17	46.476	11.574
2022-05-18	46.492	11.576
2022-05-19	46.471	11.577
2022-05-20	46.469	11.572
2022-05-21	46.465	11.575
2022-05-22	46.463	11.575
2022-05-23	46.459	11.578
2022-05-24	46.459	11.579
2022-05-25	46.449	11.593
2022-05-26	46.456	11.597
2022-05-27	46.449	11.596
2022-05-28	46.453	11.594
2022-05-29	46.438	11.601
2022-05-30	46.425	11.596
2022-05-31	46.425	11.603
2022-06-01	46.426	11.602
2022-06-02	46.426	11.604
2022-06-03	46.422	11.603
2022-06-04	46.420	11.61
2022-06-05	46.413	11.612
2022-06-06	46.397	11.612
2022-06-07	46.406	11.613
2022-06-08	46.397	11.632
2022-06-09	46.398	11.628
2022-06-10	46.394	11.627
2022-06-11	46.390	11.631
2022-06-12	46.389	11.637
2022-06-13	46.378	11.633
2022-06-14	46.371	11.628

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2022-06-15	46.380	11.628
2022-06-16	46.375	11.626
2022-06-17	46.374	11.628
2022-06-18	46.362	11.625
2022-06-19	46.353	11.63
2022-06-20	46.347	11.627
2022-06-21	46.348	11.633
2022-06-22	46.319	11.63
2022-06-23	46.286	11.577
2022-06-24	45.875	11.51
2022-06-25	46.327	11.585
2022-06-26	46.275	11.606
2022-06-27	45.821	11.513
2022-06-28	45.803	11.494
2022-06-29	45.792	11.485
2022-06-30	45.823	11.482
2022-07-01	46.141	11.529
2022-07-02	46.112	11.567
2022-07-03	45.746	11.51
2022-07-04	45.725	11.483
2022-07-05	45.517	11.485
2022-07-06	45.659	11.467
2022-07-07	45.631	11.47
2022-07-08	45.611	11.499
2022-07-09	45.829	11.474
2022-07-10	46.071	11.58
2022-07-11	45.736	11.481
2022-07-12	45.606	11.47
2022-07-13	45.589	11.462
2022-07-14	45.624	11.456
2022-07-15	45.565	11.451
2022-07-16	45.747	11.46
2022-07-17	45.736	11.462
2022-07-18	45.728	11.46
2022-07-19	45.582	11.451
2022-07-20	45.575	11.446
2022-07-21	45.557	11.454
2022-07-22	45.409	11.452
2022-07-23	45.523	11.448
2022-07-24	45.508	11.449
2022-07-25	45.351	11.45
2022-07-26	45.331	11.431
2022-07-27	45.291	11.441
2022-07-28	45.408	11.426
2022-07-29	45.297	11.432

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2022-07-30	45.489	11.43
2022-07-31	45.493	11.443
2022-08-01	45.488	11.444
2022-08-02	45.365	11.445
2022-08-03	45.372	11.446
2022-08-04	45.365	11.455
2022-08-05	45.308	11.453
2022-08-06	45.339	11.445
2022-08-07	44.988	11.45
2022-08-08	45.194	11.445
2022-08-09	45.179	11.444
2022-08-10	45.227	11.443
2022-08-11	45.172	11.446
2022-08-12	45.156	11.446
2022-08-13	45.100	11.446
2022-08-14	45.124	11.448
2022-08-15	45.107	11.447
2022-08-16	45.099	11.438
2022-08-17	45.072	11.45
2022-08-18	45.061	11.45
2022-08-19	45.076	11.45
2022-08-20	45.286	11.449
2022-08-21	45.269	11.455
2022-08-22	45.260	11.45
2022-08-23	45.177	11.458
2022-08-24	45.165	11.452
2022-08-25	45.152	11.44
2022-08-26	45.146	11.45
2022-08-27	45.130	11.455
2022-08-28	45.398	11.579
2022-08-29	45.099	11.457
2022-08-30	45.012	11.46
2022-08-31	45.053	11.452
2022-09-01	44.995	11.449
2022-09-02	44.939	11.445
2022-09-03	45.033	11.466
2022-09-04	45.492	11.627
2022-09-05	45.340	11.656
2022-09-06	44.932	11.475
2022-09-07	44.885	11.455
2022-09-08	44.880	11.462
2022-09-09	44.888	11.457
2022-09-10	44.939	11.455
2022-09-11	45.402	11.591
2022-09-12	45.273	11.618

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-09-13	44.866	11.468
2022-09-14	44.876	11.46
2022-09-15	44.820	11.46
2022-09-16	44.958	11.459
2022-09-17	45.333	11.57
2022-09-18	45.171	11.606
2022-09-19	44.930	11.465
2022-09-20	45.165	11.583
2022-09-21	44.792	11.457
2022-09-22	44.752	11.455
2022-09-23	44.817	11.455
2022-09-24	45.193	11.731
2022-09-25	45.044	11.641
2022-09-26	44.709	11.475
2022-09-27	44.782	11.463
2022-09-28	45.017	11.579
2022-09-29	44.671	11.467
2022-09-30	44.734	11.46
2022-10-01	45.116	11.573
2022-10-02	44.980	11.606
2022-10-03	44.625	11.47
2022-10-04	44.692	11.461
2022-10-05	45.065	11.585
2022-10-06	44.922	11.617
2022-10-07	44.639	11.472
2022-10-08	45.035	11.584
2022-10-09	44.817	11.611
2022-10-10	44.608	11.471
2022-10-11	44.997	11.598
2022-10-12	44.981	11.623
2022-10-13	44.857	11.619
2022-10-14	44.550	11.481
2022-10-15	44.960	11.592
2022-10-16	44.827	11.626
2022-10-17	44.801	11.47
2022-10-18	44.925	11.616
2022-10-19	44.918	11.634
2022-10-20	44.913	11.539
2022-10-21	44.906	11.489
2022-10-22	44.893	11.468
2022-10-23	44.880	11.464
2022-10-24	44.875	11.459
2022-10-25	44.866	11.453
2022-10-26	44.852	11.454
2022-10-27	44.847	11.453

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Date	Water Table Elevation (masl)	Temperature (°C)
2022-10-28	44.834	11.453
2022-10-29	44.827	11.453
2022-10-30	44.824	11.451
2022-10-31	44.835	11.454
2022-11-01	44.823	11.452
2022-11-02	44.807	11.453
2022-11-03	44.801	11.456
2022-11-04	44.809	11.449
2022-11-05	44.797	11.452
2022-11-06	44.798	11.451
2022-11-07	44.785	11.453
2022-11-08	44.777	11.448
2022-11-09	44.769	11.448
2022-11-10	44.762	11.447
2022-11-11	44.759	11.445
2022-11-12	44.750	11.447
2022-11-13	44.742	11.447
2022-11-14	44.736	11.444
2022-11-15	44.728	11.443
2022-11-16	44.724	11.445
2022-11-17	44.715	11.444
2022-11-18	44.709	11.445
2022-11-19	44.704	11.445
2022-11-20	44.696	11.443
2022-11-21	44.689	11.444
2022-11-22	44.685	11.443
2022-11-23	44.670	11.442
2022-11-24	44.668	11.439
2022-11-25	44.658	11.441
2022-11-26	44.656	11.443
2022-11-27	44.651	11.434
2022-11-28	44.641	11.436
2022-11-29	44.641	11.436
2022-11-30	44.632	11.435
2022-12-01	44.618	11.44
2022-12-02	44.610	11.44
2022-12-03	44.602	11.437
2022-12-04	44.599	11.435
2022-12-05	44.590	11.435
2022-12-06	44.581	11.434
2022-12-07	44.576	11.438
2022-12-08	44.570	11.435
2022-12-09	44.567	11.437
2022-12-10	44.559	11.435
2022-12-11	44.549	11.436

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2022-12-12	44.542	11.433
2022-12-13	44.535	11.437
2022-12-14	44.527	11.435
2022-12-15	44.522	11.44
2022-12-16	44.519	11.436
2022-12-17	44.515	11.436
2022-12-18	44.506	11.435
2022-12-19	44.497	11.439
2022-12-20	44.494	11.437
2022-12-21	44.482	11.435
2022-12-22	44.482	11.438
2022-12-23	44.477	11.438
2022-12-24	44.470	11.432
2022-12-25	44.475	11.435
2022-12-26	44.493	11.435
2022-12-27	44.535	11.432
2022-12-28	44.557	11.437
2022-12-29	44.568	11.435
2022-12-30	44.572	11.437
2022-12-31	44.582	11.435
2023-01-01	44.594	11.436
2023-01-02	44.612	11.438
2023-01-03	44.617	11.439
2023-01-04	44.632	11.437
2023-01-05	44.644	11.436
2023-01-06	44.648	11.438
2023-01-07	44.663	11.439
2023-01-08	44.673	11.44
2023-01-09	44.684	11.435
2023-01-10	44.674	11.436
2023-01-11	44.669	11.439
2023-01-12	44.679	11.438
2023-01-13	44.693	11.439
2023-01-14	44.708	11.44
2023-01-15	44.715	11.44
2023-01-16	44.717	11.441
2023-01-17	44.727	11.442
2023-01-18	44.733	11.444
2023-01-19	44.735	11.445
2023-01-20	44.746	11.447
2023-01-21	44.758	11.449
2023-01-22	44.759	11.452
2023-01-23	44.768	11.454
2023-01-24	44.773	11.456
2023-01-25	44.778	11.458

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2023-01-26	44.790	11.461
2023-01-27	44.798	11.465
2023-01-28	44.802	11.468
2023-01-29	44.805	11.471
2023-01-30	44.814	11.475
2023-01-31	44.821	11.479
2023-02-01	44.825	11.483
2023-02-02	44.830	11.486
2023-02-03	44.836	11.491
2023-02-04	44.839	11.494
2023-02-05	44.838	11.498
2023-02-06	44.837	11.502
2023-02-07	44.846	11.506
2023-02-08	44.846	11.51
2023-02-09	44.859	11.513
2023-02-10	44.854	11.517
2023-02-11	44.858	11.521
2023-02-12	44.866	11.524
2023-02-13	44.869	11.527
2023-02-14	44.860	11.53
2023-02-15	44.866	11.533
2023-02-16	44.873	11.536
2023-02-17	44.872	11.538
2023-02-18	44.875	11.541
2023-02-19	44.877	11.543
2023-02-20	44.884	11.545
2023-02-21	44.887	11.547
2023-02-22	44.886	11.55
2023-02-23	44.881	11.551
2023-02-24	44.879	11.552
2023-02-25	44.892	11.552
2023-02-26	44.889	11.553
2023-02-27	44.893	11.553
2023-02-28	44.886	11.553
2023-03-01	44.878	11.554
2023-03-02	44.887	11.554
2023-03-03	44.888	11.554
2023-03-04	44.895	11.556
2023-03-05	44.886	11.557
2023-03-06	44.881	11.557
2023-03-07	44.882	11.559
2023-03-08	44.883	11.56
2023-03-09	44.889	11.561
2023-03-10	44.888	11.562
2023-03-11	44.874	11.562

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2023-03-12	44.880	11.563
2023-03-13	44.877	11.563
2023-03-14	44.875	11.563
2023-03-15	44.861	11.563
2023-03-16	44.863	11.564
2023-03-17	44.863	11.564
2023-03-18	44.864	11.564
2023-03-19	44.869	11.564
2023-03-20	44.860	11.565
2023-03-21	44.856	11.565
2023-03-22	44.852	11.566
2023-03-23	44.846	11.565
2023-03-24	44.838	11.565
2023-03-25	44.834	11.566
2023-03-26	44.831	11.565
2023-03-27	44.833	11.565
2023-03-28	44.836	11.565
2023-03-29	44.829	11.564
2023-03-30	44.824	11.564
2023-03-31	44.820	11.564
2023-04-01	44.814	11.563
2023-04-02	44.810	11.563
2023-04-03	44.803	11.563
2023-04-04	44.797	11.563
2023-04-05	44.795	11.562
2023-04-06	44.796	11.562
2023-04-07	44.789	11.561
2023-04-08	44.783	11.56
2023-04-09	44.779	11.56
2023-04-10	44.778	11.56
2023-04-11	44.772	11.559
2023-04-12	44.767	11.558
2023-04-13	44.764	11.557
2023-04-14	44.759	11.557
2023-04-15	44.755	11.556
2023-04-16	44.753	11.556
2023-04-17	44.754	11.555
2023-04-18	44.744	11.554
2023-04-19	44.736	11.553
2023-04-20	44.736	11.553
2023-04-21	44.728	11.552
2023-04-22	44.734	11.551
2023-04-23	44.731	11.55
2023-04-24	44.724	11.549
2023-04-25	#N/A	11.549

Exhibition Park

Date	Water Table Elevation (masl)	Temperature (°C)
2023-04-26	44.909	11.548
2023-04-27	44.906	11.547
2023-04-28	44.909	11.546
2023-04-29	44.906	11.545
2023-04-30	44.904	11.544

APPENDIX J

Mitigation Well Levels and Flows

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
01-May-2022	0.002	24.220	0.000	30.182	0.000	15.667
02-May-2022	0.002	24.245	0.000	30.208	0.000	15.667
03-May-2022	0.001	24.233	0.000	30.188	0.000	15.667
04-May-2022	0.002	24.229	0.000	30.188	0.000	15.662
05-May-2022	0.001	24.267	0.000	30.221	0.000	15.677
06-May-2022	0.001	24.282	0.000	30.222	0.000	15.747
07-May-2022	0.002	24.305	0.000	30.243	0.000	15.771
08-May-2022	0.000	24.293	0.000	30.235	0.000	15.757
09-May-2022	0.001	24.305	0.000	30.233	0.000	15.741
10-May-2022	0.002	24.284	0.000	30.241	0.000	15.724
11-May-2022	0.002	24.282	0.000	30.231	0.000	15.704
12-May-2022	0.000	24.295	0.000	30.229	0.000	15.697
13-May-2022	0.002	24.215	0.000	30.204	0.000	15.695
14-May-2022	0.000	24.246	0.000	30.221	0.002	15.730
15-May-2022	0.002	24.259	0.000	30.233	0.000	15.733
16-May-2022	0.002	24.295	0.000	30.258	0.000	15.790
17-May-2022	0.002	24.282	0.000	30.236	0.000	15.827
18-May-2022	0.000	24.282	0.000	30.258	0.000	15.832
19-May-2022	0.000	24.294	0.000	30.254	0.000	15.831
20-May-2022	0.002	24.228	0.000	30.196	0.000	15.813
21-May-2022	0.000	24.253	0.000	30.221	0.000	15.802
22-May-2022	0.001	24.245	0.000	30.200	0.000	15.783
23-May-2022	0.002	24.268	0.000	30.204	0.000	15.767
24-May-2022	0.001	24.258	0.000	30.196	0.000	15.753
25-May-2022	0.000	24.281	0.000	30.213	0.000	15.741
26-May-2022	0.002	24.282	0.000	30.184	0.000	15.728
27-May-2022	0.000	24.295	0.000	30.206	0.000	15.743
28-May-2022	0.002	24.282	0.000	30.141	0.000	15.794
29-May-2022	0.000	24.287	0.000	30.120	0.000	15.803
30-May-2022	0.002	24.254	0.000	30.077	0.000	15.788
31-May-2022	0.002	24.223	0.000	30.040	0.000	15.772
01-Jun-2022	0.001	24.224	0.000	30.078	0.000	15.761
02-Jun-2022	0.002	24.221	0.000	30.072	0.000	15.749
03-Jun-2022	0.000	24.221	0.000	30.074	0.000	15.736
04-Jun-2022	0.001	24.233	0.000	30.085	0.000	15.765
05-Jun-2022	0.002	24.245	0.000	30.097	0.000	15.785
06-Jun-2022	0.002	24.226	0.000	30.072	0.000	15.816
07-Jun-2022	0.002	24.208	0.000	30.083	0.000	15.835
08-Jun-2022	0.002	24.224	0.000	30.098	0.000	15.838
09-Jun-2022	0.002	24.228	0.000	30.085	0.000	15.827
10-Jun-2022	0.002	24.183	0.000	30.054	0.002	15.861
11-Jun-2022	0.002	24.196	0.000	30.076	0.002	15.883
12-Jun-2022	0.000	24.201	0.000	30.074	0.000	15.873
13-Jun-2022	0.001	24.208	0.000	30.060	0.000	15.850

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
14-Jun-2022	0.002	24.196	0.000	30.060	0.000	15.825
15-Jun-2022	0.000	24.183	0.000	30.035	0.000	15.805
16-Jun-2022	0.002	24.196	0.000	30.032	0.000	15.794
17-Jun-2022	0.002	24.196	0.000	30.044	0.000	15.780
18-Jun-2022	0.002	24.186	0.000	30.035	0.000	15.764
19-Jun-2022	0.002	24.183	0.000	30.023	0.000	15.744
20-Jun-2022	0.002	24.171	0.000	29.990	0.000	15.728
21-Jun-2022	0.000	24.164	0.000	29.989	0.000	15.713
22-Jun-2022	0.002	24.161	0.000	29.998	0.000	15.708
23-Jun-2022	0.002	24.168	0.000	29.986	0.000	15.699
24-Jun-2022	0.002	24.168	0.000	29.969	0.000	15.683
25-Jun-2022	0.002	24.150	0.000	29.944	0.000	15.669
26-Jun-2022	0.002	24.146	0.000	29.916	0.000	15.638
27-Jun-2022	0.000	24.146	0.000	29.871	0.000	15.617
28-Jun-2022	0.002	24.134	0.000	29.841	0.000	15.599
29-Jun-2022	0.002	24.109	0.000	29.825	0.000	15.583
30-Jun-2022	0.002	24.097	0.000	29.834	0.000	15.576
01-Jul-2022	0.001	24.097	0.000	29.825	0.000	15.567
02-Jul-2022	0.000	24.085	0.000	29.800	0.000	15.547
03-Jul-2022	0.002	24.085	0.000	29.801	0.000	15.535
04-Jul-2022	0.002	24.085	0.000	29.787	0.000	15.544
05-Jul-2022	0.000	24.072	0.000	29.783	0.000	15.548
06-Jul-2022	0.002	24.072	0.000	29.785	0.000	11.691
07-Jul-2022	0.001	24.060	0.000	29.751	0.040	11.511
08-Jul-2022	0.002	24.038	0.000	29.734	0.111	11.461
09-Jul-2022	0.000	24.035	0.000	29.713	0.109	11.417
10-Jul-2022	0.000	24.023	0.000	29.695	0.109	11.395
11-Jul-2022	0.002	24.010	0.000	29.682	0.108	11.363
12-Jul-2022	0.000	24.010	0.000	29.666	0.108	11.355
13-Jul-2022	0.002	23.999	0.000	29.622	0.107	11.347
14-Jul-2022	0.002	23.986	0.000	29.604	0.108	11.328
15-Jul-2022	0.002	23.985	0.000	29.572	0.107	11.319
16-Jul-2022	0.000	23.961	0.000	29.565	0.107	11.295
17-Jul-2022	0.002	23.949	0.000	29.566	0.106	11.300
18-Jul-2022	0.002	23.948	0.000	29.552	0.107	11.291
19-Jul-2022	0.002	23.924	0.004	29.540	0.106	11.286
20-Jul-2022	0.000	23.936	0.000	29.537	0.107	11.281
21-Jul-2022	0.002	23.862	0.000	29.465	0.106	11.266
22-Jul-2022	0.002	23.874	0.000	29.437	0.106	11.256
23-Jul-2022	0.000	23.851	0.000	29.423	0.106	11.247
24-Jul-2022	0.002	23.837	0.000	29.385	0.105	11.232
25-Jul-2022	0.002	23.830	0.000	29.376	0.105	11.227
26-Jul-2022	0.002	23.817	0.000	29.312	0.105	11.224
27-Jul-2022	0.002	23.804	0.000	29.256	0.105	11.222

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
28-Jul-2022	0.000	23.775	0.000	29.221	0.105	14.919
29-Jul-2022	0.000	23.750	0.000	29.185	0.070	15.135
30-Jul-2022	0.001	23.738	0.000	29.153	0.000	15.196
31-Jul-2022	0.000	23.701	0.000	29.094	0.000	15.216
01-Aug-2022	0.000	23.679	0.000	29.058	0.000	15.235
02-Aug-2022	0.001	23.652	0.000	29.048	0.000	15.243
03-Aug-2022	0.002	23.627	0.000	29.025	0.000	15.240
04-Aug-2022	0.001	23.626	0.000	29.008	0.000	15.248
05-Aug-2022	0.000	23.602	0.000	29.008	0.000	15.263
06-Aug-2022	0.002	23.580	0.000	29.006	0.000	15.266
07-Aug-2022	0.002	23.567	0.000	28.964	0.000	15.258
08-Aug-2022	0.001	23.570	0.000	28.957	0.000	15.251
09-Aug-2022	0.001	23.553	0.000	28.905	0.000	15.241
10-Aug-2022	0.001	23.472	0.000	28.826	0.000	15.244
11-Aug-2022	0.002	23.478	0.000	28.860	0.000	15.237
12-Aug-2022	0.002	23.395	0.000	28.823	0.009	15.181
13-Aug-2022	0.001	23.416	0.000	28.826	0.000	15.222
14-Aug-2022	0.002	23.405	0.000	28.810	0.000	15.214
15-Aug-2022	0.002	23.411	0.000	28.803	0.000	15.208
16-Aug-2022	0.000	23.408	0.000	28.761	0.000	15.197
17-Aug-2022	0.002	23.395	0.000	28.736	0.000	15.195
18-Aug-2022	0.002	23.394	0.000	28.686	0.000	15.192
19-Aug-2022	0.002	23.379	0.000	28.650	0.000	15.188
20-Aug-2022	0.002	23.367	0.000	28.628	0.000	15.185
21-Aug-2022	0.001	23.344	0.000	28.612	0.000	15.175
22-Aug-2022	0.002	23.330	0.000	28.597	0.000	15.168
23-Aug-2022	0.001	23.317	0.000	28.578	0.000	15.155
24-Aug-2022	0.001	23.299	0.000	28.560	0.000	15.155
25-Aug-2022	0.002	23.293	0.000	28.512	0.000	15.150
26-Aug-2022	0.002	23.269	0.000	28.449	0.000	15.145
27-Aug-2022	0.002	23.256	0.000	28.402	0.000	15.150
28-Aug-2022	0.000	23.231	0.000	28.391	0.000	15.148
29-Aug-2022	0.000	23.216	0.000	28.368	0.000	15.145
30-Aug-2022	0.002	23.190	0.000	28.337	0.000	15.140
31-Aug-2022	0.002	23.181	0.000	28.319	0.000	15.134
01-Sep-2022	0.002	23.157	0.000	28.268	0.000	15.125
02-Sep-2022	0.002	23.144	0.000	28.217	0.000	15.121
03-Sep-2022	0.002	23.123	0.000	28.216	0.000	15.121
04-Sep-2022	0.002	23.095	0.000	28.193	0.000	15.110
05-Sep-2022	0.000	23.095	0.000	28.217	0.000	15.112
06-Sep-2022	0.002	23.082	0.000	28.217	0.000	15.107
07-Sep-2022	0.002	23.080	0.000	28.218	0.000	15.104
08-Sep-2022	0.000	23.070	0.000	28.179	0.000	15.094
09-Sep-2022	0.001	23.025	0.000	28.131	0.001	15.089

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
10-Sep-2022	0.000	23.045	0.000	28.143	0.000	15.089
11-Sep-2022	0.002	23.041	0.000	28.130	0.000	15.081
12-Sep-2022	0.001	23.033	0.000	28.111	0.000	15.070
13-Sep-2022	0.002	23.021	0.000	28.115	0.000	15.067
14-Sep-2022	0.002	23.029	0.000	28.114	0.000	15.063
15-Sep-2022	0.002	23.012	0.000	28.080	0.000	15.058
16-Sep-2022	0.000	22.996	0.000	28.068	0.000	15.059
17-Sep-2022	0.000	23.006	0.000	28.080	0.000	15.057
18-Sep-2022	0.002	23.008	0.000	28.080	0.000	15.044
19-Sep-2022	0.002	22.996	0.000	28.053	0.000	15.033
20-Sep-2022	0.002	22.983	0.000	28.040	0.000	15.024
21-Sep-2022	0.001	22.971	0.000	28.006	0.000	15.017
22-Sep-2022	0.000	22.966	0.000	27.974	0.000	15.008
23-Sep-2022	0.002	22.948	0.000	27.945	0.000	14.999
24-Sep-2022	0.002	22.934	0.000	27.932	0.000	14.992
25-Sep-2022	0.002	22.922	0.000	27.944	0.000	14.988
26-Sep-2022	0.002	22.934	0.000	27.932	0.000	14.982
27-Sep-2022	0.000	22.934	0.000	27.948	0.000	14.980
28-Sep-2022	0.002	22.925	0.000	27.911	0.000	14.972
29-Sep-2022	0.002	22.909	0.000	27.898	0.000	14.962
30-Sep-2022	0.001	22.893	0.000	27.883	0.000	14.959
01-Oct-2022	0.002	22.897	0.000	27.870	0.000	14.956
02-Oct-2022	0.002	22.893	0.000	27.847	0.000	14.953
03-Oct-2022	0.001	22.885	0.000	27.845	0.000	14.944
04-Oct-2022	0.000	22.872	0.000	27.828	0.000	14.939
05-Oct-2022	0.002	22.855	0.000	27.808	0.000	14.930
06-Oct-2022	0.002	22.841	0.000	27.784	0.000	14.927
07-Oct-2022	0.002	22.841	0.000	27.759	0.000	14.923
08-Oct-2022	0.001	22.814	0.000	27.751	0.000	14.917
09-Oct-2022	0.000	22.810	0.000	27.726	0.000	14.913
10-Oct-2022	0.001	22.810	0.000	27.722	0.000	14.908
11-Oct-2022	0.002	22.784	0.000	27.691	0.000	14.901
12-Oct-2022	0.000	22.689	0.000	27.647	0.000	14.893
13-Oct-2022	0.002	22.698	0.000	27.635	0.000	11.204
14-Oct-2022	0.002	22.668	0.000	27.609	0.067	11.107
15-Oct-2022	0.000	22.674	0.000	27.598	0.104	11.068
16-Oct-2022	0.000	22.674	0.000	27.612	0.102	11.042
17-Oct-2022	0.002	22.670	0.000	27.598	0.102	11.018
18-Oct-2022	0.002	22.649	0.000	27.594	0.102	11.005
19-Oct-2022	0.002	22.648	0.000	27.573	0.101	11.015
20-Oct-2022	0.002	22.649	0.000	27.586	0.101	10.995
21-Oct-2022	0.002	22.662	0.000	27.573	0.101	10.997
22-Oct-2022	0.000	22.676	0.000	27.578	0.101	11.000
23-Oct-2022	0.002	22.666	0.000	27.586	0.101	11.012

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
24-Oct-2022	0.000	22.670	0.000	27.573	0.101	10.992
25-Oct-2022	0.000	22.678	0.000	27.586	0.101	11.050
26-Oct-2022	0.000	22.694	0.000	27.606	0.102	11.084
27-Oct-2022	0.002	22.687	0.000	27.592	0.102	11.099
28-Oct-2022	0.002	22.694	0.000	27.602	0.103	11.135
29-Oct-2022	0.000	22.678	0.000	27.577	0.103	11.186
30-Oct-2022	0.002	22.674	0.000	27.601	0.103	11.189
31-Oct-2022	0.000	22.731	0.000	27.610	0.105	11.276
01-Nov-2022	0.002	22.728	0.000	27.629	0.105	11.354
02-Nov-2022	0.000	22.727	0.000	27.635	0.107	11.354
03-Nov-2022	0.000	22.705	0.000	27.627	0.107	11.325
04-Nov-2022	0.001	22.732	0.000	27.648	0.107	11.347
05-Nov-2022	0.002	22.756	0.000	27.665	0.107	11.449
06-Nov-2022	0.002	22.736	0.000	27.668	0.108	11.451
07-Nov-2022	0.001	22.761	0.000	27.689	0.108	11.482
08-Nov-2022	0.001	22.731	0.000	27.683	0.113	11.465
09-Nov-2022	0.000	22.724	0.000	27.679	0.108	11.452
10-Nov-2022	0.001	22.704	0.000	27.660	0.108	15.289
11-Nov-2022	0.000	22.699	0.000	27.660	0.070	15.487
12-Nov-2022	0.002	22.706	0.000	27.653	0.000	15.531
13-Nov-2022	0.002	22.700	0.000	27.647	0.000	15.539
14-Nov-2022	0.000	22.687	0.000	27.642	0.000	15.539
15-Nov-2022	0.002	22.687	0.000	27.642	0.000	15.536
16-Nov-2022	0.001	22.680	0.000	27.642	0.000	15.527
17-Nov-2022	0.002	22.687	0.000	27.654	0.000	15.522
18-Nov-2022	0.001	22.553	0.000	27.602	0.000	15.508
19-Nov-2022	0.002	22.612	0.000	27.635	0.001	15.506
20-Nov-2022	0.002	22.637	0.000	27.647	0.000	15.494
21-Nov-2022	0.000	22.637	0.000	27.635	0.000	15.481
22-Nov-2022	0.000	22.659	0.000	27.638	0.000	15.478
23-Nov-2022	0.002	22.660	0.000	27.623	0.000	15.560
24-Nov-2022	0.002	22.649	0.000	27.635	0.000	15.579
25-Nov-2022	0.002	22.663	0.000	27.641	0.000	15.581
26-Nov-2022	0.001	22.662	0.000	27.635	0.000	15.653
27-Nov-2022	0.001	22.699	0.000	27.647	0.000	15.689
28-Nov-2022	0.001	22.699	0.000	27.634	0.000	15.716
29-Nov-2022	0.000	22.674	0.000	27.601	0.000	15.717
30-Nov-2022	0.000	22.715	0.000	27.632	0.000	15.729
01-Dec-2022	0.002	22.699	0.000	27.621	0.000	15.707
02-Dec-2022	0.000	22.662	0.000	27.600	0.000	15.680
03-Dec-2022	0.000	22.657	0.000	27.608	0.000	15.663
04-Dec-2022	0.002	22.651	0.000	27.601	0.000	15.646
05-Dec-2022	0.000	22.650	0.000	27.598	0.000	15.632
06-Dec-2022	0.002	22.639	0.000	27.586	0.000	15.619

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
07-Dec-2022	0.002	22.637	0.000	27.585	0.000	15.612
08-Dec-2022	0.000	22.657	0.000	27.586	0.000	15.628
09-Dec-2022	0.000	22.649	0.000	27.573	0.000	15.662
10-Dec-2022	0.002	22.683	0.000	27.590	0.000	15.702
11-Dec-2022	0.000	22.664	0.000	27.573	0.000	15.771
12-Dec-2022	0.000	22.649	0.000	27.573	0.000	15.795
13-Dec-2022	0.002	22.622	0.000	27.573	0.000	15.785
14-Dec-2022	0.000	22.609	0.000	27.561	0.000	15.766
15-Dec-2022	0.000	22.596	0.000	27.557	0.000	15.748
16-Dec-2022	0.002	22.536	0.000	27.516	0.000	15.729
17-Dec-2022	0.000	22.575	0.000	27.536	0.001	15.719
18-Dec-2022	0.002	22.588	0.000	27.536	0.000	15.711
19-Dec-2022	0.002	22.563	0.000	27.511	0.000	15.688
20-Dec-2022	0.000	22.550	0.000	27.493	0.000	15.675
21-Dec-2022	0.000	22.538	0.000	27.468	0.000	15.662
22-Dec-2022	0.002	22.513	0.000	27.450	0.000	15.639
23-Dec-2022	0.000	22.534	0.000	27.456	0.000	15.639
24-Dec-2022	0.000	22.548	0.000	27.425	0.000	15.646
25-Dec-2022	0.001	22.542	0.000	27.412	0.000	15.790
26-Dec-2022	0.000	22.538	0.000	27.412	0.000	15.928
27-Dec-2022	0.000	22.565	0.000	27.424	0.000	16.110
28-Dec-2022	0.001	22.538	0.000	27.388	0.000	16.296
29-Dec-2022	0.001	22.501	0.000	27.412	0.000	16.356
30-Dec-2022	0.000	22.501	0.000	27.425	0.000	16.295
31-Dec-2022	0.002	22.477	0.000	27.425	0.000	16.319
01-Jan-2023	0.000	22.452	0.000	27.439	0.000	16.305
02-Jan-2023	0.000	22.439	0.000	27.471	0.000	16.252
03-Jan-2023	0.002	22.445	0.000	27.467	0.000	16.199
04-Jan-2023	0.002	22.432	0.000	27.496	0.000	16.148
05-Jan-2023	0.002	22.452	0.000	27.525	0.000	16.113
06-Jan-2023	0.000	22.439	0.000	27.525	0.000	16.071
07-Jan-2023	0.000	22.428	0.000	27.536	0.000	16.035
08-Jan-2023	0.000	22.454	0.000	27.550	0.000	16.036
09-Jan-2023	0.002	22.452	0.000	27.554	0.000	16.044
10-Jan-2023	0.000	22.469	0.000	27.567	0.000	16.034
11-Jan-2023	0.001	22.474	0.000	27.586	0.000	16.016
12-Jan-2023	0.002	22.386	0.000	27.545	0.000	15.993
13-Jan-2023	0.002	22.427	0.000	27.587	0.000	16.059
14-Jan-2023	0.002	22.464	0.000	27.600	0.000	16.111
15-Jan-2023	0.000	22.483	0.000	27.610	0.000	16.114
16-Jan-2023	0.002	22.476	0.000	27.623	0.000	16.095
17-Jan-2023	0.002	22.464	0.000	27.639	0.000	16.111
18-Jan-2023	0.001	22.476	0.000	27.647	0.000	16.094
19-Jan-2023	0.001	22.465	0.000	27.635	0.000	16.091

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
20-Jan-2023	0.001	22.439	0.000	27.623	0.000	16.057
21-Jan-2023	0.001	22.452	0.000	27.635	0.000	16.031
22-Jan-2023	0.002	22.472	0.000	27.623	0.000	16.035
23-Jan-2023	0.000	22.452	0.000	27.628	0.000	16.012
24-Jan-2023	0.002	22.452	0.000	27.598	0.000	15.990
25-Jan-2023	0.000	22.441	0.000	27.598	0.000	15.979
26-Jan-2023	0.000	22.439	0.000	27.603	0.000	15.965
27-Jan-2023	0.000	22.459	0.000	27.605	0.000	15.969
28-Jan-2023	0.001	22.476	0.000	27.610	0.000	15.975
29-Jan-2023	0.002	22.452	0.000	27.598	0.000	15.943
30-Jan-2023	0.002	22.441	0.000	27.598	0.000	15.922
31-Jan-2023	0.002	22.452	0.000	27.610	0.000	15.909
01-Feb-2023	0.002	22.454	0.000	27.610	0.000	15.896
02-Feb-2023	0.002	22.464	0.000	27.598	0.000	15.884
03-Feb-2023	0.002	22.478	0.000	27.610	0.000	15.870
04-Feb-2023	0.002	22.476	0.000	27.590	0.000	15.864
05-Feb-2023	0.001	22.480	0.000	27.602	0.000	15.863
06-Feb-2023	0.001	22.454	0.000	27.593	0.000	15.840
07-Feb-2023	0.000	22.464	0.000	27.598	0.000	15.838
08-Feb-2023	0.002	22.453	0.000	27.593	0.000	15.951
09-Feb-2023	0.001	22.453	0.000	27.603	0.000	15.952
10-Feb-2023	0.002	22.478	0.000	27.603	0.000	15.948
11-Feb-2023	0.000	22.466	0.000	27.614	0.000	15.934
12-Feb-2023	0.001	22.464	0.000	27.617	0.000	15.912
13-Feb-2023	0.002	22.500	0.000	27.641	0.000	15.924
14-Feb-2023	0.000	22.505	0.000	27.632	0.000	15.937
15-Feb-2023	0.002	22.476	0.000	27.637	0.000	15.907
16-Feb-2023	0.002	22.481	0.000	27.643	0.000	15.888
17-Feb-2023	0.000	22.496	0.000	27.612	0.000	15.883
18-Feb-2023	0.001	22.506	0.000	27.642	0.000	15.890
19-Feb-2023	0.002	22.508	0.000	27.650	0.000	15.898
20-Feb-2023	0.002	22.523	0.000	27.661	0.000	15.895
21-Feb-2023	0.002	22.566	0.000	27.680	0.000	15.938
22-Feb-2023	0.001	22.559	0.000	27.673	0.000	15.932
23-Feb-2023	0.001	22.553	0.000	27.685	0.000	15.907
24-Feb-2023	0.000	22.526	0.000	27.668	0.000	15.877
25-Feb-2023	0.001	22.526	0.000	27.661	0.000	15.857
26-Feb-2023	0.000	22.571	0.000	27.674	0.000	15.860
27-Feb-2023	0.001	22.563	0.000	27.650	0.000	15.854
28-Feb-2023	0.002	22.574	0.000	27.638	0.000	15.854
01-Mar-2023	0.001	22.527	0.000	27.610	0.000	15.837
02-Mar-2023	0.001	22.444	0.000	27.566	0.000	15.823
03-Mar-2023	0.002	22.455	0.000	27.564	0.000	15.845
04-Mar-2023	0.002	22.473	0.000	27.563	0.000	15.853

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
05-Mar-2023	0.001	22.476	0.000	27.551	0.000	15.842
06-Mar-2023	0.002	22.445	0.000	27.548	0.000	15.820
07-Mar-2023	0.000	22.417	0.000	27.528	0.000	15.806
08-Mar-2023	0.000	22.414	0.000	27.511	0.000	15.795
09-Mar-2023	0.000	22.403	0.000	27.492	0.000	15.781
10-Mar-2023	0.002	22.435	0.000	27.487	0.000	15.783
11-Mar-2023	0.000	22.404	0.000	27.462	0.000	15.759
12-Mar-2023	0.002	22.380	0.000	27.462	0.000	15.753
13-Mar-2023	0.002	22.402	0.000	27.474	0.000	15.784
14-Mar-2023	0.001	22.390	0.000	27.462	0.000	15.849
15-Mar-2023	0.001	22.386	0.000	27.459	0.000	15.846
16-Mar-2023	0.002	22.353	0.000	27.437	0.000	15.818
17-Mar-2023	0.002	22.353	0.000	27.437	0.000	15.804
18-Mar-2023	0.002	22.353	0.000	27.426	0.000	15.790
19-Mar-2023	0.000	22.365	0.000	27.427	0.000	15.777
20-Mar-2023	0.000	22.377	0.000	27.437	0.000	15.765
21-Mar-2023	0.001	22.370	0.000	27.425	0.000	15.746
22-Mar-2023	0.002	22.353	0.000	27.425	0.000	15.733
23-Mar-2023	0.001	22.353	0.000	27.400	0.000	15.717
24-Mar-2023	0.001	22.334	0.000	27.393	0.000	15.717
25-Mar-2023	0.001	22.335	0.000	27.388	0.000	15.744
26-Mar-2023	0.001	22.315	0.000	27.395	0.000	15.763
27-Mar-2023	0.001	22.315	0.000	27.388	0.000	15.752
28-Mar-2023	0.002	22.334	0.000	27.400	0.000	15.743
29-Mar-2023	0.001	22.344	0.000	27.390	0.000	15.728
30-Mar-2023	0.001	22.341	0.000	27.382	0.000	15.711
31-Mar-2023	0.000	22.340	0.000	27.375	0.000	15.693
01-Apr-2023	0.000	22.340	0.000	27.369	0.000	15.696
02-Apr-2023	0.001	22.318	0.000	27.363	0.000	15.689
03-Apr-2023	0.001	22.323	0.000	27.355	0.000	15.714
04-Apr-2023	0.000	22.315	0.000	27.351	0.000	15.711
05-Apr-2023	0.001	22.292	0.000	27.329	0.000	15.696
06-Apr-2023	0.000	22.303	0.000	27.341	0.000	15.688
07-Apr-2023	0.000	22.326	0.000	27.338	0.000	15.715
08-Apr-2023	0.000	22.328	0.000	27.332	0.000	15.776
09-Apr-2023	0.002	22.315	0.000	27.338	0.000	15.780
10-Apr-2023	0.002	22.304	0.000	27.351	0.000	15.815
11-Apr-2023	0.000	22.327	0.000	27.338	0.000	15.824
12-Apr-2023	0.000	22.303	0.000	27.315	0.000	15.818
13-Apr-2023	0.002	22.301	0.000	27.313	0.000	15.805
14-Apr-2023	0.000	22.292	0.000	27.301	0.000	15.796
15-Apr-2023	0.002	22.291	0.000	27.292	0.000	15.781
16-Apr-2023	0.002	22.297	0.000	27.301	0.000	15.773
17-Apr-2023	0.000	22.292	0.000	27.301	0.000	15.804

Date	Allen Park Well		Garibaldi Park Well		Fishtrap Creek Mitigation Well	
	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)	Flow (L/s)	Level (m)
18-Apr-2023	0.000	22.315	0.000	27.301	0.000	15.832
19-Apr-2023	0.002	22.291	0.000	27.301	0.000	15.816
20-Apr-2023	0.000	22.241	0.000	27.301	0.000	15.791
21-Apr-2023	0.000	22.204	0.000	27.309	0.000	15.798
22-Apr-2023	0.002	22.212	0.000	27.324	0.001	15.801
23-Apr-2023	0.002	22.255	0.000	27.355	0.000	15.809
24-Apr-2023	0.001	22.278	0.000	27.383	0.000	15.859
25-Apr-2023	0.002	22.266	0.000	27.395	0.000	15.910
26-Apr-2023	0.002	22.274	0.000	27.412	0.000	15.901
27-Apr-2023	0.001	22.291	0.000	27.405	0.000	15.887
28-Apr-2023	0.002	22.301	0.000	27.412	0.000	15.869
29-Apr-2023	0.002	22.321	0.000	27.405	0.000	15.853
30-Apr-2023	0.000	22.328	0.000	27.388	0.000	15.830

APPENDIX K

Well Depth Data (Monitoring Wells)

Datum	TW06-1		Datum	DND		Datum	Bible College		Datum	Heritage	
64.18	DTW (m)	Water Elev (m-geod)	56.831	DTW (m)	Water Elev (m-geod)	59.994	DTW (m)	Water Elev (m-geod)	56.01	DTW (m)	Water Elev (m-geod)
28-Apr-22	16.175	48.005	28-Apr-22	5.795	51.036	28-Apr-22	3.424	56.57	28-Apr-22	12.502	43.508
21-Sep-22	22.406	41.774	21-Sep-22	8.413	48.418	21-Sep-22	4.956	55.038	21-Sep-22	15.609	40.401
10-Jan-23	20.365	43.815	10-Jan-23	7.388	49.443	10-Jan-23	4.565	55.429	10-Jan-23	16.144	39.866
25-Apr-23	20.285	43.895	25-Apr-23	7.606	49.225	25-Apr-23	4.524	55.47	25-Apr-23	15.212	40.798
01-Sep-23	25.586	38.594	01-Sep-23	9.768	47.063	01-Sep-23	dry	dry	01-Sep-23	17.172	38.838
Datum	MW14-02		Datum	MW14-01		Datum	Exhibition Park				
11	DTW (m)	Water Elev (m-geod)	36	DTW (m)	Water Elev (m-geod)	57.136	DTW (m)	Water Elev (m-geod)			
28-Apr-22	1.073	9.927	28-Apr-22	2.906	33.094	28-Apr-22	10.546	46.59			
21-Sep-22	1.828	9.172	21-Sep-22	2.991	33.009	21-Sep-22	11.883	45.253			
10-Jan-23	0.875	10.125	10-Jan-23	2.988	33.012	10-Jan-23	12.446	44.69			
25-Apr-23	0.895	10.105	25-Apr-23	3.005	32.995	25-Apr-23	12.412	44.724			
1-Sep-23	2.04	8.96	1-Sep-23	3.138	32.862	01-Sep-23	13.57	43.566			

DTW - Depth to water

APPENDIX L

Bevan Well Extraction Data

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2022-05-01	0.000	0.000	0.000	0.000	0.000
2022-05-02	0.000	0.000	0.000	0.000	0.000
2022-05-03	0.000	0.000	0.000	0.000	0.000
2022-05-04	0.000	0.000	0.000	0.000	0.000
2022-05-05	0.000	0.000	0.000	1.176	1.176
2022-05-06	0.000	0.000	0.000	0.000	0.000
2022-05-07	0.000	0.000	0.000	0.000	0.000
2022-05-08	0.000	0.000	0.000	0.000	0.000
2022-05-09	0.000	0.000	0.000	0.000	0.000
2022-05-10	0.097	0.118	0.142	0.118	0.475
2022-05-11	0.000	0.000	0.000	0.000	0.000
2022-05-12	0.000	0.577	0.008	0.000	0.585
2022-05-13	0.158	0.430	0.252	0.197	1.037
2022-05-14	0.000	0.000	0.000	0.000	0.000
2022-05-15	0.000	0.000	0.000	0.000	0.000
2022-05-16	0.000	0.000	0.000	0.000	0.000
2022-05-17	0.000	0.000	0.000	0.000	0.000
2022-05-18	0.000	0.215	0.000	0.000	0.215
2022-05-19	0.000	0.215	1.400	0.000	1.615
2022-05-20	0.000	0.000	0.000	0.000	0.000
2022-05-21	0.000	0.000	0.000	0.013	0.013
2022-05-22	2.590	0.000	0.000	0.013	2.603
2022-05-23	0.000	0.000	0.046	2.425	2.471
2022-05-24	0.000	0.000	0.046	2.425	2.471
2022-05-25	2.000	0.000	0.000	0.000	2.000
2022-05-26	2.714	0.079	0.000	0.134	2.927
2022-05-27	0.336	1.187	0.000	0.000	1.523
2022-05-28	3.250	1.947	4.547	5.154	14.898
2022-05-29	6.024	3.582	5.564	1.358	16.528
2022-05-30	5.844	3.609	6.968	0.000	16.421
2022-05-31	3.017	1.980	4.085	2.008	11.090
2022-06-01	0.000	0.000	0.000	0.000	0.000
2022-06-02	2.589	0.000	0.000	0.000	2.589
2022-06-03	0.081	0.962	0.000	0.000	1.043
2022-06-04	0.000	0.546	0.000	0.000	0.546
2022-06-05	1.902	0.000	0.000	0.000	1.902
2022-06-06	0.000	0.000	0.558	0.000	0.558
2022-06-07	0.000	0.000	0.558	0.000	0.558
2022-06-08	0.000	0.000	0.000	0.000	0.000
2022-06-09	0.000	0.000	0.000	0.000	0.000
2022-06-10	0.000	0.000	1.108	0.000	1.108
2022-06-11	0.079	0.104	1.108	0.160	1.451
2022-06-12	0.000	1.329	2.110	0.000	3.439
2022-06-13	1.543	0.000	0.000	0.000	1.543
2022-06-14	1.543	0.000	0.000	0.000	1.543
2022-06-15	2.314	2.292	2.788	0.821	8.215
2022-06-16	1.080	0.785	0.974	1.384	4.223
2022-06-17	0.000	0.000	0.000	0.000	0.000
2022-06-18	0.000	0.112	0.000	0.000	0.112
2022-06-19	0.000	0.000	0.000	0.000	0.000
2022-06-20	1.980	0.000	2.468	2.605	7.053
2022-06-21	0.000	0.602	0.000	0.000	0.602

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2022-06-22	0.000	0.602	0.000	0.000	0.602
2022-06-23	0.000	0.600	0.000	0.000	0.600
2022-06-24	0.000	0.000	0.000	0.000	0.000
2022-06-25	0.000	0.000	0.000	0.000	0.000
2022-06-26	0.000	0.000	0.000	0.000	0.000
2022-06-27	3.198	0.000	4.130	4.750	12.078
2022-06-28	0.946	2.195	4.419	5.344	12.904
2022-06-29	3.553	2.520	1.213	4.264	11.550
2022-06-30	0.330	0.289	0.000	0.000	0.619
2022-07-01	0.000	0.000	0.000	0.000	0.000
2022-07-02	0.000	0.000	0.000	3.770	3.770
2022-07-03	2.721	0.000	0.000	0.080	2.801
2022-07-04	0.000	0.000	0.000	0.000	0.000
2022-07-05	0.000	0.000	0.000	0.000	0.000
2022-07-06	0.000	0.000	0.000	0.000	0.000
2022-07-07	0.000	1.283	0.000	0.000	1.283
2022-07-08	0.972	1.480	0.306	0.745	3.503
2022-07-09	0.000	0.014	1.677	0.000	1.691
2022-07-10	0.000	0.000	0.895	5.142	6.037
2022-07-11	3.036	0.000	0.000	0.472	3.508
2022-07-12	0.428	1.560	1.078	0.000	3.066
2022-07-13	0.638	0.518	3.553	2.146	6.855
2022-07-14	2.652	0.629	0.886	1.183	5.350
2022-07-15	2.652	0.629	0.886	1.183	5.350
2022-07-16	0.931	0.731	1.908	1.231	4.801
2022-07-17	0.000	0.000	0.912	1.260	2.172
2022-07-18	0.000	0.000	0.000	0.000	0.000
2022-07-19	0.000	0.000	0.000	0.000	0.000
2022-07-20	0.000	0.000	0.000	0.000	0.000
2022-07-21	1.373	0.718	1.094	0.000	3.185
2022-07-22	3.262	1.555	3.028	1.130	8.975
2022-07-23	3.074	2.132	4.110	1.302	10.618
2022-07-24	1.178	0.373	0.925	1.945	4.421
2022-07-25	1.058	1.745	3.039	1.130	6.972
2022-07-26	2.561	1.890	0.762	4.079	9.292
2022-07-27	3.308	2.594	3.209	2.954	12.065
2022-07-28	1.214	0.815	5.768	4.251	12.048
2022-07-29	4.660	0.569	2.215	7.090	14.534
2022-07-30	4.215	3.300	4.128	3.991	15.634
2022-07-31	1.467	1.364	5.711	5.333	13.875
2022-08-01	3.616	3.062	6.530	6.186	19.394
2022-08-02	2.778	2.119	3.902	3.963	12.762
2022-08-03	2.364	1.626	3.491	3.921	11.402
2022-08-04	2.231	2.554	4.900	3.241	12.926
2022-08-05	3.290	2.215	4.692	5.408	15.605
2022-08-06	0.650	1.237	1.803	0.382	4.072
2022-08-07	0.000	0.000	3.085	3.182	6.267
2022-08-08	0.861	2.521	4.218	0.680	8.280
2022-08-09	3.115	0.430	1.229	5.028	9.802
2022-08-10	4.656	0.000	0.000	7.022	11.678
2022-08-11	0.000	0.000	0.000	0.000	0.000
2022-08-12	2.114	0.093	0.107	3.093	5.407

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2022-08-13	3.376	1.963	0.000	1.067	6.406
2022-08-14	0.755	2.974	4.590	0.000	8.319
2022-08-15	0.000	0.686	5.649	4.261	10.596
2022-08-16	0.000	0.000	6.765	6.581	13.346
2022-08-17	2.776	0.000	1.125	5.286	9.187
2022-08-18	4.020	1.386	2.916	6.462	14.784
2022-08-19	3.970	3.414	2.797	2.550	12.731
2022-08-20	0.555	2.225	4.397	0.984	8.161
2022-08-21	0.555	2.225	4.397	0.984	8.161
2022-08-22	2.654	0.000	0.178	4.204	7.036
2022-08-23	3.158	2.051	1.205	2.150	8.564
2022-08-24	3.158	2.051	1.205	2.150	8.564
2022-08-25	2.188	2.173	6.607	5.910	16.878
2022-08-26	3.032	3.083	6.503	5.605	18.223
2022-08-27	2.843	2.692	5.117	4.578	15.230
2022-08-28	2.843	2.692	5.117	4.578	15.230
2022-08-29	1.810	1.536	4.148	4.096	11.590
2022-08-30	1.035	1.314	5.747	4.677	12.773
2022-08-31	1.035	1.314	5.747	4.677	12.773
2022-09-01	3.301	2.263	4.748	5.853	16.165
2022-09-02	2.855	3.146	6.533	5.475	18.009
2022-09-03	2.777	3.029	6.355	5.282	17.443
2022-09-04	0.000	0.311	3.354	2.516	6.181
2022-09-05	0.000	0.000	0.000	0.000	0.000
2022-09-06	0.000	0.000	0.000	0.000	0.000
2022-09-07	2.689	0.000	0.000	0.745	3.434
2022-09-08	3.650	3.355	0.000	2.661	9.666
2022-09-09	0.028	0.173	4.550	3.933	8.684
2022-09-10	2.296	0.000	0.336	3.903	6.535
2022-09-11	2.569	1.898	2.285	2.811	9.563
2022-09-12	0.026	0.195	3.916	3.288	7.425
2022-09-13	1.445	0.000	0.833	3.025	5.303
2022-09-14	1.445	0.000	0.833	3.025	5.303
2022-09-15	1.570	0.879	1.065	1.889	5.403
2022-09-16	0.218	0.472	5.511	4.552	10.753
2022-09-17	2.238	0.000	0.578	4.060	6.876
2022-09-18	0.118	0.000	0.000	0.187	0.305
2022-09-19	1.294	1.050	0.000	0.000	2.344
2022-09-20	2.528	0.788	1.596	2.963	7.875
2022-09-21	2.528	0.788	1.596	2.963	7.875
2022-09-22	0.000	0.368	6.684	5.970	13.022
2022-09-23	0.000	0.368	6.684	5.970	13.022
2022-09-24	3.670	2.444	0.000	1.319	7.433
2022-09-25	0.491	1.971	2.965	0.000	5.427
2022-09-26	0.000	0.000	2.265	2.136	4.401
2022-09-27	1.142	0.675	0.000	1.842	3.659
2022-09-28	1.142	0.675	0.000	1.842	3.659
2022-09-29	1.411	1.222	3.187	0.527	6.347
2022-09-30	1.411	1.222	3.187	1.685	7.505
2022-10-01	0.864	3.577	2.614	0.000	7.055
2022-10-02	0.864	3.577	2.614	0.000	7.055
2022-10-03	4.055	3.561	0.000	0.000	7.616

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2022-10-04	4.055	3.561	0.000	0.000	7.616
2022-10-05	2.167	1.094	1.668	0.000	4.929
2022-10-06	3.127	3.386	6.678	0.000	13.191
2022-10-07	1.180	1.149	1.294	0.000	3.623
2022-10-08	2.646	1.570	1.625	0.000	5.841
2022-10-09	2.646	1.570	1.625	0.000	5.841
2022-10-10	3.537	0.000	6.718	0.000	10.255
2022-10-11	1.830	1.109	1.196	0.000	4.135
2022-10-12	3.380	3.428	3.693	0.000	10.501
2022-10-13	2.101	2.225	5.178	0.000	9.504
2022-10-14	2.894	3.265	6.584	0.000	12.743
2022-10-15	1.193	1.596	4.041	0.000	6.830
2022-10-16	0.000	0.579	1.145	0.000	1.724
2022-10-17	0.631	0.000	1.172	0.000	1.803
2022-10-18	0.346	0.000	0.655	0.000	1.001
2022-10-19	0.903	0.920	1.295	0.000	3.118
2022-10-20	0.362	0.434	0.886	0.000	1.682
2022-10-21	0.000	0.000	0.000	0.000	0.000
2022-10-22	0.050	0.065	0.077	0.000	0.192
2022-10-23	0.000	0.000	0.000	0.000	0.000
2022-10-24	0.000	0.000	0.000	0.000	0.000
2022-10-25	0.000	0.000	0.000	0.000	0.000
2022-10-26	0.000	0.000	0.000	0.000	0.000
2022-10-27	0.000	0.000	0.000	0.000	0.000
2022-10-28	0.000	0.000	0.000	0.000	0.000
2022-10-29	0.000	0.000	0.000	0.000	0.000
2022-10-30	0.000	0.000	2.088	0.000	2.088
2022-10-31	0.000	0.000	0.000	0.000	0.000
2022-11-01	1.411	1.258	1.921	0.000	4.590
2022-11-02	0.000	0.000	0.000	0.000	0.000
2022-11-03	0.000	0.000	0.000	0.000	0.000
2022-11-04	0.000	0.000	0.000	0.000	0.000
2022-11-05	0.000	0.000	0.000	0.000	0.000
2022-11-06	0.000	0.000	0.000	0.000	0.000
2022-11-07	0.000	0.000	0.000	0.000	0.000
2022-11-08	0.000	0.000	0.000	0.000	0.000
2022-11-09	0.000	0.000	0.000	0.000	0.000
2022-11-10	0.000	0.000	0.000	0.000	0.000
2022-11-11	0.000	0.000	0.000	0.000	0.000
2022-11-12	0.000	0.000	0.000	0.000	0.000
2022-11-13	0.000	0.000	0.000	0.000	0.000
2022-11-14	0.000	0.000	0.000	0.000	0.000
2022-11-15	0.000	0.000	0.000	0.000	0.000
2022-11-16	0.000	0.000	0.000	0.000	0.000
2022-11-17	0.000	0.000	0.000	0.000	0.000
2022-11-18	0.000	0.124	0.175	0.000	0.299
2022-11-19	0.000	0.000	0.000	0.000	0.000
2022-11-20	0.000	0.000	0.000	0.000	0.000
2022-11-21	0.000	0.000	0.000	0.000	0.000
2022-11-22	0.000	0.000	0.000	0.000	0.000
2022-11-23	0.000	0.000	0.000	0.000	0.000
2022-11-24	0.000	0.000	0.000	0.000	0.000

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2022-11-25	0.000	0.000	0.000	0.000	0.000
2022-11-26	0.000	0.000	0.000	0.000	0.000
2022-11-27	0.000	0.000	0.000	0.000	0.000
2022-11-28	0.428	0.854	1.699	0.000	2.981
2022-11-29	0.000	0.000	0.000	0.000	0.000
2022-11-30	0.000	0.000	0.000	0.000	0.000
2022-12-01	0.000	0.000	0.000	0.000	0.000
2022-12-02	0.000	0.000	0.000	0.000	0.000
2022-12-03	0.000	0.000	0.000	0.000	0.000
2022-12-04	0.000	0.000	0.000	0.000	0.000
2022-12-05	0.000	0.000	0.000	0.000	0.000
2022-12-06	0.000	0.000	0.000	0.000	0.000
2022-12-07	0.000	0.000	0.000	0.000	0.000
2022-12-08	0.000	0.000	0.000	0.000	0.000
2022-12-09	0.000	0.000	0.000	0.000	0.000
2022-12-10	0.000	0.000	0.000	0.000	0.000
2022-12-11	0.000	0.000	0.000	0.000	0.000
2022-12-12	0.000	0.000	0.000	0.000	0.000
2022-12-13	0.000	0.000	0.000	0.000	0.000
2022-12-14	0.000	0.000	0.000	0.000	0.000
2022-12-15	0.000	0.000	0.000	0.000	0.000
2022-12-16	0.000	0.000	0.000	0.000	0.000
2022-12-17	0.174	0.202	0.283	0.000	0.659
2022-12-18	0.000	0.000	0.000	0.000	0.000
2022-12-19	0.000	0.737	0.000	0.000	0.737
2022-12-20	1.791	3.533	3.649	0.000	8.973
2022-12-21	1.791	3.533	3.649	0.000	8.973
2022-12-22	1.254	1.345	1.451	0.000	4.050
2022-12-23	1.254	1.345	1.451	0.000	4.050
2022-12-24	0.621	1.298	2.522	0.000	4.441
2022-12-25	0.621	1.298	2.522	0.000	4.441
2022-12-26	1.633	2.007	3.898	0.000	7.538
2022-12-27	2.412	2.710	5.675	0.000	10.797
2022-12-28	1.936	2.382	5.445	0.000	9.763
2022-12-29	1.936	2.382	5.445	0.000	9.763
2022-12-30	2.254	3.278	6.578	0.000	12.110
2022-12-31	1.104	1.527	3.766	0.000	6.397
2023-01-01	1.897	1.854	2.816	0.000	6.567
2023-01-02	1.897	1.854	2.816	0.000	6.567
2023-01-03	1.354	1.669	4.895	0.000	7.918
2023-01-04	1.354	1.669	4.895	0.000	7.918
2023-01-05	0.000	0.000	0.000	0.000	0.000
2023-01-06	0.615	1.335	2.655	0.000	4.605
2023-01-07	1.016	0.235	2.427	0.000	3.678
2023-01-08	0.863	1.371	2.331	0.000	4.565
2023-01-09	1.463	1.509	2.743	0.000	5.715
2023-01-10	0.150	0.944	1.750	0.000	2.844
2023-01-11	0.150	0.944	1.750	0.000	2.844
2023-01-12	1.107	0.830	0.000	0.000	1.937
2023-01-13	1.192	0.817	2.129	0.000	4.138
2023-01-14	1.025	1.175	1.589	0.000	3.789
2023-01-15	1.025	1.175	1.589	0.000	3.789

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2023-01-16	1.590	1.359	3.511	0.000	6.460
2023-01-17	0.000	0.000	0.000	0.000	0.000
2023-01-18	0.811	0.000	1.809	0.000	2.620
2023-01-19	1.517	1.873	3.173	0.000	6.563
2023-01-20	2.268	1.865	3.762	0.000	7.895
2023-01-21	2.268	1.865	3.762	0.000	7.895
2023-01-22	1.741	1.780	3.604	0.000	7.125
2023-01-23	2.033	1.911	3.864	0.000	7.808
2023-01-24	2.033	1.911	3.864	0.000	7.808
2023-01-25	1.864	0.253	3.827	0.000	5.944
2023-01-26	2.371	1.866	2.461	0.000	6.698
2023-01-27	2.371	1.866	2.461	0.000	6.698
2023-01-28	1.479	1.540	3.277	0.000	6.296
2023-01-29	1.479	1.540	3.277	0.000	6.296
2023-01-30	1.560	1.591	3.358	0.000	6.509
2023-01-31	1.560	1.591	3.358	0.000	6.509
2023-02-01	1.627	1.647	3.366	0.000	6.640
2023-02-02	1.627	1.647	3.366	0.000	6.640
2023-02-03	1.539	1.671	3.255	0.000	6.465
2023-02-04	1.650	1.756	3.505	0.000	6.911
2023-02-05	1.572	1.706	2.221	0.000	5.499
2023-02-06	1.423	1.530	2.700	0.000	5.653
2023-02-07	1.695	1.776	3.480	0.000	6.951
2023-02-08	1.695	1.776	3.480	0.000	6.951
2023-02-09	2.153	1.600	2.828	0.000	6.581
2023-02-10	2.435	2.009	3.896	0.000	8.340
2023-02-11	1.566	0.916	0.729	0.000	3.211
2023-02-12	1.061	0.339	2.633	0.000	4.033
2023-02-13	2.724	0.000	0.289	0.000	3.013
2023-02-14	0.438	1.422	1.868	0.000	3.728
2023-02-15	1.661	1.096	1.666	0.000	4.423
2023-02-16	1.661	1.096	1.666	0.000	4.423
2023-02-17	1.744	1.116	1.931	0.000	4.791
2023-02-18	1.972	0.863	0.527	0.000	3.362
2023-02-19	0.195	1.533	1.351	0.000	3.079
2023-02-20	2.175	0.646	0.252	0.000	3.073
2023-02-21	2.175	0.646	0.252	0.000	3.073
2023-02-22	0.362	1.585	1.841	0.000	3.788
2023-02-23	1.311	0.989	0.897	0.000	3.197
2023-02-24	1.311	0.989	0.897	0.000	3.197
2023-02-25	2.562	2.373	4.707	0.000	9.642
2023-02-26	2.474	1.124	2.924	0.000	6.522
2023-02-27	2.014	3.546	3.449	0.000	9.009
2023-02-28	2.014	3.546	3.449	0.000	9.009
2023-03-01	2.396	2.421	5.674	0.000	10.491
2023-03-02	2.898	2.701	5.421	0.000	11.020
2023-03-03	2.898	2.701	5.421	0.000	11.020
2023-03-04	2.534	2.633	5.720	0.000	10.887
2023-03-05	2.534	2.633	5.720	0.000	10.887
2023-03-06	2.233	2.308	4.939	0.000	9.480
2023-03-07	2.233	2.308	4.939	0.000	9.480
2023-03-08	3.089	3.300	6.473	0.000	12.862

Date	Previous Day's Total (ML)				Total
	Bevan Well 1	Bevan Well 2	Bevan Well 3	Bevan Well 4	
2023-03-09	2.973	3.424	6.641	0.000	13.038
2023-03-10	2.955	3.388	6.626	0.000	12.969
2023-03-11	2.953	3.328	6.596	0.000	12.877
2023-03-12	2.953	3.328	6.596	0.000	12.877
2023-03-13	1.182	2.177	4.220	0.000	7.579
2023-03-14	1.182	2.177	4.220	0.000	7.579
2023-03-15	1.477	2.399	4.315	0.000	8.191
2023-03-16	3.497	2.261	4.218	0.000	9.976
2023-03-17	3.497	2.261	4.218	0.000	9.976
2023-03-18	2.528	1.986	4.606	0.000	9.120
2023-03-19	2.199	1.684	4.433	0.000	8.316
2023-03-20	2.199	1.684	4.433	0.000	8.316
2023-03-21	1.635	3.497	4.239	0.000	9.371
2023-03-22	1.635	3.497	4.239	0.000	9.371
2023-03-23	3.660	2.268	3.429	0.000	9.357
2023-03-24	3.422	3.450	3.614	0.000	10.486
2023-03-25	2.067	1.745	6.563	0.000	10.375
2023-03-26	1.646	3.480	4.309	0.000	9.435
2023-03-27	1.646	3.480	4.309	0.000	9.435
2023-03-28	1.476	2.111	4.074	0.000	7.661
2023-03-29	3.588	3.538	0.000	2.729	9.855
2023-03-30	3.140	3.401	0.000	5.675	12.216
2023-03-31	2.972	3.339	0.000	6.629	12.940
2023-04-01	3.412	1.529	0.000	5.446	10.387
2023-04-02	1.371	3.522	0.000	3.892	8.785
2023-04-03	1.371	3.522	0.000	3.892	8.785
2023-04-04	3.107	3.338	0.000	5.577	12.022
2023-04-05	3.107	3.338	0.000	5.577	12.022
2023-04-06	2.182	3.488	0.000	4.396	10.066
2023-04-07	2.182	3.488	0.000	4.396	10.066
2023-04-08	3.636	2.678	0.000	2.475	8.789
2023-04-09	2.068	1.583	0.000	4.829	8.480
2023-04-10	0.752	3.542	0.000	3.839	8.133
2023-04-11	1.842	2.485	0.000	2.515	6.842
2023-04-12	3.073	3.411	0.000	5.754	12.238
2023-04-13	3.049	3.402	0.000	5.654	12.105
2023-04-14	3.049	3.402	0.000	5.654	12.105
2023-04-15	3.013	3.386	0.000	5.624	12.023
2023-04-16	3.543	2.392	0.000	3.280	9.215
2023-04-17	2.327	2.518	0.000	4.354	9.199
2023-04-18	2.528	2.545	0.000	5.800	10.873
2023-04-19	0.000	0.000	0.000	0.000	0.000
2023-04-20	0.000	0.000	0.000	0.000	0.000
2023-04-21	1.761	1.932	3.217	2.276	9.186
2023-04-22	0.289	0.227	0.599	4.693	5.808
2023-04-23	0.000	0.000	0.000	1.774	1.774
2023-04-24	0.000	0.000	0.000	0.000	0.000
2023-04-25	0.000	0.000	0.000	0.000	0.000
2023-04-26	0.000	0.000	0.000	0.078	0.078
2023-04-27	2.008	1.991	3.867	0.111	7.977
2023-04-28	2.008	1.991	3.867	0.111	7.977
2023-04-29	3.687	1.475	6.699	0.000	11.861
2023-04-30	2.286	3.473	3.822	0.204	9.785

APPENDIX M

Shallow Groundwater and Vegetation Monitoring Plot Locations

Table 1 Plot Locations for Each Study Area

Study Area	Plot Name	Easting	Northing
Fishtrap Creek	FT01	545059	5430684
Fishtrap Creek	FT02	544256	5430301
Fishtrap Creek	FT03	544404	5430240
Fishtrap Creek	FT04	544376	5430214
Fishtrap Creek	FT06	545236	5430954
Fishtrap Creek	FT07 & BEV-FT-GW3	545254	5431073
Fishtrap Creek	BEV-FT-GW1	545061	5430535
Fishtrap Creek	BEV-FT-GW2	544826	5430328
Horn Creek	H01 & H01-LA1	550823	5434340
Horn Creek	H02	550763	5434395
Boa Brook	B01	551015	5433644
Boa Brook	B02 & B02-LA1	550934	5433658
Downes Creek	D01 & D01-LA1	549030	5435581
Downes Creek	D02	549051	5435556
Downes Creek	D03	549105	5435462
Downes Creek	D04	549248	5435380
Downes Creek	D05 & D05-LA1	549290	5435368
Downes Creek	D06 & D06-LA1	548914	5435540
Downes Creek	D07	549007	543547
Downes Creek	D08 & D08-LA1	549180	5435492
Downes Creek	D09-LA1	549027	5435518
Downes Creek	D10-LA1	548988	5435368
Downes Creek	D11-LA1	549097	5435304
Downes Creek	D12-LA1	549108	5435578
Downes Creek	D13	549063	5435643
Downes Creek	D14	549151	5435549
Downes Creek	D15	548885	5435552
Downes Creek	D16	549312	5435323
Downes Creek	D17	549038	5435269

Study Area	Plot Name	Easting	Northing
Downes Creek	D18	549328	5435459
Control Wetland A	BEV-CWA-GW1	551136	5435541
Control Wetland A	BEV-CWA-GW2	551202	5435577
Control Wetland A	BEV-CWA-GW3	551052	5435558
Control Wetland B	BEV-CWB-GW1	540051	5429172
Control Wetland B	BEV-CWB-GW2	540066	5429153
Control Wetland B	BEV-CWB-GW3	540069	5429191
Control Wetland C	BEV-CWC-GW1	552837	5431799
Control Wetland C	BEV-CWC-GW2	552824	5431801
Control Wetland C	BEV-CWC-GW3	552831	5431776

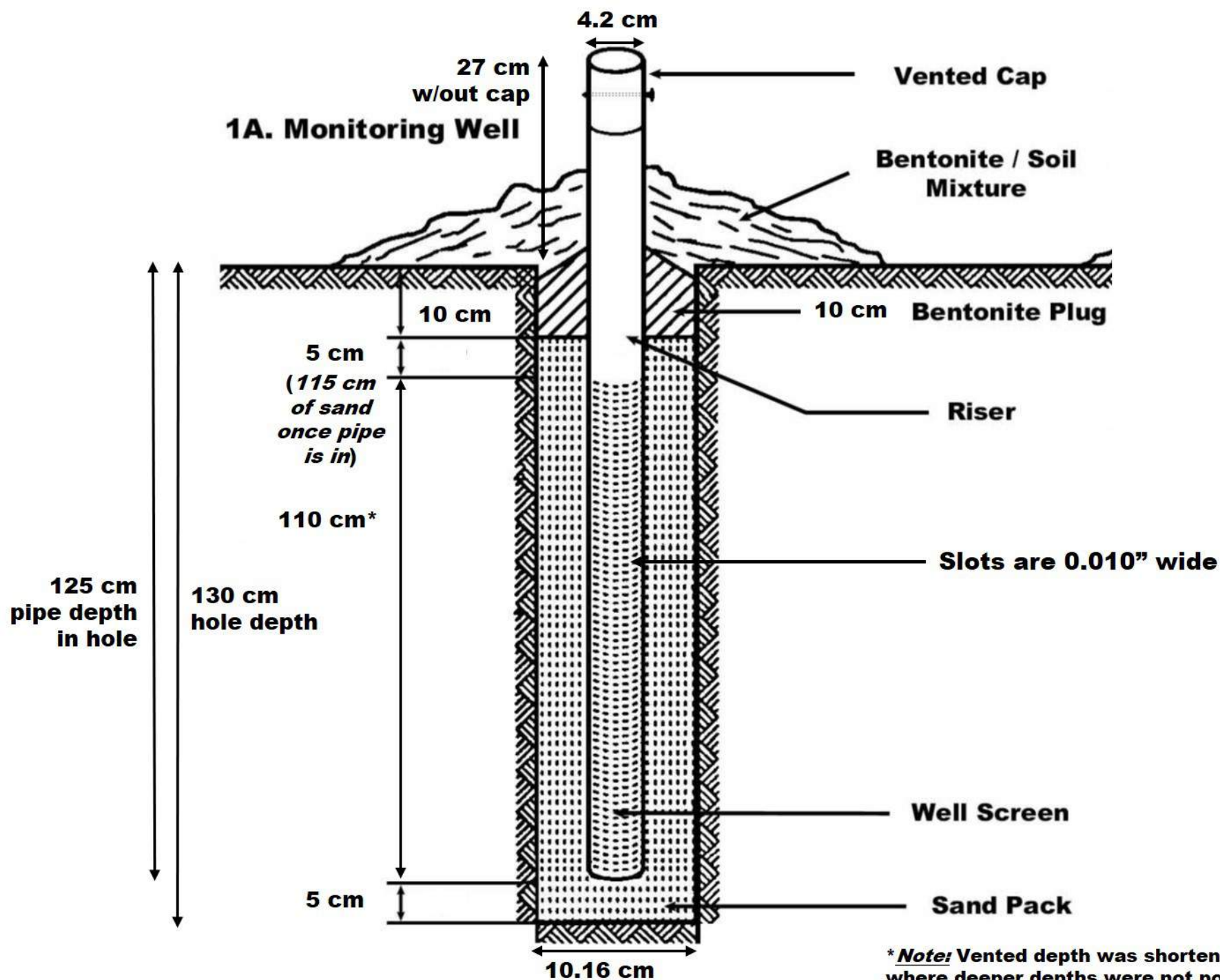
**Skunk cabbage plot locations at Downes also have shallow groundwater wells.*

***Note that FT05 is missing as it was not a full TEM plot, but represented a visual inspection.*

APPENDIX N

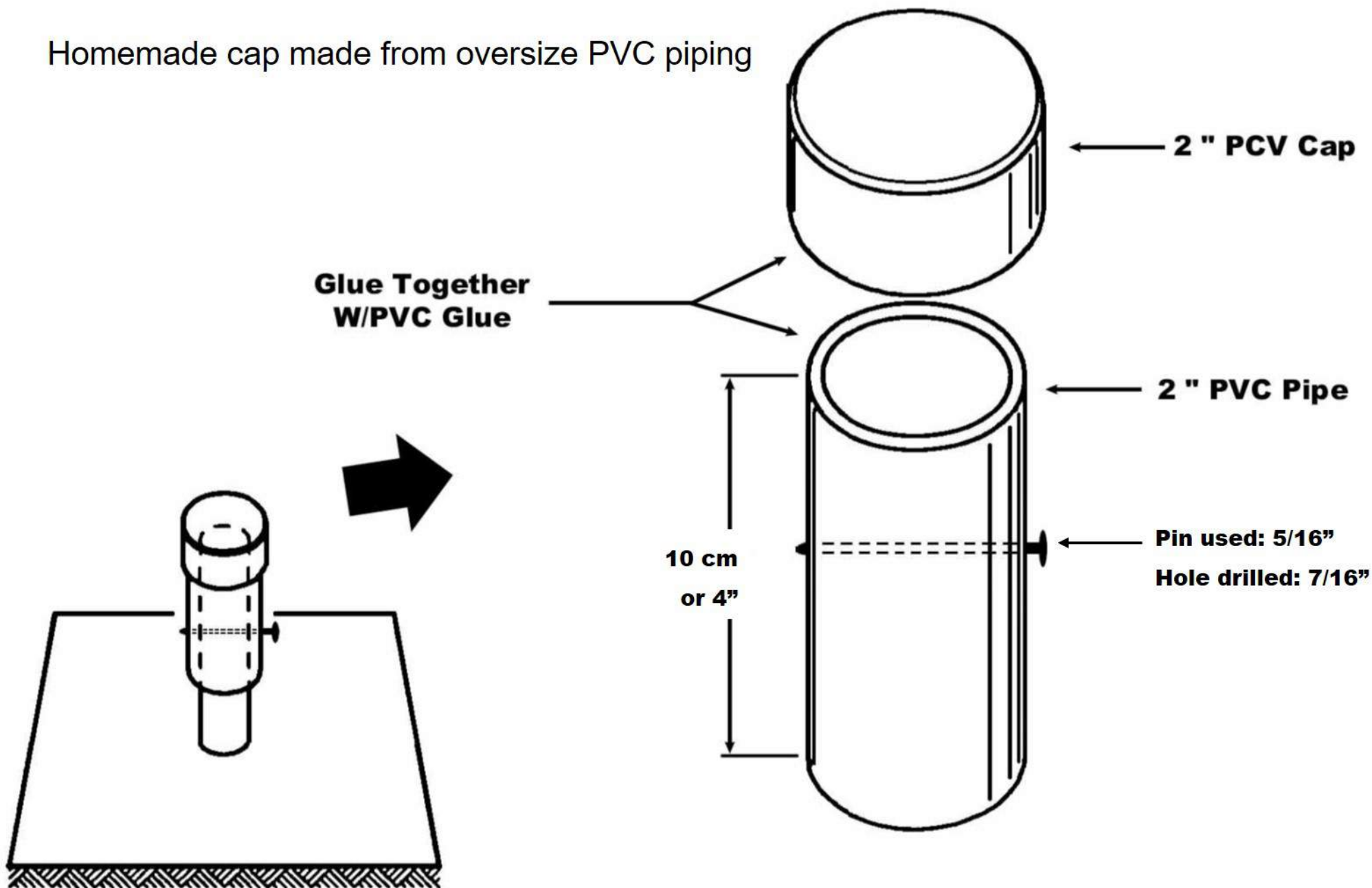
Shallow Groundwater Well Specifications

1A. Monitoring Well



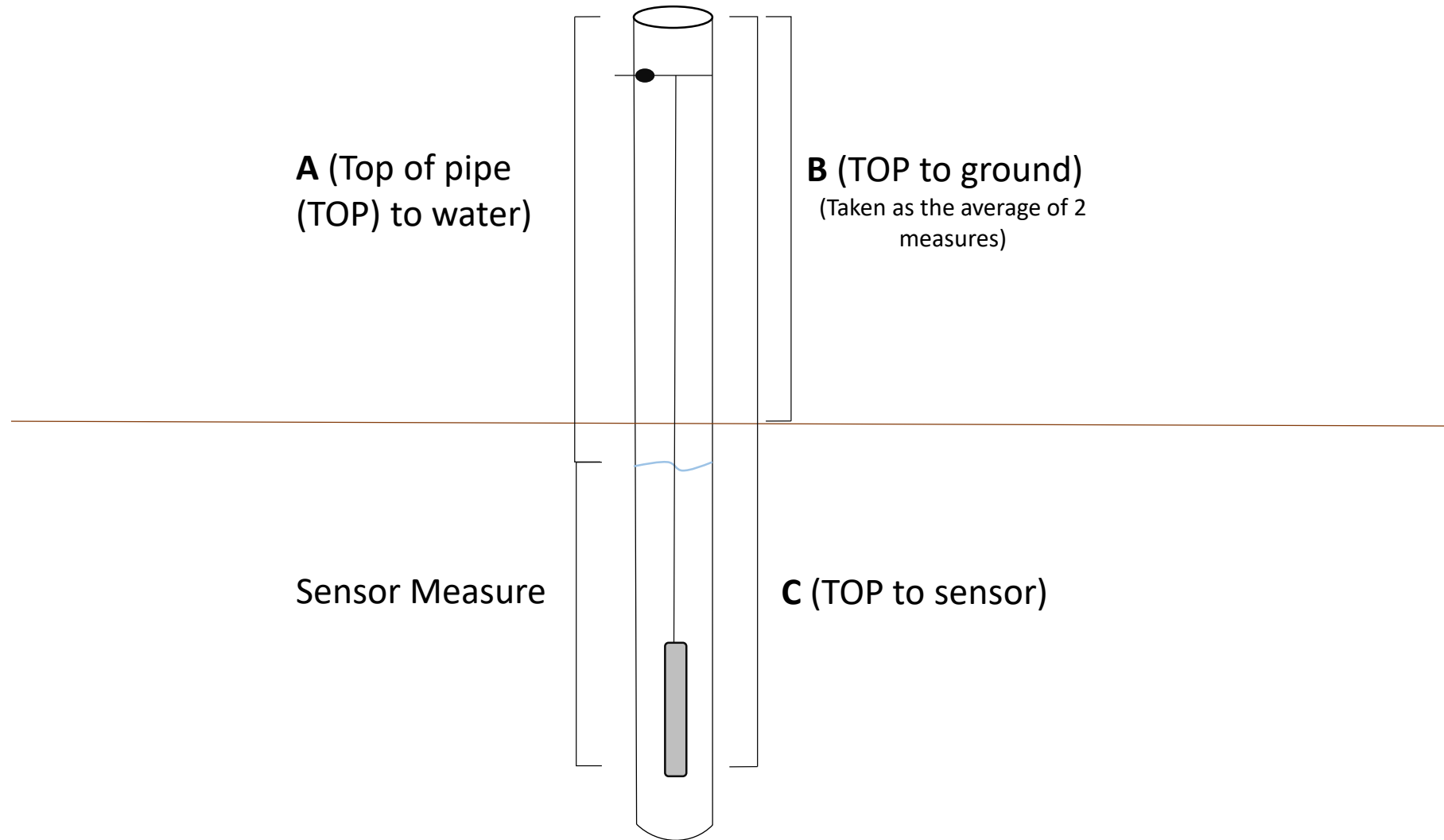
**Note!* Vented depth was shortened in some Control Wetlands, where deeper depths were not possible.

Homemade cap made from oversize PVC piping

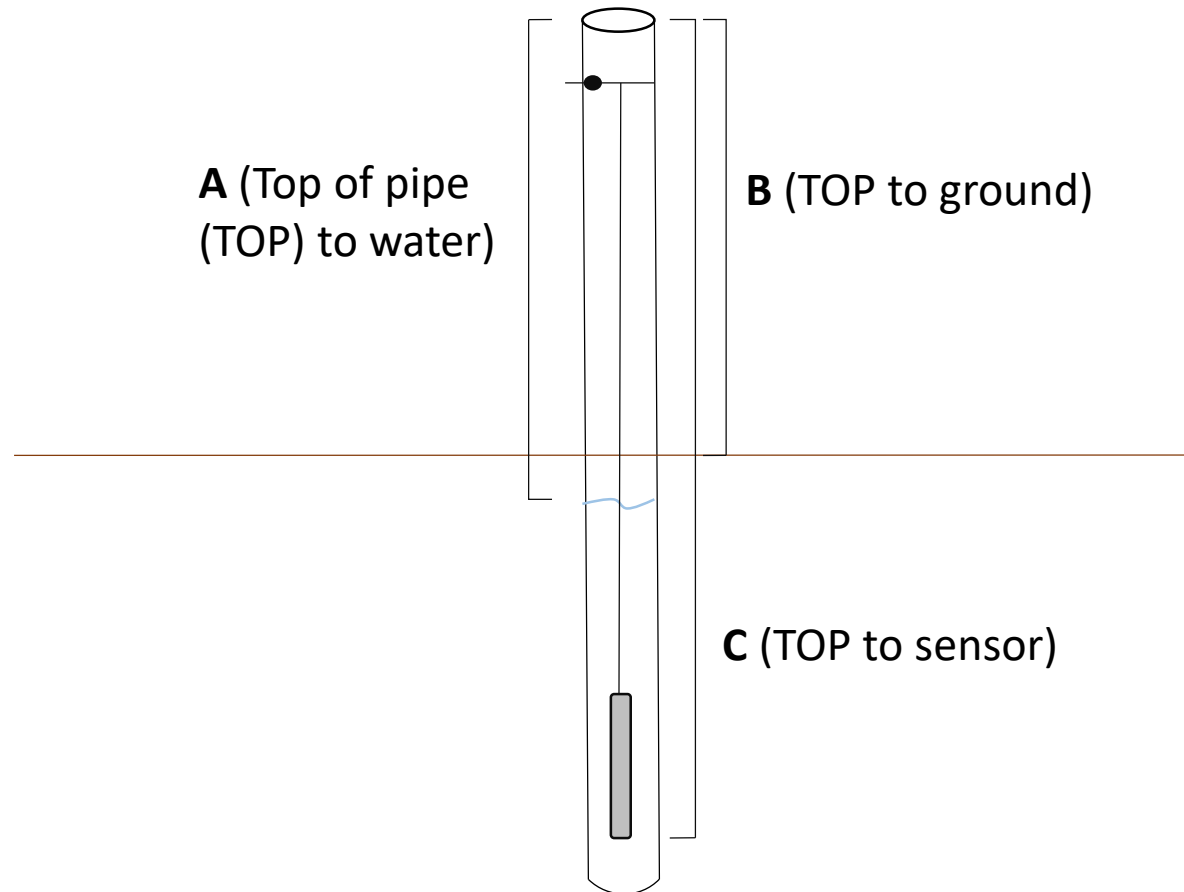


Sensor-measured water below ground formula (D1): $(B + \text{sensor measure}) - C$

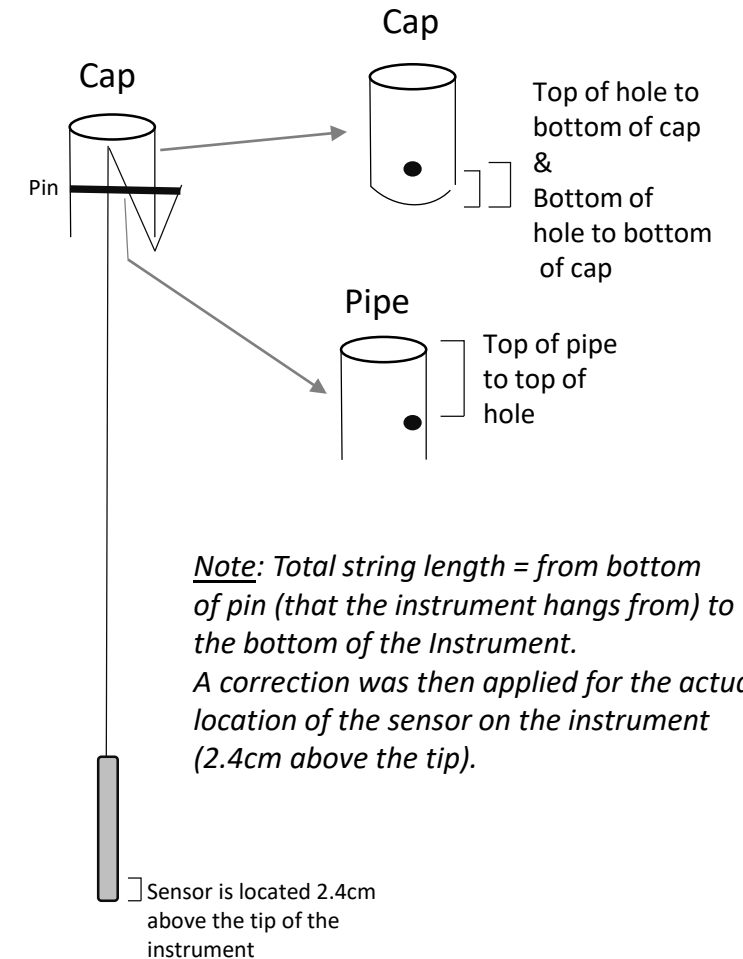
Actual water depth within pipe (D2) = $B - A$



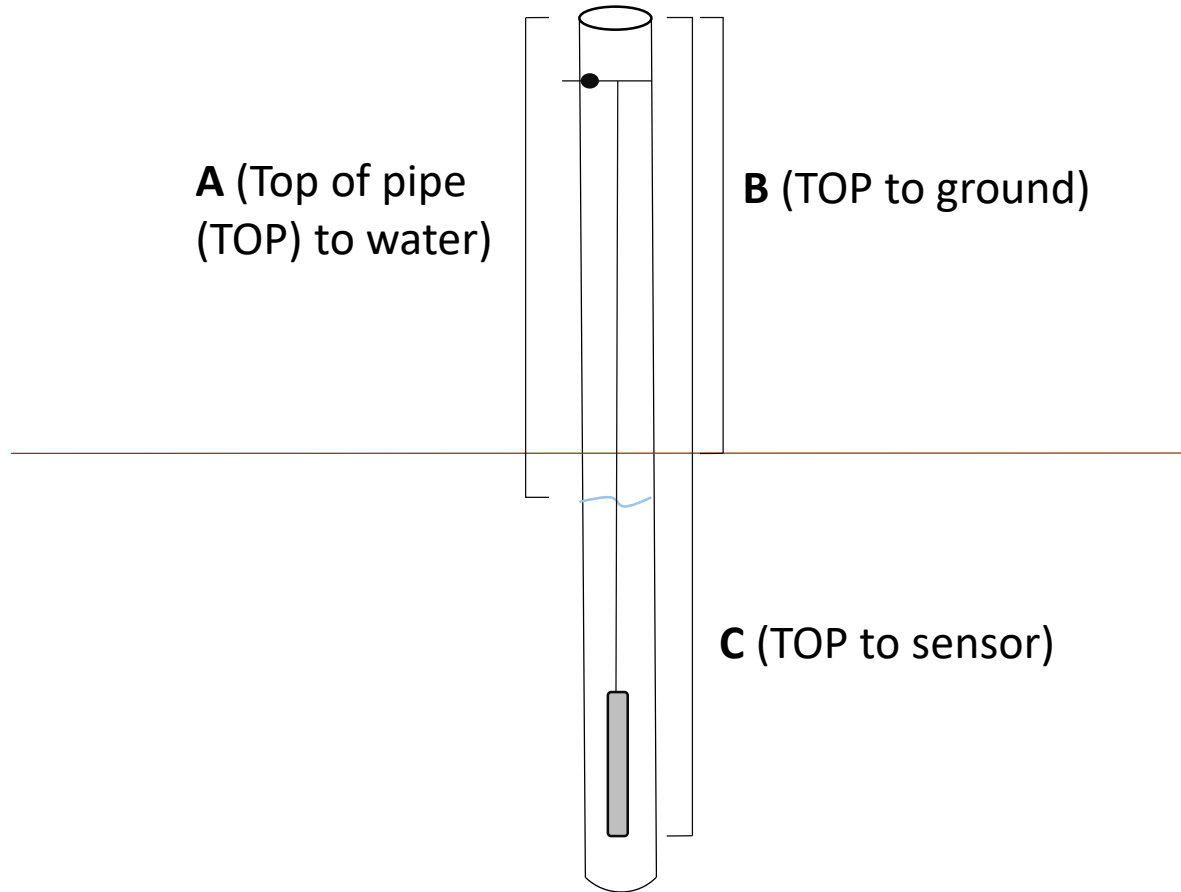
Old way of getting the measures:



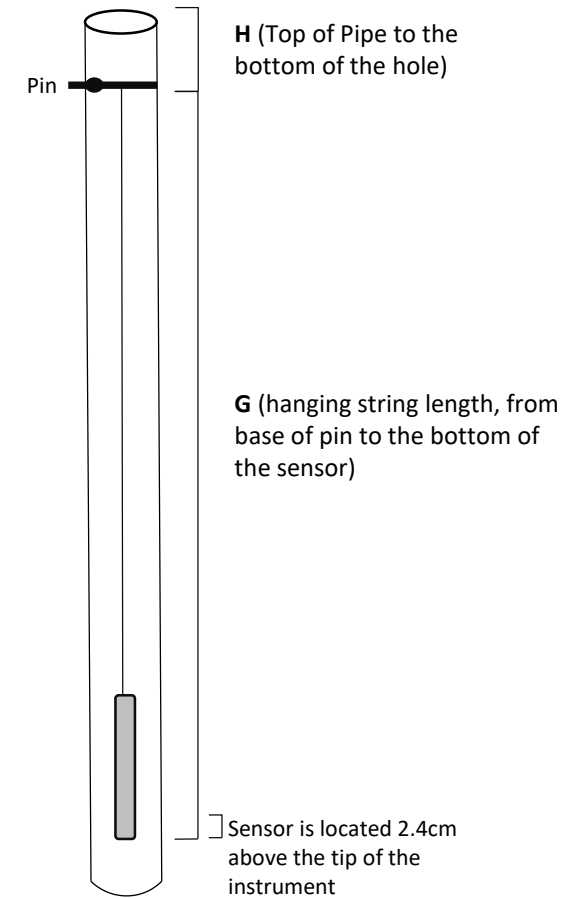
Old Formula for TOP to sensor (C value): (Total string length-2.4cm) – ([TOP to top of hole on pipe] + [bottom of cap to top of hole] + [bottom of cap to bottom of hole])



New way of getting the measures:



To get the C measure: $G + H - 2.4\text{cm}$

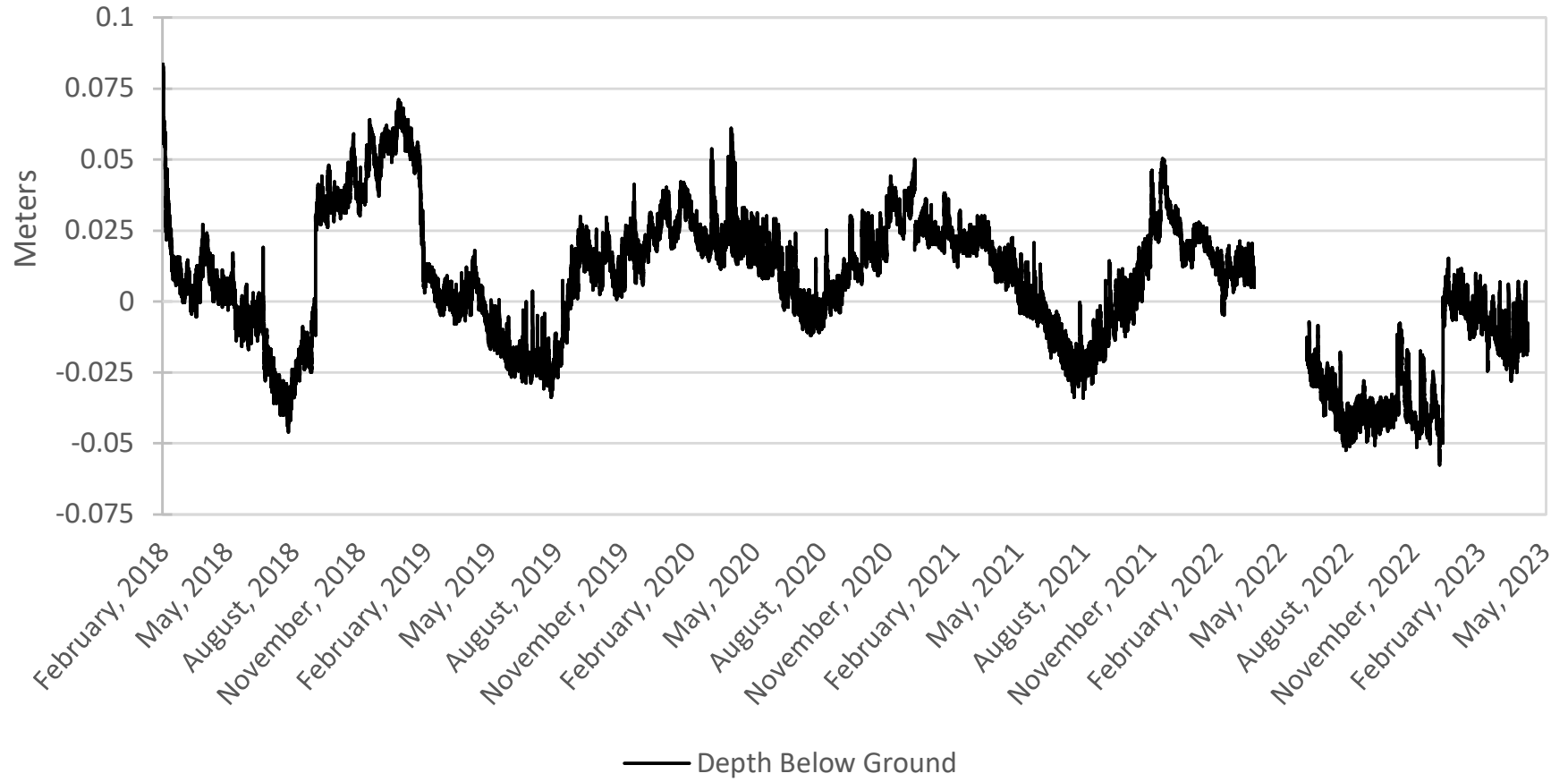


*Note: Total string length = from bottom of pin (that the instrument hangs from) to the bottom of the Instrument.
A correction was then applied for the actual location of the sensor on the instrument (2.4cm above the tip).*

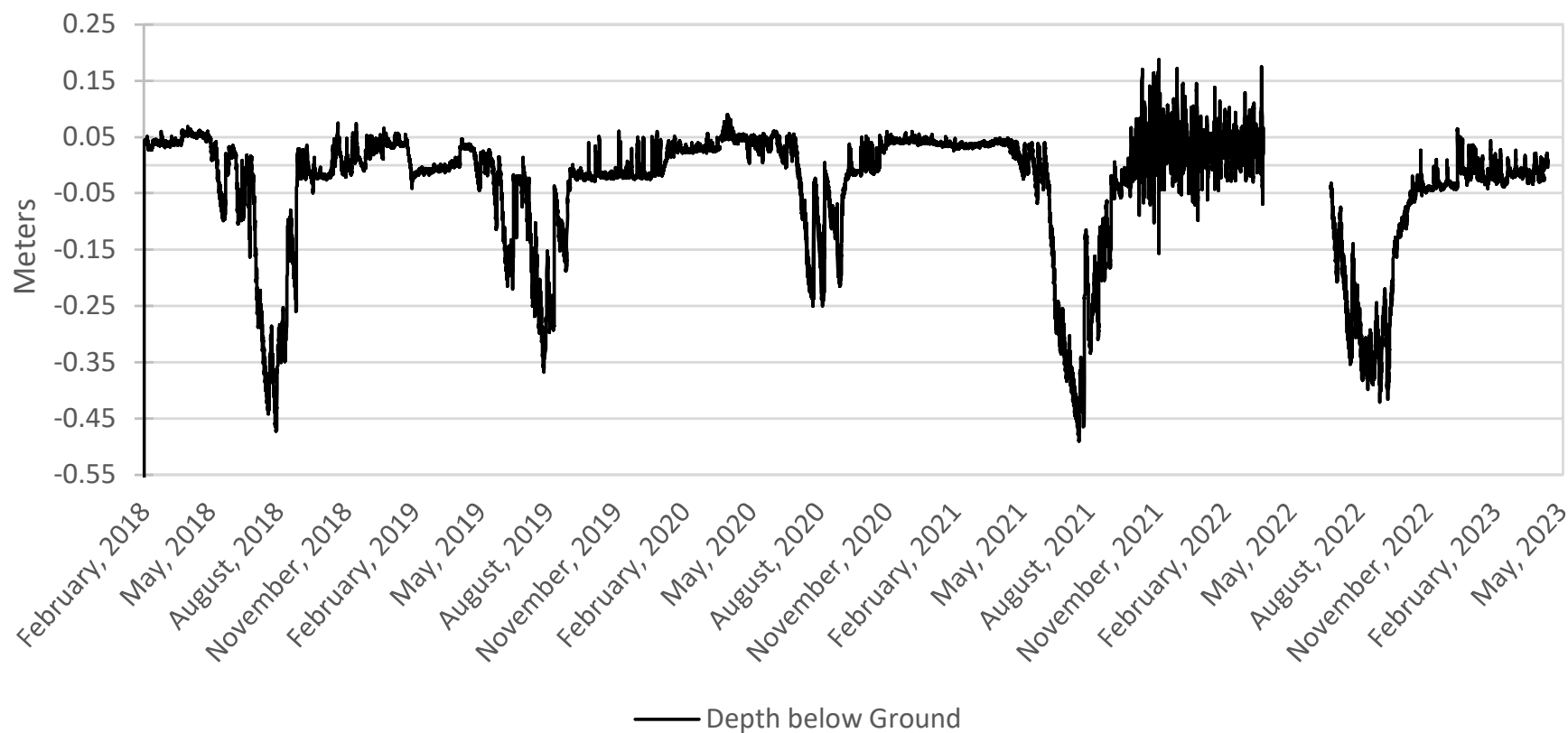
APPENDIX O

Shallow Groundwater Level Charts

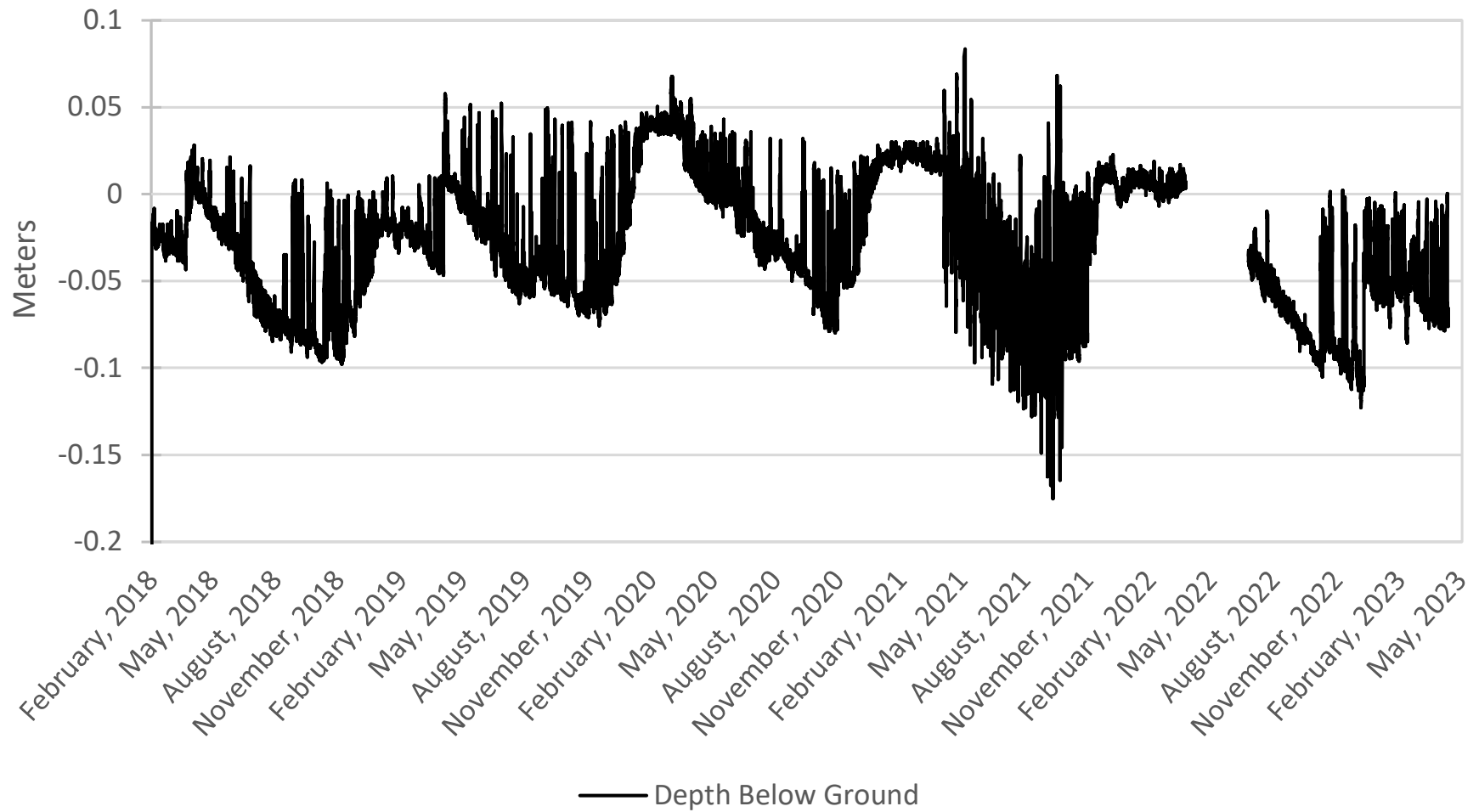
Water Table Depth - Control Wetland A, GW1



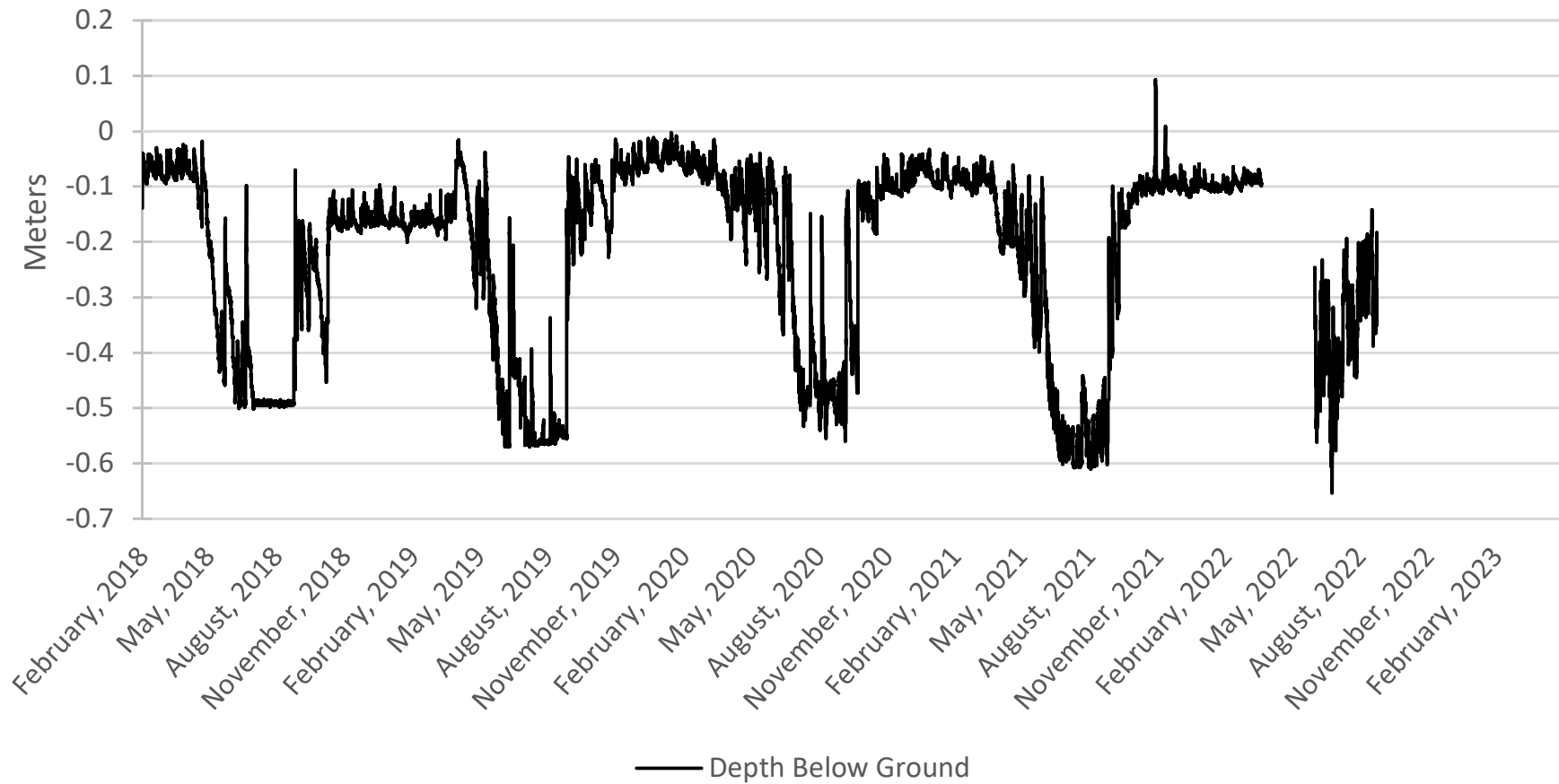
Water Table Depth - Control Wetland A, GW2



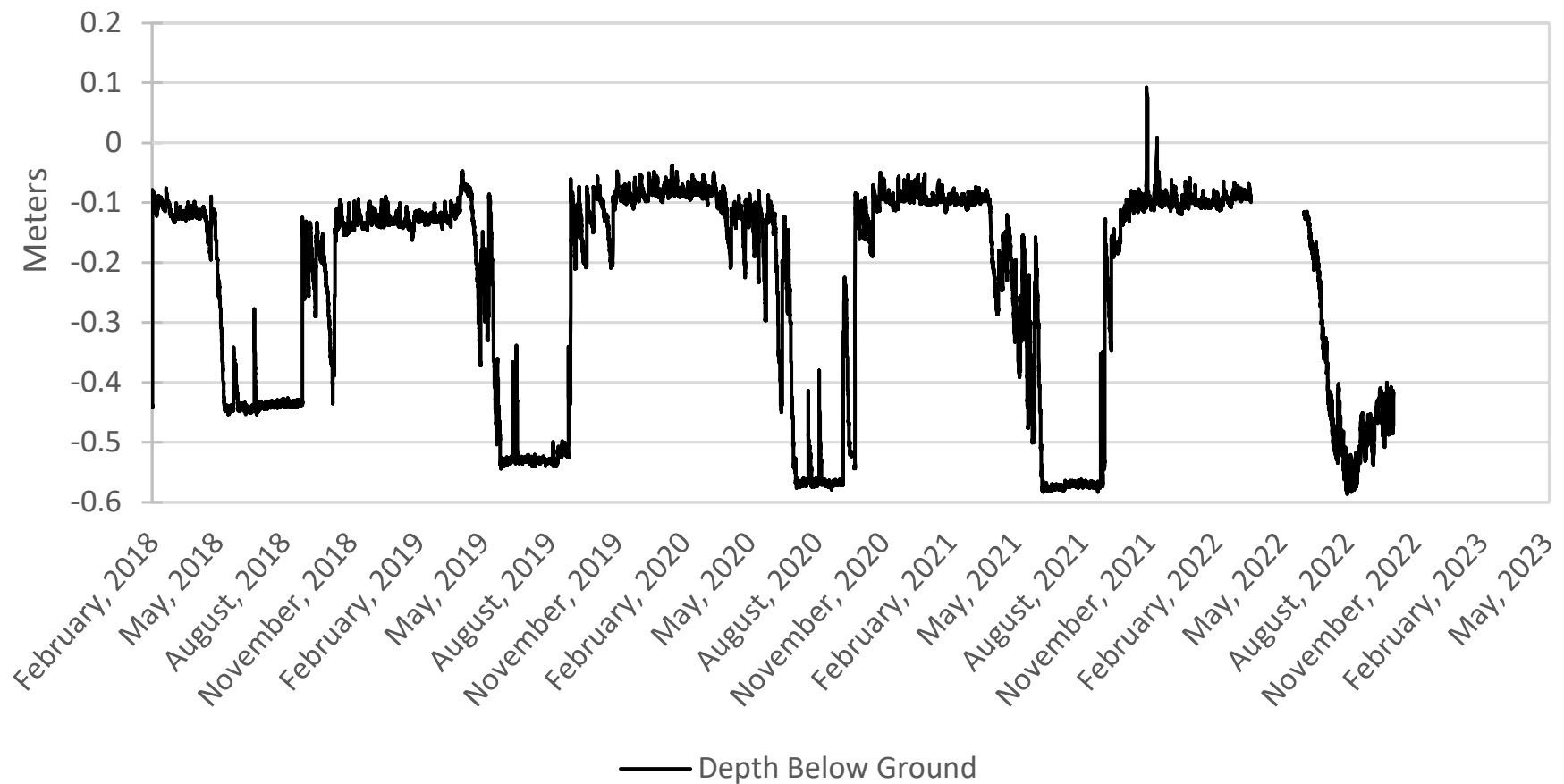
Water Table Depth - Control Wetland A, GW3



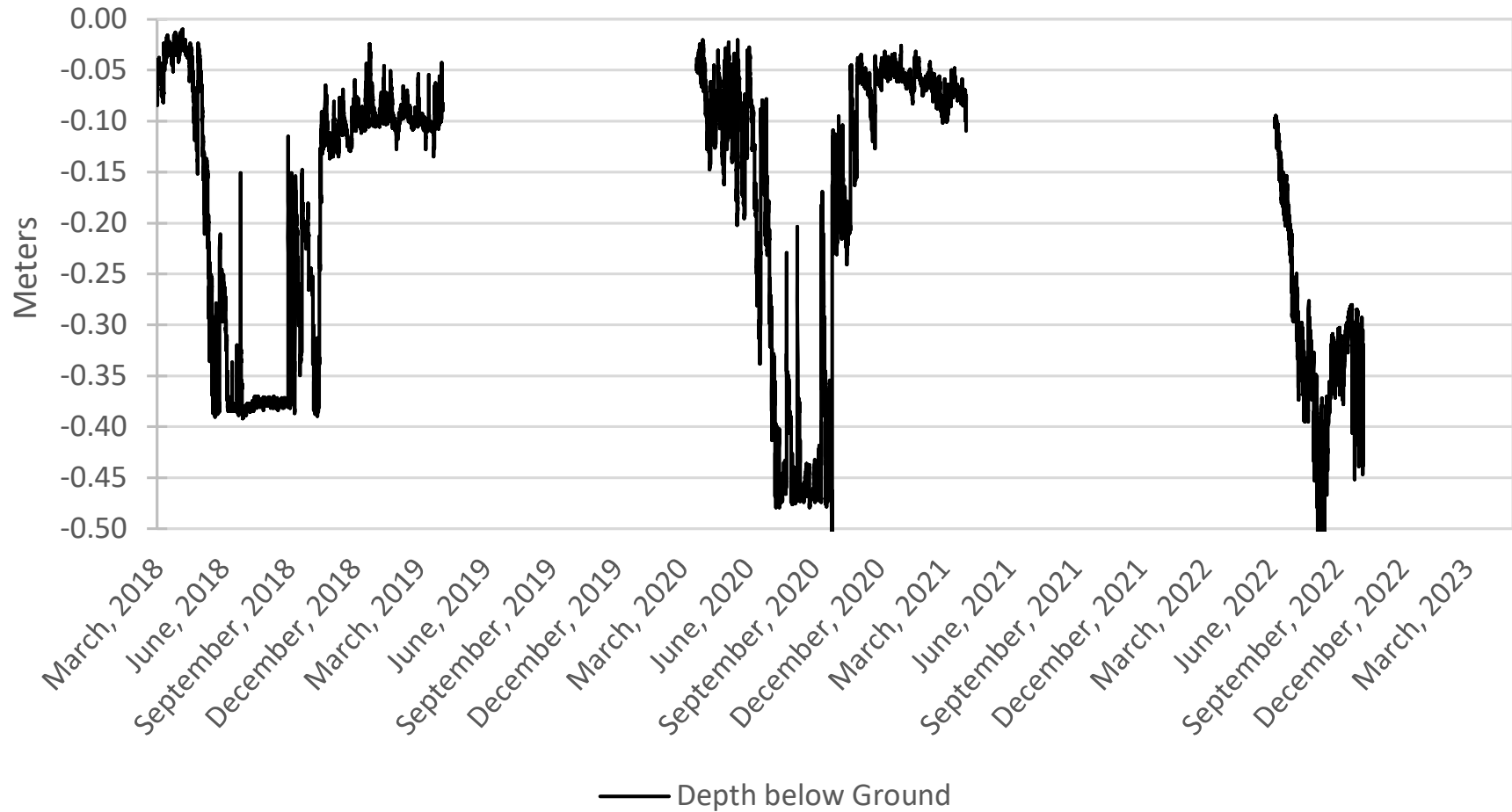
Water Table Depth - Control Wetland B, GW1



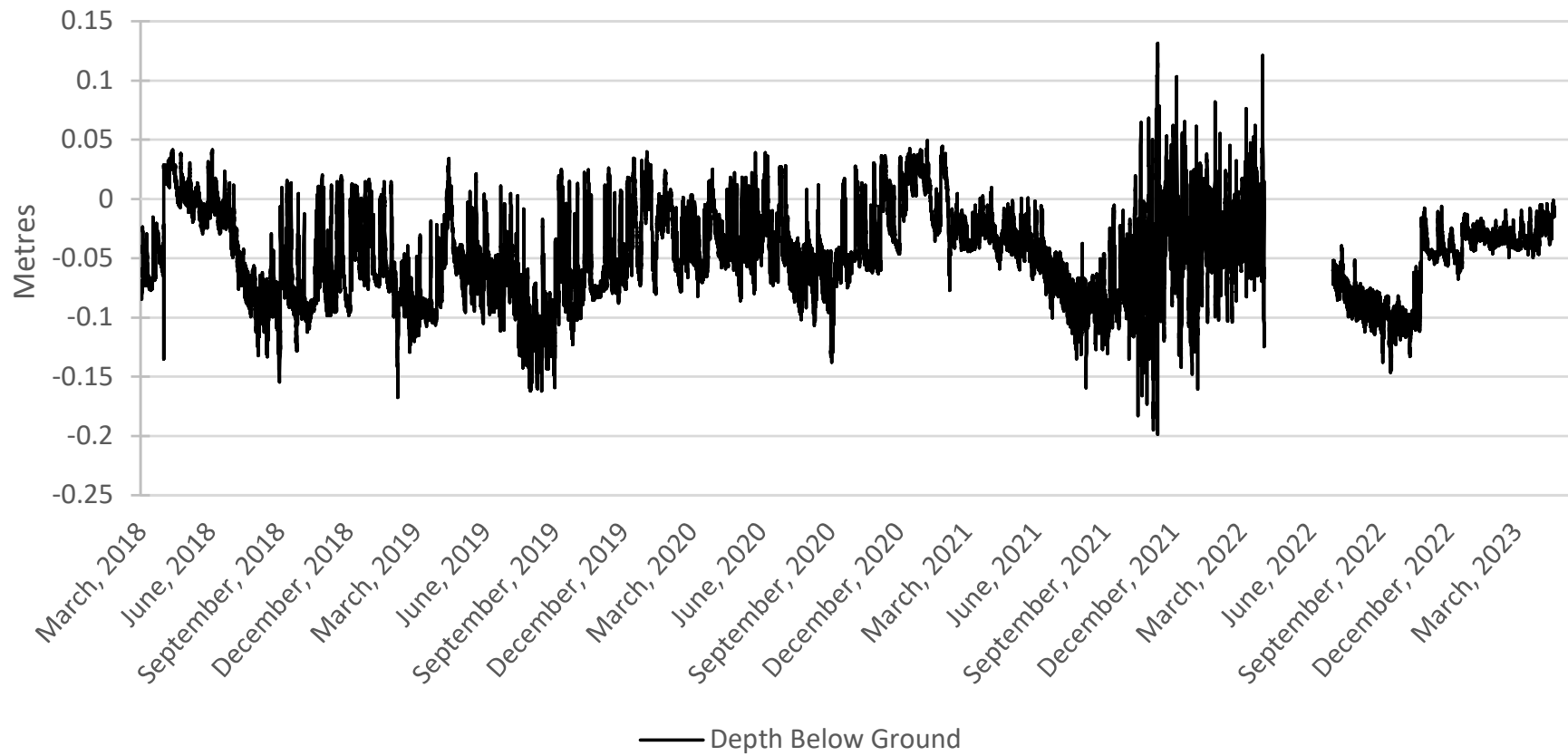
Water Table Depth - Control Wetland B, GW2



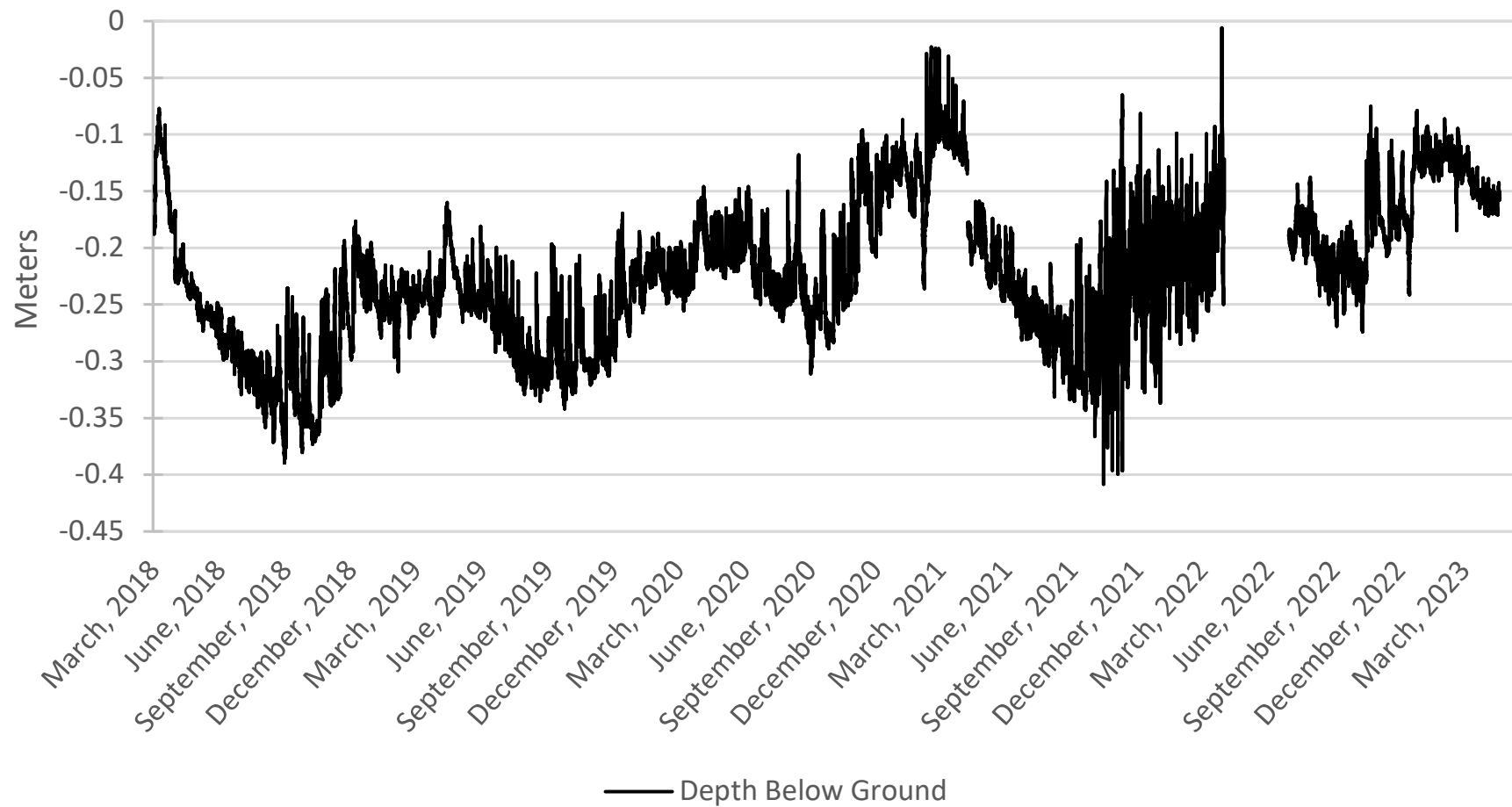
Water Table Depth - Control Wetland B, GW3



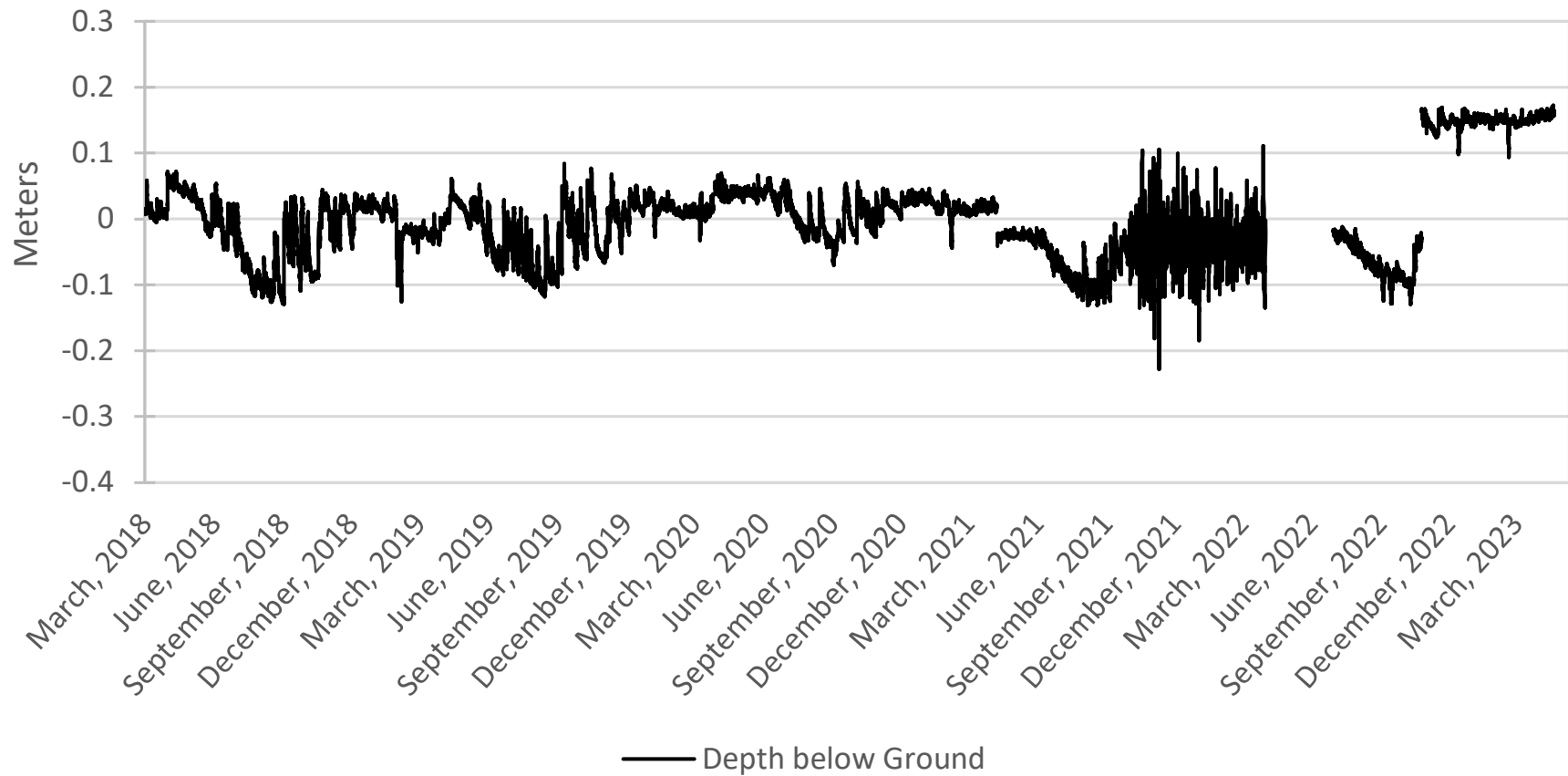
Water Table Depth - Control Wetland C, GW1



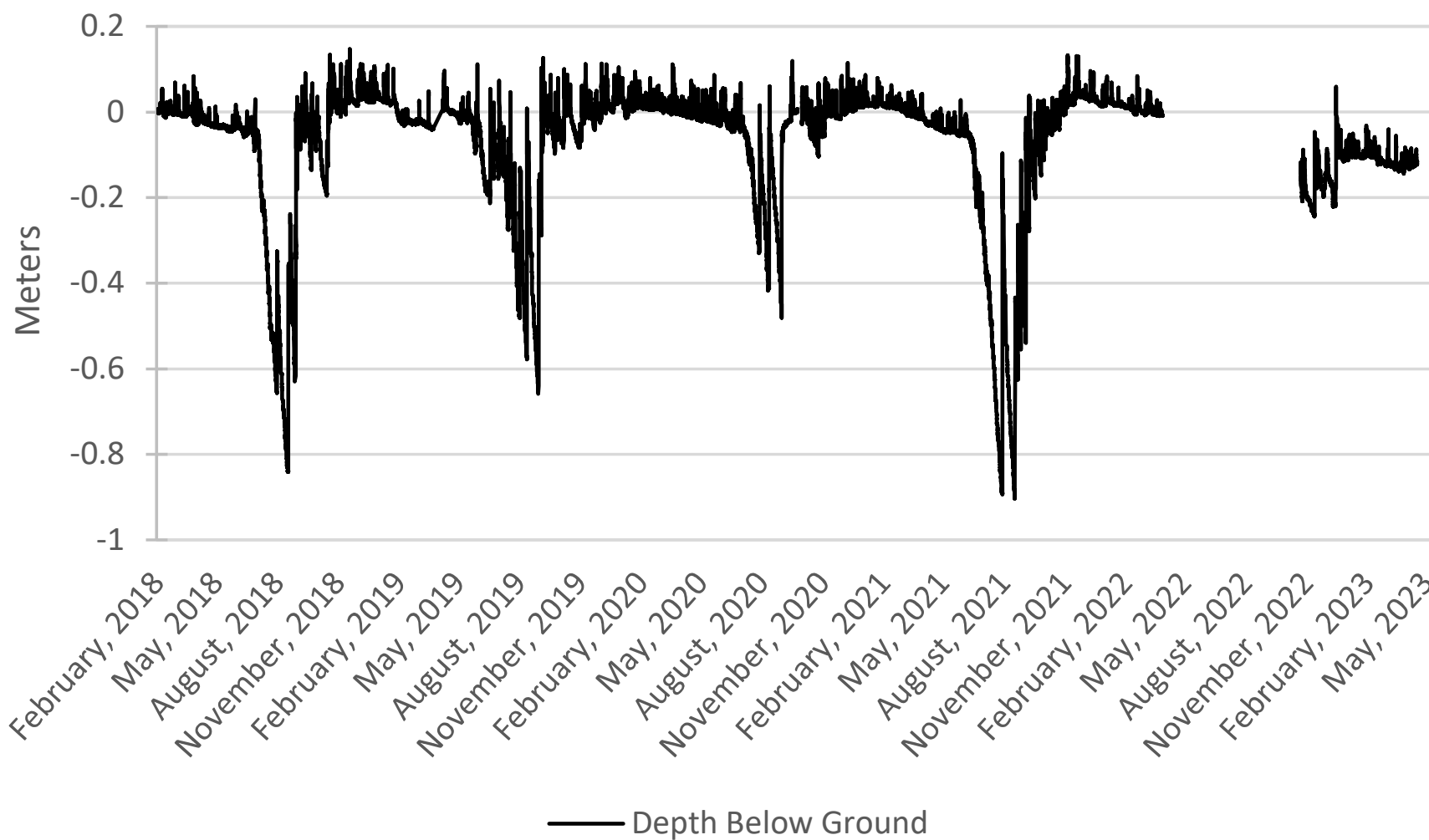
Water Table Depth - Control Wetland C, GW2



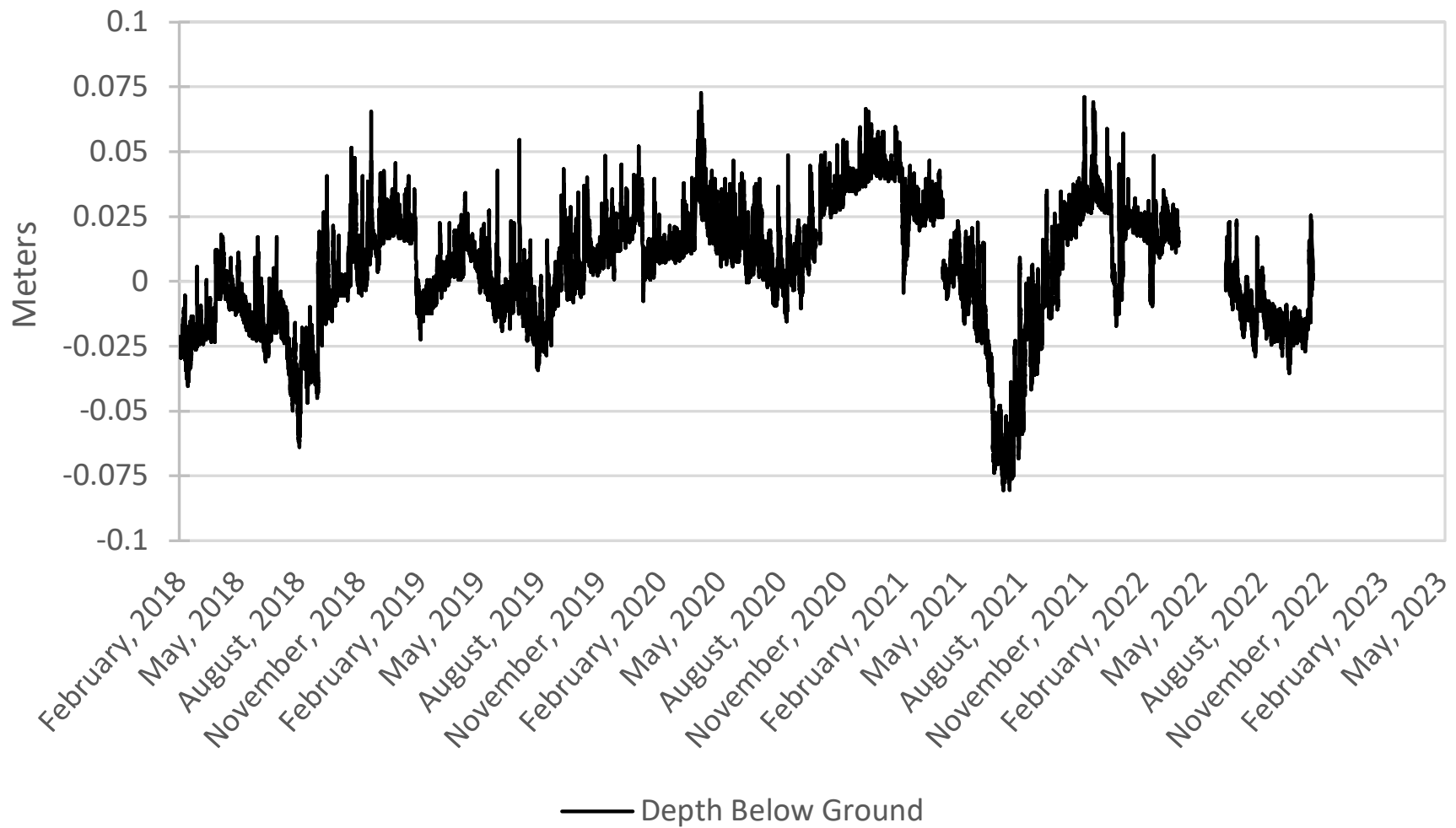
Water Table Depth - Control Wetland C, GW3



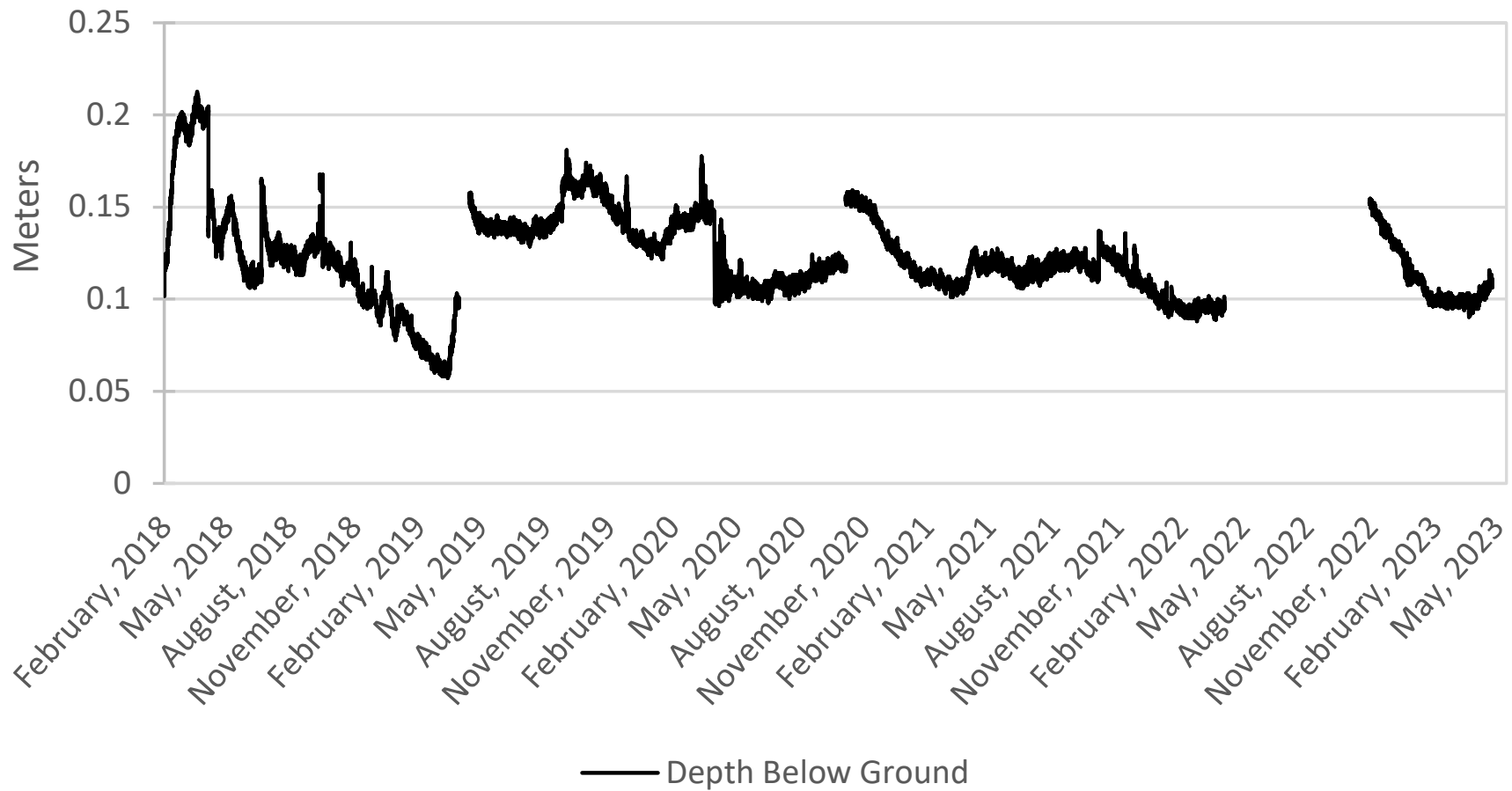
Water Table Depth - Boa Brook Plot 2



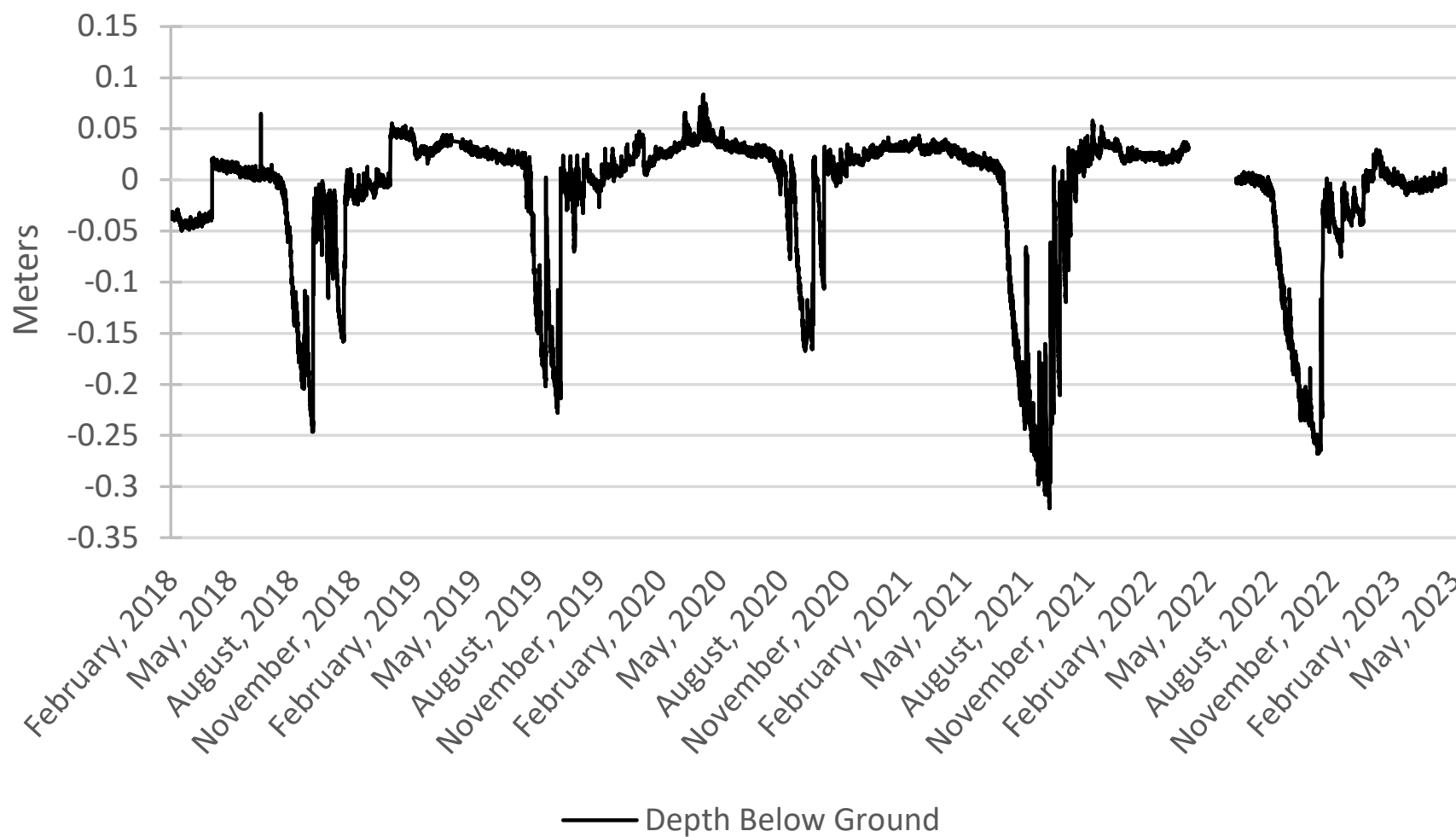
Water Table Depth - Horne Creek Plot 1



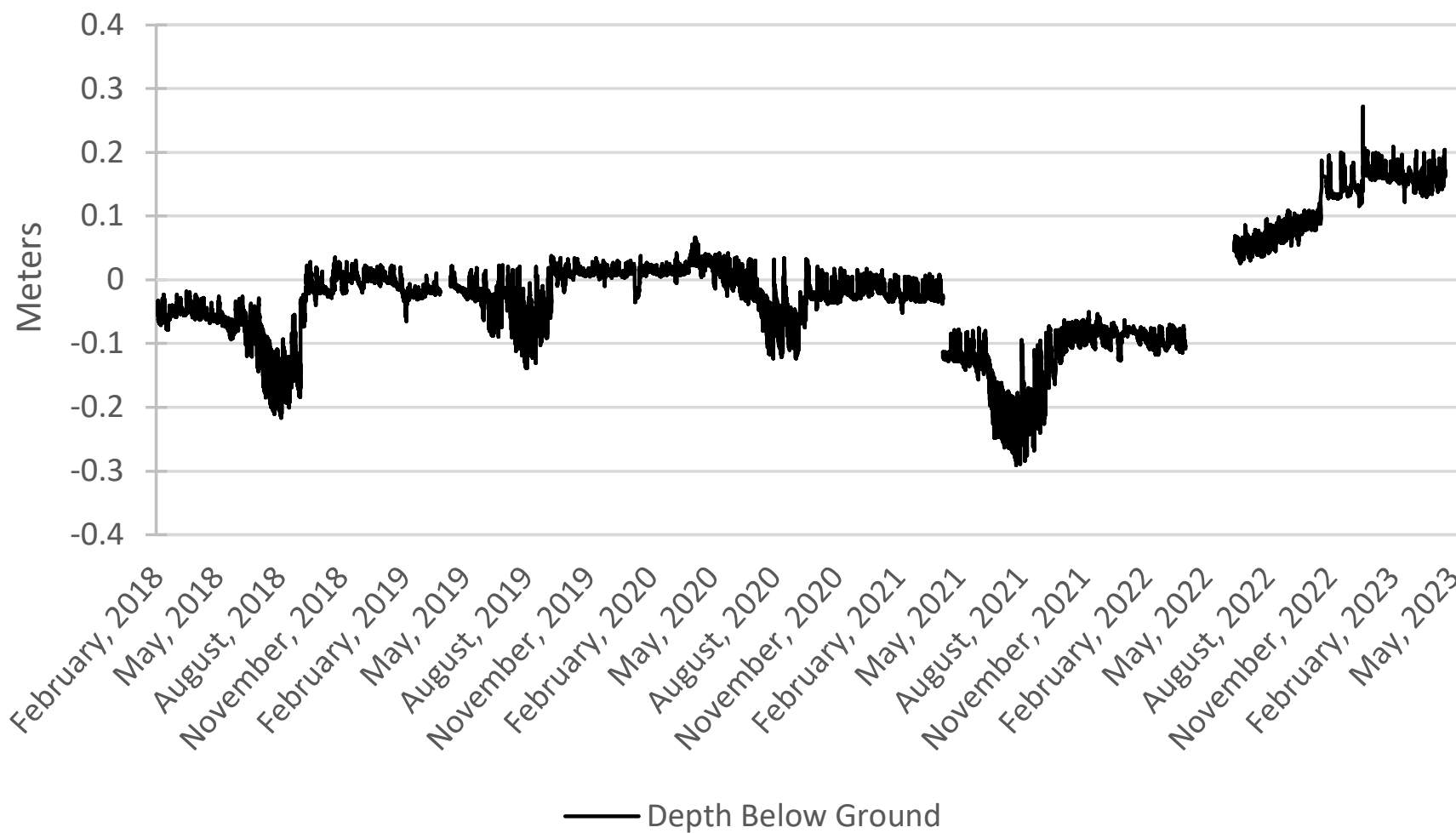
Water Table Depth - Downes Plot 1



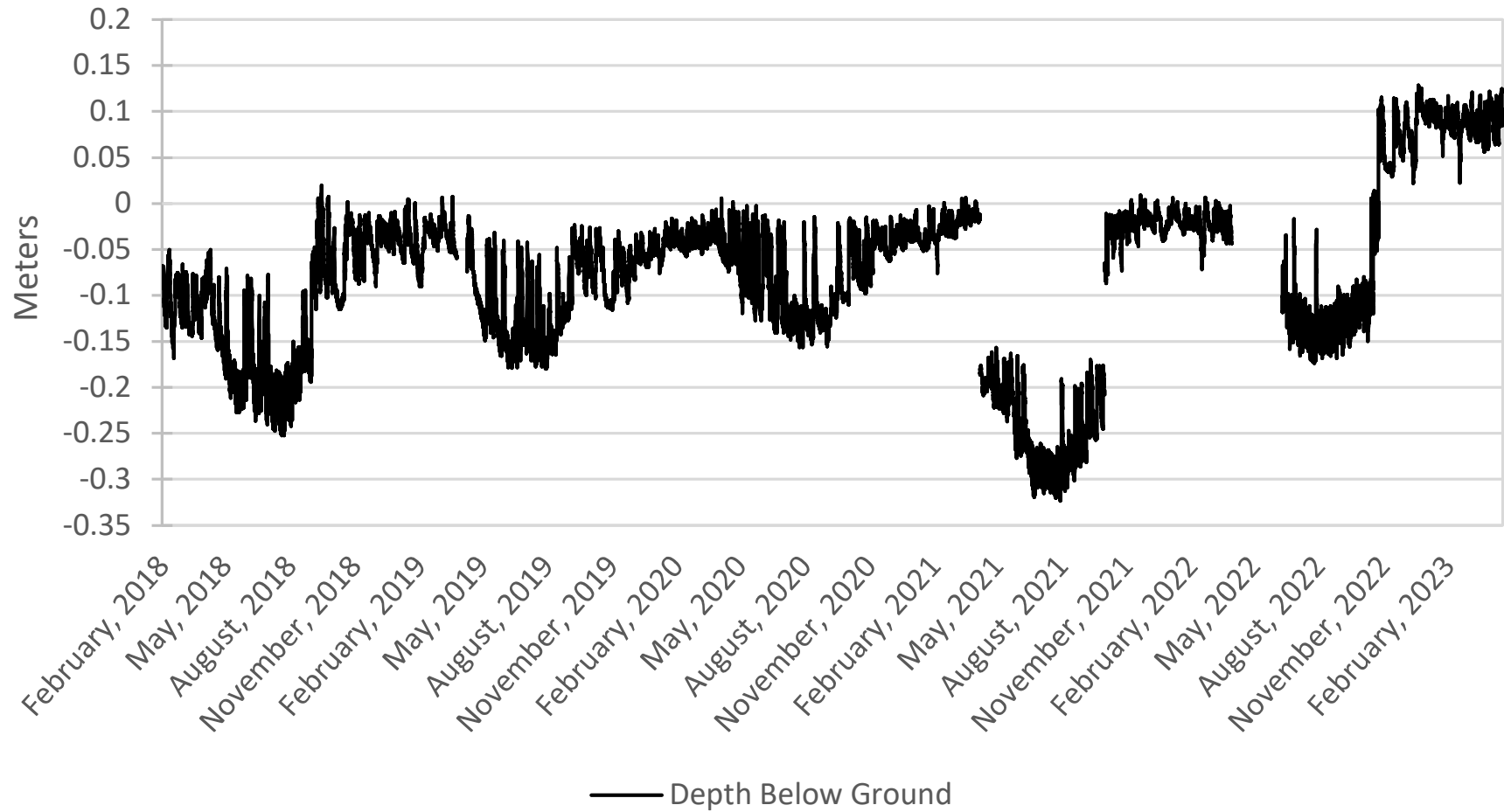
Water Table Depth - Downes Plot 6



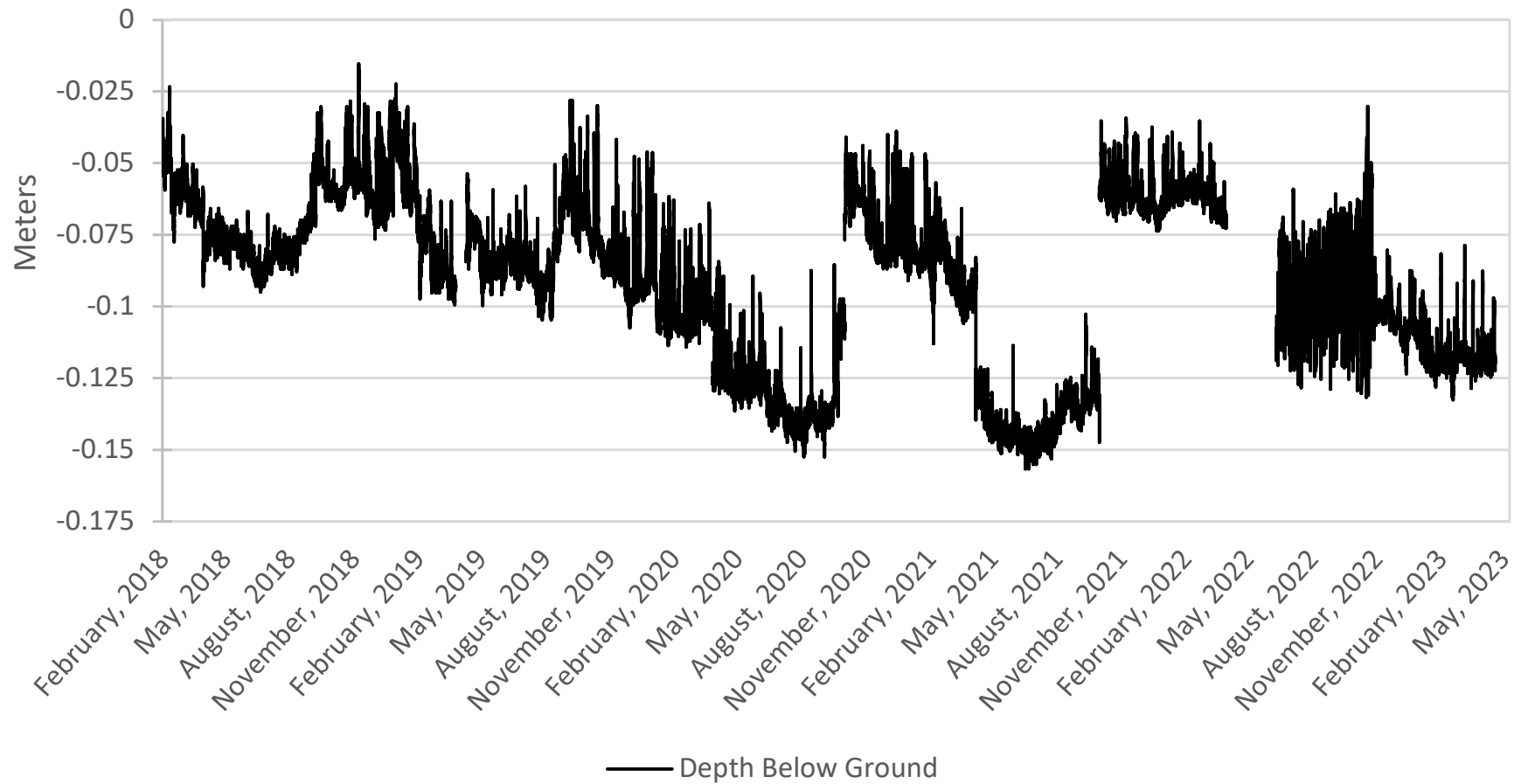
Water Table Depth - Downes Plot 9



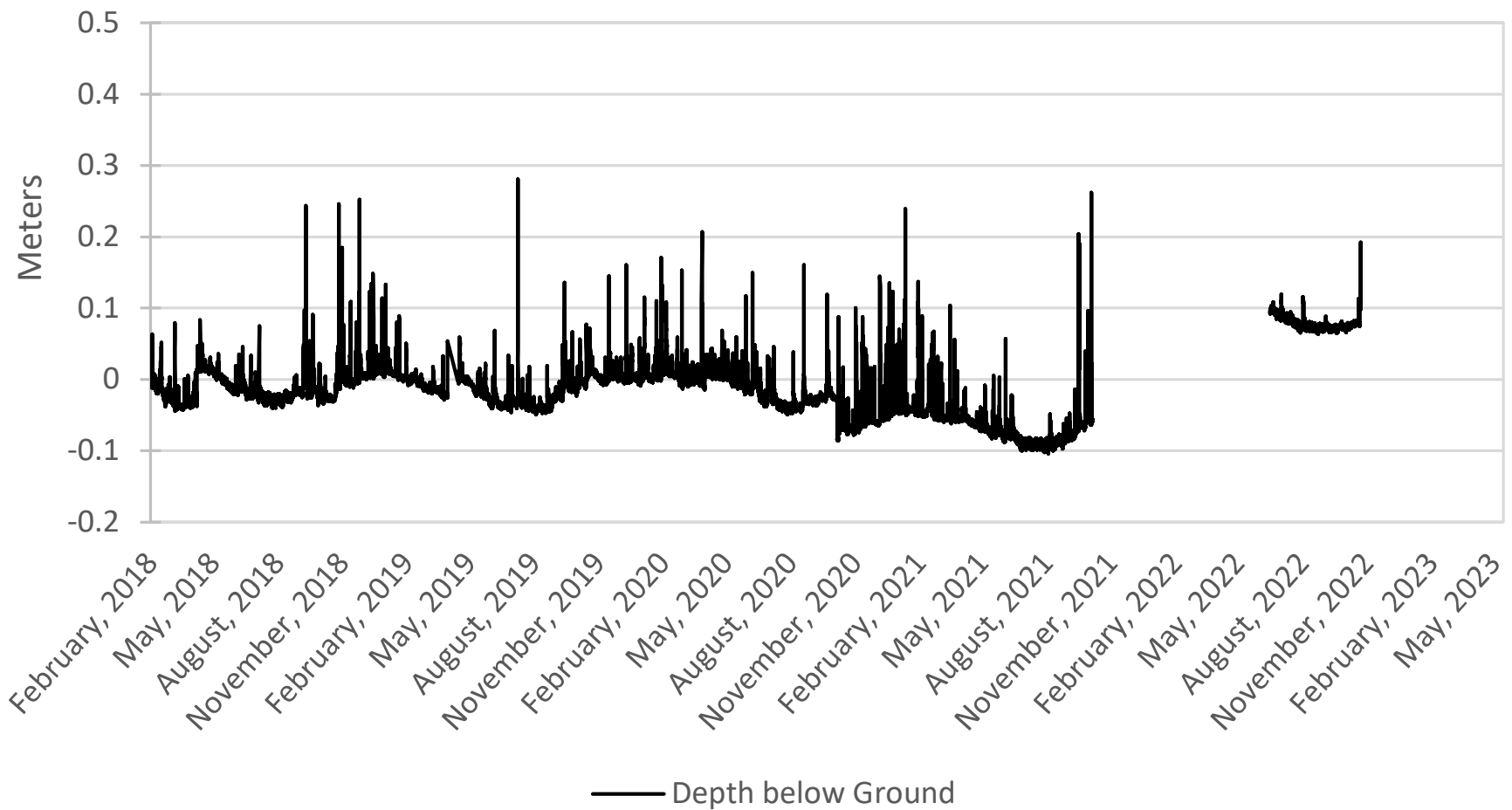
Water Table Depth - Downes Plot 10



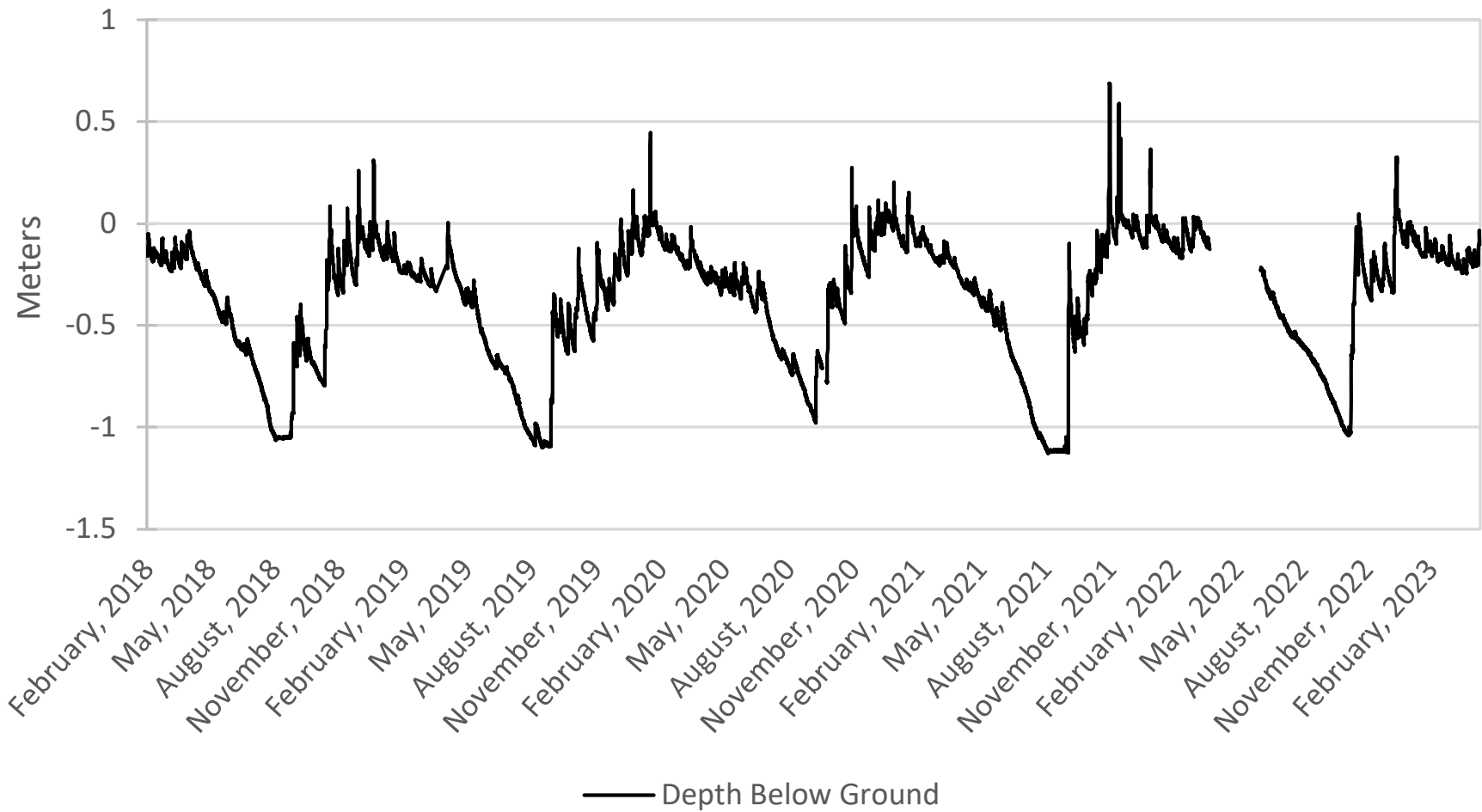
Water Table Depth - Downes Plot 11



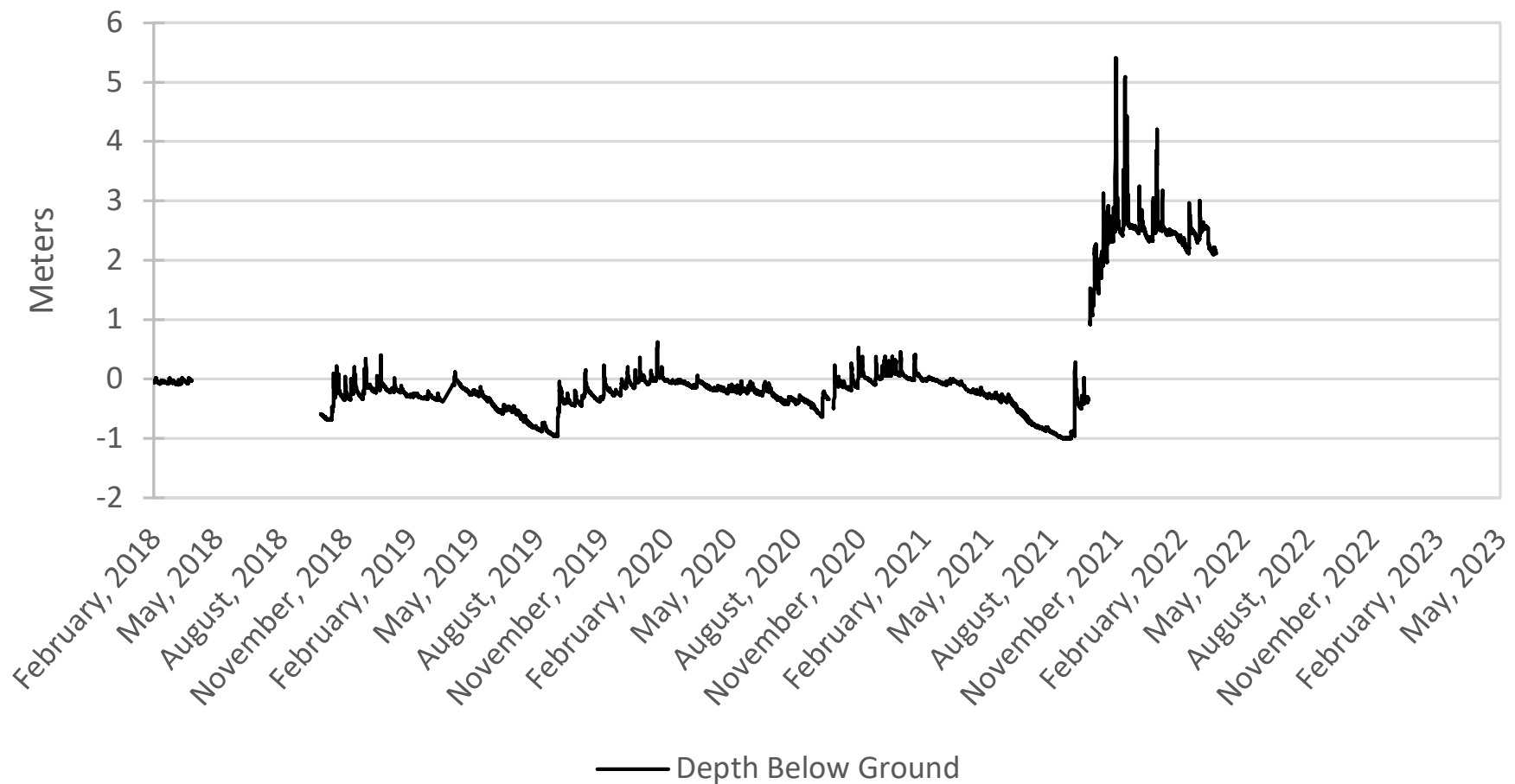
Water Table Depth - Downes Plot 12



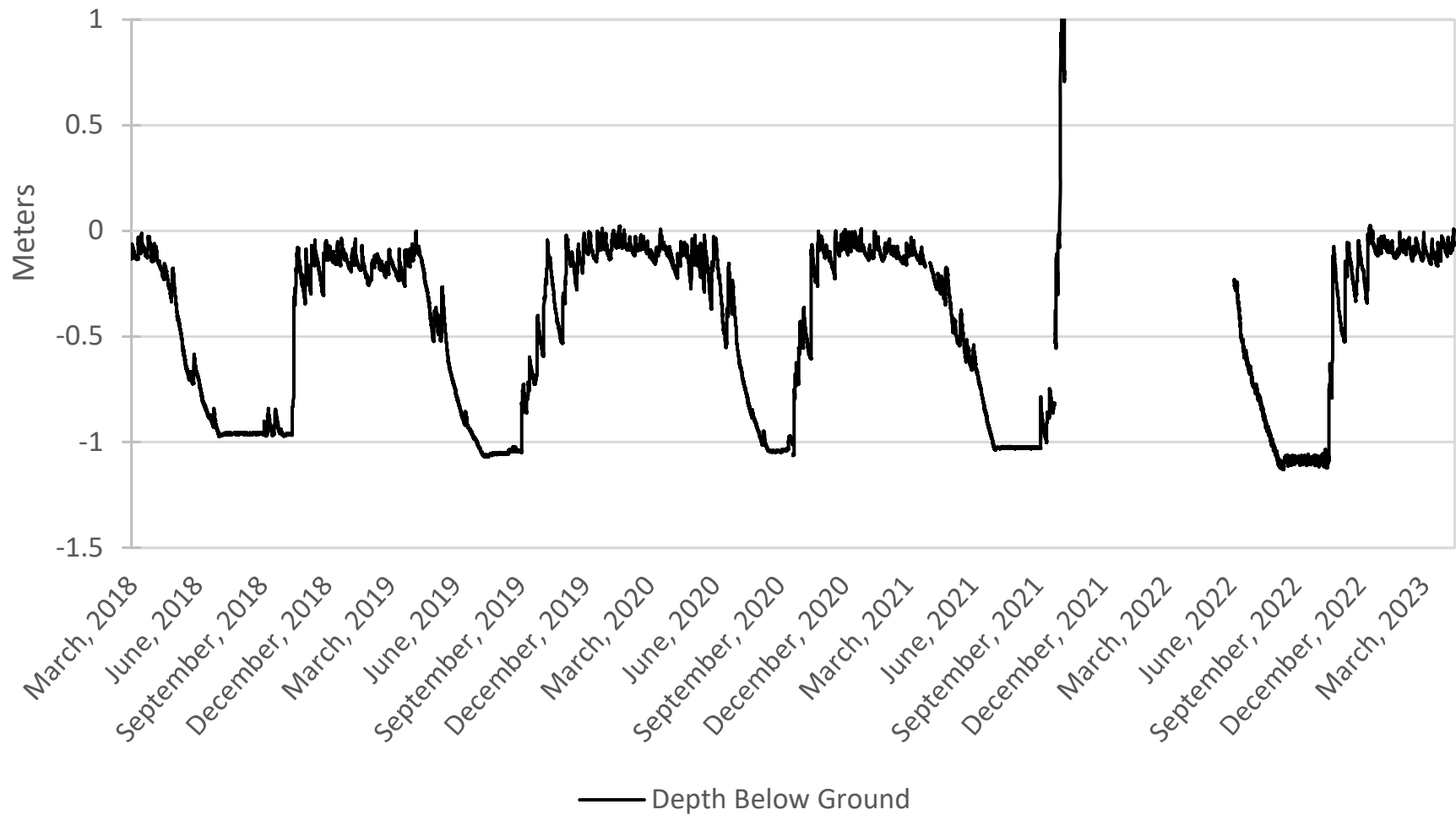
Water Table Depth - Fishtrap Creek GW1



Water Table Depth - Fishtrap Creek GW2



Water Table Depth - Fishtrap Creek GW3



APPENDIX P
2022 Vegetation Data

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
04-Oct-22	D08	A2	Western redcedar	<i>Thuja plicata</i>	35	50	7	
			western hemlock	<i>Tsuga heterophylla</i>	10		2	
			black cottonwood	<i>Populus balsamifera</i>	5		1	
		B1	Western redcedar	<i>Thuja plicata</i>	5	25	2	
			red alder	<i>Alnus rubra</i>	5		1	
			vine maple	<i>Acer circinatum</i>	15		5	
		B2	Western redcedar	<i>Thuja plicata</i>	15	70	6	
			vine maple	<i>Acer circinatum</i>	25		7	
			salmonberry	<i>Rubus spectabilis</i>	25		12	
		C1	devil's club	<i>Oplopanax horridus</i>	2.5		1	
			common snowberry	<i>Symphoricarpos albus</i>	2.5		1	
			sword fern	<i>Polystichum munitum</i>	2.5	80	1	
			devil's club	<i>Oplopanax horridus</i>	10		10	
			western skunk cabbage	<i>Lysichiton americanus</i>	5		3	
			spiny wood fern	<i>Dryopteris expansa</i>	55		>10	
			salmonberry	<i>Rubus spectabilis</i>	2.5		4	
		C2	lady fern	<i>Athyrium filix-femina</i>	5		7	
			western skunk cabbage	<i>Lysichiton americanus</i>	15	70	17	
			spiny wood fern	<i>Dryopteris expansa</i>	15		>10	
			nightshade	<i>Solanum sp.</i>	25		>10	
			snakeberry	<i>Actaea rubra</i>	10		>10	
			stink currant	<i>Ribes bracteosum</i>	5		>10	
			whitherod	<i>Viburnum cassinoides</i>	<1		1	
		C3	leaf litter	--	65	65	-	Low density
04-Oct-22	D03	A2	Western redcedar	<i>Thuja plicata</i>	25	35	8	4 English holly
			western hemlock	<i>Tsuga heterophylla</i>	10		2	
		A3	red alder	<i>Alnus rubra</i>	1	1	1	
		B1	Western redcedar	<i>Thuja plicata</i>	5	27.5	2	
			vine maple	<i>Acer circinatum</i>	20		9	
			bigleaf maple	<i>Acer macrophyllum</i>	2.5		1	
		B2	vine maple	<i>Acer circinatum</i>	30	50	12	
			salmonberry	<i>Rubus spectabilis</i>	20		11	
			sitka mountain-ash	<i>Sorbus sitchensis</i>	<1		1	
		C1	laurel	<i>Prunus sp.</i>	<1	85	1	
			western skunk cabbage	<i>Lysichiton americanus</i>	15		11	
			spiny wood fern	<i>Dryopteris expansa</i>	30		>10	
			lady fern	<i>Athyrium filix-femina</i>	30		>10	
			common horsetail	<i>Equisetum arvense</i>	10		32	
		C2	western skunk cabbage	<i>Lysichiton americanus</i>	5	90	2	
			spiny wood fern	<i>Dryopteris expansa</i>	65		>10	
			trailing blackberry	<i>Rubus ursinus</i>	10		>10	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
04-Oct-22	D14	C3	snakeberry	<i>Actaea rubra</i>	10	95	>10	
			leaf litter	--	95		-	
		A2	western hemlock	<i>Tsuga heterophylla</i>	5	35	1	some dying leaves
			bigleaf maple	<i>Acer macrophyllum</i>	25		2	
			red alder	<i>Alnus rubra</i>	5		2	
		A3	Western redcedar	<i>Thuja plicata</i>	5	15	2	
			vine maple	<i>Acer circinatum</i>	10		5	
			vine maple	<i>Acer circinatum</i>	<1	5	2	
		B1	red alder	<i>Alnus rubra</i>	<1		1	
			vine maple	<i>Acer circinatum</i>	<1	<1	1	
		B3	salmonberry	<i>Rubus spectabilis</i>	45	85	>10	
			devil's club	<i>Oplopanax horridus</i>	5		9	
			thimbleberry	<i>Rubus parviflorus</i>	25		>10	
		C1	sword fern	<i>Polystichum munitum</i>	10	90	8	
			lady fern	<i>Athyrium filix-femina</i>	20		>10	
			sword fern	<i>Polystichum munitum</i>	5		>10	
			spiny wood fern	<i>Dryopteris expansa</i>	30		>10	
			common horsetail	<i>Equisetum arvense</i>	10		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	15		>10	
		C2	stinging nettle	<i>Urtica dioica</i>	10	30	>10	
			piggy-back plant	<i>Tolmiea menziesii</i>	10		>10	
			nightshade	<i>Solanum sp.</i>	5		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	15		>10	
		C3	piggy-back plant	<i>Tolmiea menziesii</i>	30	75	>10	
			leaf litter	--	45		-	Bonnet mushrooms noted
04-Oct-22	D13	A2	western hemlock	<i>Tsuga heterophylla</i>	5	5	1	Plot approximately 20 m S from trail/boardwalk and flagged
			red alder	<i>Alnus rubra</i>	10	10	6	
		B1	willow	<i>Salix sp.</i>	40	40	>10	
			vine maple	<i>Acer circinatum</i>	<1		1	
		B2	honeysuckle	<i>Lonicera sp.</i>	45	65	>10	
			salmonberry	<i>Rubus spectabilis</i>	20		>10	
			sword fern	<i>Polystichum munitum</i>	<1	95	>10	
		C1	spiny wood fern	<i>Dryopteris expansa</i>	10		>10	
			common horsetail	<i>Equisetum arvense</i>	25		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	20		>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
			stink currant	<i>Ribes bracteosum</i>	5		>10	
			stinging nettle	<i>Urtica dioica</i>	25		>10	
		C2	Douglas' water hemlock	<i>Cicuta douglasii</i>	10	80	>10	
			piggy-back plant	<i>Tolmiea menziesii</i>	40		>10	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
		C3	spiny wood fern	<i>Dryopteris expansa</i>	15		>10	
			trailing blackberry	<i>Rubus ursinus</i>	10		>10	
			Himalayan blackberry	<i>Rubus armeniacus</i>	5		>10	
			Duckweed	<i>Lemnoideae sp.</i>	<1	55	>10	
			Pacific water-parsley	<i>Oenanthe sarmentosa</i>	5		>10	
			leaf litter	--	50		-	
04-Oct-22	D15	A2	bigleaf maple	<i>Acer macrophyllum</i>	20	30	2	
			red alder	<i>Alnus rubra</i>	10		2	
		B1	vine maple	<i>Acer circinatum</i>	10	10	2	
		B2	elderberry	<i>Sambucus sp.</i>	40	60	>10	
			salmonberry	<i>Rubus spectabilis</i>	20		>10	
		B3	sword fern	<i>Polystichum munitum</i>	10	25	5	
			spiny wood fern	<i>Dryopteris expansa</i>	15		>10	
		C1	salmonberry	<i>Rubus spectabilis</i>	5	5	>10	
		C3	leaf litter	--	95	95	-	
04-Oct-22	D07	A2	Western redcedar	<i>Thuja plicata</i>	5	5	1	Pink and blue ribbons at plot
		B1	vine maple	<i>Acer circinatum</i>	2.5	5	1	
			elderberry	<i>Sambucus sp.</i>	2.5		1	
		B2	salmonberry	<i>Rubus spectabilis</i>	30	50	>10	
			trailing blackberry	<i>Rubus ursinus</i>	10		>10	
			nightshade	<i>Solanum sp.</i>	5		>10	
			common snowberry	<i>Symphoricarpos albus</i>	5		>10	
		C1	common horsetail	<i>Equisetum arvense</i>	60	100	>10	
			lady fern	<i>Athyrium filix-femina</i>	5		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	30		>10	
			stink currant	<i>Ribes bracteosum</i>	5		>10	
		C2	sword fern	<i>Polystichum munitum</i>	2.5	50	>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	2.5		>10	
			nightshade	<i>Solanum sp.</i>	20		>10	
			salmonberry	<i>Rubus spectabilis</i>	10		>10	
			spiny wood fern	<i>Dryopteris expansa</i>	5		>10	
			piggy-back plant	<i>Tolmiea menziesii</i>	10		>10	
		C3	leaf litter	--	55	55	-	
04-Oct-22	D04	A2	black cottonwood	<i>Populus balsamifera</i>	5	5	1	
		B1	red alder	<i>Alnus rubra</i>	15	15	5	
		B2	vine maple	<i>Acer circinatum</i>	25	25	>10	
		C1	salmonberry	<i>Rubus spectabilis</i>	5	10	>10	
			nightshade	<i>Solanum sp.</i>	2.5		>10	
			stink currant	<i>Ribes bracteosum</i>	<1			
			honeysuckle	<i>Lonicera sp.</i>	2.5		>10	
		C2	common horsetail	<i>Equisetum arvense</i>	25	75	>10	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
			spiny wood fern	<i>Dryopteris expansa</i>	10		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	40		>10	
		C3	leaf litter	--	55	55	-	
05-Oct-22	D01	A2	Western redcedar	<i>Thuja plicata</i>	20	20	3	92 cm DBH, 48 cm DBH
		B1	red alder	<i>Alnus rubra</i>	5	5	1	
		B2	vine maple	<i>Acer circinatum</i>	60	60	>10	
		B3	common horsetail	<i>Equisetum arvense</i>	60	80	>10	
			salmonberry	<i>Rubus spectabilis</i>	20		>10	
		C1	western skunk cabbage	<i>Lysichiton americanus</i>	25	40	>10	Tall grass noted
			sword fern	<i>Polystichum munitum</i>	5		>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
		C2	common horsetail	<i>Equisetum arvense</i>	30	30	>10	
		C3	step moss	<i>Hylocomium splendens</i>	<5	10 to 15	>10	Aquatic vegetation noted
			Pacific water-parsley	<i>Oenanthe sarmentosa</i>	5		>10	
			leaf litter	--	5		-	
05-Oct-22	D02	A2	western hemlock	<i>Tsuga heterophylla</i>	15	15	1	43.5 cm DBH
		B1	red alder	<i>Alnus rubra</i>	40	50	6	~25 cm DBH
			vine maple	<i>Acer circinatum</i>	10		1	
		B2	vine maple	<i>Acer circinatum</i>	55	55	>10	
		B3	common horsetail	<i>Equisetum arvense</i>	35	70	>10	Tall grasses more than D01
			lady fern	<i>Athyrium filix-femina</i>	35		>10	
		C1	western skunk cabbage	<i>Lysichiton americanus</i>	10	20	>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
		C2	lady fern	<i>Athyrium filix-femina</i>	5	20	>10	
			Pacific water-parsley	<i>Oenanthe sarmentosa</i>	15		>10	
			false lily-of-the-valley	<i>Maianthemum dilatatum</i>	<1		>10	
		C3	leaf litter	--			-	
05-Oct-22	D06	B1	red alder	<i>Alnus rubra</i>	<5	<5	1	Larger trees >50 cm DBH surrounding plot
			vine maple	<i>Acer circinatum</i>	30	40	5	
			red elderberry	<i>Sambucus racemosa</i>	10		3	
		B2	vine maple	<i>Acer circinatum</i>	45	45	>10	
		B3	common horsetail	<i>Equisetum arvense</i>	35	90	>10	
			lady fern	<i>Athyrium filix-femina</i>	25		>10	
			common snowberry	<i>Symphoricarpos albus</i>	30		>10	
		C1	western skunk cabbage	<i>Lysichiton americanus</i>	25	25	>10	
		C2	piggy-back plant	<i>Tolmiea menziesii</i>	30	30	>10	Youth on age
		C3	step moss	<i>Hylocomium splendens</i>	5	40	>10	
			leaf litter	--	35		-	
05-Oct-22	D05	A2	black cottonwood	<i>Populus balsamifera</i>	65	65	4	
		B1	bigleaf maple	<i>Acer macrophyllum</i>	10	25	>10	
			vine maple	<i>Acer circinatum</i>	15		>10	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
		B2	black twinberry	<i>Lonicera involucrata</i>	35	40	>10	
			trailing blackberry	<i>Rubus ursinus</i>	5		>10	
		B3	common horsetail	<i>Equisetum arvense</i>	30	50	>10	
			lady fern	<i>Athyrium filix-femina</i>	20		>10	
		C1	western skunk cabbage	<i>Lysichiton americanus</i>	75	75	>10	
		C3	Pacific water-parsley	<i>Oenanthe sarmentosa</i>	5	70	>10	
			leaf litter	--	65		-	Upland slopes around plot
05-Oct-22	H02	A2	black cottonwood	<i>Populus balsamifera</i>	15	80	1	53 DBH
			red alder	<i>Alnus rubra</i>	55		14	13-20 DBH
			bigleaf maple	<i>Acer macrophyllum</i>	10		1	15 DBH
		B1	vine maple	<i>Acer circinatum</i>	<1	5	1	
			Walnut?	--	<1		1	Refer to leaf photo
			Western redcedar	<i>Thuja plicata</i>	<1		1	
			red alder	<i>Alnus rubra</i>	5		3	
		B2	salmonberry	<i>Rubus spectabilis</i>	50	60	>10	
			Sassafras?	--	10		>10	Refer to leaf photo
		C1	lady fern	<i>Athyrium filix-femina</i>	35	60	>10	
			common horsetail	<i>Equisetum arvense</i>	15		>10	
			spiny wood fern	<i>Dryopteris expansa</i>	10		>10	
			sword fern	<i>Polystichum munitum</i>	<1		>10	
		C2	common jewelweed	<i>Impatiens capensis</i>	5	10	>10	
			yellow archangel	<i>Lamium galeobdolon</i>	5		>10	
		C3	leaf litter	--	80	80	-	
05-Oct-22	H01	A2	Western redcedar	<i>Thuja plicata</i>	30	95	>10	Split alder/cedar habitat with swamp through
			red alder	<i>Alnus rubra</i>	65		>10	
			western hemlock	<i>Tsuga heterophylla</i>	<5		>10	
		B1	red alder	<i>Alnus rubra</i>	7.5	15	Regeneration	<1% x 1 MA
			Western redcedar	<i>Thuja plicata</i>	7.5		Regeneration	
		B2	salmonberry	<i>Rubus spectabilis</i>	20	20	>10	<1% 1 x RM
			devil's club	<i>Oplopanax horridus</i>	<1		1	
		C1	lady fern	<i>Athyrium filix-femina</i>	45	70	>10	
			common jewelweed	<i>Impatiens capensis</i>	20		>10	
			western skunk cabbage	<i>Lysichiton americanus</i>	5		>10	
		C2	common jewelweed	<i>Impatiens capensis</i>	5	15	>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
		C3	step moss	<i>Hylocomium splendens</i>	5	15	>10	Mostly water/muck and bare ground
			Pacific water-parsley	<i>Oenanthe sarmentosa</i>	<5		>10	Small to moderate CWD with loose soils noted
			leaf litter	--	10		-	
05-Oct-22	B02	A2	black cottonwood	<i>Populus balsamifera</i>	35	45	4	
			Pacific willow	<i>Salix lucida subsp. Lasiandra</i>	10		1	
		B1	sitka mountain-ash	<i>Sorbus sitchensis</i>	<1	50	1	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
			black twinberry	<i>Lonicera involucrata</i>	45		6	
			English holly	<i>Ilex aquifolium</i>	<1		1	
			red alder	<i>Alnus rubra</i>	5		4	
		B2	salmonberry	<i>Rubus spectabilis</i>	15	75	>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
			hardhack	<i>Spiraea douglasii</i>	20		>10	
			common jewelweed	<i>Impatiens capensis</i>	30		>10	
		C1	western skunk cabbage	<i>Lysichiton americanus</i>	20	35	>10	
			lady fern	<i>Athyrium filix-femina</i>	15		>10	
		C3	leaf litter	--	65	65	-	
06-Oct-22	B01	A2	Western redcedar	<i>Thuja plicata</i>	50	80	3	
			red alder	<i>Alnus rubra</i>	30		4	
		B1	sitka mountain-ash	<i>Sorbus sitchensis</i>	5	30	1	
			rhododendron	<i>Rhododendron sp.</i>	10		1	
			red alder	<i>Alnus rubra</i>	15		Cluster	
		B2	English holly	<i>Ilex aquifolium</i>	5	5	1	
		B3	salmonberry	<i>Rubus spectabilis</i>	50	85	>10	
			Himalayan blackberry	<i>Rubus armeniacus</i>	30		>10	
			nightshade	<i>Solanum sp.</i>	5		>10	
		C1	lady fern	<i>Athyrium filix-femina</i>	5	5	>10	
			common horsetail	<i>Equisetum arvense</i>	<1		>10	
		C2	English ivy	<i>Hedera helix</i>	20	35	>10	
			false lily-of-the-valley	<i>Maianthemum dilatatum</i>	15		>10	
		C3	leaf litter	--	80	80	-	
06-Oct-22	FT03	B1	Hooker's willow	<i>Salix hookeriana</i>	15	20	>10	Himalayan blackberry along S side of plot
			red elderberry	<i>Sambucus racemosa</i>	5		>10	Mostly reed canary grass in plot with no LL layer
		B2	salmonberry	<i>Rubus spectabilis</i>	5	15	>10	
			hardhack	<i>Spiraea douglasii</i>	<5		>10	
			cutleaf blackberry	<i>Rubus laciniatus</i>	<5		>10	
06-Oct-22	FT04	A2	red alder	<i>Alnus rubra</i>	20	30	5	Located halfway up S slope
			vine maple	<i>Acer circinatum</i>	<5		1	
			paper birch	<i>Betula papyrifera</i>	5		1	
		B1	vine maple	<i>Acer circinatum</i>	5	20	1	
			sitka mountain-ash	<i>Sorbus sitchensis</i>	5		1	
			red elderberry	<i>Sambucus racemosa</i>	5		1	
			black hawthorn	<i>Crataegus douglasii</i>	5		1	
		B2	salmonberry	<i>Rubus spectabilis</i>	70	70	>10	Cutleaf blackberry noted
		B3	Sitka rose (Sitka burnet)	<i>Sanguisorba canadensis</i>	20	40	>10	
			lady fern	<i>Athyrium filix-femina</i>	10		>10	
			trailing blackberry	<i>Rubus ursinus</i>	10		>10	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
		C3	moss/leaf litter	--	30	30	-	Bare ground from erosion/game trails throughout plot
06-Oct-22	FT02	A2/A3	red alder	<i>Alnus rubra</i>	60	65	>10	Edge
			Aspen/Ash?	--	5		1	
		B1	red elderberry	<i>Sambucus racemosa</i>	5	5	Edge cluster	
			black hawthorn	<i>Crataegus douglasii</i>	<1		1	
		B2	cutleaf blackberry	<i>Rubus laciniatus</i>	1	1	Edge	
		C3	leaf litter	--	35	35	-	Tall grass with more bare ground compared to FT03
06-Oct-22	FT05	A2	red alder	<i>Alnus rubra</i>	20	20	3	
		A3	black hawthorn	<i>Crataegus douglasii</i>	25	50	>10	
			black cottonwood	<i>Populus balsamifera</i>	15		>10	
			red alder	<i>Alnus rubra</i>	10		>10	
			vine maple	<i>Acer circinatum</i>	<1		1	
		B1	Pacific dogwood	<i>Cornus nuttallii</i>	80	90	>10	
			thimbleberry	<i>Rubus parviflorus</i>	10		>10	
		B2	salmonberry	<i>Rubus spectabilis</i>	25	25	>10	
		B3	cutleaf blackberry	<i>Rubus laciniatus</i>	5	10	>10	
			trailing blackberry	<i>Rubus ursinus</i>	5		>10	
		C3	leaf litter	--	10	10	-	
06-Oct-22	FT07	B3	Hooker's willow	<i>Salix hookeriana</i>	40	40	Cluster	Access restricted, so approximate distance from chain link fence = 70 m W to plot Inventory based on visual and aerial estimation Mostly tall grasses adjacent to creek, with similar conditions to FT03
06-Oct-22	FT06	A2	red alder	<i>Alnus rubra</i>	10	10	Edge	Access restricted, so approximate distance from chain link fence = 70 m W to plot Inventory based on visual and aerial estimation
		B1	Pacific dogwood	<i>Cornus nuttallii</i>	70	90	>10	
			elderberry	<i>Sambucus sp.</i>	10		>10	
			salmonberry	<i>Rubus spectabilis</i>	10		>10	
			Hooker's willow	<i>Salix hookeriana</i>	15	15	>10	
		B3	Nootka rose	<i>Rosa nutkana</i>	10	10	>10	
		C3	leaf litter	--	15	15	-	
06-Oct-22	FT01	A2	Western redcedar	<i>Thuja plicata</i>	15	35	3	
			red alder	<i>Alnus rubra</i>	20		1	
		B1	vine maple	<i>Acer circinatum</i>	60	70	>10	
			Aspen/Ash?	--	10		1	
		B2	black hawthorn	<i>Crataegus douglasii</i>	25	60	>10	
			salmonberry	<i>Rubus spectabilis</i>	15		>10	
			elderberry	<i>Sambucus sp.</i>	5		2	
			vine maple	<i>Acer circinatum</i>	10		2	
			Pacific dogwood	<i>Cornus nuttallii</i>	5		1	

Date	Plot	Layer	Common Name	Species Name	% Cover	Overall %	# Plants (if applicable)	Notes
		B3	lady fern	<i>Athyrium filix-femina</i>	10	15	>10	
			elderberry	<i>Sambucus sp.</i>	<5		>10	
		C3	false lily-of-the-valley	<i>Maianthemum dilatatum</i>	5	90	>10	
			false Solomon's seal	<i>Maianthemum racemosum</i>	5		>10	
			moss/leaf litter	--	80		-	CWD noted closer to creek

APPENDIX Q

2022 Indicator Plant Plot Data

Date	Plot #	Petiole Length (cm)	Distance to Start (m)	Location from Transect Line	Offset from Transect Line (m)	Notes
07-Oct-22	D10-LA1	47	4.00	R	0.9	slight decay
	D10-LA1	50	7.60	R	0.3	
	D10-LA1	60	8.25	R	0.9	
04-Oct-22	D08-LA1	32	0.00	L	65	*all "distance to start" measurements are minus 0.6 cm to account for tape adjustment in field 2 skunk cabbage <5 cm apart <10 cm to R and close to 2nd cabbage most adult leaves dead with new stunted shoots *1 adult skunk cabbage 60 cm off transect but leaf touches
	D08-LA1	46	2.63	L	62	
	D08-LA1	37	7.25	R	42	
	D08-LA1	42	7.28	R	53	
	D08-LA1	40	10.99	R	103	
	D08-LA1	20	12.14	L	7	
	D08-LA1	15	14.33	L	17	
	D08-LA1	20	14.50	L	27	
04-Oct-22	D05-LA1	45	14.92	R	31	double center
	D05-LA1	56	14.09	L	18	
	D05-LA1	48	12.70	R	21	
	D05-LA1	47	12.81	R	25	
	D05-LA1	35	8.53	U	0	
	D05-LA1	60	7.70	R	77	
	D05-LA1	60	6.94	R	10	
	D05-LA1	45	6.04	R	30	
	D05-LA1	47	5.72	R	14	
	D05-LA1	58	4.37	L	38	
	D05-LA1	62	3.89	L	38	
	D05-LA1	68	3.87	L	42	
	D05-LA1	50	3.45	R	27	
	D05-LA1	52	2.62	U	0	
	D05-LA1	52	0.71	R	12	
	D05-LA1	48	0.63	R	8	
	D05-LA1	49	0.22	R	30	

Date	Plot #	Petiole Length (cm)	Distance to Start (m)	Location from Transect Line	Offset from Transect Line (m)	Notes
05-Oct-22	D09-LA1	64	0.30	R	82	
	D09-LA1	61	0.70	U	0	
	D09-LA1	48	2.10	L	66	
	D09-LA1	43	3.30	R	34	
	D09-LA1	43	5.11	R	78	
	D09-LA1	32	5.67	L	17	
	D09-LA1	49	12.10	R	25	
	D09-LA1	66	12.35	R	102	double center
	D09-LA1	22	12.59	L	75	
	D09-LA1	45	12.78	L	7	
	D09-LA1	0	12.88	U	0	no leaves
	D09-LA1	45	12.99	L	85	double center
	D09-LA1	58	13.21	L	13	double center
	D09-LA1	45	14.35	L	79	
	D09-LA1	65	14.43	L	117	
	D09-LA1	38	14.68	L	20	damaged
05-Oct-22	D01-LA1	26	1.20	L	24	
	D01-LA1	5	1.70	R	15	young plant
	D01-LA1	68	2.70	R	67	
	D01-LA1	78	3.30	R	188	
	D01-LA1	41	3.30	L	20	
	D01-LA1	62	4.00	U	0	double center
	D01-LA1	75	5.90	R	79	
	D01-LA1	54	6.80	L	79	
	D01-LA1	20	7.70	L	19	
	D01-LA1	44	8.40	L	54	
	D01-LA1	55	9.30	L	60	
	D01-LA1	49	9.90	R	39	
	D01-LA1	43	13.00	R	23	
	D01-LA1	41	14.50	L	46	

Date	Plot #	Petiole Length (cm)	Distance to Start (m)	Location from Transect Line	Offset from Transect Line (m)	Notes
05-Oct-22	D01-LA1	39	15.20	R	25	
	D01-LA1	30	15.05	R	73	
04-Oct-22	D12-LA1	49	15.27	L	18	blackberry and horsetail at end of transect
	D12-LA1	64	14.84	L	73	
	D12-LA1	65	14.75	R	85	
	D12-LA1	60	10.84	U	0	
	D12-LA1	55	14.64	L	21	
	D12-LA1	63	13.69	L	9	
	D12-LA1	50	13.54	U	0	
	D12-LA1	58	0.93	R	87	
	D12-LA1	54	12.81	R	39	
	D12-LA1	65	12.60	L	60	
	D12-LA1	50	11.36	L	25	
	D12-LA1	42	11.03	R	63	
	D12-LA1	60	10.84	U	0	
	D12-LA1	49	10.00	R	4	
	D12-LA1	52	9.84	R	11	
	D12-LA1	54	8.21	R	85	
	D12-LA1	54	8.39	L	89	
	D12-LA1	58	7.54	L	63	
	D12-LA1	46	6.10	R	38	
	D12-LA1	64	5.64	R	72	
	D12-LA1	47	4.37	R	102	
	D12-LA1	47	2.96	L	52	
	D12-LA1	51	2.80	R	142	rotted
	D12-LA1	59	2.72	L	9	
	D12-LA1	56	2.54	R	10	
	D12-LA1	52	2.58	L	25	
	D12-LA1	58	0.93	R	87	

Date	Plot #	Petiole Length (cm)	Distance to Start (m)	Location from Transect Line	Offset from Transect Line (m)	Notes
05-Oct-22	D06-LA1	42	0.90	R	78	
	D06-LA1	47	3.00	R	29	
	D06-LA1	61	3.50	L	81	double center
	D06-LA1	50	3.60	R	55	
	D06-LA1	55	5.45	L	47	double center
	D06-LA1	57	6.60	R	30	triple center
	D06-LA1	57	8.08	R	70	
	D06-LA1	35	9.79	U	0	
	D06-LA1	43	10.18	R	60	
	D06-LA1	19	10.74	U	0	
	D06-LA1	35	10.74	R	26	
	D06-LA1	39	11.68	R	22	
	D06-LA1	39	12.20	R	76	
	D06-LA1	42	12.63	R	74	double center
	D06-LA1	46	13.35	R	82	
	D06-LA1	42	13.88	R	35	
	D06-LA1	45	14.30	U	0	double center
	D06-LA1	52	15.10	R	84	