ARTEMIS GOLD INC | Blackwater Mine

2023 Follow-up Programs for Condition 3.15 of the Blackwater Gold Project Decision Statement Issued under Section 54 of the Canadian *Environmental Assessment Act, 2012*

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Acronyms and Abbreviations

AEMP	Aquatic Effects Monitoring Program
Artemis	Artemis Gold Inc.
AL	Aquatic Life
BACI	before-after-control-impact
BC	British Columbia
BC ENV	British Columbia Ministry of Environment and Climate Change Strategy
Project, the	Blackwater Gold Project
BW Gold	BW Gold LTD.
CCME	Canadian Council of Ministers of the Environment
CEA Agency	Canadian Environmental Assessment Agency
°C	degrees Celsius
CSR	Contaminated Sites Regulation
CSR-AL	Contaminated Sites Regulations Aquatic Life
DFO	Fisheries and Oceans Canada
DL	detection limit
DS	Decision Statement
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
ECD	Environmental Control Dam
ECCC	Environment and Climate Change Canada
EMA	*Environmental Management Act*
EMC	Environmental Monitoring Committee
EMLI	Ministry of Energy, Mines and Low Carbon Innovation
FSR	Forest Service Road
FWR	Freshwater Reservoir
GMP	Groundwater Monitoring Program
Joint MA/EMA Application	Joint Application for *Mines Act* and *Environmental Management Act* Permits Application
IFN	instream flow needs

Indigenous nations	Indigenous nations include: Lhoosk'uz Dené Nation, Ulkatcho First Nation, Nadleh Whut'en First Nation, Stellat'en First Nation, Saik'uz First Nation and Nazko First Nation (as defined in the Project's Environmental Assessment Certificate #M19-01)
km	kilometre
KP	Knight Piésold Ltd.
LGO	Low-Grade Ore
m	metre
masl	metres above sea level
mbgs	metres below ground surface
MDMER	*Metal and Diamond Mining Effluent Regulations*
µS/cm	microsiemens per centimetre
mg/mL	milligrams per millilitre
MSDP	Mine Site Water and Discharge Monitoring and Management Plan
Mt	million tonnes
Mtpa	million tonnes per annum
MWLAP	Ministry of Water, Land and Air Protection
NTU	nephelometric turbidity unit
POC	parameter of concern
POPC	parameter of potential concern
QA/QC	Quality Assurance and Quality Control
QRP	Qualified Registered Professional
ROC	receptor of concern
SBEB	Science-Based Environmental Benchmark
SCP	Sediment Control Pond
t	tonne
TDS	total dissolved solids
tpd	tonnes per day
TOC	total organic carbon
TSF	Tailings Storage Facility
TSS	total suspended solids
WMP	Water Management Pond
WQG-AL	water quality guideline for the protection of aquatic life
WQG-WL	water quality guidelines or standards for the protection of wildlife and livestock

WTP	water treatment plant
YDWL	Yinka Dene Water Law

1.0 Introduction

The Blackwater Gold Project (Project) received a Decision Statement (DS) on April 15, 2019, under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2019) and an Environmental Assessment Certificate #M19 01 on June 21, 2019, under the *2002 Environmental Assessment Act* (EAO 2019).

Condition 3.15 of the DS requires Blackwater Gold (BW Gold) to develop a follow-up program to verify the accuracy of the Environmental Assessment and determine the effectiveness of the mitigation measures as it pertains to adverse environmental effects of the Project on fish habitat in Davidson Creek, Creek 661, and Chedakuz Creek. The condition is as follows:

> *The Proponent shall develop, in consultation with Indigenous groups and other relevant authorities, a follow-up program to verify the accuracy of the Environmental Assessment and determine the effectiveness of the mitigation measures as it pertains to adverse environmental effects of the Designated Project on fish habitat in Davidson Creek, Creek 661 and Chedakuz Creek. The Proponent shall develop the follow-up program prior to construction and shall implement the follow-up program during all phases of the Designated Project. The Proponent shall apply conditions 2.9 and 2.10 when implementing the follow-up program. As part of the follow-up program, the Proponent shall:*
>
> - *monitor water flows in Davidson Creek during the open water season from construction until decommissioning, and temperature continuously from construction until decommissioning [3.15.1];*
> - *monitor water quality in Davidson Creek, Creek 661 and Chedakuz Creek for contaminants of potential concern, including those identified in Table 5 of the Environmental Assessment report, during all phases of the Designated Project [3.15.2]; and*
> - *monitor, during all phases of the Designated Project, groundwater quality and quantity downstream of the tailings storage facility site D, open pit, west waste rock dump and low-grade ore stockpile to confirm that groundwater quantity and quality parameters are at or below the values identified by the Proponent in the modelled predictions in Section 5 of Blackwater Gold Project: Additional Water Quality Model Sensitivity Scenario (July 20, 2017) and Section 3 of Blackwater Gold Project: Water Treatment Responses for Comments 1266, 1270, 1271, 1272, and 1273 (February 15, 2017) for nitrite and contaminants of potential concern, and to verify the effectiveness of water management measures [3.15.3].*

Conditions 2.9 and 2.10 are as follows:

> *2.9 The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement:*
>
> - *conduct the follow-up program according to the information determined pursuant to condition 2.5 [2.9.1];*
> - *undertake monitoring and analysis to verify the accuracy of the Environmental Assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s) [2.9.2];*
> - *determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken in accordance with condition 2.9.2 [2.9.3]; and*
> - *if modified or additional mitigation measures are required pursuant to condition 2.9.3, develop and implement these mitigation measures in a timely manner and monitor them in accordance with condition 2.9.2 [2.9.4].*

2.10 Where consultation with Indigenous groups is a requirement of a follow-up program, the Proponent shall discuss the follow-up program with Indigenous groups and determine, in consultation with Indigenous groups, opportunities for their participation in the implementation of the follow-up program, including the analysis of the follow-up results and whether modified or additional mitigation measures are required, as set out in condition 2.9.

The Federal DS also requires that each follow-up program required by the DS also includes adaptive management (DS Condition 2.5) where the Proponent is required to have a Qualified Professional, where such a qualification exists for the subject matter of the follow-up program, determine, as part of the development of each follow-up program and in consultation with the party or parties being consulted during the development, the following information:

- *the follow-up activities that must be undertaken by a qualified individual [2.5.1];*
- *the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program [2.5.2];*
- *the scope, content, format and frequency of reporting of the results of the follow-up program [2.5.3];*
- *the levels of environmental change relative to baseline conditions that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities to be stopped [2.5.4]; and*
- *the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.5.4 have been reached or exceeded [2.5.5].*

An Aquatic Effects Monitoring Program (AEMP) Plan has been developed for the Project to monitor the aquatic receiving environment (ERM 2024b). The purpose of the AEMP is to provide the information on the aquatic receiving environment necessary to achieve the following objectives:

- Detect Project-related effects on the aquatic ecosystem components (including surface water quality).
- Confirm water quality predictions as presented in Lorax (2022a), and effects assessments as presented in the *Joint Mines Act* and *Environmental Management Act* Permits Application (Joint MA/EMA Application; Chapter 6 of BW Gold 2022).
- Meet permit and regulatory requirements for effluent and receiving environment water quality.
- Assess the performance of mitigation and management measures.
- Provide the necessary feedback and information for the adaptive management of potential Project-related effects.

Section 2.0 and 3.0 of this report summarizes the monitoring and reporting components of the AEMP Plan during the reporting period (defined in the DS as April 1 of the calendar year through March 31 of the subsequent calendar year) to address DS Condition 3.15.1 and 3.15.2 and the associated follow-up program DS Conditions 2.5, 2.6, 2.9, and 2.10.

The Mine Site Water and Discharge Monitoring and Management Plan (MSDP) details groundwater quantity and quality monitoring to be completed during the Construction and Operations phases. The results of the groundwater monitoring program completed during the reporting period are summarized in Section 4.0 to address DS Condition 3.15.3.

This final federal DS 3.15 addresses Nechako First Nations, Lhoosk'uz Dené Nation, and Ulkatcho First Nation comments on the draft report submitted June 30, 2023.

1.1 Construction Activities

Construction activities were initiated in late September 2022 and have continued through the reporting period, with a focus on logging and clearing, soil salvage, development of the Plant Site, initiating the development of TSF Dam C, connection of lake 15 and 16, development of water management structures, and other necessary works. There was no usage of cyanide during construction activities. The RIBs were completed at the Plant Site and commissioned in 2023, with permitted discharge beginning in the first quarter of 2024. Surface water samples were collected from the RIBs on February 8 and 26, and March 21, 2024. Authorized Project discharges to Davidson Creek from the TSF Stage 1 SCP occurred in Q1 2024. The maximum flow rate was reported to be 59.147 L/s (equivalent to 5,110 m^3/day) on March 31, 2024 at TSFC-SCP-D and is below the maximum authorized rate of discharge for this location (6,600 m^3/day). Effluent water quality samples were collected weekly while discharging as required by *Environmental Management Act* (EMA) PE-110652. Acute toxicity water samples on February 18 and March 9, 2024 at TSFC-SCP-D.

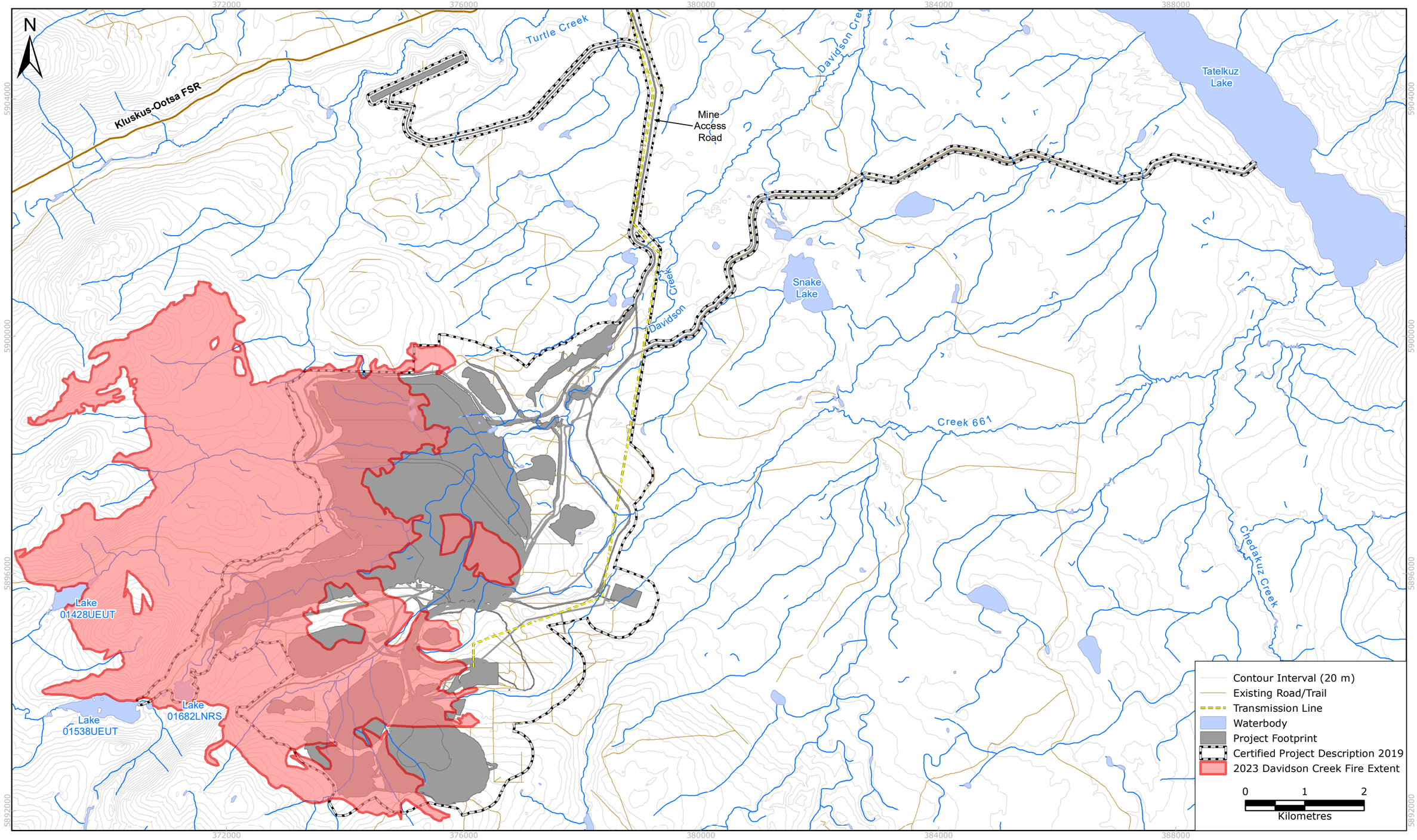
A fish salvage program was completed between July and October 2023 in watercourses downstream of the mine site. Salvaged fish were released in areas of Davidson Creek, Creek 505659 (within the Creek 661 watershed) and Lake 16 dependent on their location of capture. Adipose fins of adult fish were clipped prior to release and any fish captured for the purpose of the AEMP monitoring program were categorized as either clipped (salvaged) or unclipped (resident).

1.2 2023 Wildfire

A wildfire spread from the surrounding area into the mine site on July 10, 2023 (Davidson Creek Fire), and grew to 4,808 hectares in size, burning approximately 60% of the mine site (Figure 1.2-1). All employees were evacuated from camp on July 9, 2023 (in advance of the fire) and construction activities were stopped. There was a gradual return to site starting the week of July 24 with construction activities fully recommenced on August 3, 2023. On July 13, 2023 the regulators were notified to highlight the potential for missed sampling events during this time. Sampling events missed are indicated in each of the sampling component sections as follows:

- One required surface water quality site was not sampled (661-04).

FIGURE 1.2-1 2023 DAVIDSON CREEK FIRE EXTENT



ERM

CLIENT: BW Gold LTD.
GIS NUMBER: BLW-14-292

DATE: 06/25/2024

PROJECTION: NAD 1983 UTM Zone 10N
SCALE: 1:60,000 when printed at 11x17

2.0 Monitoring Flows and Temperature in Davidson Creek (3.15.1)

The DS Condition 3.15.1 requires the Proponent to monitor water flows in Davidson Creek during the open water season from construction until decommissioning, and temperature continuously from construction until decommissioning.

Surface water flows (hydrology) and temperature in Davidson Creek were monitored during the open water season during the 2023 construction activities in accordance with the AEMP Plan (Section 4.3 and Section 4.4 of the AEMP Plan; Figure 2-1).

2.1 Decision Statement Condition Requirements

Condition 3.15.1 requires the monitoring of monitor water flows in Davidson Creek during the open water season from construction until decommissioning, and temperature continuously from construction until decommissioning.

Surface water flows (hydrology) and temperature in Davidson Creek were monitored during the open water season during the reporting period in accordance with the AEMP Plan (Section 4.3 and Section 4.4 of the AEMP Plan). The results of the 2023 hydrology and surface water temperature monitoring program are reported in the 2023 Hydrology and Water Temperature Annual Report (Appendix A). A summary of those 2023 results, with the additional context of the Q1 2024 data is presented in this section.

2.2 Field Methods

Surface water flows and temperature in Davidson Creek were monitored during the open water season beginning in Construction as indicated in Table 2.2-1 (locations shown in Figure 2-1). Monitoring at each of the sites was conducted in accordance with the AEMP Plan (Section 4.3 and Section 4.4 of the AEMP Plan), with additional information provided in the 2023 Hydrology and Water Temperature Annual Report (Appendix A).

Table 2.2-1: Davidson Creek Surface Water Flow and Temperature Monitoring Locations

Station ID	Surface Water Flow[1]	Surface Water Temperature
DC-05	✓	✓
DC-10	✓ (manual)	-
DC-15	✓	✓

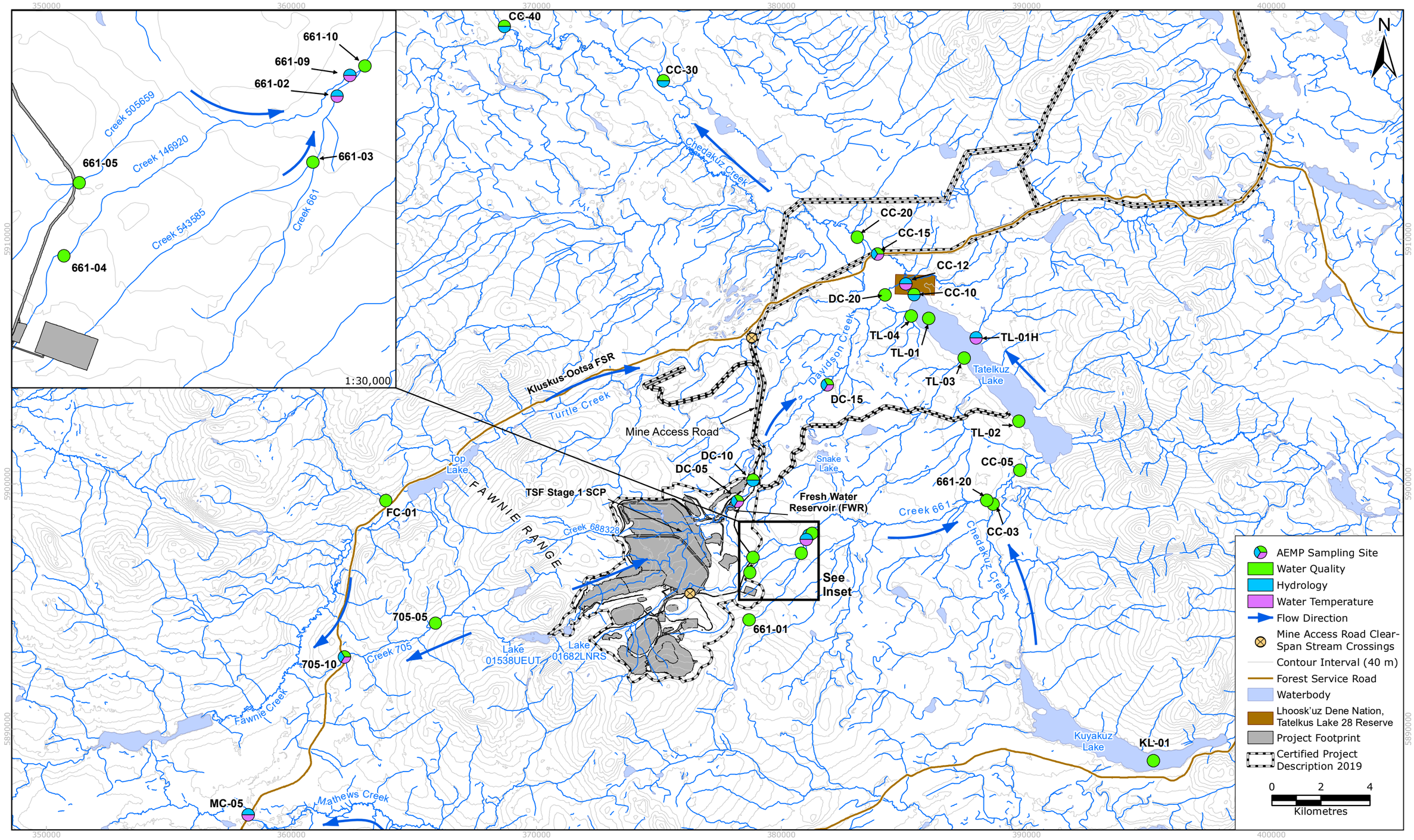
Notes: Dash indicates sampling component is not completed at that site.

[1] A continuous hydrology monitoring station will be installed at selected locations unless indicated as manual flow measurements.

DC-05 Station

The DC-05 station (Photograph 2-1), previously known as H2B, was installed in an upper reach of Davidson Creek on May 23, 2018. The station consists of a Solinst levelogger 5 installed inside a protective aluminum pipe attached to a rock on the bank of the creek. Historically, the station was removed for the winter months, to avoid damage from ice, and re-installed at the start of open water season, when safe to do so. In fall 2023, this station was winterized and now remains operational year-round.

FIGURE 2-1 AQUATIC EFFECTS MONITORING PROGRAM SAMPLING LOCATIONS, FEDERAL DECISION STATEMENT CONDITION 3.15.1 AND 3.15.2



ERM

CLIENT: BW Gold LTD.
GIS NUMBER: BLW-01-041

DATE: 09/27/2024

PROJECTION: NAD 1983 UTM Zone 10N
SCALE: 1:145,000 when printed at 11x17

Photograph 2-1: Upper Davidson Creek Hydrology Station DC-05 (April 25, 2019)

DC-10 Station

The DC-10 location is in Upper Davidson Creek approximately 1.1 km downstream of DC-05. The location was established for water quality monitoring and instantaneous discharge measurements are collected manually. Flows are collected at least five times per year, including one winter measurement.

DC-15 Station

The DC-15 station (Photograph 2-2), previously known as the H4B station, was installed on Lower Davidson Creek on May 9, 2012 following the decommissioning of the H4 station at the end of 2011. This station consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is attached to the bank of the creek. The station is removed each year during the winter months, to avoid damage to the sensor from ice, and re-installed during the start of open water season, when it is safe to do so. Relative to the reporting period, this station was re-installed on May 25, 2023 and removed for the winter on October 30, 2023.

Photograph 2-2: Lower Davidson Creek Hydrology Station DC-15 (May 25, 2023)

2.3 Data Analysis

2.3.1 Davidson Creek Flows – Annual Monitoring

Methods

Rating curves were developed at each surface water monitoring station in Davidson Creek and these will be applied to the respective continuous water level records to derive continuous stream flow records at each station.

Winter discharge will be estimated by linearly interpolating between winter streamflow measurements where reasonable to do so. Mean monthly discharge will be calculated for stations using these discharge records when a minimum of 20 days is available (Section 4.3.4 of the AEMP Plan).

Annual water temperature records will be compiled and graphically presented to examine seasonal trends. Comparison to the nearest hydrology station discharge record will also be completed using graphical analysis to determine if water temperature trends are related to water flows and depth (Section 4.4.1 of the AEMP Plan).

DC-05 Flow Monitoring Results

At DC-05 a total of 22 discharge measurements with associated stage values have been collected, as well as 44 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 with the addition of data collected during Q1 2024 are presented in Table 2.3-1.

Table 2.3-1: Summary of Reporting Period DC-05 Stage-Discharge Measurements

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
3-Mar-23	2	Current Meter	-	0.089	10%	-
9-May-23	2	Current Meter	1.706	2.127	10%	0.010
6-Jul-23	2	Current Meter	1.365	0.095	10%	0.005
1-Aug-23	2	Current Meter	1.483	0.264	10%	0.005
20-Sep-23	2	Current Meter	1.412	0.138	10%	0.002
24-Oct-23	2	Current Meter	1.396	0.102	10%	0.002
27-Oct-23	2	Current Meter	-	0.085	10%	-
31-Oct-23	2	Current Meter	-	0.083	10%	-
3-Nov-23	2	Current Meter	-	0.077	10%	-
6-Nov-23	2	Current Meter	1.397	0.114	10%	0.005
9-Nov-23	2	Current Meter	-	0.146	10%	-
13-Nov-23	2	Current Meter	-	0.120	10%	-
17-Nov-23	2	Current Meter	1.362	0.075	10%	0.005
21-Nov-23	2	Current Meter	-	0.072	10%	-
24-Nov-23	2	Current Meter	-	0.133	10%	-
28-Nov-23	2	Current Meter	-	0.088	10%	-
1-Dec-23	2	Current Meter	-	0.070	10%	-
5-Dec-23	2	Current Meter	-	0.164	10%	-
8-Dec-23	2	Current Meter	-	0.053	10%	-
11-Dec-23	2	Current Meter	-	0.088	10%	-
15-Dec-23	2	Current Meter	-	0.090	10%	-
18-Dec-23	2	Current Meter	-	0.101	10%	-
21-Dec-23	2	Current Meter	-	0.097	10%	-
28-Dec-23	2	Current Meter	-	0.112	10%	-
3-Jan-24	2	Current Meter	-	0.098	10%	-
9-Jan-24	2	Current Meter	-	0.036	10%	-
17-Jan-24	2	Current Meter	-	0.093	10%	-
24-Jan-24	2	Current Meter	-	0.070	10%	-
31-Jan-24	2	Current Meter	-	0.072	10%	-
13-Feb-24	2	Current Meter	-	0.100	10%	-
15-Feb-24	2	Current Meter	-	0.036	10%	-

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
16-Feb-24	2	Current Meter	-	0.035	10%	-
21-Feb-24	2	Current Meter	-	0.077	10%	-
28-Feb-24	2	Current Meter	-	0.089	10%	-
6-Mar-24	2	Current Meter	-	0.091	10%	-
13-Mar-24	2	Current Meter	-	0.084	10%	-
20-Mar-24	2	Current Meter	-	0.055	10%	-

Notes:
Number of gaugings refers to the number of gaugings averaged to produce rating point.
Discharge uncertainty refers to the in situ measurement error estimated by the field engineer.
Stage uncertainty is based on a visual assessment of the wave amplitude in the gauge pool.
This station was previously "H2B".

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset. Stage data from October 23, 2023, to November 6, 2023 were removed from the stage record due to icing. Stage data are of uncertain quality during freshet from May 9, 2023, to May 27, 2023, due to significant wave action in the gauge pool, directly above the instrumentation.

Of the 22 stage-discharge measurements collected at this site, 21 were used to develop the respective rating curves. A total of six stage-discharge measurements were used to develop the 2018-2019 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2020 to 2022; therefore, 15 measurements have now been used to develop the current 2020-2023 rating curve. Both curves are shown on Figure 2.3-1 (A2.13, Appendix A). The rating curves are extrapolated to the maximum measured stage for their respective periods on Figure 2.3-2 (A 2.14, Appendix A). The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2018-2019 rating curve: the maximum measured discharge was 1.93 m^3/s and the maximum extrapolated discharge is 2.15 m^3/s.
- 2020-2023 rating curve: the maximum measured discharge was 2.13 m^3/s and the maximum extrapolated discharge is 5.96 m^3/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2020-2023 rating curve, there is uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure 2.3-3. The hydrograph shown on Figure 2.3-4 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph.

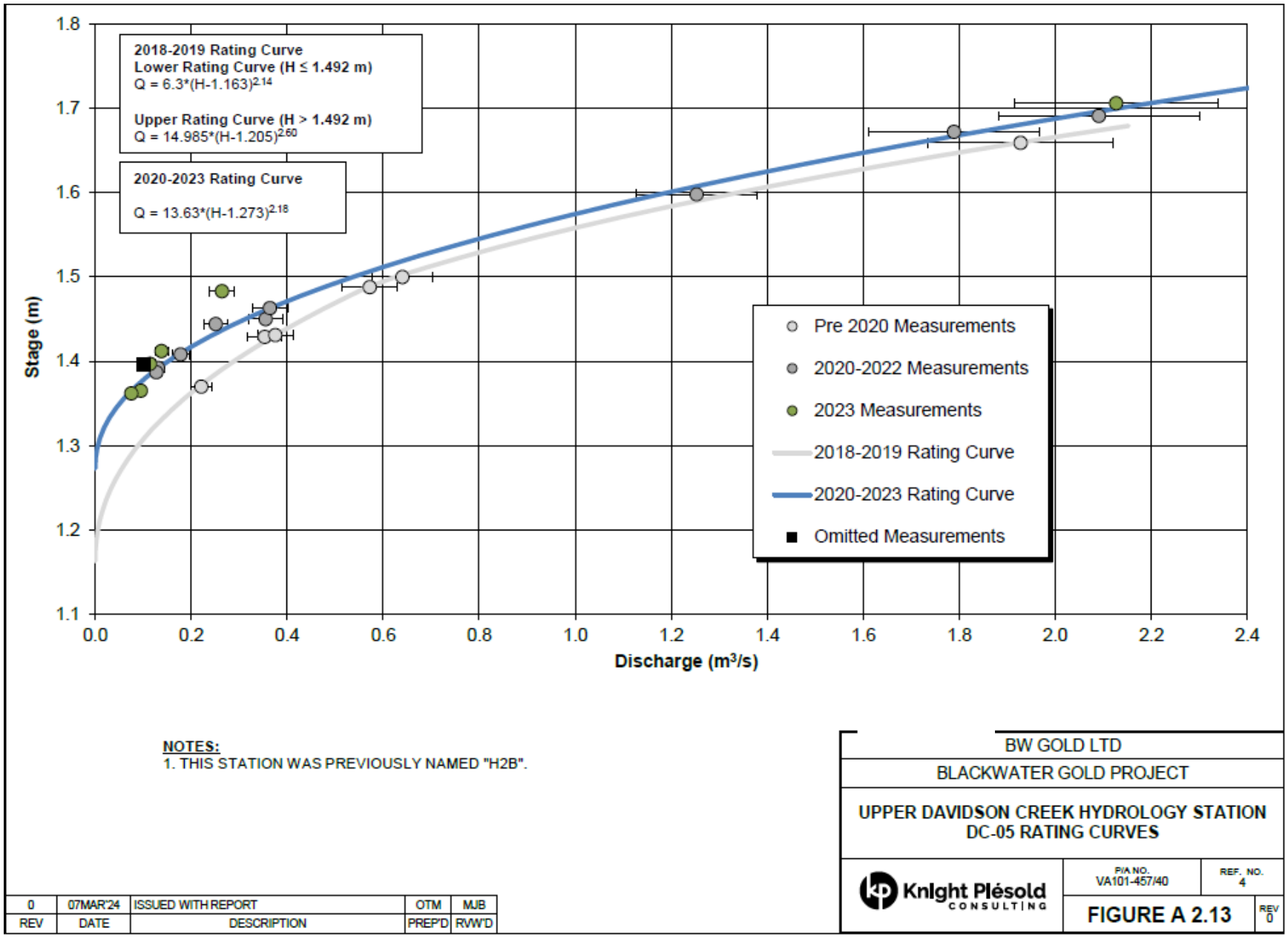


Figure 2.3-1: Upper Davidson Creek Hydrology Station DC-05 Rating Curves

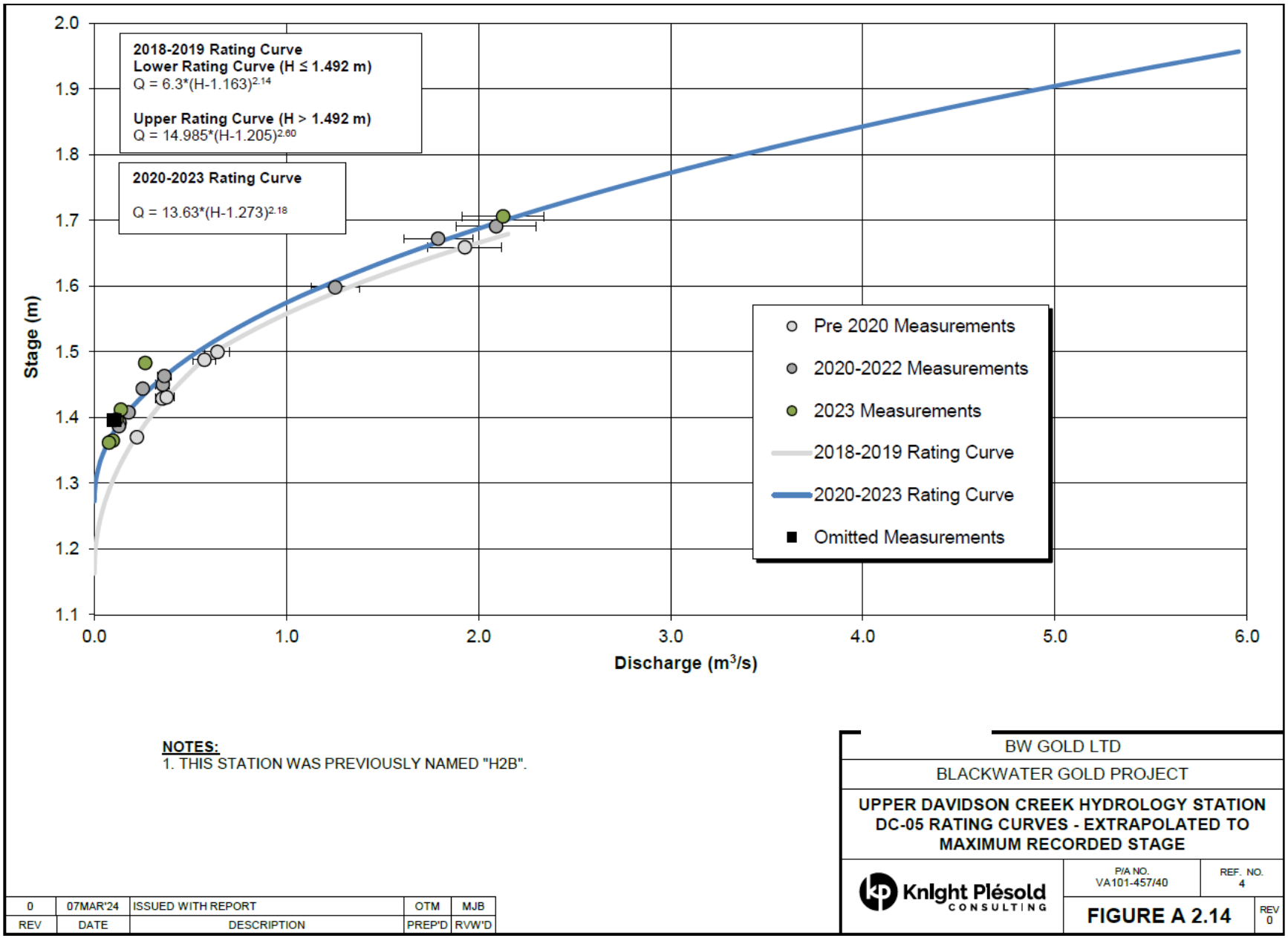


Figure 2.3-2: Upper Davidson Creek Hydrology Station DC-05 Rating Curves – Extrapolated to Maximum Recorded Stage

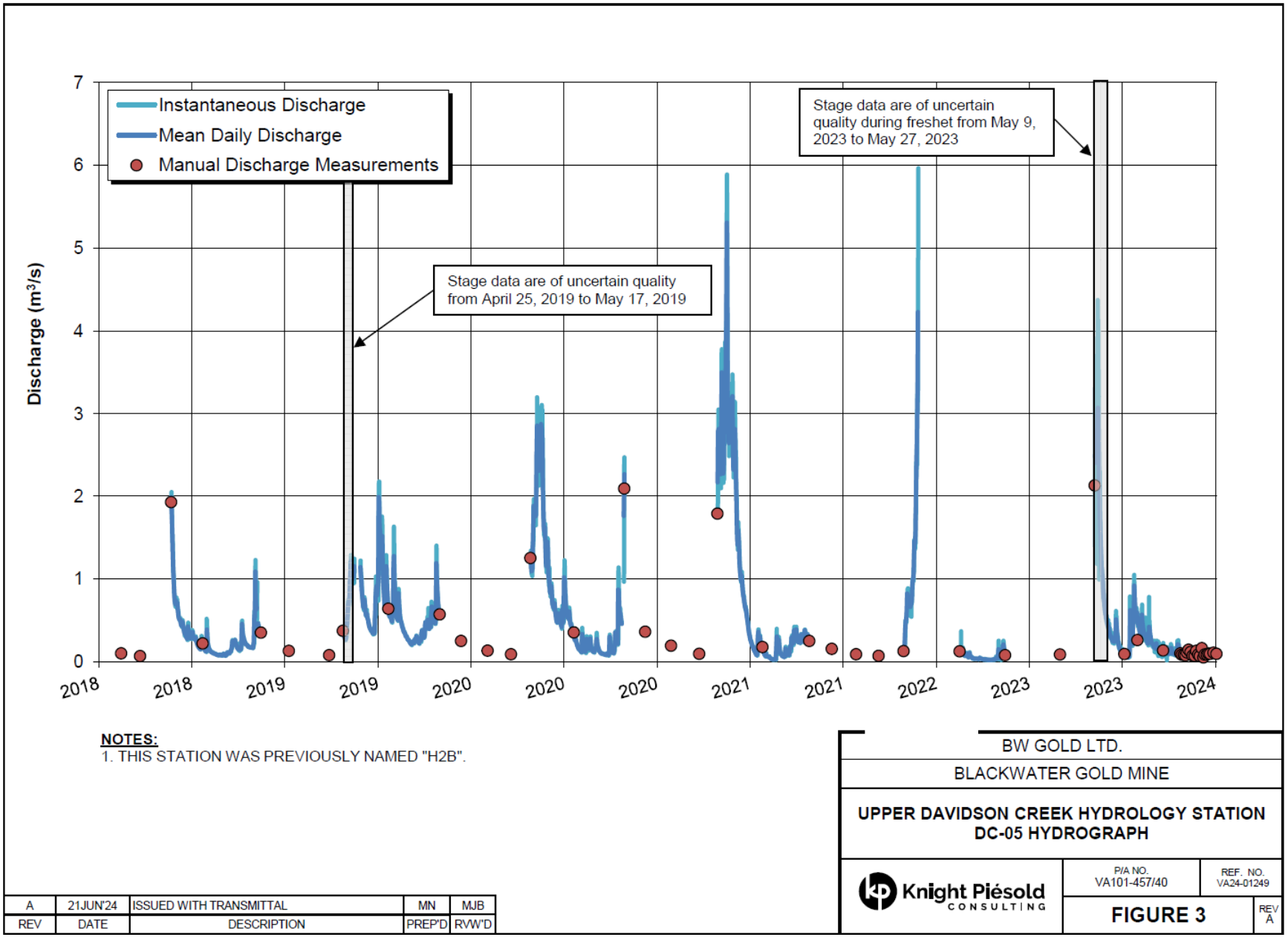


Figure 2.3-3: Upper Davidson Creek Hydrology Station DC-05 Hydrograph

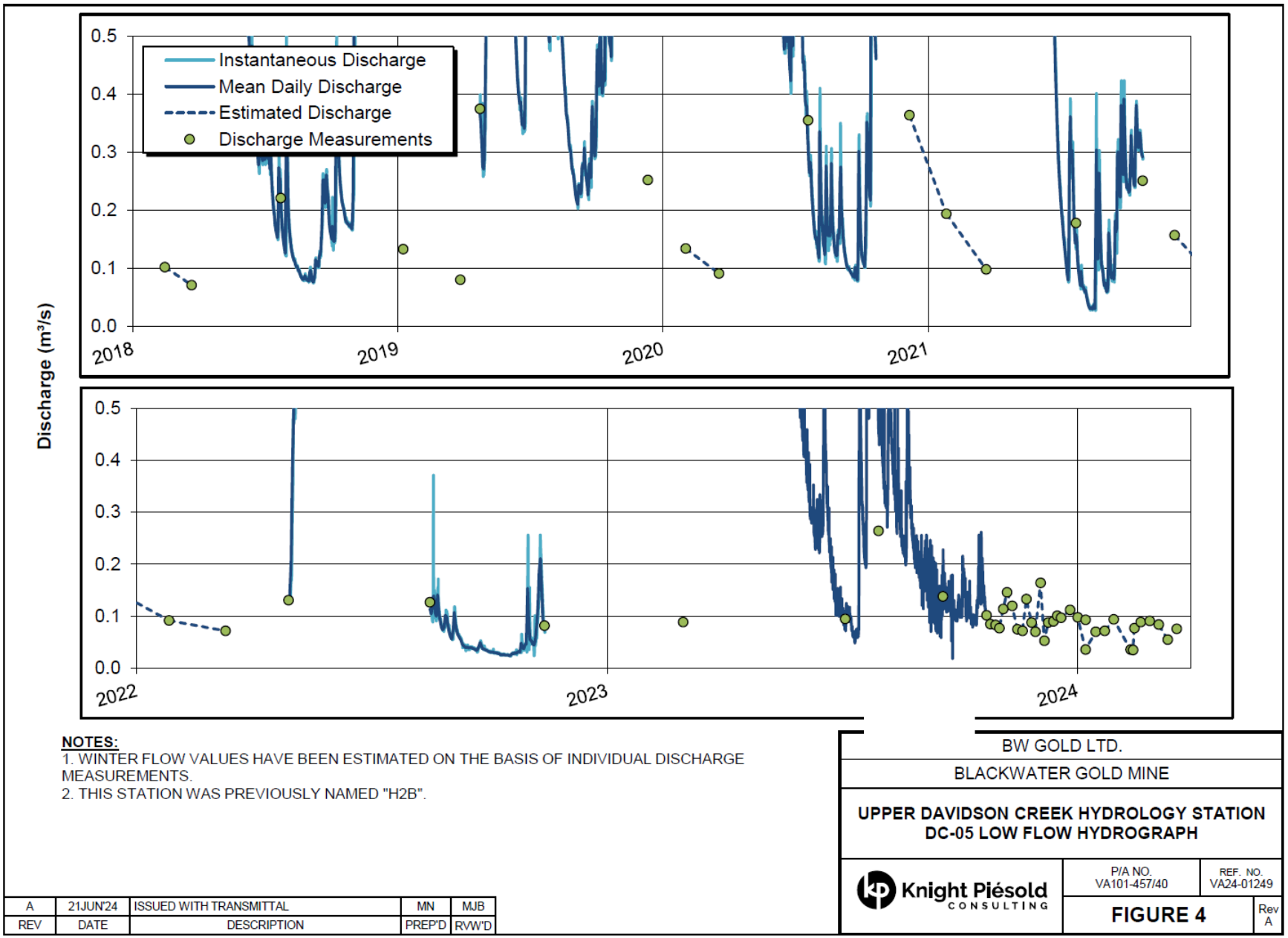


Figure 2.3-4: Upper Davidson Creek Hydrology Station DC-05 Low Flow Hydrograph

Figure 2.3-5 shows the monthly mean flows for each year of record, including Q1 2024. The hydrograph shape appears to be unimodal in 2018, 2020, 2021, and 2023, with a spring freshet peak, while the 2019 hydrograph displays a bimodal shape with peaks during the spring freshet and summer. Insufficient data are available to comment on the shape of the 2022 hydrograph.

When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for DC-05 were determined be of variable quality (Grade E) due to less than three benchmarks being used in all seven of the benchmark surveys performed at the site. A summary of the data quality is included in the 2023 Hydrology and Water Temperature Annual Report (Appendix A), including the RISC grading score for each component of the station's data.

DC-10 Flow Monitoring Results

A total of eight discharge measurements were recorded at DC-10 during the reporting period. No associated stage values were recorded. The discharge measurements from 2023 are summarized in Table 2.3-2.

When compared against the RISC hydrometric standards (2018), the 2023 discharge data for DC-10 were determined to generally be of very good quality (Grade A). A summary of the data quality is included in the 2023 Hydrology and Water Temperature Annual Report (Appendix A), including the RISC grading score for each component of the station's data.

Table 2.3-2: 2023 DC-10 Summary of Discharge Measurements

Date	Number of Measurements	Measurement Method	Discharge (m^3/s)	Uncertainty (%)
31-Oct-2023	2	Current Meter	0.091	10%
22-Sep-2023	2	Current Meter	0.130	10%
06-Sep-23	2	Current Meter	0.155	10%
09-Aug-23	2	Current Meter	0.390	10%
09-May-23	2	Current Meter	2.372	10%
02-Mar-23	2	Current Meter	0.052	10%
05-Jan-23	2	Current Meter	0.080	10%

DC-15 Flow Monitoring Results

A total of 55 discharge measurements with associated stage values have been collected at DC-15, as well as 34 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table 2.3-3.

In 2023, data from October 24 to 30 were removed from the stage record due to icing effects. The rating curves were developed using 53 of the 55 stage-discharge measurements. The May 3, 2018 site visit measurement was disregarded as it likely coincided with a rating curve shift during a period of high flows, and the April 24, 2019 site visit measurement was disregarded due to its anomalously low stage level. A total of 37 stage-discharge points were used to develop the 2012-2017 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2018 to 2022; therefore, a total of 16 measurements delineate the 2018-2023 rating curve. Both curves are shown on Figure 2.3-6 (A 2.18, Appendix A). The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure 2.3-7 (A2.19, Appendix A).

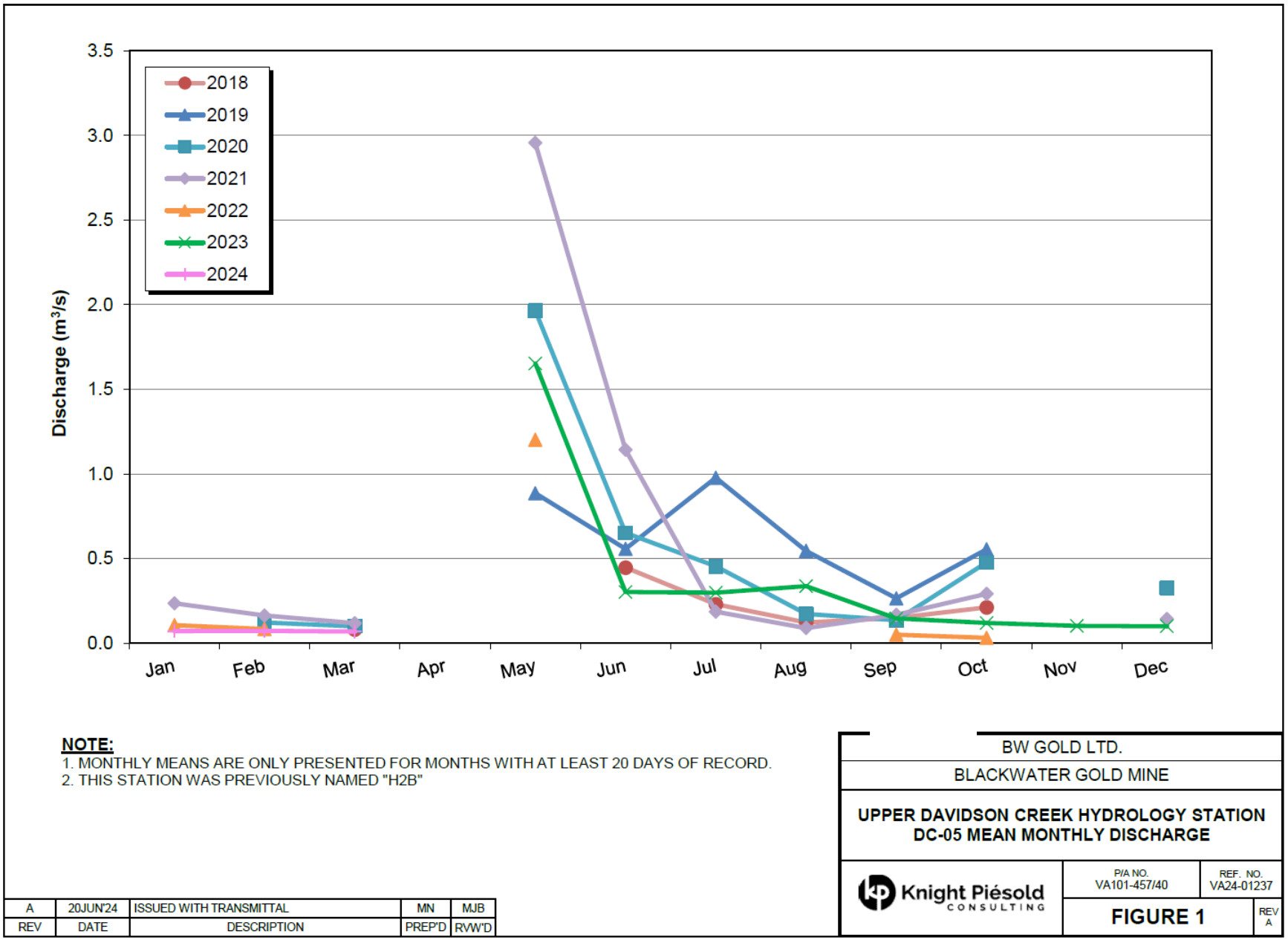


Figure 2.3-5: Upper Davidson Creek Hydrology Station DC-05 Mean Monthly Discharge

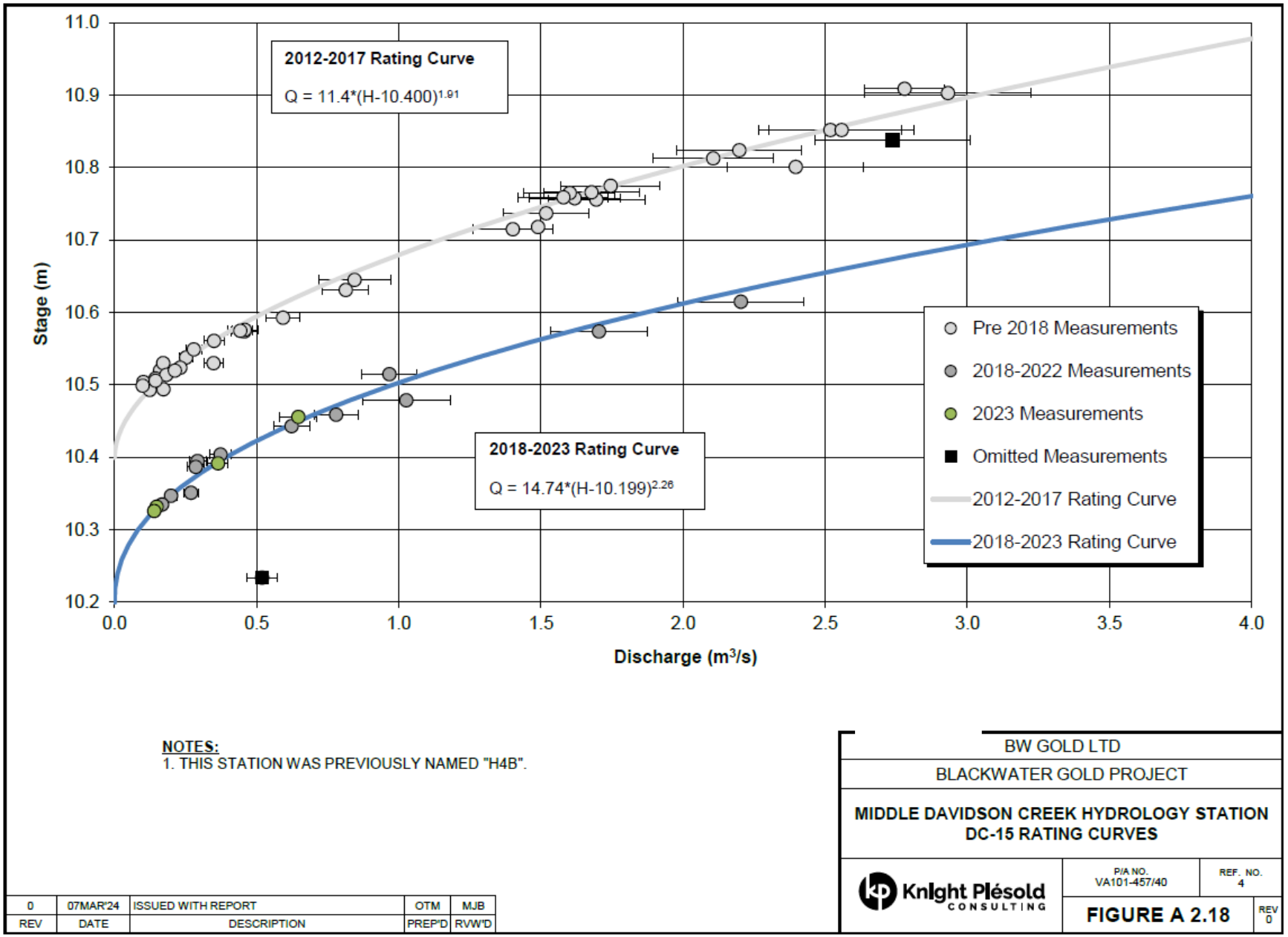


Figure 2.3-6: Middle Davidson Creek Hydrology Station DC-15 Rating Curves

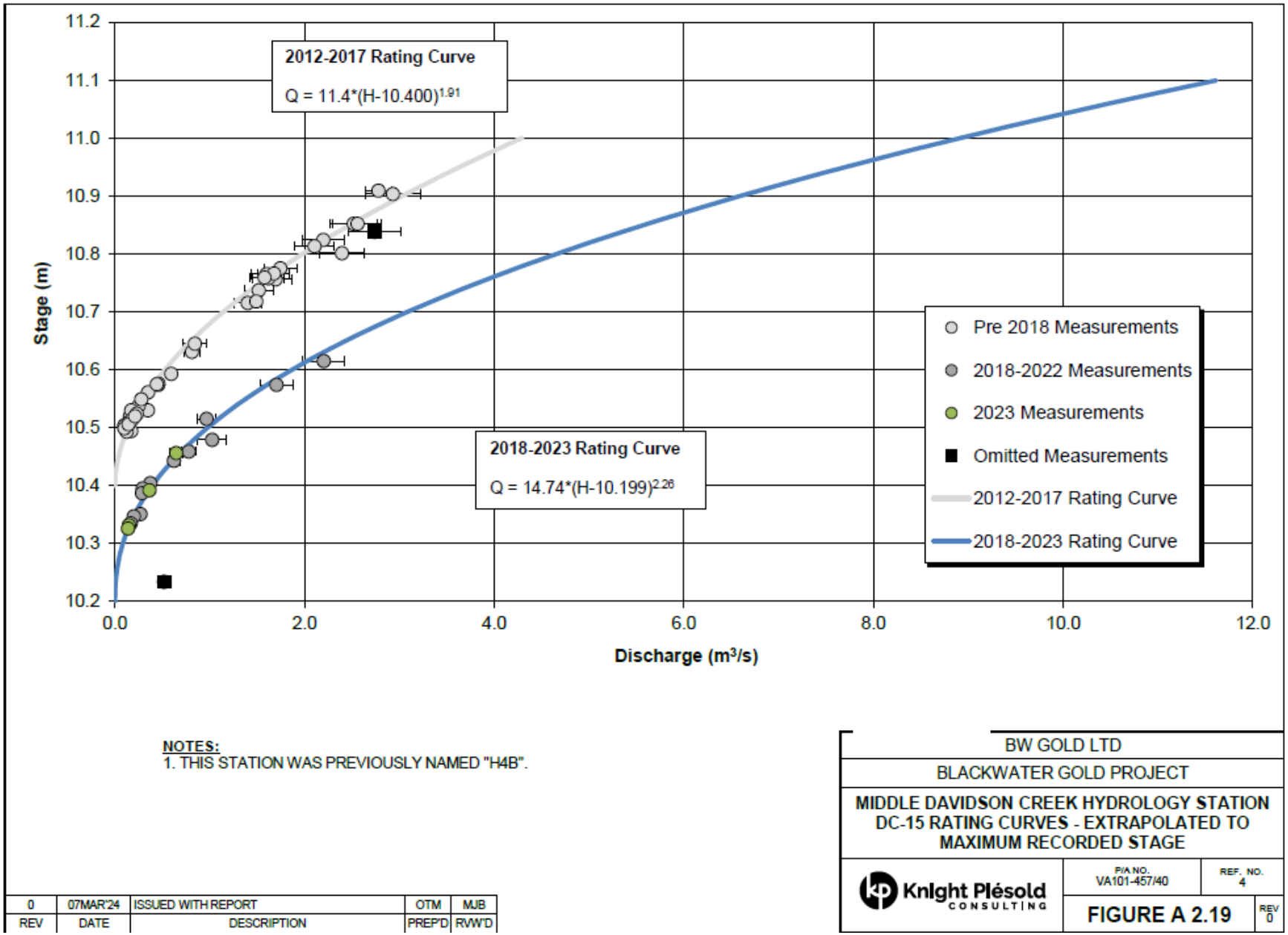


Figure 2.3-7: Middle Davidson Creek Hydrology Station DC-15 Rating Curves – Extrapolated to Maximum Recorded Stage

Table 2.3-3: 2023 DC-15 Summary of Discharge Measurements

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
22-Feb-23	2	Current Meter	-	0.090	10%	-
25-May-23	2	Current Meter	10.456	0.646	10%	0.005
28-Jul-23	2	Current Meter	10.392	0.364	10%	0.005
8-Sep-23	2	Current Meter	10.332	0.148	10%	0.005
22-Sep-23	2	Current Meter	10.326	0.139	10%	0.002
30-Oct-23	2	Current Meter	-	0.162	10%	-

Notes:
Number of gaugings refers to the number of gaugings averaged to produce rating point.
Discharge uncertainty refers to the in situ measurement error estimated by the field engineer.
Stage uncertainty is based on a visual assessment of the wave amplitude in the gauge pool.
This station was previously "H4B".

The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2012-2017 rating curve: the maximum measured discharge was 2.93 m^3/s and the maximum extrapolated discharge is 4.30 m^3/s.
- 2018-2023 rating curve: the maximum measured discharge was 2.20 m^3/s and the maximum extrapolated discharge is 11.67 m^3/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2018-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure 2.3-8 (A 2.20, Appendix A). The hydrograph on Figure 2.3-9 (A 2.21, Appendix A) focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure 2.3-10 (A 2.22, Appendix A) shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2012 to 2015, 2017, 2018, and 2020 to 2023, while a bimodal shape was observed in 2016 and 2019. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for DC-15 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of Appendix A, which includes the RISC grading score for each component of the station's data.

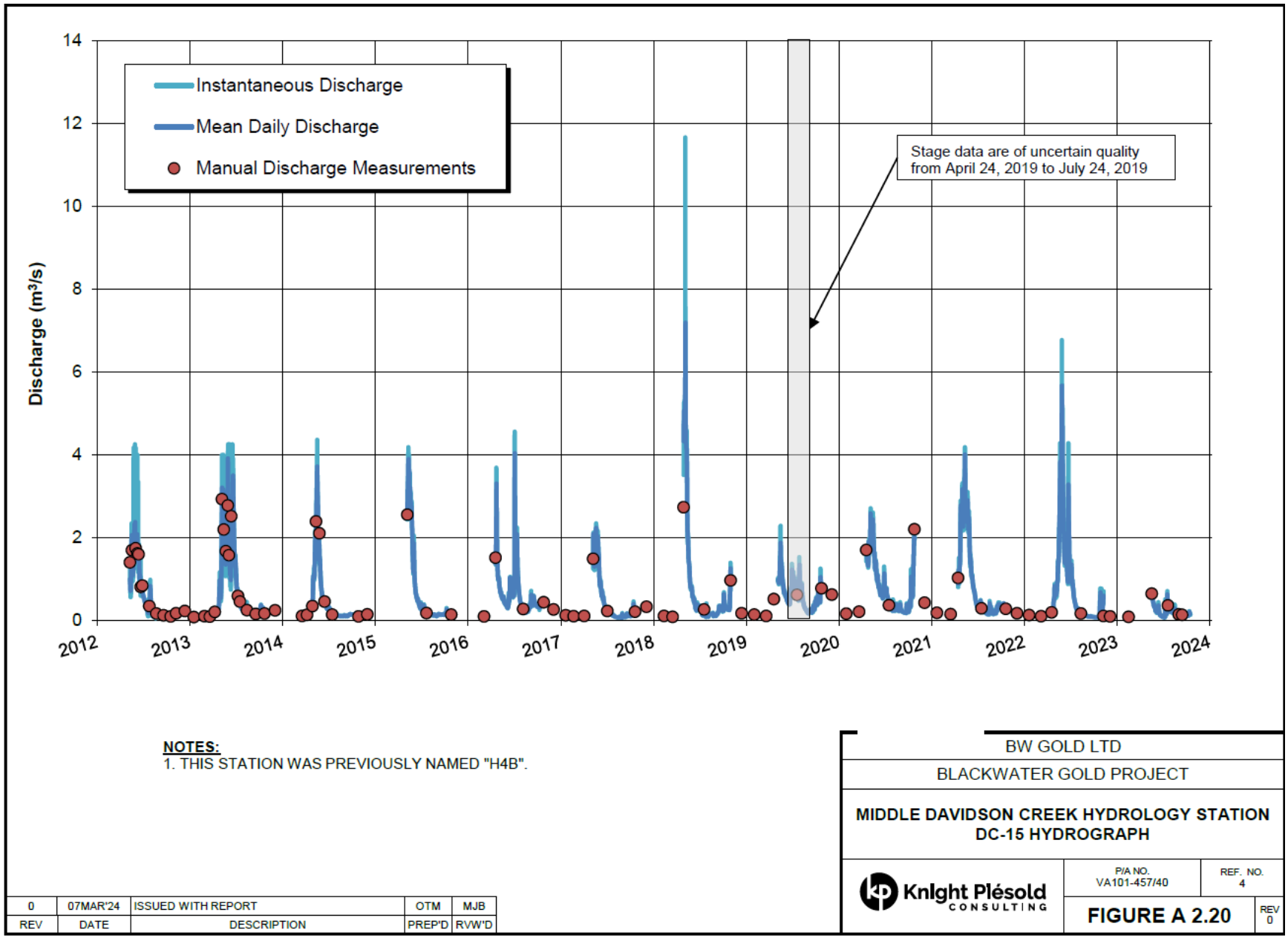


Figure 2.3-8: Middle Davidson Creek Hydrology Station DC-15 Hydrograph

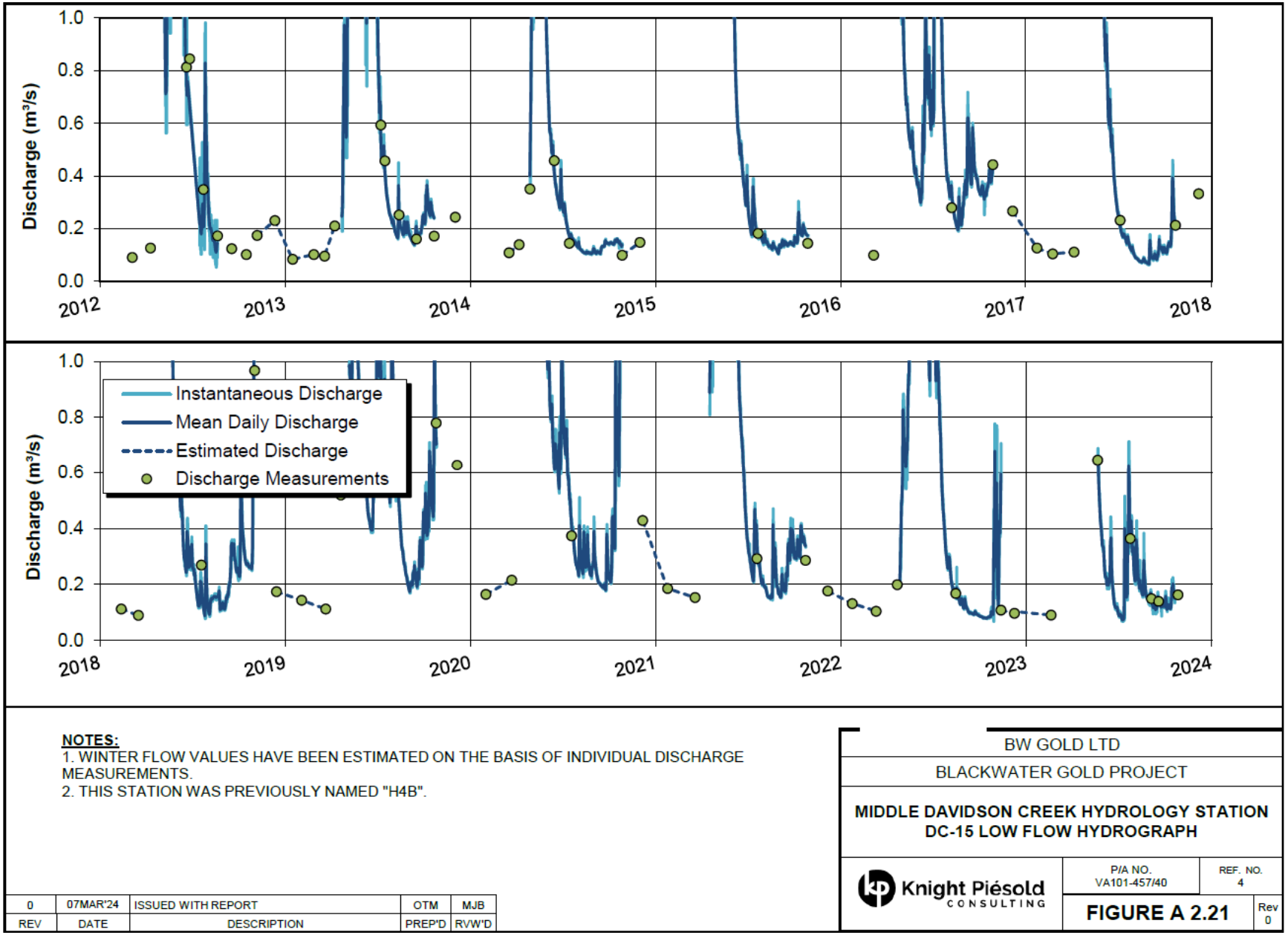


Figure 2.3-9: Middle Davidson Creek Hydrology Station DC-15 Low Flow Hydrograph

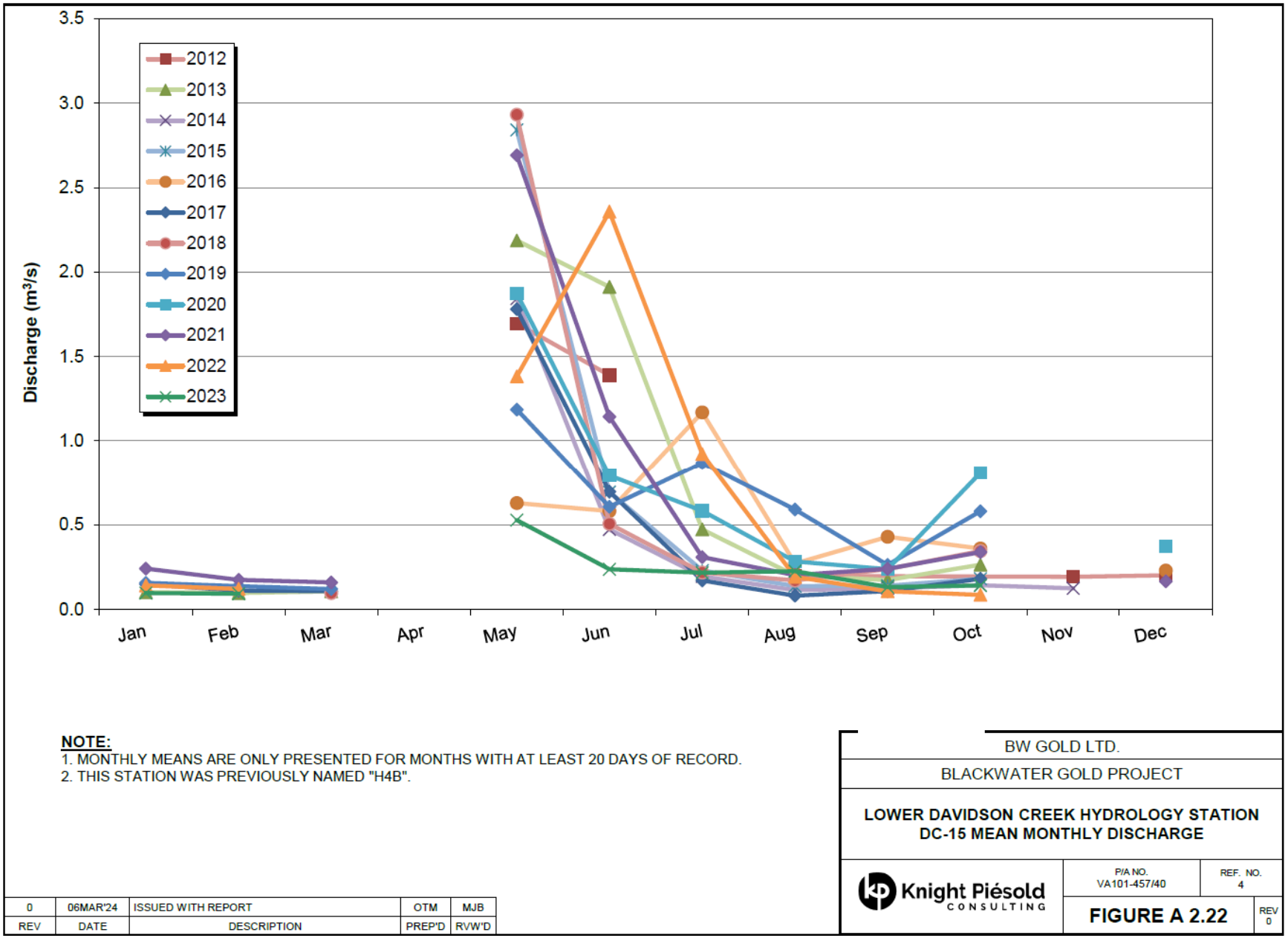


Figure 2.3-10: Lower Davidson Creek Hydrology Station DC-15 Mean Monthly Discharge

2.3.2 Davidson Creek Temperature – Annual Monitoring

Methods

Annual water temperature records are compiled and graphically presented to examine seasonal trends. Comparison to the nearest hydrology station discharge record are also completed using graphical analysis to determine if water temperature trends are related to water flows and depth (Section 4.4.1 of the AEMP Plan).

Table 2.3-4 summarizes those temperature monitoring stations in Davidson Creek where data were collected. These stations consist of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth.

Table 2.3-4: Davidson Creek Temperatures Monitoring Stations (°C)

Location	Station Name	Installed	Easting	Northing
Upper Davidson Creek	ST-10 DEEP	November 5, 2015	377,397	5,798,485
	ST-18 DEEP	November 5, 2015	379,497	5,900,454
Middle Davidson Creek	ST-17 DEEP	November 5, 2015	381,891	5,904,060
Lower Davidson Creek	ST-08 DEEP	November 4, 2015	384,257	5,907,788
	ST-14 DEEP	November 4, 2015	384,028	5,907,510
	ST-16 DEEP	November 5, 2015	383,130	5,906,413

Results

The temperature records for all stations are typically characterised by near freezing temperatures prior to the spring freshet followed by a gradual warming period until July and August, which are the warmest months. Temperatures then decrease steadily back to near freezing temperatures by November or December.

A spatial comparison of average daily water temperatures at dedicated water temperature stations along Davidson Creek, from the time of installation in November 2015 to March 2024, is included on Figure 2.3-11. The monthly mean temperatures for the corresponding temperature stations are also presented in Table 2.3-5. During the winter, the warmest water temperatures were recorded at the higher elevation stations. In contrast, water temperatures at the lower elevation stations were consistently and progressively warmer than at the higher elevation stations throughout the freshet, summer, and fall periods. This is likely due to the atmospheric cooling or warming of the creek water as it flows downstream.

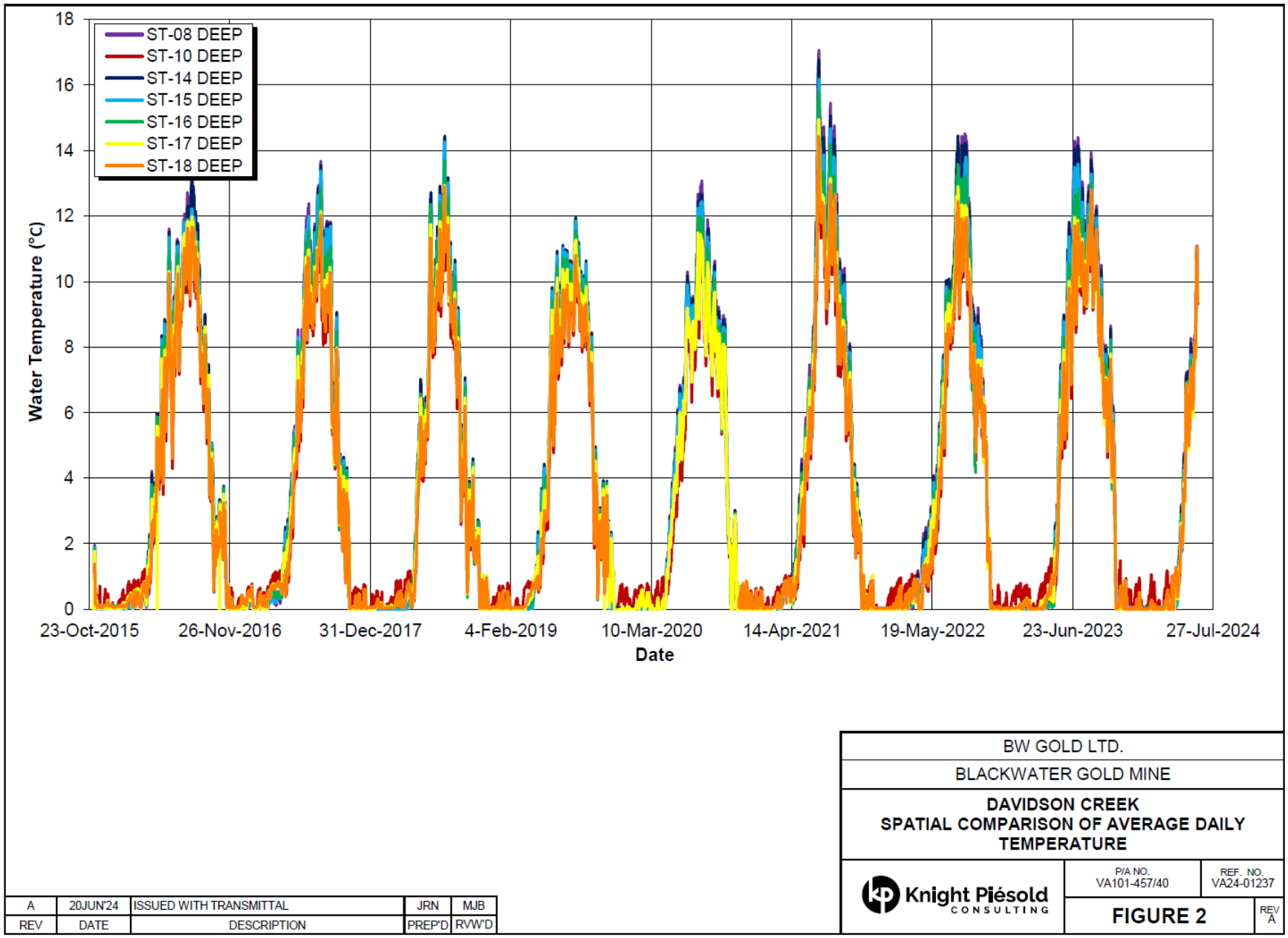


Figure 2.3-11: Davidson Creek Spatial Comparison of Average Daily Temperature

Table 2.3-5: Davidson Creek Monthly Mean Water Temperatures (ºC)

Month-Year	ST-10 DEEP	ST-18 DEEP	ST-17 DEEP	ST-16 DEEP	ST-15 DEEP	ST-14 DEEP	ST-08 DEEP
Nov-15	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Dec-15	0.2	0.1	0.1	0.1	0.0	0.1	0.1
Jan-16	0.2	0.1	0.1	0.1	0.0	0.1	0.0
Feb-16	0.5	0.2	0.3	0.2	0.1	0.1	0.1
Mar-16	0.7	0.4	0.5	0.4	0.3	0.3	0.3
Apr-16	1.5	1.7	2.0	2.2	2.2	2.3	2.3
May-16	5.0	5.3	5.7	6.0	6.2	6.3	6.0
Jun-16	7.7	8.0	8.3	8.7	9.0	9.1	9.2
Jul-16	6.9	9.9	10.2	10.0	10.6	10.7	10.9
Aug-16	10.1	10.5	10.7	10.9	11.2	11.7	11.8
Sep-16	6.5	6.7	6.9	7.5	7.5	7.3	7.4
Oct-16	2.3	2.4	2.6	3.2	3.1	2.8	2.8
Nov-16	1.3	1.2	1.3	1.3	1.3	1.3	1.3
Dec-16	0.2	0.1	0.0	0.1	0.0	0.1	0.0
Jan-17	0.4	0.4	0.3	0.2	0.1	0.1	0.1
Feb-17	0.2	0.2	0.1	0.1	0.0	0.1	0.0
Mar-17	0.5	0.4	0.4	0.3	0.2	0.2	0.2
Apr-17	1.0	0.7	0.8	0.6	0.6	0.6	0.5
May-17	1.9	2.1	2.7	3.1	3.2	3.1	3.4
Jun-17	6.4	6.7	7.1	7.5	7.6	7.0	7.9
Jul-17	9.3	9.5	9.1	10.2	10.6	10.7	10.9
Aug-17	9.5	10.1	10.3	11.0	11.7	11.9	11.9
Sep-17	6.9	7.3	7.4	7.7	8.3	8.4	8.5
Oct-17	2.5	2.6	2.8	2.9	3.1	3.1	3.1
Nov-17	0.4	0.2	0.1	0.1	0.1	0.1	-
Dec-17	0.2	0.1	0.1	0.1	0.0	0.1	-
Jan-18	0.3	0.1	0.1	0.1	0.0	0.1	-
Feb-18	0.1	0.1	0.1	0.1	0.0	0.1	-
Mar-18	0.5	0.2	0.2	0.1	0.0	0.1	-
Apr-18	0.7	0.4	0.4	0.3	0.1	0.1	-
May-18	2.9	3.0	3.5	3.8	3.8	4.0	-
Jun-18	7.2	7.4	7.7	8.1	8.2	8.4	-
Jul-18	9.9	10.3	10.5	11.1	11.4	11.6	-

Month-Year	ST-10 DEEP	ST-18 DEEP	ST-17 DEEP	ST-16 DEEP	ST-15 DEEP	ST-14 DEEP	ST-08 DEEP
Aug-18	9.4	9.9	10.1	10.5	10.9	11.0	-
Sep-18	5.1	5.4	5.6	5.8	6.2	6.2	-
Oct-18	2.0	2.2	2.3	2.3	2.5	2.4	-
Nov-18	0.7	0.7	0.7	0.8	0.8	0.7	-
Dec-18	0.2	0.1	0.0	0.1	0.0	0.1	-
Jan-19	0.4	0.2	0.1	0.1	0.0	0.0	-
Feb-19	0.1	0.1	0.0	0.1	0.0	0.0	-
Mar-19	0.4	0.2	0.1	0.1	0.0	0.0	-
Apr-19	0.8	0.8	1.0	0.9	0.9	0.9	-
May-19	3.2	3.5	4.2	4.5	4.7	4.8	-
Jun-19	7.4	7.6	8.1	8.4	8.6	8.8	-
Jul-19	9.0	9.2	9.7	10.1	10.3	10.4	-
Aug-19	9.1	9.3	9.7	10.0	10.2	10.2	-
Sep-19	6.9	7.1	7.4	7.6	7.8	7.9	-
Oct-19	2.2	2.3	2.5	2.5	2.5	2.6	-
Nov-19	1.2	1.3	1.3	-	1.3	1.3	-
Dec-19	0.4	0.1	0.0	-	0.0	0.0	0.1
Jan-20	0.3	0.1	0.0	-	0.0	0.1	0.1
Feb-20	0.5	0.3	0.3	-	0.0	0.1	0.1
Mar-20	0.3	0.1	0.1	-	0.0	0.1	0.1
Apr-20	0.5	0.4	0.4	-	0.5	0.6	0.6
May-20	2.9	3.2	3.7	-	4.2	4.3	4.4
Jun-20	6.4	6.6	7.1	-	7.6	7.8	7.8
Jul-20	8.8	-	9.4	10.3	10.0	10.2	10.3
Aug-20	8.7	-	9.1	9.5	9.7	10.0	10.2
Sep-20	7.6	-	7.9	8.2	8.4	8.7	8.8
Oct-20	3.2	-	3.4	3.5	3.5	3.6	3.7
Nov-20	0.7	0.2	0.6	0.5	0.5	0.6	0.6
Dec-20	0.4	0.2	0.1	0.0	0.0	0.0	0.0
Jan-21	0.3	0.2	0.1	0.0	0.0	0.0	0.0
Feb-21	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Mar-21	0.6	0.4	0.4	0.2	0.2	0.2	0.2
Apr-21	0.6	0.6	0.7	0.8	0.8	0.9	1.0
May-21	2.9	3.1	3.6	3.5	3.5	3.9	4.2

Month-Year	ST-10 DEEP	ST-18 DEEP	ST-17 DEEP	ST-16 DEEP	ST-15 DEEP	ST-14 DEEP	ST-08 DEEP
Jun-21	7.9	8.2	8.6	9.1	8.4	9.2	9.7
Jul-21	10.9	11.3	11.6	12.3	12.8	13.1	13.4
Aug-21	9.9	10.4	10.6	11.2	11.6	12.0	12.2
Sep-21	6.6	6.9	7.2	7.5	7.8	8.0	8.1
Oct-21	2.2	2.3	2.6	2.7	2.7	2.8	2.9
Nov-21	0.4	0.3	0.2	0.2	0.1	0.1	0.1
Dec-21	0.1	0.1	0.0	-0.2	0.0	0.0	0.0
Jan-22	0.2	0.0	0.0	-0.2	0.0	0.0	-0.1
Feb-22	0.4	0.2	0.2	0.0	0.0	0.0	-0.3
Mar-22	0.7	0.5	0.4	0.2	0.2	0.2	0.0
Apr-22	0.7	0.6	0.6	0.5	0.8	1.0	1.1
May-22	1.3	1.5	2.2	2.3	2.5	2.7	2.8
Jun-22	4.7	5.0	5.6	6.1	6.3	6.4	6.4
Jul-22	9.2	9.5	10.0	10.5	10.1	10.9	10.7
Aug-22	10.5	10.8	11.2	11.8	12.2	12.7	13.0
Sep-22	6.9	7.2	7.4	7.1	8.2	8.5	8.7
Oct-22	4.2	4.4	4.5	3.7	4.7	4.8	4.9
Nov-22	0.2	0.1	0.0	-	0.0	0.0	0.0
Dec-22	0.1	0.0	0.0	-	0.0	0.0	0.0
Jan-23	0.5	0.1	0.0	-	0.0	0.0	0.0
Feb-23	0.3	0.1	0.1	-	0.0	0.0	0.0
Mar-23	0.3	0.0	0.0	-	0.0	0.0	0.0
Apr-23	1.0	0.5	0.4	0.2	0.1	0.2	0.1
May-23	3.7	4.0	4.5	4.8	5.1	5.2	5.2
Jun-23	8.2	8.7	8.9	9.4	10.0	10.4	10.5
Jul-23	9.9	10.3	10.4	10.9	11.5	11.9	12.1
Aug-23	10.8	10.9	10.8	11.1	11.5	11.7	11.9
Sep-23	7.4	7.5	7.4	7.7	8.2	8.4	8.5
Oct-23	3.8	3.8	3.7	5.1	4.2	4.1	4.1
Nov-23	0.5	0.3	0.2	0.2	0.2	0.1	0.1
Dec-23	0.3	0.1	0.0	-	0.0	0.0	0.0
Jan-24	0.2	0.0	-0.1	0.0	0.0	0.0	0.0
Feb-24	0.3	0.1	0.0	0.1	0.0	0.0	0.0
Mar-24	0.5	0.1	0.0	0.0	0.0	0.0	0.0

2.3.3 Davidson Creek Flows – Comparison to Environmental Assessment

Methods

The DS Condition 2.9 requires the Proponent to "undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s)".

Potential changes in streamflow were predicted in Davidson Creek, Creek 661, Chedakuz Creek, and Creek 705 as a result of water diversions, alteration of watershed areas (and subsequent runoff volumes), and capture of run-off by various infrastructure components required for the Project (see Appendix 5.1.2.6D in New Gold 2015). Thus, instream flow needs (IFN) were developed for Davidson Creek to address potential effects on fish and fish habitat. During all phases of the Project, streamflow is expected to be monitored to maintain the IFN in Davidson Creek as defined in Appendix 5.1.2.6D in New Gold (2015), unless otherwise authorized by Fisheries and Oceans Canada (as per DS Condition 3.8). The DS Condition 3.8 is as follows:

> *The Proponent shall develop, prior to construction, measures to maintain instream flow needs in Davidson Creek. The Proponent shall maintain instream flow needs in Davidson Creek during all phases of the Designated Project at a minimum within flow rates recommended by the Proponent in Appendix 5.1.2.6D of the Environmental Impact Statement, unless otherwise authorized by Fisheries and Oceans Canada.*

Additional hydrometric data for Davidson Creek was collected following the calculation of the IFN values in 2015. The data were used to update the baseline hydrology and the amount of fish habitat available under baseline conditions; therefore, the IFN values from New Gold (2015) were updated as part of the submission of the *Fisheries Act* Authorization Application (Appendix C of Palmer 2022). *Fisheries Act* authorization 21-HPAC-01447 was issued June 20, 2023 with Construction IFNs (CIFN) defined in condition 2.2.9.1 for application prior to the operation of the Freshwater Reservoir (FWR). The FWR was not in construction or operations during the period, so those CIFN values presented in Table 2.3-6 are applicable for the reporting period. These are the flows "otherwise authorized by Fisheries and Oceans Canada" referred to in DS Condition 3.8 and replace the IFN values previously identified in the Assessment Report (CEA Agency 2019). Therefore, the weekly mean streamflow measured at site DC-05 in upper Davidson Creek, immediately downstream of the freshwater reservoir (FWR), will be assessed against the CIFN values defined in the *Fisheries Act* Authorization (Table 2.3-6).

Table 2.3-6: Davidson Creek Construction Instream Flow Needs Authorized by Fisheries and Oceans Canada

Period	Construction Instream Flow Needs (m^3/s)[1]
August 31 – May 14	0.07
May 15 – June 30 (min. 21 days)	0.56
May 15 – June 30 (remaining)	0.35
July 1 – July 15	0.30
July 16 – August 31	0.15

Flow measurements were taken at DC-05 using OTT MF Pro electromagnetic flow meter with top-set wading rod. Discharge was collected using the area-velocity method, following the Manual of British Columbia Hydrometric Standards.

Results

Flow data for DC-05 are presented in Table 2.3-1. Instances where the CIFN were not met are summarized in Table 2.3-7 below. As noted in Section 1.1, activities with the potential to impact flows at DC-05 did not occur prior to September 2023.

Table 2.3-7: Instances Where CIFN Was Not Met at DC-05

Date	Discharge (m^3/s)	Construction Instream Flow Needs (m^3/s)
8-Dec-23	0.053	
9-Jan-24	0.036	
15-Feb-24	0.036	0.07
16-Feb-24	0.035	
20-Mar-24	0.055	

December 2023

On December 8, low water levels at the DCDS intake resulted in an inability to pump into Davidson Creek. Flow readings at DC-05 were collected during this time and observed to be 0.0511 m^3/s (<0.07 m^3/s) at 10:50 and 0.0541 m^3/s (<0.07 m^3/s) at 11:30. Water was not withheld from the Davidson Creek system for construction and once the water elevation was above intake elevation, pumping activity commenced. By December 11 the water supply had increased, and pumping was able to resume, the flow at DC-05 was 0.0881 m^3/s at 15:45.

In response to this event, the computer system that operates pumping was adjusted to better calibrate flow rates to limit excess pumping and reduce the likelihood of low water supply at the DCDS intake by more closely matching the pumping rate to the system recharge rate.

January 2024

January 9 at 10:15, a flow reading of 0.036 m^3/s (<0.07 m^3/s) was recorded, with a follow up reading at 14:25 having a recorded flow of 0.093 m^3/s during a slow ramping process of the DCDS. During the night of January 8, the pumping system failed due to a malfunction in the operating system that controls the pumps. This was rectified in the morning of January 9 and pumping re-commenced as evident in the follow up reading of 0.093 m^3/s at 14:25.

February 2024

The DCDS temporarily shut down due to freezing conditions within the pump station on February 13, at 14:00 flows at DC-05 were recorded at 0.036 m^3/s (<0.07 m^3/s). A heating system was installed and the DCDS was operational on February 15 at approximately 15:30. Flow measurements were captured the next day to ensure requirements were being met with DCDS bypass pumping, flows of 0.077 m^3/s were recorded at 13:15 at DC-05.

Davidson Creek remained ice covered except where manual ice removal occurred at sampling locations and upstream near the DCDS discharge. While flows were lower, the stream did not dewater due to inputs from Creek 668, Creek 663, natural seepage into the old Davidson Creek Channel and from sediment control pond discharge.

March 2024

On March 13, reduced flows of 0.055 m^3/s were recorded at DC-05. This was the result of the inability to pump due to low water level at the DCDS intake location at the end of a cold weather period where daytime highs remained consistently below freezing. Water was not withheld from the Davidson Creek system for construction or operational purposes and once the water elevation was above intake elevation, pumping activity re-commenced. Warm weather and snow melt occurred March 14 - 27 which produced visibly higher flows in Davidson Creek on March 14 onward. Flows collected on March 20 were 0.076 m^3/s.

After the discharge of 0.055 m^3/s was identified, visual inspections upstream and downstream of Davidson Creek discharge and DC-05 monitoring station were completed. No fish stranding was observed during the inspection. The risk of fish stranding was low as fish would be in overwintering pools which would be less impacted by small changes in flow.

2.3.4 Davidson Creek Temperature – Comparison to Environmental Assessment

Methods

The DS Condition 3.9 is as follows:

> *The Proponent shall maintain water temperature in Davidson Creek, as described by the Proponent in Section 5 of Appendix A (Blackwater Gold Project – Assessment of Flows from the Water Treatment Plant and North and South Diversions on Davidson Creek Temperatures. Knight Piésold. Memorandum VA16-01038) of Appendix C-1 of the Environmental Impact Statement Supplemental Report Assessment of Effects Related to Project Changes (August 2016), unless otherwise authorized by Fisheries and Oceans Canada.*

Surface water temperature modelling was completed during the Environmental Assessment (EA) for two locations in Davidson Creek – at the mine access road crossing and site H4B (now identified as DC-15). The predicted surface water temperature indicated that the flows in Davidson Creek augmented by the FWSS, would be within 1°C of simulated baseline water temperature when water is discharged from the FWR except for the months of September and October (Appendix C-1 of ERM 2016a).

During the Fisheries Act Application process, deviation of the modeled operational temperatures from the modeled baseline temperature was calculated and assessed (Palmer, 2022). This was done as the recommended BC WQG for temperature are not comparable with the temperature ranges in Davidson Creek that support Kokanee and Rainbow Trout populations. To support this, three scenarios were modelled in lower Davidson Creek to provide a range of management options for management of flow in Davidson Creek:

- ‘Instream Flow Needs (IFN) Only’;
  - Models temperature when the mine is operational but under conditions during which flow requirements are met without additional flow
- ‘Pipeline Only’; and
  - Characterizes temperature when water is released directly from the freshwater supply pipeline into Davidson Creek
- ‘Fresh Water Reservoir (FWR) Bottom Intake Only – Reservoir Full’
  - Models temperature when water is released into Davidson Creek from the bottom of the Freshwater Supply Reservoir when the reservoir is full.

It was determined that all three scenarios were compliant (between 93% and 99% of the time) with the requirement to maintain temperature within ±1°C of the modeled baseline temperature.

Fisheries Act authorization 21-HPAC-01447 was issued June 20, 2023 including condition 2.2.9.5, which reads that "…during construction and commissioning of mine infrastructure, including diversion channels, reservoirs, and the freshwater supply system (FWSS)…":

> *The average daily temperature shall be maintained within ±1°C of baseline daily average maximum and minimum temperatures at the selected sites.*

These are the temperatures "otherwise authorized by Fisheries and Oceans Canada" referred to in condition 3.9.

To support this assessment in lower Davidson Creek baseline data from ST-08 KO are compared to data collected from ST-08 DEEP, where continuous data are available. As described in Appendix A, it was determined that water temperatures at these paired locations, are generally closely correlated, with a standard deviation of ±0.2°C. This difference is near the published accuracy of the sensors.

The ST-08 KO station (Photograph 2-3) was installed in a lower reach of Davidson Creek on November 4, 2015, approximately 5 km downstream of DC-15. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a riffle.

Similarly, the ST-08 DEEP station (Photograph 2-4) was installed in a lower reach of Davidson Creek on November 4, 2015. A collapsing bank damaged the station on November 3, 2017 and it was re-installed on December 5, 2019. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth.

Photograph 2-3: Lower Davidson Creek Water Temperature Station ST-08 KO (September 22, 2023)

Photograph 2-4: Lower Davidson Creek Water Temperature Station ST-08 DEEP (September 22, 2023)

Results

As descried in Section 1.1, no operation of the FWSS occurred. As such, the Projects influence on water temperature in lower Davidson Creek was limited during the reporting period. As described in Section 1.1, activities with the potential to impact the temperature of water did not occur prior to September 2023.

Figure 2.3-12 shows the daily average temperature at ST-08 KO (baseline) vs data collected from ST-08 from September 2023 – March 31, 2024. The ‘minimum’ and ‘maximum’ lines show the lower and upper limits of acceptance based on baseline data collected at ST-08 KO (-1°C, +1°C), while the line shows the lower limit of acceptance).

It is noted that for 6 days in October, temperatures exceeded the upper limit (+1°C). The high temperatures seen during this period is likely attributed to an unseasonably warm fall in combination with a large area of lost riparian due to the recent fires along Davidson Creek (Section 1.2). No water was actively held back during this time, and no reservoirs were established.

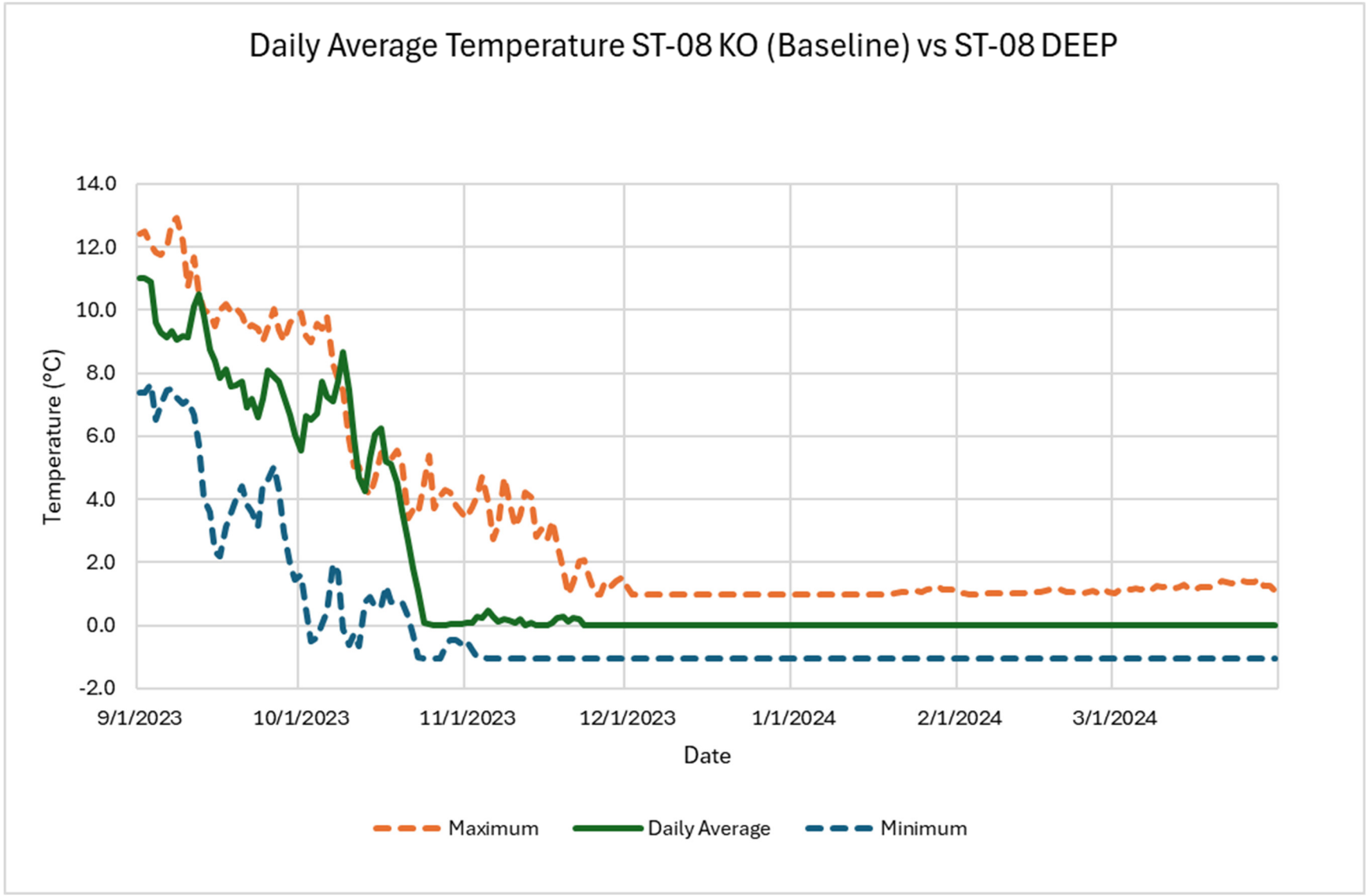


Figure 2.3-12: Daily Average Temperature at ST-08 KO (Baseline) vs ST-08 DEEP

2.3.5 Effectiveness of Mitigation Measures and Adaptive Management

Provided that IFN and temperature requirements described in the FAA are met, mitigation measures are considered effective.

As summarized in Section 2.3.3, observations of flows below the applicable CIFN occurred in December, January, February, and March of the reporting period. Those instances were reviewed, mitigative actions taken, and learnings adopted to prevent re-occurrence where possible. These events were not the result of water usage, or storage, to support construction or operations, but the result of conditions (i.e.: low water level, malfunction of the pump operating system, and freezing conditions) encountered while operating the DCDS. Actions taken to address those conditions proved to be effective, as they resulted in flows meeting CIFN. Those included:

- Setting the DCDS pumping system to better match pumping rates to system inflows to avoid low water levels; and
- Establishing a heating system along the pumping system to limit the potential for freezing

In addition to those actions listed above, BWG now has in-house flow monitoring equipment to collect flows more frequently, as needed.

As summarized in Section 2.3.4, observations of temperatures outside of 1°C of baseline conditions are not anticipated to be the result of Project activities as in during those times water was not withheld and no reservoir were established. has not been established. Where deviation occurred is expected to have been the result of an unseasonably warm fall in combination with a large area of lost riparian due to the recent fires along Davidson Creek (Section 1.2)

3.0 Monitoring Water Quality in Davidson Creek, Creek 661, and Chedakuz Creek for Contaminants of Potential Concern (3.15.2)

3.1 Decision Statement Condition Requirements

Condition 3.15.2 requires the monitoring of water quality in Davidson Creek, Creek 661, and Chedakuz Creek for contaminants of potential concern (COPCs[1]), including those identified in Table 5 of the Environmental Assessment report (CEA Agency 2019), during all phases of the Project.

3.2 Field Methods

Surface water quality samples were collected at sites downstream from the mine site, as indicated in Table 3.2-1 and at three regional control sites 705-05, 705-10 in Creek 705 and FC-01 in Fawnie Creek (Figure 2-1). Water quality samples were collected at each of the sites in accordance with the AEMP Plan (Section 4.4.2.2 of the AEMP Plan; ERM 2024b). The quality assurance/quality control QA/QC principles for surface water quality sampling and analysis followed those outlined in guidance documents and procedures indicated in Section 4.4.2.2 of the AEMP Plan (ERM 2024b).

Table 3.2-1: Surface Water Quality Monitoring Locations and Sampling Frequency in Davidson Creek, Creek 661, and Chedakuz Creek

Watershed	2019 Water Quality Model Site ID[1]	2022 Water Quality Model Site ID[2]	AEMP Plan Site ID	Monthly	Quarterly	5-in-30[3]
Davidson Creek	n/a	WQ28	DC-05	✓	-	✓
	n/a	WQ27	DC-10	✓	-	-
	WQ26	WQ26	DC-15	✓	-	-
	WQ7	WQ7	DC-20	✓	-	✓
Creek 661	n/a	n/a	661-01	✓	-	✓
	n/a	n/a	661-03	✓	-	-
	n/a	n/a	661-04	✓	-	-
	n/a	n/a	661-05	✓	-	-
	WQ5-US	WQ5	661-10	✓	-	✓
	WQ5-DS	CK661	661-20	-	✓	-
Chedakuz Creek	n/a	n/a	CC-03	✓	-	✓
	n/a	n/a	CC-05	-	✓	-
	WQ8	WQ8	CC-10	-	✓	-
	WQ9	WQ9	CC-15	✓	-	✓

[1] The federal DS uses the terminology “contaminant of potential concern” or COPC, while provincially the term “parameter of concern” or POC is used. COPC and POC are defined as parameters with concentrations greater than water quality guidelines or parameters that have been identified as “special-case” parameters. For simplicity, COPC is the terminology used in this report.

Watershed	2019 Water Quality Model Site ID[1]	2022 Water Quality Model Site ID[2]	AEMP Plan Site ID	Monthly	Quarterly	5-in-30[3]
Chedakuz Creek (cont'd)	n/a	WQ13	CC-20	✓	-	✓
	n/a	Chedakuz Midway	CC-30	-	✓	✓
	n/a	Chedakuz Outlet	CC-40	✓	-	✓

Notes:

[1] Figure 4 in CEA Agency (2019).

[2] Lorax (2022a).

[3] 5-in-30 water sampling refers to the collection of 5 water samples in 30 days during spring freshet and fall rains and replaces the monthly or quarterly sample during the three months when the 5-in-30 samples are collected.

n/a = not applicable because the site was not included in the 2019 or 2022 water quality modelling and predicted water quality is not available for this site.

Dashes indicate sampling component is not completed at that site.

3.3 Laboratory Analysis

Water quality samples were collected for analysis of general physical/ion parameters, nutrients and organics, cyanide, and total and dissolved metals at ALS Laboratory (ALS; Burnaby, BC), a Canadian Association for Laboratory Accreditation certified laboratory for analysis. The water quality parameters were analyzed using standard methodologies, as recommended in BC Ministry of Environment (BC MOE; 2016a). Targeted detection limits (DLs) for parameters were at least 10 times lower than water quality guidelines or standards, where available, consistent with recommendations in BC MOE (2016a). Parameters analyzed are provided in Table 3.3-1.

Table 3.3-1: Analyzed Water Quality Parameters

Physical Parameters and Dissolved Anions	Nutrients/Cyanides/Organic Carbon	Metals (Total and Dissolved)	
• acidity (as $CaCO_3$) • bromide • chloride • conductivity (field and laboratory) • dissolved oxygen (field) • fluoride • hardness (as $CaCO_3$) • pH (field and laboratory) • sulphate • temperature (field) • total alkalinity (as $CaCO_3$) • total dissolved solids • total suspended solids • turbidity (field and laboratory)	• ammonia-N • cyanide, weak acid dissociable • dissolved organic carbon • nitrate-N • nitrite-N • ortho-phosphorus • thiocyanate • total cyanide • Total Kjeldahl Nitrogen • total organic carbon • total phosphorous	• aluminum • antimony • arsenic • barium • beryllium • bismuth • boron • cadmium • calcium • chromium • cobalt • copper • iron • lead • lithium • magnesium	• manganese • mercury • molybdenum • nickel • potassium • selenium • silicon • silver • sodium • strontium • thallium • tin • titanium • uranium • vanadium • zinc

3.4 Data Analysis

The April 2023 to March 31, 2024 surface water quality laboratory results for stream sites are provided in Appendix B-1 and field in situ water measurements are provided in Appendix B-2. Laboratory results of the field and travel blanks are provided in Appendix B-3. The results of the RPD analysis for stream water quality field duplicates are provided in Appendix B-4.

3.4.1 Annual Monitoring

Surface water quality concentrations were analyzed as outlined in Section 4.4.2.3 of the AEMP Plan (ERM 2024b). For the purpose of data analysis and presentation, if a concentration is below the detection limit (DL) then half the DL was used during calculations of summary statistics (BC MOE 2016b).

Surface water quality was evaluated with one or more assessment endpoints (i.e., graphical analysis, statistical analysis, and comparison to water quality guidelines) for the following parameters: pH, alkalinity, total suspended solids (TSS), total dissolved solids (TDS), chloride, fluoride, sulphate, ammonia-N, nitrate-N, nitrite-N, total phosphorus, total organic carbon, dissolved organic carbon, cyanide (total and weak acid dissociable), total aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, uranium, vanadium, and zinc, and dissolved aluminum, cadmium, calcium, copper iron, manganese, and zinc.

3.4.1.1 Graphical Analysis

The wildfire delayed field crews being able to access the surface water quality sites in July (and shortened the field season) therefore one of the surface water quality sites was not sampled (661-04). On occasion, field measurements were not collected because of probe issues, lack of a turbidimeter, or operator error (Appendix B-2).

Hydrology can be an important driver of stream water quality because snowmelt or storm runoff can transport sediment into surface water bodies. High rainfall or snowmelt can also result in dilution, decreasing concentrations of dissolved solids. The 2023 stream hydrology is detailed in KP (2024a) and summarized in Section 2.0 of this report to include the 2024 observations. Stream water quality is also linked to stream flows, where relevant, in the following sections.

Potential effects of the wildfire on water quality in streams immediately downstream of the extent include erosion of sediments and deposition of ash and debris into surface waters. Thus, greater TSS concentrations or turbidity in streams following the wildfire can be attributed to the wildfire and not Project-related effects; however, the observed magnitude and timing of the increase will also be related to burn intensity, stream flows, and precipitation events. Nutrients, sulphate, pH, total dissolved solids, chloride, and organic carbon may also increase in waters post-wildfire as a result of the deposition of ash and soil erosion (Water Research Foundation 2013; BC Health 2024). Similar to TSS and turbidity, the magnitude of the change is related to the amount and intensity of precipitation events post-fire. An increase in metals in the particulate form may also be observed however the peak and magnitude depends on the mobilization to surface water and therefore may not be observed immediately after the wildfire.

The following discussion provides a review of the water quality at monitored sites during Construction with a focus on the April 1, 2023, to March 31, 2024, reporting period as well as a comparison to baseline monitoring period (2016 to September 30, 2023). Timeseries plots for each of the surface water quality parameters assessed are provided in Appendix C.

Physical Parameters

pH and Alkalinity

All stream sites were generally near-neutral to slightly alkaline to moderately alkaline (Figure C.1 in Appendix C). The pH values were seasonally variable with lower values observed in during freshet, high spring flows. The lowest mean monthly pH values were observed at the upstream site in Creek 661 and sites in the Creek 705 watershed. The observed pH values during the reporting were within the BC guideline range at all sampled sites. One pH value was greater than the proposed pH Yinka Dene Water Law (YDWL) standard at Chedakuz Creek site CC-15 in September 2023 (YDWL standard upper range value = 8.1; observed pH = 8.12; Section 3.4.2).

The 2023 mean monthly alkalinity values were also the lowest in the Creek 661 and Creek 705 watersheds (Figure C.2). Alkalinity was seasonally variable in Project streams and was generally inversely related to stream flows; the lowest mean alkalinity values were measured during freshet in May.

The observed pH values and alkalinity during construction activities were within the range observed during baseline years at all monitored sites.

Suspended Material

Total suspended solids (TSS) were generally low in Project streams (Figure C.3). Suspended material was associated with the hydrological regime, with elevated TSS concentrations corresponding to elevated stream flows in April through June, depending on the year, representing freshet. Peaks in suspended material were observed in May 2023 (corresponding with freshet) and also observed to occur at other times throughout the year and were likely related to rainfall events.

Overall, TSS observed during construction activities at monitored sites were not different from baseline.

Total Dissolved Solids

Total dissolved solids was generally inversely related to stream flows; the lowest mean alkalinity values were measured during freshet in May (Figure C.4). The reduction in TDS values during freshet and other high flow periods was more pronounced at the Davidson Creek sites and can be attributed to the dilution of surface waters as a result of snowmelt and rainfall runoff inputs to the streams.

Overall, TDS observed during construction activities were within the range observed during baseline years at all monitored sites.

Major Anions

Monthly mean concentrations of chloride, fluoride, and sulphate are presented in Figures C.5 to C.7. The major anion observed concentrations during the reporting period were low in Project streams and did not exceed BC water quality guidelines or proposed YDWL standards in any stream samples.

Chloride concentrations were typically less than detection (0.5 mg/L), with the exception of Davidson Creek sites and Creek 661 sites 661-10 and 661-04 in the 2023 fall/winter months (Figure C.5). Detectable concentrations were also observed on occasion at Chedakuz Creek sites.

Fluoride concentrations were seasonally variable with the lowest concentrations observed at freshet and tended to be lowest at the regional control sites and highest at Chedakuz Creek sites (Figure C.6).

Sulphate concentrations were also seasonally variable with greater concentrations observed in the winter months (Figure C.7). Sulphate concentrations were comparable among all sampled sites, except Davidson Creek sites in July 2023 with monthly mean sulphate concentrations greater when compared to other sampled sites and months.

The major anion concentrations observed during construction activities were within the range observed during baseline years at all monitored sites, with the exception of chloride concentrations observed at Davidson Creek sites and Creek 661 sites 661-10 and 661-04 and sulphate concentrations at Davidson Creek sites in July 2023. The detectable chloride concentrations may be related to the wildfire given they were observed in the near-field Davidson Creek sites and downstream of the Camp site (661-04) and predominantly after the fire (Figure C.5). The elevated sulphate concentrations observed in July 2023 at Davidson Creek sites may also be related to the wildfire (Figure C.7). Continued monitoring in 2024 is expected to provide further understanding for the occurrence of the concentrations observed during the reporting period.

Nutrients and Organic Carbon

The nitrogen species assessed in Project streams included total ammonia-N (Figure C.8), nitrate-N (Figure C.9), and nitrite-N (Figure C.10). All nitrogen species concentrations were below applicable water quality guidelines and proposed YDWL standards during the reporting period.

Total ammonia-N concentrations were frequently below the detection at all sites with the exception of Chedakuz Creek (Figure B-8). Seasonal trends were observed in Chedakuz Creek with greater concentrations during the winter months. Total ammonia-N concentrations during the reporting period were similar to the concentrations observed during baseline. Seasonal variability was observed in nitrate-N and nitrite-N concentrations with greater concentrations typically observed during winter months at all monitored sites (Figure B-9 and Figure B-10). Nitrate-N concentrations were below detection at most stream sites through the summer, and at some sites were below detection year-round (e.g., Davidson Creek sites, Creek 661 sites, upper Chedakuz Creek sites, and regional control sites). Nitrite-N concentrations were also below detection at most sites with the exception upper Chedakuz Creek sites in the winter months.

Total phosphorus concentrations varied by watershed (Figure C.11). Typically, regional control sites were oligotrophic (0.004 to 0.01 mg/L); Davidson Creek were oligotrophic to mesotrophic (0.01 to 0.02 mg/L); Creek 661 sites were oligotrophic to meso-eutrophic (0.02 to 0.035 mg/L) except for site 661-05 was eutrophic (0.35 to 0.1 mg/L); and Chedakuz Creek was mesotrophic to meso-eutrophic. Greater total phosphorus concentrations were observed at freshet when compared to other months at Davidson Creek sites, Creek 661 sites 661-01 and 661-03, Chedakuz Creek sites, and regional control sites. Orthophosphate concentrations tended to be seasonal with greater concentrations observed in the winter months (Figure C.12). Orthophosphate concentrations tended to be similar among all sites within a watershed (e.g., Davidson Creek) except for Creek 661 with greater orthophosphate concentrations at 661-05 followed by 661-10, 661-04, and 661-10 and the lowest concentrations (often at or less than detection) at sites 661-01 and 661-03 (Figure C.12).

Organic carbon concentrations were high across all Project stream sites (Figures C.13 and C.14). Organic carbon was predominantly observed as DOC. Organic carbon concentrations were seasonally variable with the greatest concentrations of total organic carbon (TOC) and DOC were typically observed during freshet (May).

Overall, nutrient and organic carbon concentrations observed during the reporting period were within the range of concentrations observed during baseline years except for total phosphorus in Davidson Creek sites and site 661-05 in early 2024.

Cyanides

Monthly mean total cyanide concentrations were generally less than detection limit at all stream sites in during the reporting period and during baseline (Figure C.15). During the reporting period, detectable concentrations of total cyanide were observed in Davidson Creek at site DC-05 in November 2023

(0.0055 mg/L). The observation was less than 5 times the DL therefore considered associated with laboratory variability (and not Project-related). Concentrations of weak acid dissociable (WAD) cyanide were below DLs during the reporting period (0.005 mg/L except at 705-10 in May 2023 where the DL = 0.01; Figure C.16). Detectable concentrations of thiocyanate tended to be associated with freshet at all sites with the remaining months at concentrations less than detection except for DC-15 in February 2024 (Figure C.17)

Observed cyanide concentrations during the reporting period tended to be similar to baseline concentrations at all sites.

Total and Dissolved Metals

For most metals, dissolved concentrations constituted a substantial proportion of the total concentration, indicating that metals were frequently in dissolved rather than particulate form (e.g., total and dissolved copper; Figure C.27 and C.44). This observation was consistent with the generally low concentrations of TSS in Project streams and high TDS concentrations. Due to the high proportion of total metals in the dissolved form, metal concentrations followed a similar temporal pattern to that observed for TDS (Figure B-4). The main exception was aluminum (Figure C.18 and Figure C.42). While both total and dissolved aluminum concentrations were elevated across all sites, a substantial proportion of aluminum was in the particulate form, and aluminum trends generally followed the same pattern as TSS (Figure C.3).

Metal increases in Project catchments may stem from natural sources (e.g., weathering of soil and rock, atmospheric precipitation/fallout, forest fires, etc.) as well as anthropogenic sources (e.g., mine construction activities, forest harvesting activities, road/trail networks, etc.). Some are considered conservative and undergo relatively minor changes from natural geochemical and biological processes (e.g., magnesium, potassium, and sodium), some are more reactive and are strongly influenced by these processes (e.g. calcium), and some are greatly influenced by microbial activity (e.g. iron, silicon, and sulfur). Geographical influences have been observed in the distribution of total and dissolved metal guideline exceedances; consequently, individual Project watersheds are discussed independently in the following sections.

Davidson Creek Watershed

Davidson Creek is a small headwater stream directly downgradient of Project-related activities and downstream of the wildfire extent. Discharge from the TSF Stage 1 SCP to Davidson Creek occurred during the first quarter (Q1) of 2024 (Section 1.1). An approximate total volume of 19,428 m^3 was discharged from the TSF Stage 1 SCP. The Plant Site SCP discharged to ground via RIBs during the reporting period (Q1; Section 1.1).

During the reporting period, Water Quality Guidelines for the protection of aquatic life (WQG-AL) guidelines were exceeded for total aluminum, chromium, copper, iron, and mercury and the dissolved aluminum SBEB was exceeded at DC-05, DC-10 and DC-15 (Section 3.4.2). The YDWL standards were exceeded for dissolved aluminum at DC-05 (see Section 3.4.2). Consistent with other watersheds and baseline, total and dissolved aluminum concentrations were elevated throughout Davidson Creek and followed a similar temporal pattern to TSS, unlike other metals which were dominated by the dissolved fraction.

The mean monthly metal concentrations during the reporting period at Davidson Creek watershed sites were generally similar to that observed during the 2016 to September 2022 baseline period. Exceptions to this were the months of February and March 2024 at sites DC-05, and DC-10 for total and dissolved aluminum (Figures C.18 and C.42), total antimony (Figure C.19), total arsenic (Figure C.20), total barium (Figure C.21), total beryllium (Figure C.22), total chromium (Figure C.25), total cobalt (Figure C.26), total copper (Figure C.27), total iron (Figure C.28), total lead (Figure C.29), total lithium (Figure C.30), total manganese (Figure C.31), total nickel (Figure C.34), total silver (Figure C.36), total strontium

(Figure C.37), total thallium (Figure C.38), total uranium (Figure C.39), and total vanadium (Figure C.40). The monthly concentrations following the wildfire (July 2023 to March 2024) at Davidson Creek sites (DC-05 ad DC-10) tended to be greater than monthly concentrations observed during the baseline monitoring period for each of those parameters listed with the exception of total strontium and total uranium (Figures C.37 and Figure C.39). Total strontium and total uranium increasing monthly average concentrations at DC-05 and DC-10 have been observed since construction activities were initiated.

Exceptions to the similarity between baseline and construction periods was also observed at sites DC-15, and DC-20 for total and dissolved manganese (Figures C.31 and C.46), total strontium (Figure C.37), and total uranium (Figure C.39). Greater total and dissolved manganese, monthly concentrations were observed at DC-20 in 2023 when compared to the same months in the baseline period (Figures C.31 and C.46). Total strontium and total uranium increasing monthly average concentrations at DC-15 and DC-20 have been observed since construction activities were initiated (Figures C.37 and C.39).

The 2023 monthly total beryllium concentrations appeared to be lower in all months when compared to concentrations observed during the baseline period however this is as a result of a higher detection limit in years 2016 to 2020 (Figure C.22).

Creek 661 Watershed

Creek 661 and its tributaries does not receive effluent discharge but is downgradient of Project-related activities including the Plant Site SCP discharge to ground and downstream of the wildfire extent.

During the reporting period, WQG-AL guidelines were exceeded for total aluminum, chromium, copper, iron, and mercury (see Section 3.4.2).

The monthly metal concentrations and seasonal trends at Creek 661 watershed sites potentially affected by either construction activities or because of the wildfire (i.e., 661-05, 661 10, and 661-20) were generally similar to that observed during the baseline period. Exceptions to this trend were total molybdenum, total strontium at 661-20 (Figure C.33 and Figure C.37), and total uranium at 661-05 and 661-20 (Figure C.39). Greater total molybdenum, total strontium, and total uranium (at 661-20) monthly concentrations were generally observed during the reporting period when compared to the same months in the 2016 to 2021 baseline period. In addition, total aluminum, total chromium, and total iron tended to be greater in December 2023 and February and/or March 2024 at site 661-05 when compared to baseline years (Figures C.18, C.25, and C.28).

Total and dissolved aluminum concentrations followed a similar temporal pattern to TSS, unlike other metals which were dominated by the dissolved fraction. Except for freshet, the 2023 total beryllium concentrations tended to be less than detection limit at all Creek 661 sites including the upstream control site, 661-01. Variable and elevated concentrations were observed for total beryllium in the baseline period when compared to 2023 observations as a result of the greater detection limits between 2016 and 2020 (Figure C.22).

Chedakuz Creek Watershed

Chedakuz Creek is a larger watercourse (when compared to Davidson Creek) and influenced by several anthropogenic sources along its length (e.g. forest harvesting activities, road/trail networks, cattle grazing). Given the downstream distance from the construction activities and surface water discharge limited to Q1 2024, Project related effects were not anticipated in Chedakuz Creek.

No WQG-AL guideline exceedances were observed in the Chedakuz Creek watershed during the reporting period, however the YDWL standards were exceeded for dissolved manganese at site CC-15 (see Section 3.4.2).

Generally, sites on the section of Chedakuz Creek upstream of Tatelkuz Lake (i.e., CC-03 and CC-05) had higher metal concentrations though there were exceptions for some parameters (e.g. copper, iron, lead, selenium, titanium, and zinc). The monthly metal concentration and seasonal trends during the reporting period at Chedakuz Creek sites were generally similar to that observed during the baseline period. Exceptions to this were total aluminum (Figures C.18), total and dissolved iron (Figures C.28 and C.45), total molybdenum (Figure C.33), total strontium (Figure (C.37), and total uranium (Figure C.39). Greater concentrations of total molybdenum, total and dissolved iron, and total uranium were observed during the reporting period at the lower Chedakuz Creek sites (CC-10, CC-15, CC-20, CC-30, and CC-40) when compared to the baseline period. Greater concentrations of total aluminum, and total strontium were observed during the reporting period at the middle Chedakuz Creek sites (CC-03 and CC-05) when compared to the baseline period.

Similar to the other monitored watersheds, total and dissolved aluminum concentrations followed a similar temporal pattern to TSS, unlike other metals which were dominated by the dissolved fraction.

Total beryllium at all Chedakuz Creek sites was generally less than detection through the baseline period. In 2023, the total beryllium concentration at sites was also less than the detection limit for all months however the detection limit was lower than in baseline years (Figure C.22).

Regional Control Sites

During the reporting period, WQG-AL guidelines were exceeded for total aluminum at regional control sites (see Section 3.4.2).

The monthly metal concentrations and seasonal trends during the reporting period at the regional control sites were similar to that observed during baseline. Concentrations of metals at regional control sites were low with concentrations at FC-01 tending to be greater than the Creek 705 sites 705-05 and 705-10 for total arsenic, total and dissolved cadmium, and total vanadium (Figures C.20, C.24, C.43, and C.40)

Total and dissolved aluminum concentrations followed a similar temporal pattern to TSS, unlike other metals which were dominated by the dissolved fraction. Mean monthly concentrations of total beryllium at the regional control sites appeared to be less during the reporting when compared to the baseline period however this was related to a higher detection limit in baseline years when compared to 2023 (Figure C.22).

3.4.1.2 Quality Assurance and Quality Control

Methods

The quality assurance/quality control (QA/QC) principles for surface water quality sampling and analysis followed those outlined in guidance documents throughout the field sample collection and laboratory analysis phases (BC MOE 2016a; BC MWLAP 2013; BC ENV 2020b). Standard QA/QC practices included: water quality samples were collected by qualified personnel using suitable sampling equipment; Chain-of-Custody (COC) forms were used to track the samples; and analyses were conducted by a CALA-certified laboratory.

The QA/QC procedures for the measurement of field (in situ) parameters included daily calibration of the meter before use, as per the manufacturer's manual and recorded in a calibration log. The meter was allowed to stabilize before taking each reading and the data was reviewed for unreasonable values.

In addition, QA/QC field blanks, travel blanks, and field duplicates were collected for each sampling event. Field blanks are empty sample bottles filled with deionized water at randomly selected stations to assess potential contamination from the surrounding environmental conditions (e.g., aerial particulates) and sample handling techniques. Travel blanks are pre-filled by the analytical laboratory and are not opened in the field to assess potential contamination from travel, storage, or from laboratory handling.

Field duplicate samples were collected in the field at randomly selected stations and submitted to the laboratory to indicate the variability inherent in field sampling (i.e., environmental heterogeneity).

A minimum of one field blank and one travel blank were collected per sampling event, field duplicates were collected to account for approximately 10% of the total number of samples collected.

Laboratory QA/QC measurements and protocols were completed to determine and confirm the accuracy, sensitivity, precision, and comparability of the data, as recommended by BC Ministry of Environment and Climate Change Strategy (BC ENV2020a). This included the use of method blanks, replicates, laboratory control samples and reference material, and matrix spikes. Method blanks are clean control samples that detect potential contamination during sample preparation and analysis. Laboratory duplicates are field-collected samples split at the laboratory and analyzed separately. These determine the methodological precision. Accuracy was tested using laboratory control samples, reference materials, and matrix spikes. Laboratory control samples are a clean matrix (i.e., distilled, de-ionized water) spiked with test parameters. Reference materials are samples with a known concentration of a parameter. Matrix spikes are field-collected samples that are spiked with test analytes. Anomalous results (for example, detected concentrations in the blanks) were verified by the laboratory with repeated analysis.

Detected concentrations of water quality parameters (concentrations above the DL) were noted for both travel and field blanks to indicate possible contamination.

For each pair of QA/QC field duplicate water samples, the relative percent difference (RPD) was calculated, where:

$$RPD = 100\% \times \left(\frac{|replicate\ 1 - replicate\ 2|}{\frac{replicate\ 1 + replicate\ 2}{2}} \right)$$

The RPD between the field duplicates is a measure of the variability inherent in field sampling (environmental heterogeneity, sampler handling leading to contamination, potential laboratory errors). Water quality parameters where one or both values were less than five times the DL were not included in the RPD calculations because variability near the DL is considered too high (BC MWLAP 2013). The British Columbia Field Sampling Manual Part A Quality Control and Quality Assurance (BC MWLAP 2013) recommends that any field duplicates with RPD values exceeding 20% and 50% should be noted and data should be interpreted accordingly. The results of RPD calculations were examined to detect patterns of high variation for multiple parameters within sample pairs, indicating possible contamination during field sampling.

Both field and water quality observations were examined for their expected range of values and/or previous results. Based on statistical metrics and professional judgement, outliers indicating an error were removed. A combination of statistical metrics and/or criteria were used to identify potential outliers (e.g., data points outside of the 99th percentile) along with graphical analysis (Gilbert 1987). Professional judgement was also used to determine whether the data are likely to be outliers due to sampling or analysis issues (e.g., unit errors in laboratory report, sample contamination), or whether the data represent the true extreme of natural or expected conditions (e.g., very high concentrations of total suspended solids and metals that may occur during a natural 1 in 100 storm event).

Results

Field and Travel Blanks

Field and travel blanks for water quality sampling are presented in Appendix B-3.

With the exception of pH, concentrations of water quality parameters are expected to be less than the detection limit in field and travel blanks. Measured parameters greater than the detection limit in field blanks represent potential sample contamination during sample preservation or contamination during field

blank preparation. Measured parameters greater than the detection limit in travel blanks potentially represent contamination of samples in transit, contamination during laboratory analysis, or contamination during travel blank preparation.

Detectable values in 13 (54%) of the 24 field blanks were measured for acidity. Detections of acidity were common in the field and travel blanks, which reflects dissolved CO_2 in the laboratory supplied water and not sample contamination. Detectable concentrations of total Kjeldahl nitrogen, total ammonia (as N), total organic carbon, total aluminum, and total molybdenum were generally marginally greater than detection limit and observed less frequently in the field blanks (less than 6% of all parameters) indicating there was minimal or no contamination. Detectable values in 12 (57%) of the 21 travel blanks were measured for acidity. There were no other detectable concentrations in travel blanks collected with the stream sampling events during the reporting period.

The results suggest that overall field and travel blanks collected during the reporting period indicate that field sampling procedures were successful at avoiding sample contamination.

Field Duplicates

The RPD results for stream and lake water quality field duplicates are presented in Appendix B-4. A total of 36 field duplicates were collected at stream sites and 1,271 RPDs were calculated. Of the calculated RPDs, 4% (n = 45) were in the range of 20% to 50%, and 1% (n = 13) were greater than 50%. The RPD calculations greater than 20% were limited to 23 parameters: turbidity, sulphate, total Kjeldahl nitrogen, total phosphorus, dissolved organic carbon, total and dissolved aluminum, barium, calcium, magnesium, molybdenum, silicon, and uranium, and total iron, manganese, strontium, and titanium. Most RPD calculations greater than 20% were from the primary and duplicate samples taken at 705-10 on October 31, 2023 (n = 15) and site 661-03 on January 14, 2024 (n =12). All other primary and duplicate samples had five or less RPD calculations greater than 20%.

This result indicates for the majority of parameters with values greater than five times the detection limit in Project streams, sample replication was overall successful, and within the typical margin of natural variability.

Laboratory

After delivery of the samples to the CALA-certified laboratory (ALS), a review of the sample receipt confirmation was completed to identify any issues that may have occurred during transport to the laboratory. The sample receipt confirmation indicated that the samples had been successfully delivered with no issues pertaining to sample and container integrity.

Samples were generally analyzed within their recommended holding times, except for those parameters with short holding times (e.g., 3 days), which can be logistically challenging to analyze in time for remote projects. This is not expected to affect the results, because these hold times are considered conservative, and the reliability of the samples was evaluated with the other field and laboratory QA/QC.

Overall, the laboratory data quality objectives for internal QA/QC were met, and the laboratory reports were issued and distributed without further comment. In some cases, the laboratory noted issues with method blanks, laboratory control samples, matrix spikes, holding time exceedances, and laboratory replicates. However, results were considered reliable if the associated samples were either below detection limits, or greater than five times the concentration detected in the method blanks. The limit of reporting was adjusted in cases where the method blanks indicated low contamination. Certificates of Analysis, including complete results from laboratory QA/QC checks, can be made available upon request.

Outliers

No outliers were identified for removal following review of the surface water quality laboratory results based on professional judgement and supporting information (e.g., graphical analysis, summary

statistics). The water quality sample collected at site 661-05 in November 2023 had concentrations for a number of parameters that were greater than other years (e.g., total aluminum, Figure C.18). However, a duplicate sample was collected at site 661-05 in November and the RPD results did not indicate sample contamination. Therefore, the November 2023 results for 661-05 were retained for evaluation of effects. There were no erroneous field parameters identified values during the reporting period for monitored site.

3.4.1.3 Before-After-Control-Impact Statistical Analysis

Methods

To further assess Project-related effects on surface water quality field measurements during construction (October 2022 to March 2024) was compared to baseline (2016 to September 30, 2022). A before-after-control-impact (BACI) analysis was completed on the surface water quality laboratory measurements. Analysis was performed using R statistical computing package (R Core Team 2024).

Data transformations (e.g., log transformation) were completed if determined to be appropriate (e.g., to achieve random distribution of residuals). For all effects analyses, statistical results were considered unreliable if more than 70% of the values in the dataset for a parameter are below analytical DLs (i.e., highly censored data).

The BACI analysis introduces a class effect to a mixed model ANOVA, which is based on the classification of a site as an impact or a control site. To identify the sites and months that differ significantly, the mixed model ANOVA also included the fixed effects of period (before versus after) and month, and a random effect of year to account for variability in water quality data. For the period effect, data were grouped into one of two periods: before the start of construction (2016 to September 2022) or after the start of construction works (October 2022 onwards).

A significant interaction between the (time) period and class effects reveals whether any before (baseline) - after (Construction or Operations phases) change in the mean parameter concentration that occurred in the exposure site has not occurred in the control site. The overall site (control versus impact) and period (before versus after) interaction significance (p-value less than the significance level (α) of 0.05) will be assessed using an F test. To reduce the number of false positives (Type I error) due to the large number of statistical tests conducted, a multiple test correction was applied to the significance level of 0.05.

It is hypothesized that if mine activities affected surface water quality, then there would be a significant change in surface water quality at near-field impact sites in comparison with baseline concentrations or control sites. However, if a change in the mean is detected by the before-after comparison, but the BACI analysis indicates that a parallel change also occurred at the control site (control versus impact), it is reasonable to conclude that this change is likely a natural phenomenon or unrelated to the Project activities. Similarly, if a change is detected at mid- or far-field sites but not at near-field sites or the control site, it is reasonable to conclude that this change is likely the result of non-Project activities (e.g., forestry or agricultural activities downstream of the Project and upstream of the sampling location).

A precautionary approach was used to determine if an effect is attributable to Project activities in cases of unexplained significant interactions using professional judgement, and/or field data to confirm significantly elevated or lower concentrations.

Results

Project stream field measurements generally fell within their baseline conditions or reference ranges for pH, temperature, conductivity, and dissolved oxygen (Appendix D). On occasion, field measurements were observed to deviate from this range, however, these deviations were not consistent and likely due to the inherent high natural variability in freshwaters. Where baseline data was available, Project stream field measurements during construction are similar to those observed during baseline.

A BACI analysis was completed for sites and water quality parameters to determine if there were Project related effects in surface water quality at potential impact sites downstream of construction activities.

- The BACI analyses was completed for the Davidson Creek and Creek 661 watershed sites because construction activities were limited to clearing at the Plant Site (upstream of Davidson Creek and the Creek 661 tributaries - Creek 146920 and Creek 505659). Water from the TSF Stage 1 SCP was discharged to Davidson Creek in Q1 2024. An approximate total volume of 19,428 m^3 was discharged from the TSF Stage 1 SCP. The Plant Site SCP discharged to ground via RIBs (Q1 2024) during the reporting period.
- The BACI analyses was limited to evaluated water quality parameters that were greater than the baseline period [2016 to September 2022] (i.e., 95th percentile plus 20%) during the construction activities for two or more consecutive months. The comparison of the construction monthly means to the 95th percentile baseline concentration plus 20% for the Davidson Creek and Creek 661 watershed sites DC-05, DC-10, DC-15, DC-20, 661-05, 661-10, and 661-20 are provided in Appendix E-1.

Water quality parameters selected for BACI analysis for Davidson Creek were: TSS, TDS, chloride, sulphate, nitrate-N, total phosphorus, total aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, silver, strontium, thallium, uranium, vanadium, zinc, and dissolved iron and manganese. However, the BACI analyses was not completed for TSS, chloride, nitrate-N, total antimony, cadmium, chromium, cobalt, copper, lead, lithium, mercury, nickel, silver, thallium, vanadium, and zinc because 70% of the observations were less than the analytical DL (Appendix E-2). Monthly mean plots for Davidson Creek sites that BACI could not be performed suggest a potential Project-related effect where detectable concentrations were observed in February and March 2024 at monitored Davidson Creek Sites (DC-05, DC-10) for total cadmium, chromium, cobalt, lead, nickel, thallium, vanadium, and zinc but not during baseline monitoring or at control sites (Figures C.24, C.25, C.26, C.29, C.30, C.38, C.40, C.41).

Water quality parameters selected for BACI analysis for Creek 661 were: pH, TSS, TDS, chloride, sulphate, nitrate-N, total phosphorus, and total aluminum, arsenic, barium, cadmium, chromium, cobalt, iron, lead, manganese, molybdenum, selenium, silver, strontium, uranium, and vanadium, and dissolved aluminum, iron, and manganese. However, the BACI analyses was not completed for TSS, chloride, nitrate-N, total cadmium, chromium, cobalt, lead, selenium, and silver because 70% of the observations were less than the analytical DL (Appendix E-2). Monthly mean plots for Creek 661 sites that BACI could not be performed suggest a potential Project-related effect where greater concentrations were observed in February to March 2024 at 661-05 for total chromium, and total lead but not during baseline monitoring or at control sites (Figure C.25 and Figure C.29).

Results of the BACI analysis are provided in Appendix E-2 and summarized below.

Water quality parameters with a significant ($p < 0.05$) class (control versus impact) and period (before versus after) interaction indicated that changes in the parameter concentrations at monitored impact sites before and after construction was significantly different from the change at the control sites. Water quality parameters with significant class: period interactions observed for Davidson Creek sites were detected for:

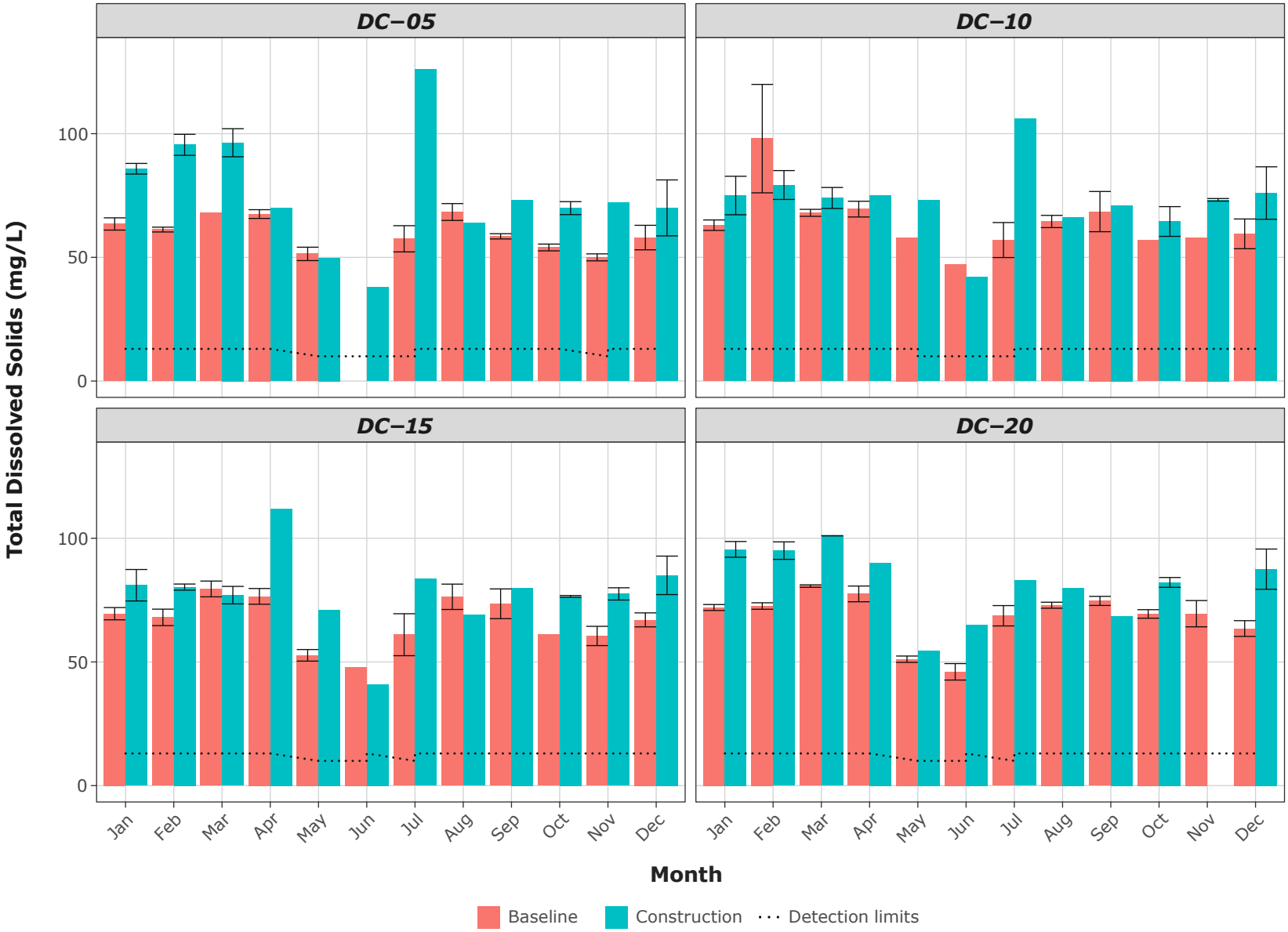
- TDS (Figure 3.4-1 and Figure 3.4-2): TDS concentrations at DC-05 were greater than baseline for the months of February to March likely as a result of the discharge from the TSF-SCP (mean concentration = 129.6 mg/L) to Davidson Creek. The greatest difference between the baseline and construction period was observed in July for DC-05 and DC-10 (and remained greater than baseline in the months following; Figure C.4) suggesting the statistically significant difference is likely also associated with the July 2023 wildfire and not entirely a Project-related effect. Concentrations tended to be greater than baseline in all months at DC-20 but not at DC-10 and DC-15 suggesting that the greater TDS concentrations at DC-20 is not related to construction activities.

- sulphate (Figure 3.4-3 and Figure 3.4-4): Sulphate monthly mean concentrations observed during construction months were generally greater than concentrations observed during the baseline period at Davidson Creek sites. At regional control sites, sulphate was variable in both the before and after periods. The greatest difference between the baseline and construction period was observed in July for all sites (and remained greater than baseline in the months following; Figure C.7) suggesting the statistically significant difference is likely associated with the July 2023 wildfire and not a Project-related effect.
- total phosphorus (Figure 3.4-5 and Figure 3.4-6): Total phosphorus concentrations at DC-05 were greater than baseline for the months of February to March and likely as a result of the discharge from the TSF-SCP (mean concentration = 0.066 mg/L) to Davidson Creek. A similar trend was also observed at DC-20 but not at DC-10 and DC-15 suggesting that the greater total phosphorus concentrations at DC-20 is not related to construction activities.
- total aluminum (Figure 3.4-7 and Figure 3.4-8): The results of the BACI analysis suggest there was a significant decrease in total aluminum between the baseline and construction periods that was not observed for the regional control sites. However, elevated concentrations were observed at Davidson Creek sites in February and/or March 2024 suggesting a potential Project-related change. The mean concentration of total aluminum discharge from the TSF-SCP between February and March 2024 was 2.75 mg/L.
- total arsenic (Figure 3.4-9 and Figure 3.4-10) and total barium (Figure 3.4-11 and Figure 3.4-12): Total arsenic and barium concentrations at DC-05 were greater than baseline for the months of February to March and likely as a result of the discharge from the TSF-SCP to Davidson Creek (total arsenic mean concentration = 0.0025 mg/L; total barium mean concentration = 0.0385 mg/L). A similar trend (and decreasing with downstream distance) was observed for DC-10, DC-15, and DC-20 for the month of March also suggesting a Project-related effect.
- total and dissolved manganese (Figures 3.4-13 to 3.4-16): Total and dissolved manganese concentrations observed during construction were generally greater than or similar to concentrations observed during the baseline period at all Davidson Creek sites. At the regional control sites, total manganese was variable in both the before and after periods. However, only at site DC-20 (a mid-field site) and not the near-field sites, greater total and dissolved manganese concentrations were observed during all months of construction activities (including the February to March 2024 discharge period) when compared to baseline years. Therefore, the statistically significant increase of total and dissolved manganese at DC-20 is not considered to be a Project-related effect. Total manganese concentrations at DC-05 were greater than baseline for the months of February to March and likely as a result of the discharge from the TSF-SCP to Davidson Creek (mean concentration = 0.0997 mg/L).
- total strontium (Figure 3.4-17 and Figure 3.4-18) and total uranium (Figure 3.4-19 and Figure 3.4-20): There was an increase in total strontium and total uranium concentrations at Davidson Creek sites during construction when compared to the baseline period that was not observed at the regional control sites. Based on the graphical analysis the elevated total strontium and uranium concentrations at the Davidson Creek sites were restricted to the October to March construction period at both near-field and mid-field sites when compared to the monthly concentrations observed during baseline years. Thus, the increase in total strontium concentrations may be concluded as a Project-related effect based on statistical significance and graphical analysis. Total strontium and uranium concentrations at Davidson Creek sites were greater than baseline for the months of February to March likely as a result of the discharge from the TSF Stage 1SCP to Davidson Creek (total strontium mean concentration = 0.13 mg/L; total uranium mean concentration = 0.0011 mg/L).

Water quality parameters with significant class period interactions observed for Creek 661 sites were detected for:

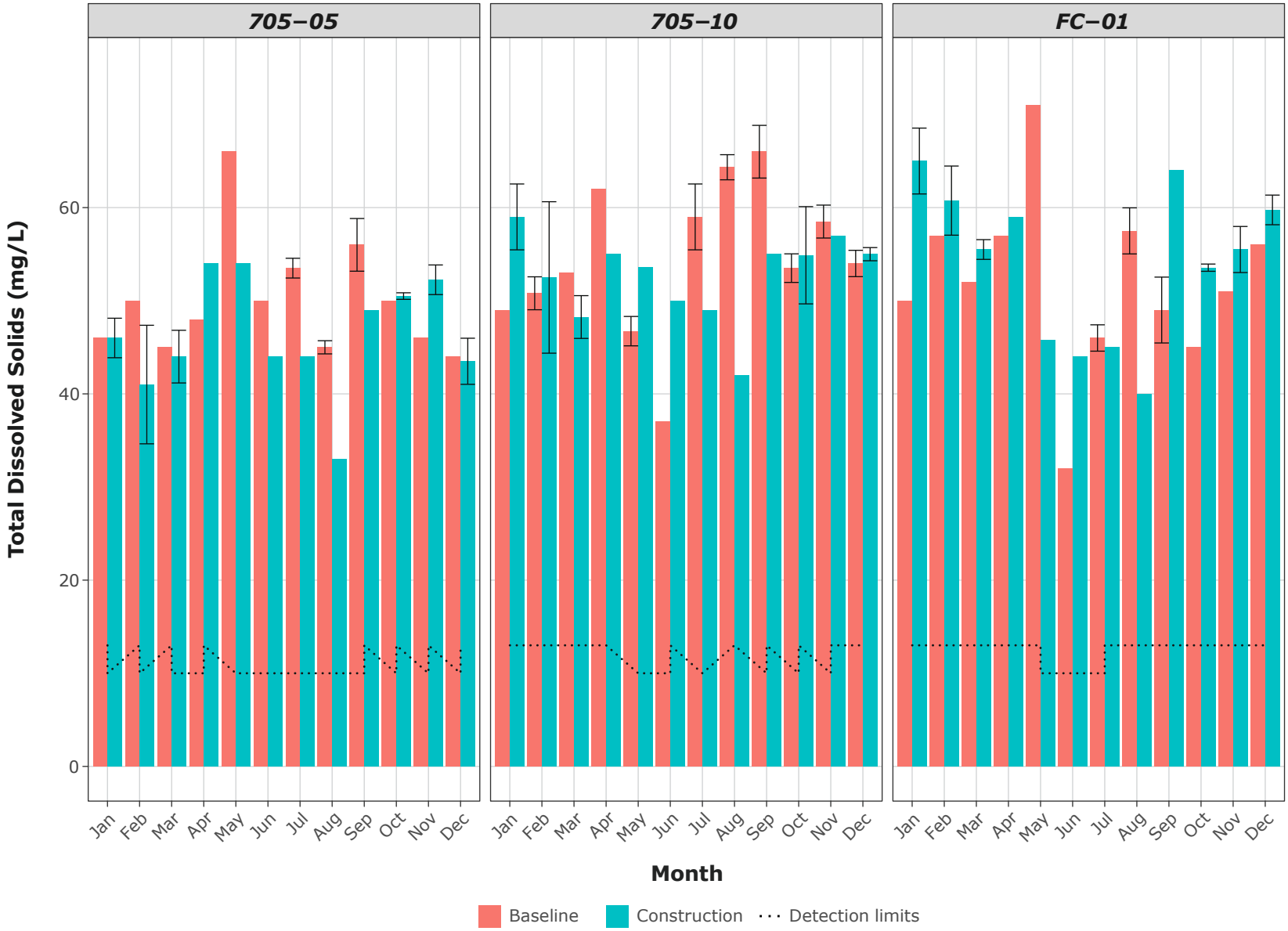
- pH (Figure 3.4-21 and Figure 3.4-22): pH observed during construction were generally greater than or similar to concentrations observed during the baseline period at all Creek 661 sites. At the regional control sites, pH was variable in both the before and after periods. Graphical analysis suggests no temporal or spatial trends therefore the statistically significant increase is not considered to be a Project-related effect.
- TDS (Figure 3.4-23 and Figure 3.4-2): TDS observed during construction were generally greater than or similar to concentrations observed during the baseline period at all Creek 661 sites. At the regional control sites, TDS was variable in both the before and after periods. Graphical analysis suggests no temporal or spatial trends (i.e., the largest differences between baseline and construction tended to be at site 661-20) therefore the statistically significant increase is not considered to be a Project-related effect.
- total phosphorus (Figure 3.4-24 and Figure 3.4-6): Total phosphorus concentrations at 661-05 and 661-20 tended to be greater during all constructions months when compared to the baseline period. A similar trend was not observed at 661-10 suggesting the changes are not Project-related.
- total aluminum (Figure 3.4-25 and Figure 3.4-8): Total aluminum concentrations at 661-05 were greater in November, December, and March of the construction phase when compared to the baseline period. A similar trend was not observed in downstream sites suggesting the significantly different concentrations are not Project-related. In addition, the groundwater quality in two monitoring wells (MW23-01 and MW23-02) downstream of the Plant Site area did not indicate Project-related effects for aluminum (Section 4.3.2). Observed concentrations for aluminum and iron in the groundwater wells were related to foreign material falling into the well and not indicative of Project-related effects.
- total strontium (Figure 3.4-26 and Figure 3.4-18): There was an increase in total strontium concentrations at Creek 661 impact sites during construction when compared to the baseline period that was not observed at 661-01 and the regional control sites. Based on the graphical analysis the elevated total strontium and uranium concentrations at the Creek 661 sites were restricted to the June to March when compared to the monthly concentrations observed during baseline years. Thus, the increase in total strontium concentrations may be concluded as a Project-related effect based on statistical significance and graphical analysis. However, there was no effluent discharge to Creek 661 during the construction period and elevated strontium concentrations were not observed in the groundwater wells downstream of the Plant Site SCP discharge to ground (Section 4.3.2). These observations suggest that the increasing strontium may are not likely related to construction activities.
- total uranium (Figure 3.4-27 and Figure 3.4-20): There was an increase in total uranium concentrations at Creek 661 impact sites during construction when compared to the baseline period that was not observed at 661-01 and the regional control sites. Based on the graphical analysis the greatest elevated total uranium concentrations was restricted to site 661-20 (and not the near field sites) and in all months when compared to the monthly concentrations observed during baseline years. Thus, the increase in total uranium concentrations is not a Project-related effect based on graphical analysis.
- dissolved iron (Figure 3.4-28 and Figure 3.4-29): Dissolved iron concentrations observed during construction were generally less than or similar to concentrations observed during the baseline period at Creek 661 impact sites. At the site 661-01 and regional control sites, dissolved iron was variable in both the before and after periods. Therefore, the statistically significant change is not a Project-related effect.

FIGURE 3.4-1 MONTHLY MEAN TOTAL DISSOLVED SOLIDS CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:1

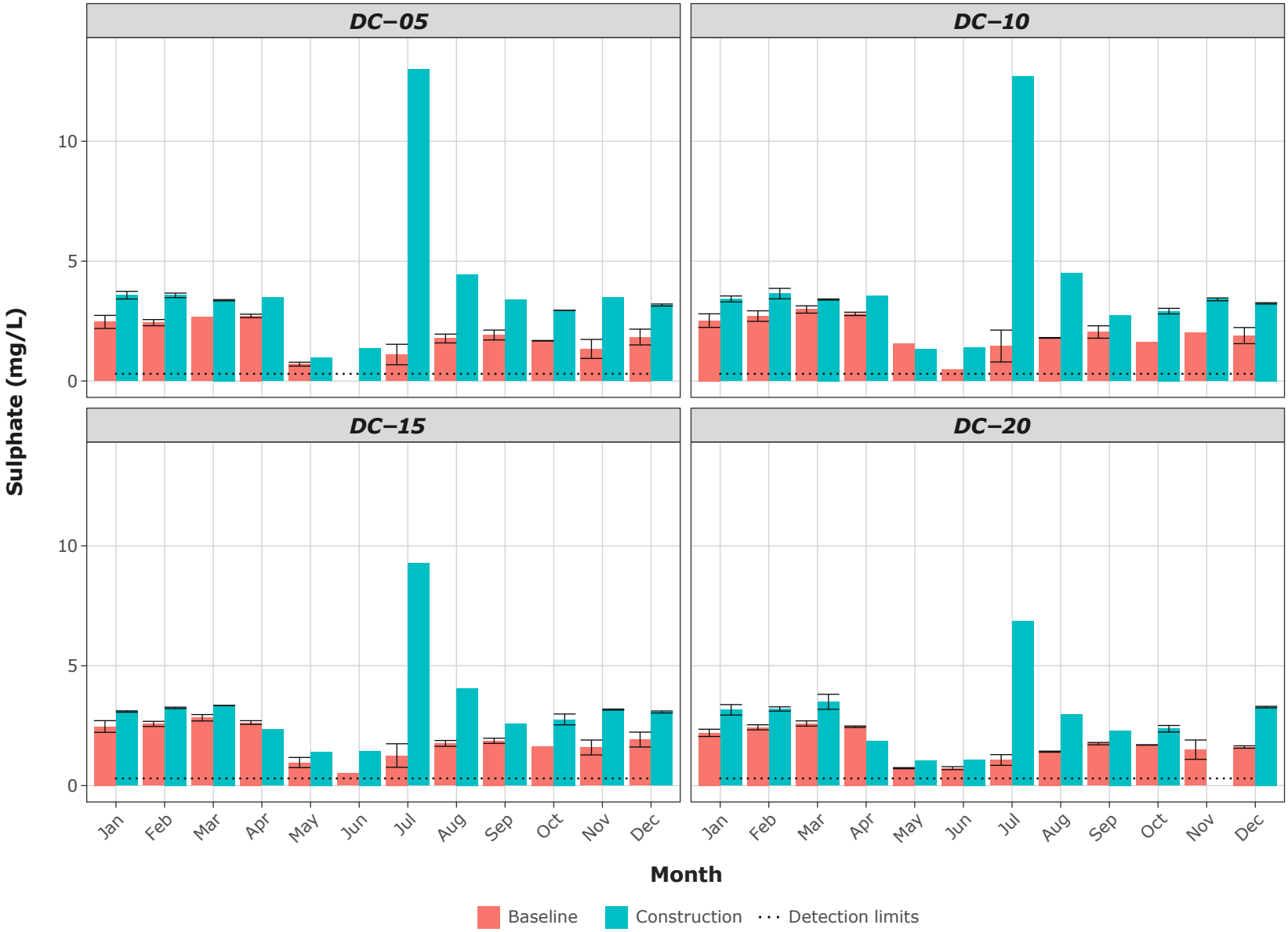
FIGURE 3.4-2 MONTHLY MEAN TOTAL DISSOLVED SOLIDS CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:2

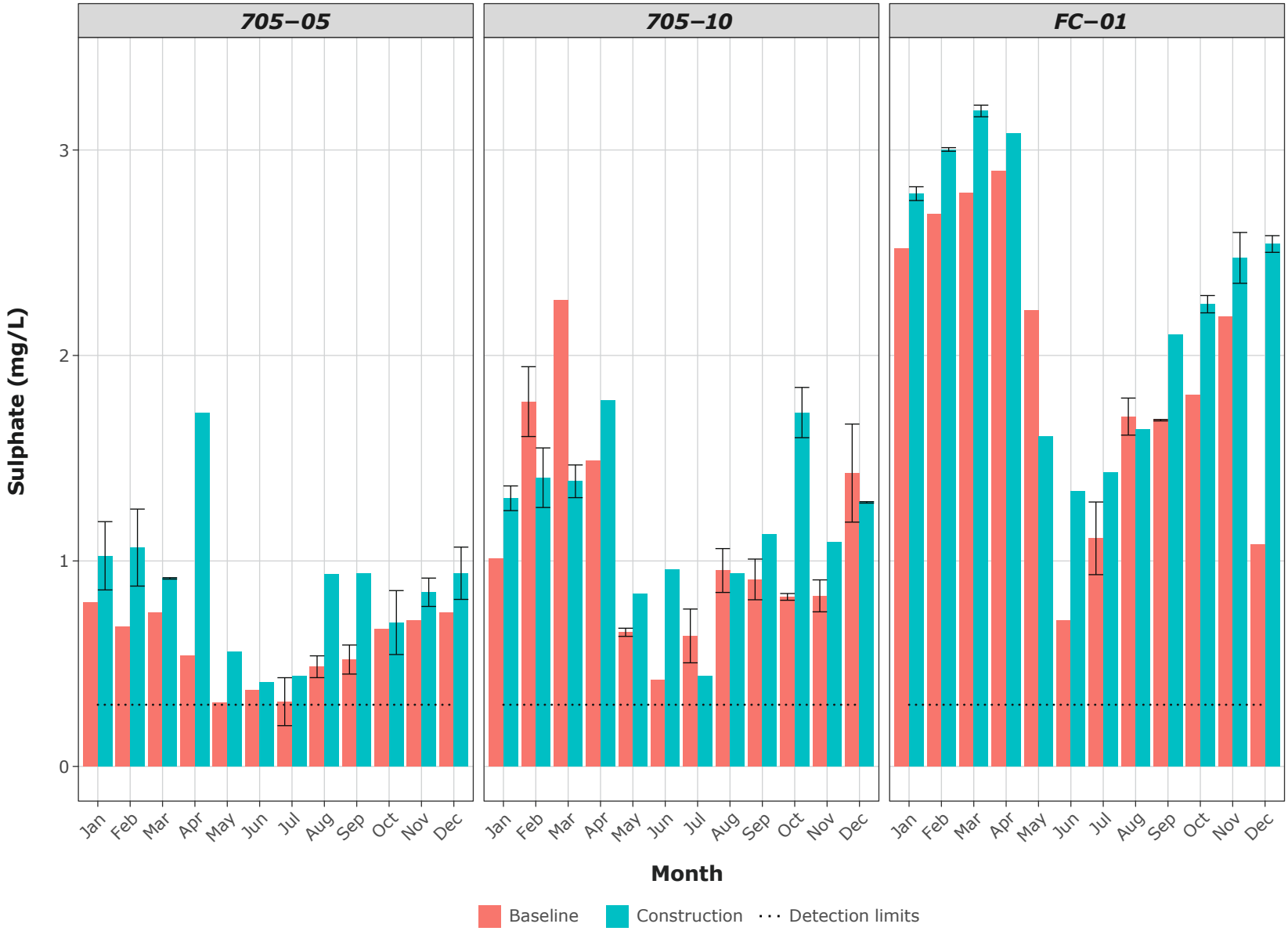
FIGURE 3.4-3 MONTHLY MEAN SULPHATE CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

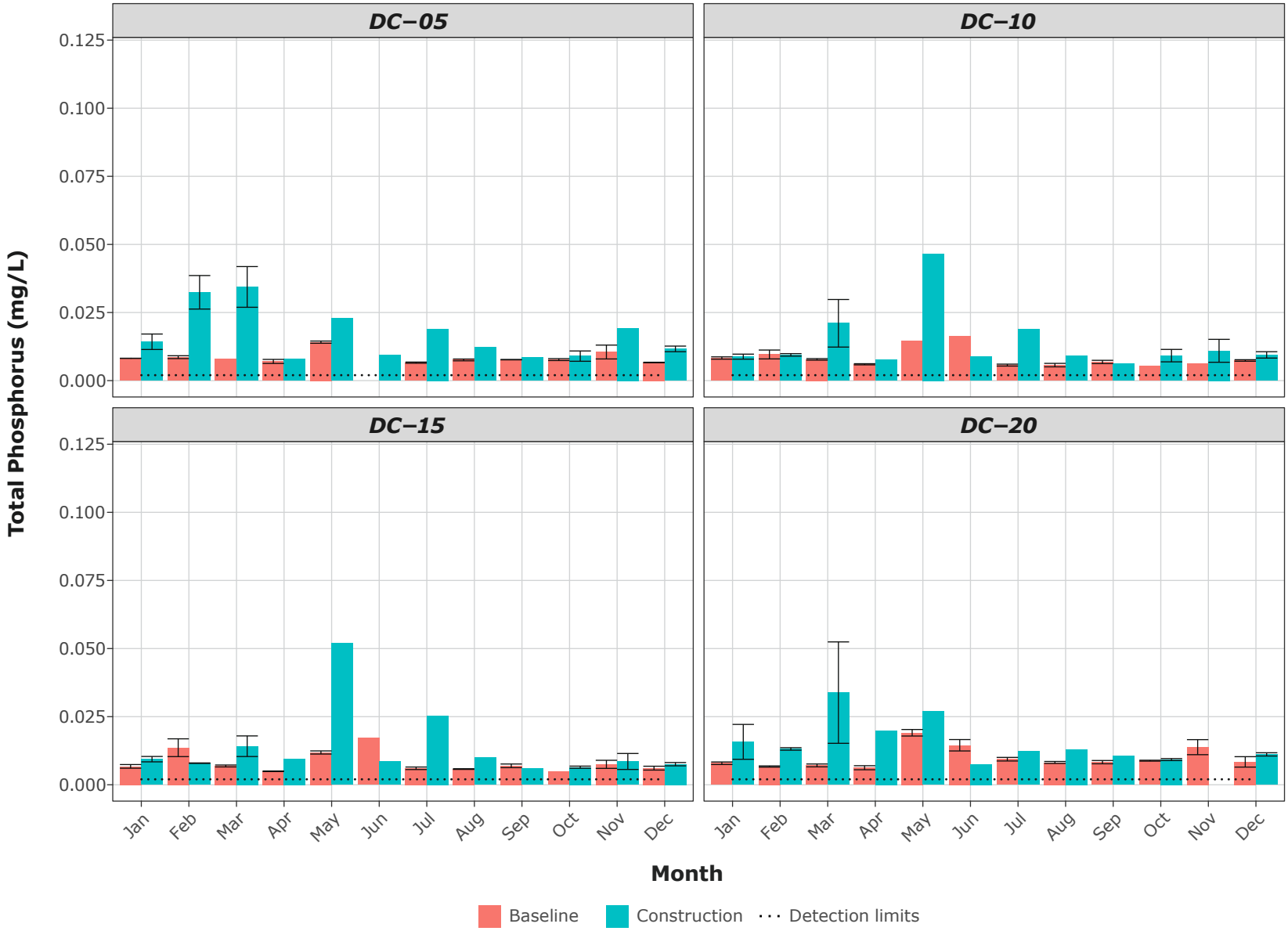
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:3

FIGURE 3.4-4 MONTHLY MEAN SULPHATE CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:4

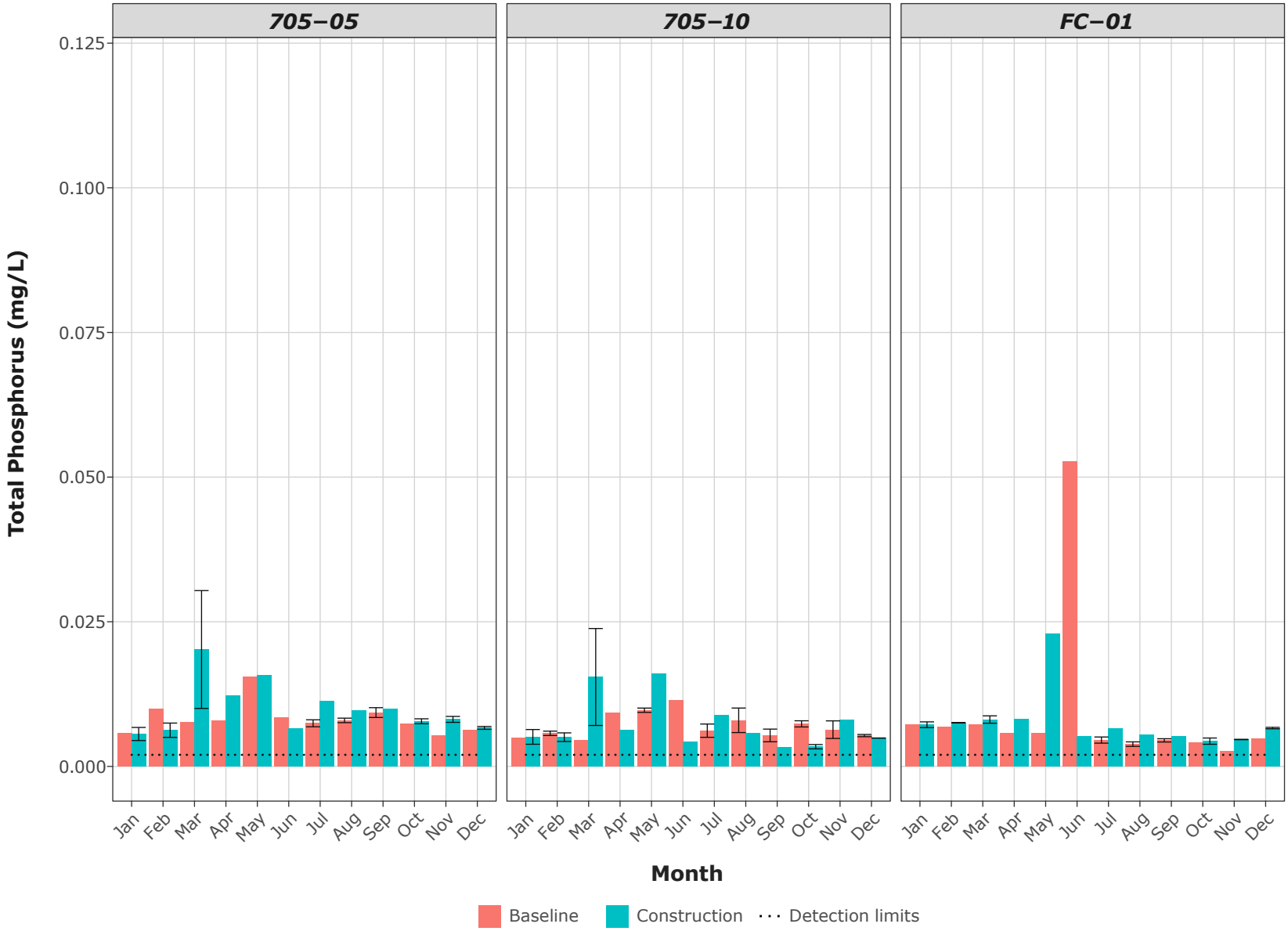
FIGURE 3.4-5 MONTHLY MEAN TOTAL PHOSPHORUS CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

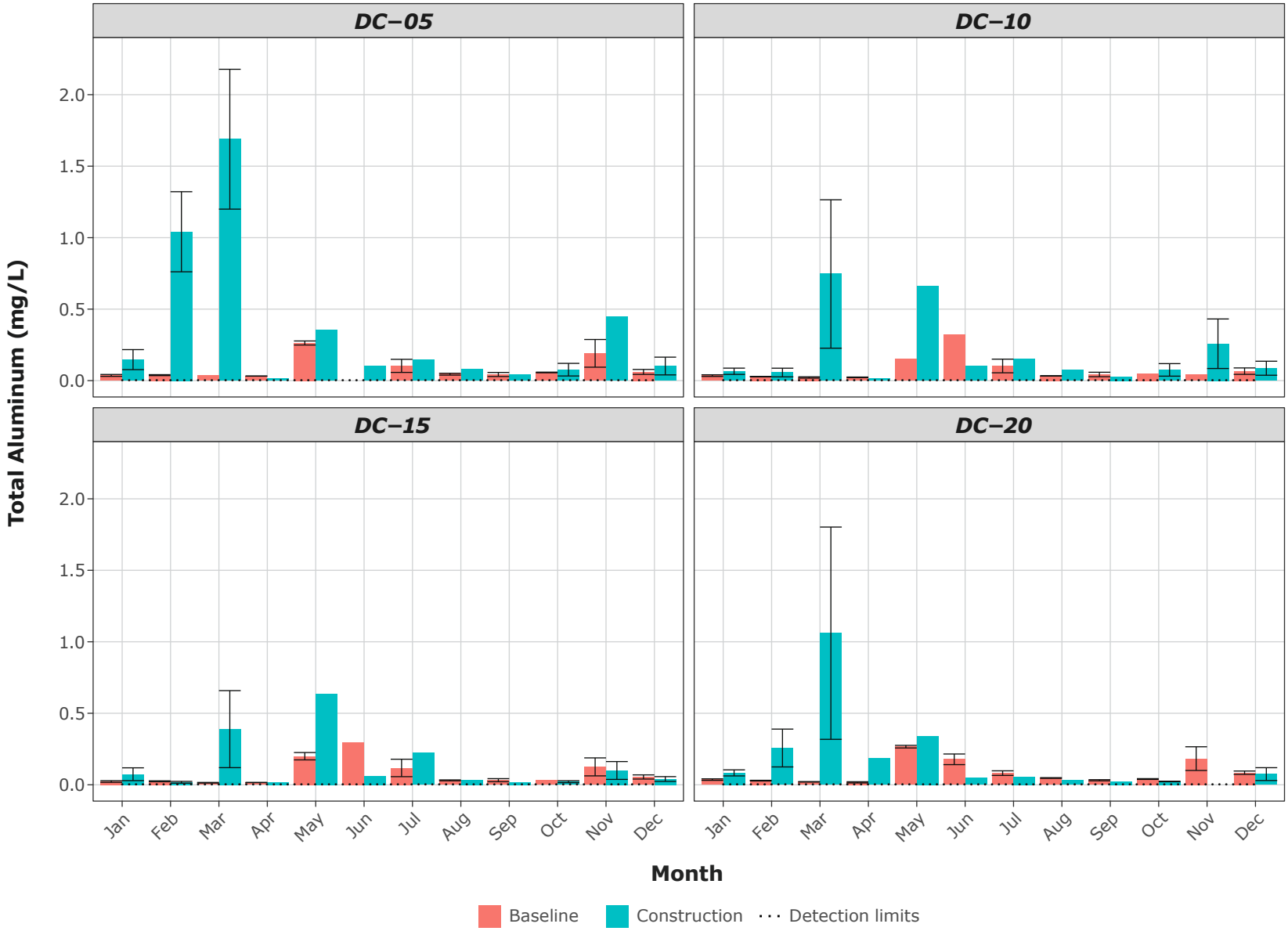
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:5

FIGURE 3.4-6 MONTHLY MEAN TOTAL PHOSPHORUS CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:6

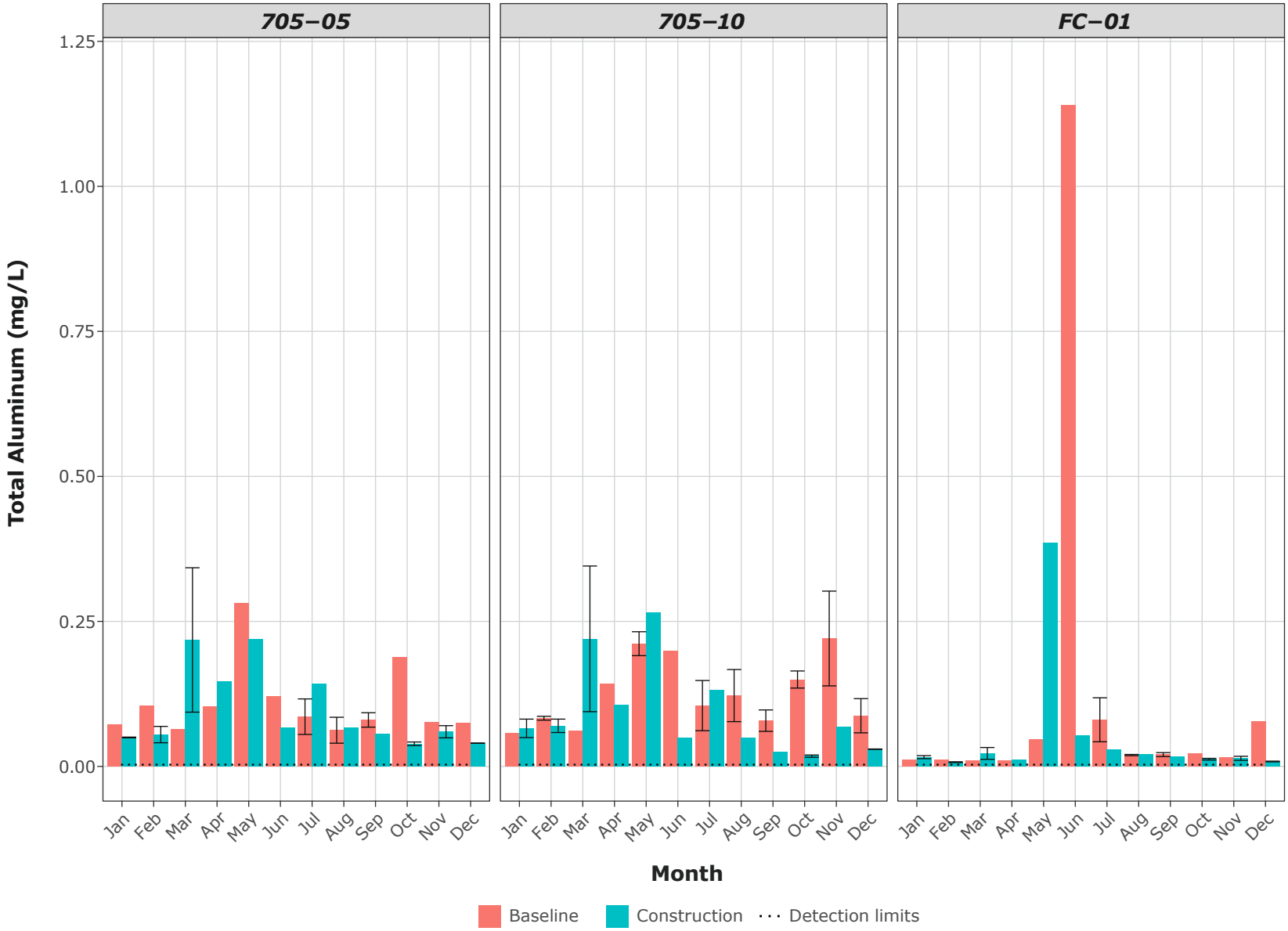
FIGURE 3.4-7 MONTHLY MEAN TOTAL ALUMINUM CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:7

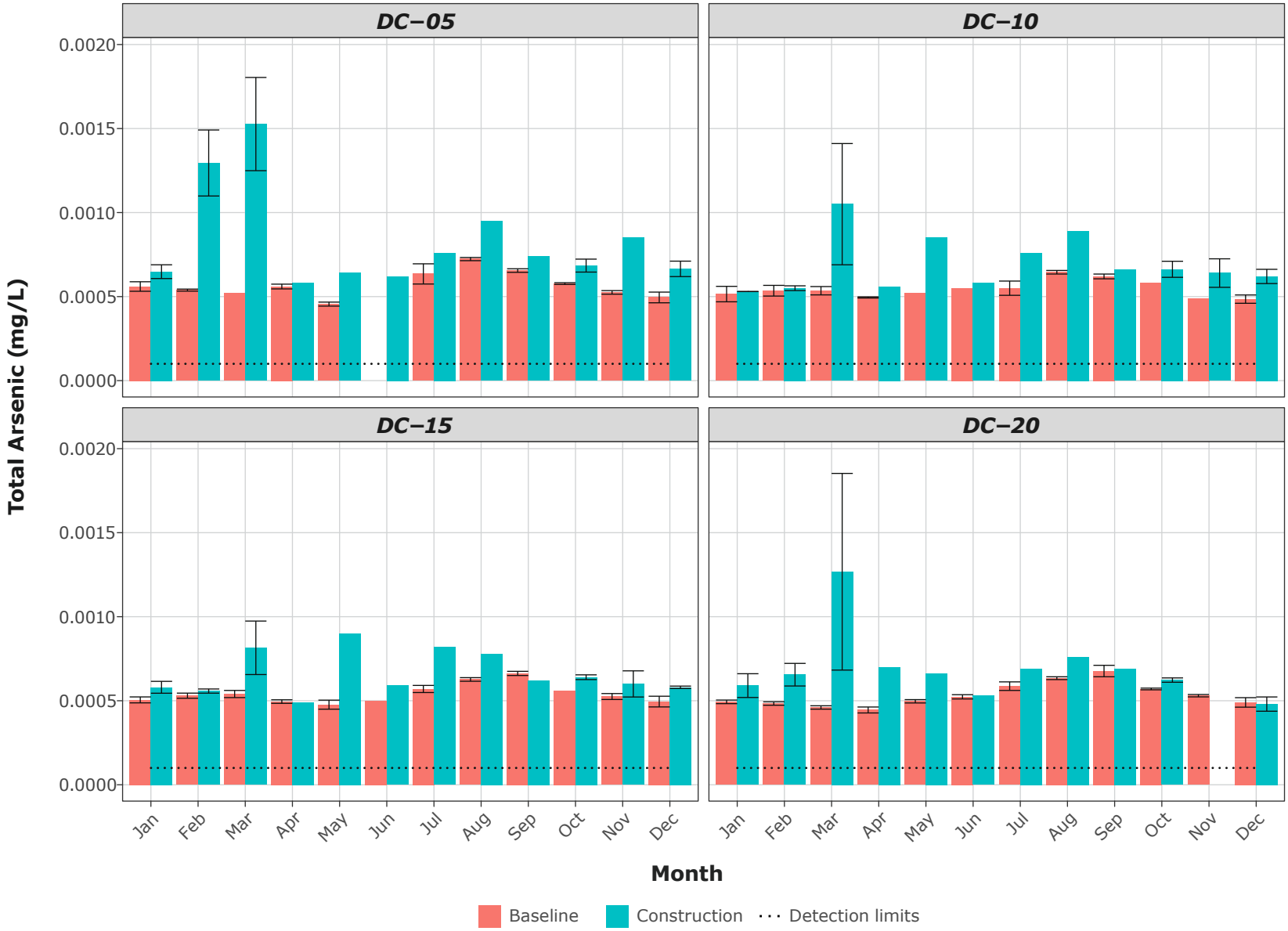
FIGURE 3.4-8 MONTHLY MEAN TOTAL ALUMINUM CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

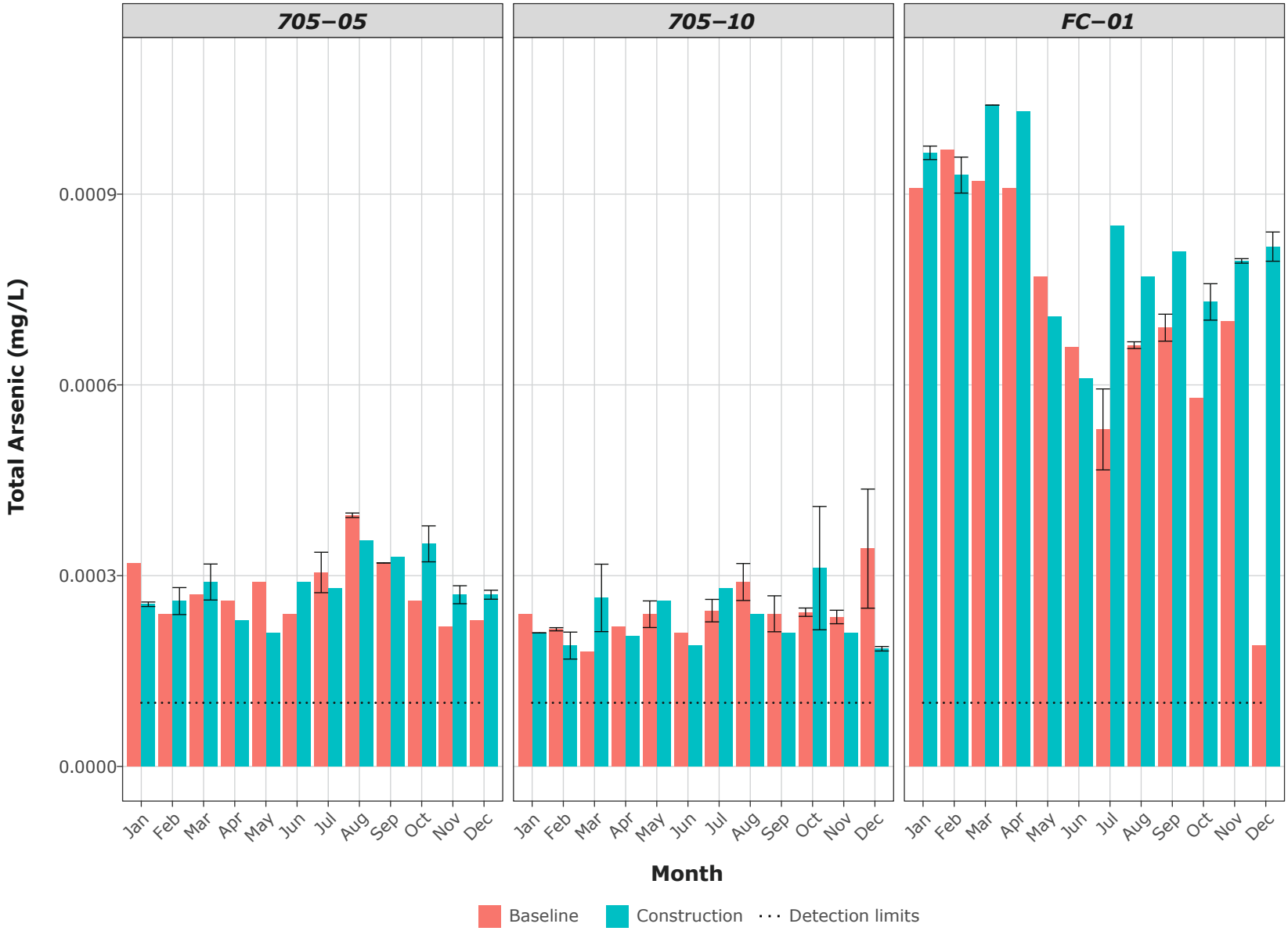
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:8

FIGURE 3.4-9 MONTHLY MEAN TOTAL ARSENIC CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



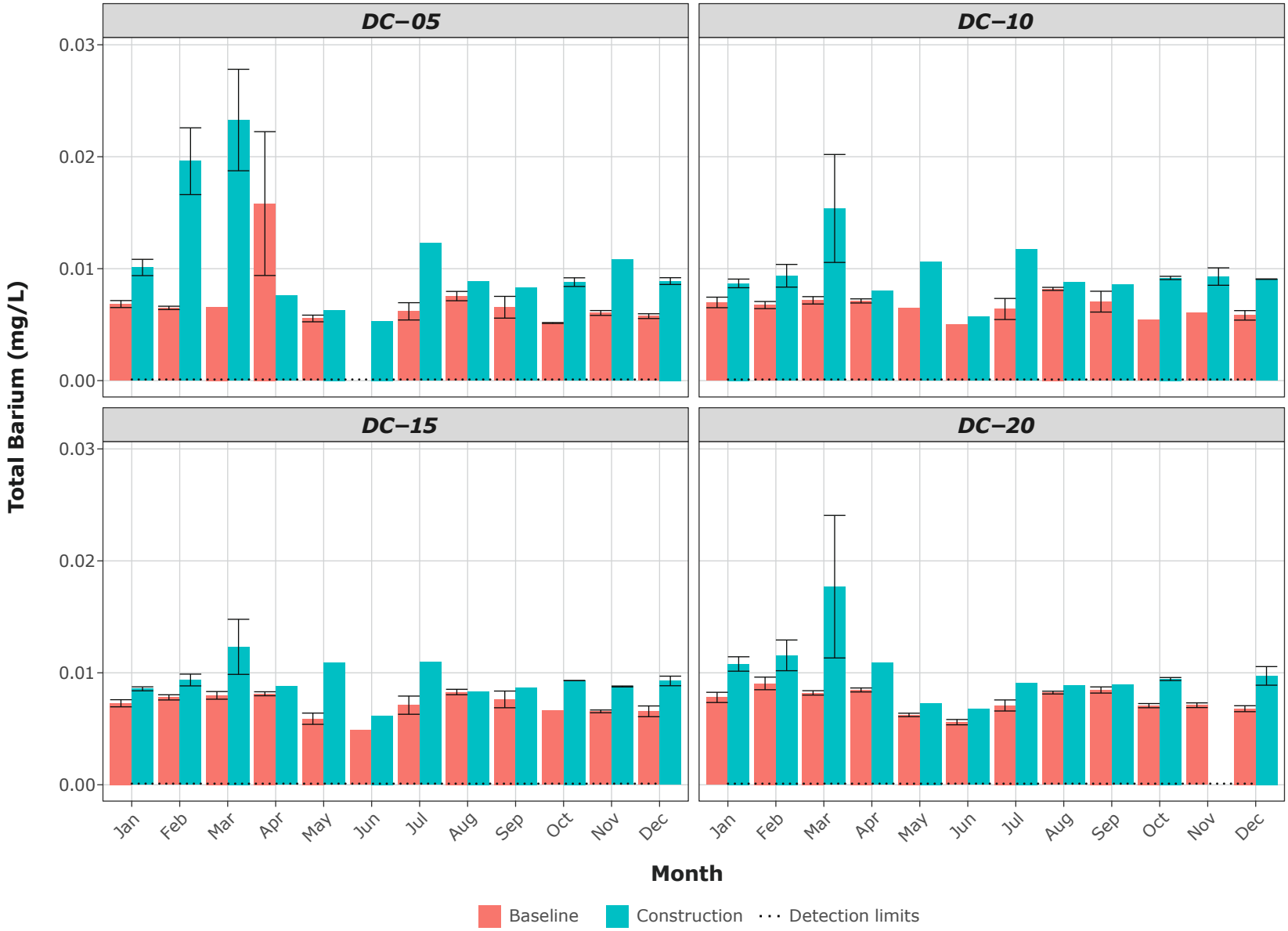
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:9

FIGURE 3.4-10 MONTHLY MEAN TOTAL ARSENIC CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:10

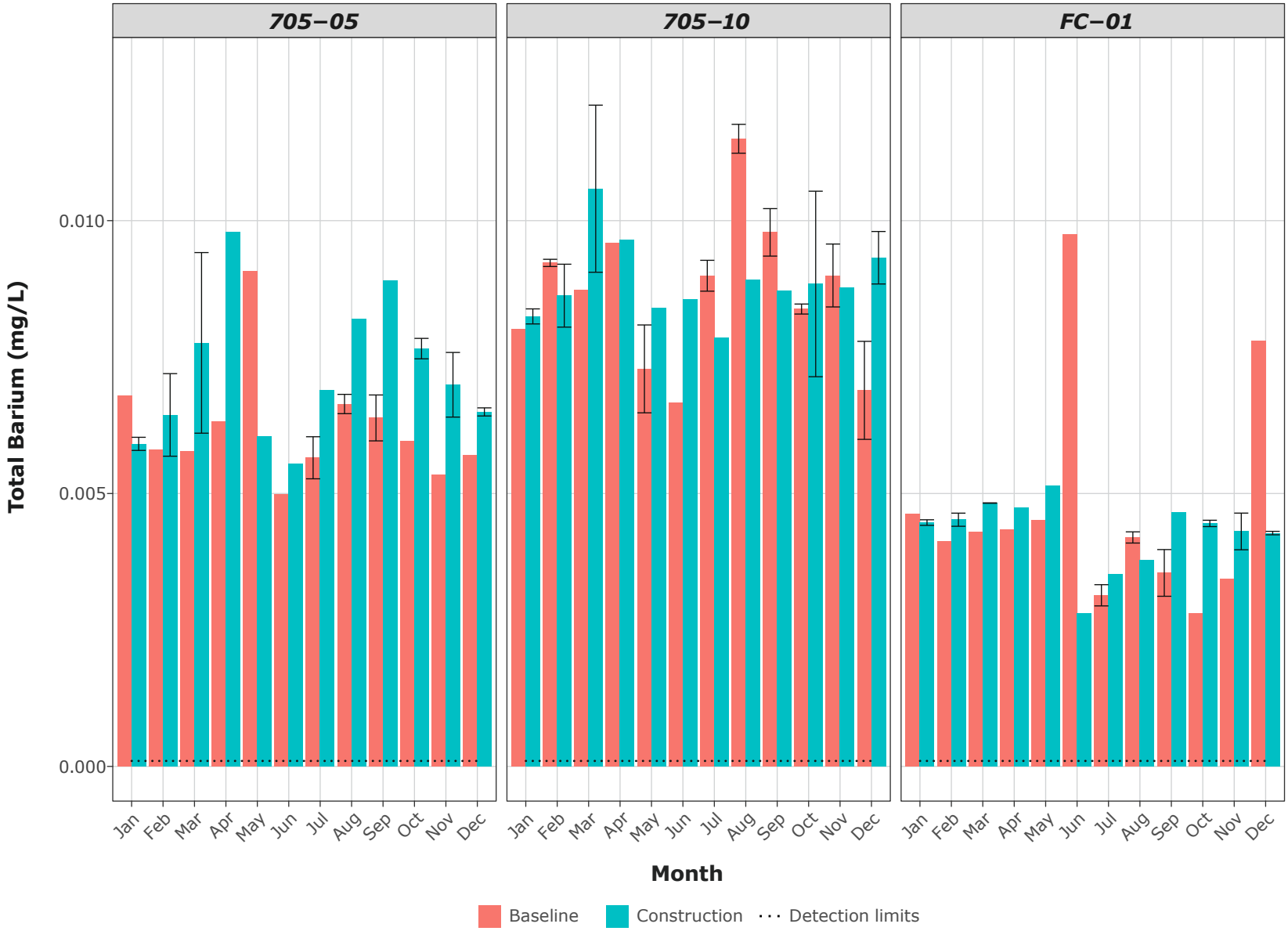
FIGURE 3.4-11 MONTHLY MEAN TOTAL BARIUM CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:11

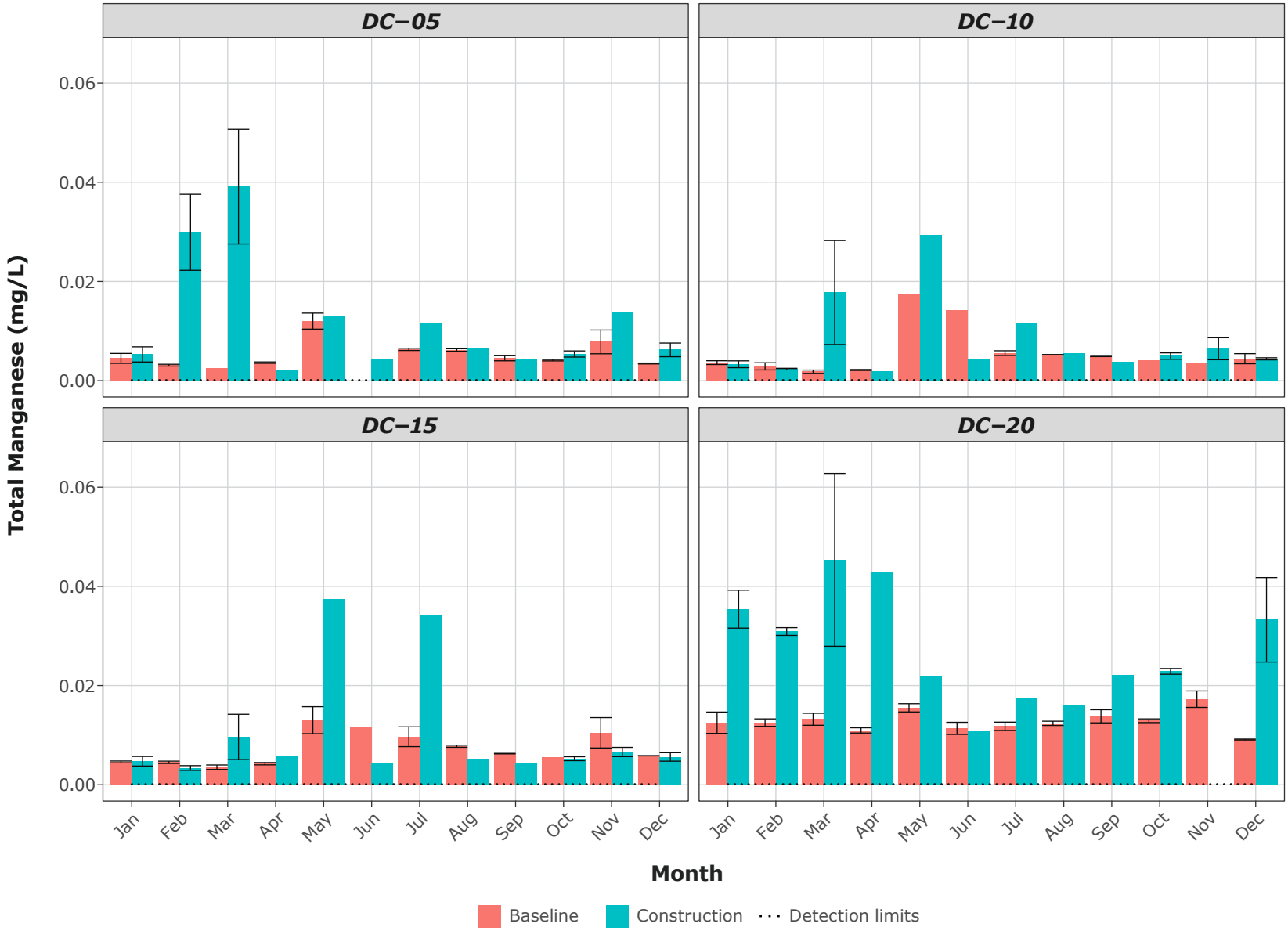
FIGURE 3.4-12 MONTHLY MEAN TOTAL BARIUM CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:12

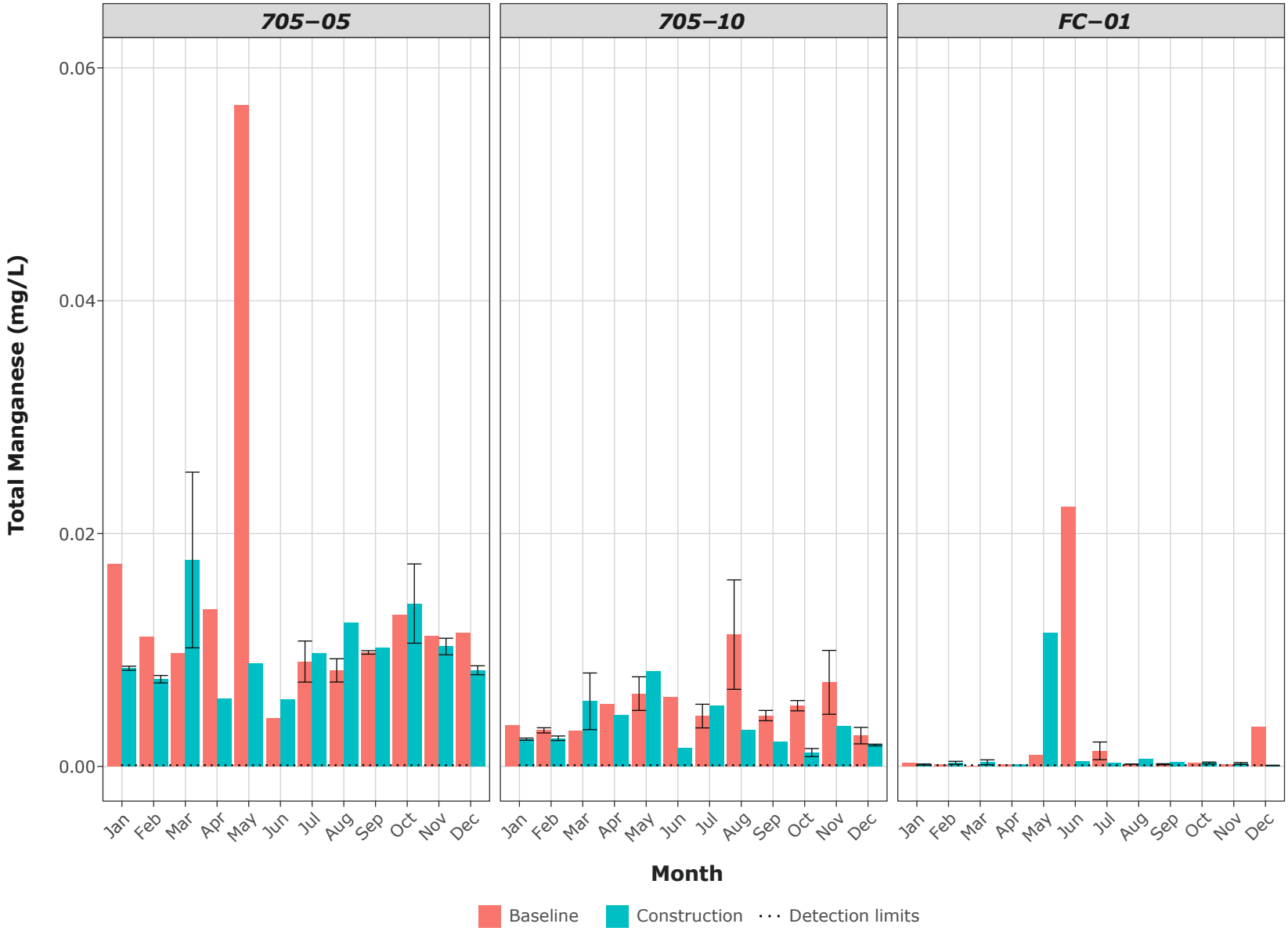
FIGURE 3.4-13 MONTHLY MEAN TOTAL MANGANESE CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

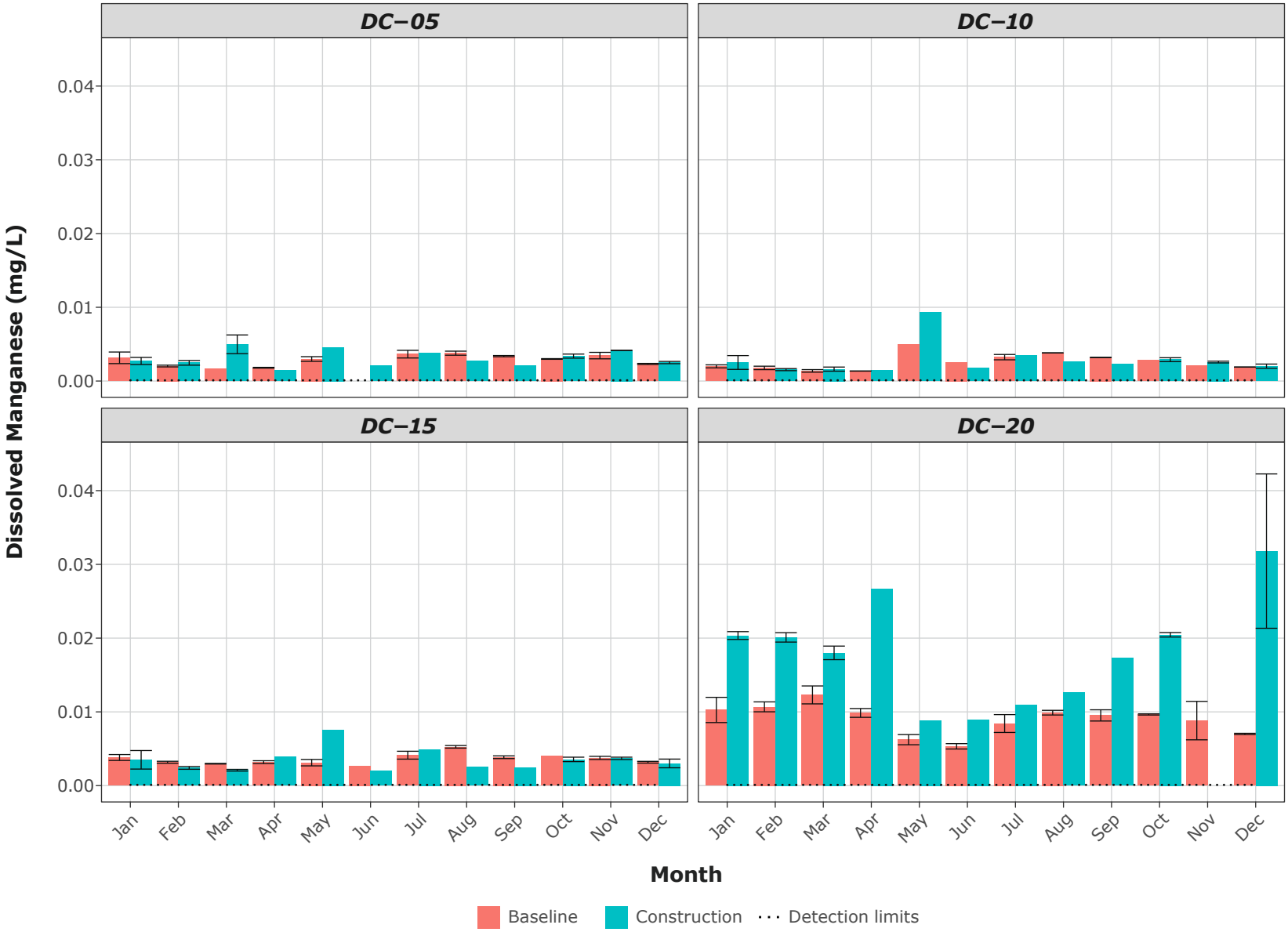
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:13

FIGURE 3.4-14 MONTHLY MEAN TOTAL MANGANESE CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:14

FIGURE 3.4-15 MONTHLY MEAN DISSOLVED MANGANESE CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:15

FIGURE 3.4-16 MONTHLY MEAN DISSOLVED MANGANESE CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS

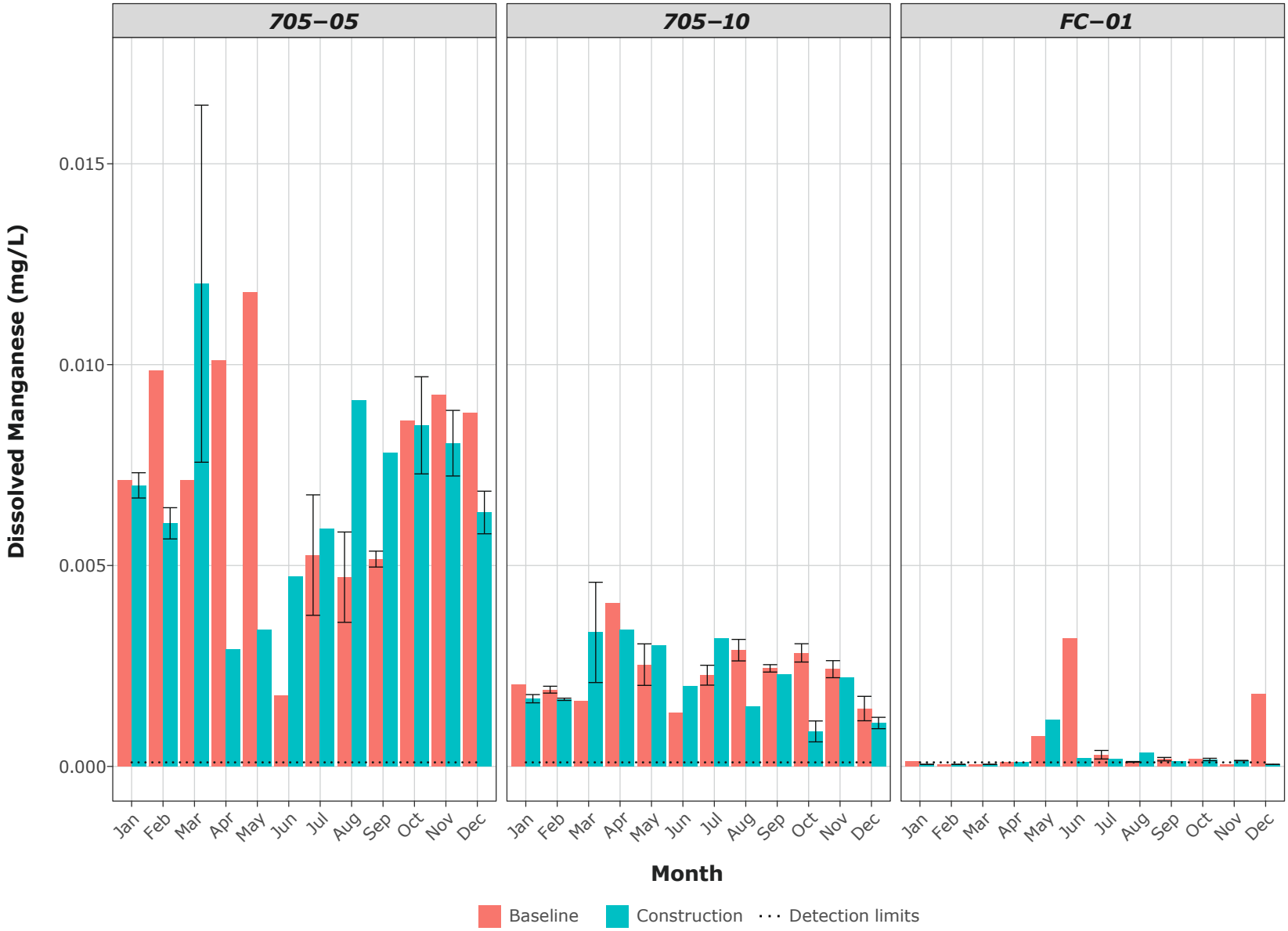
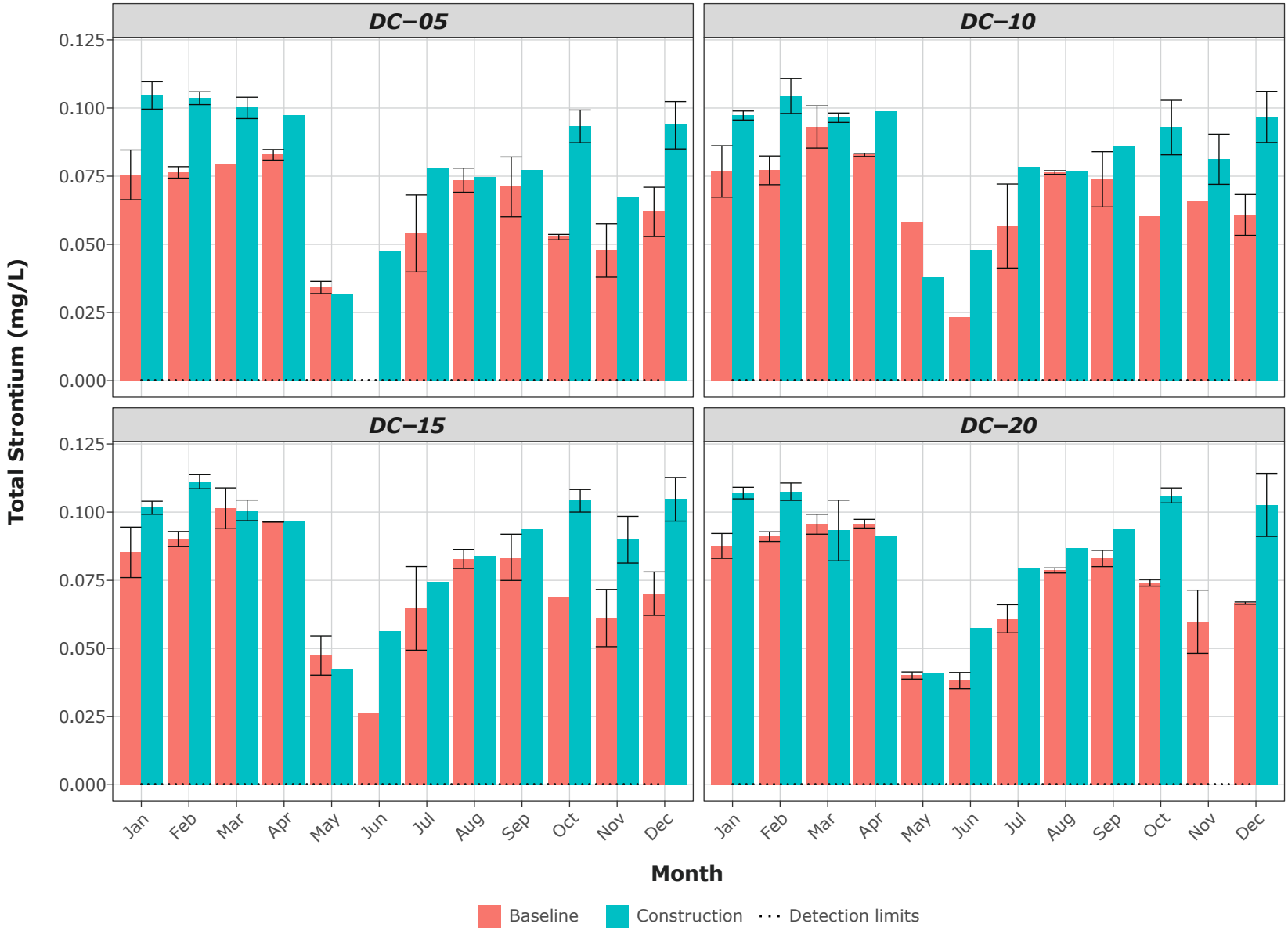
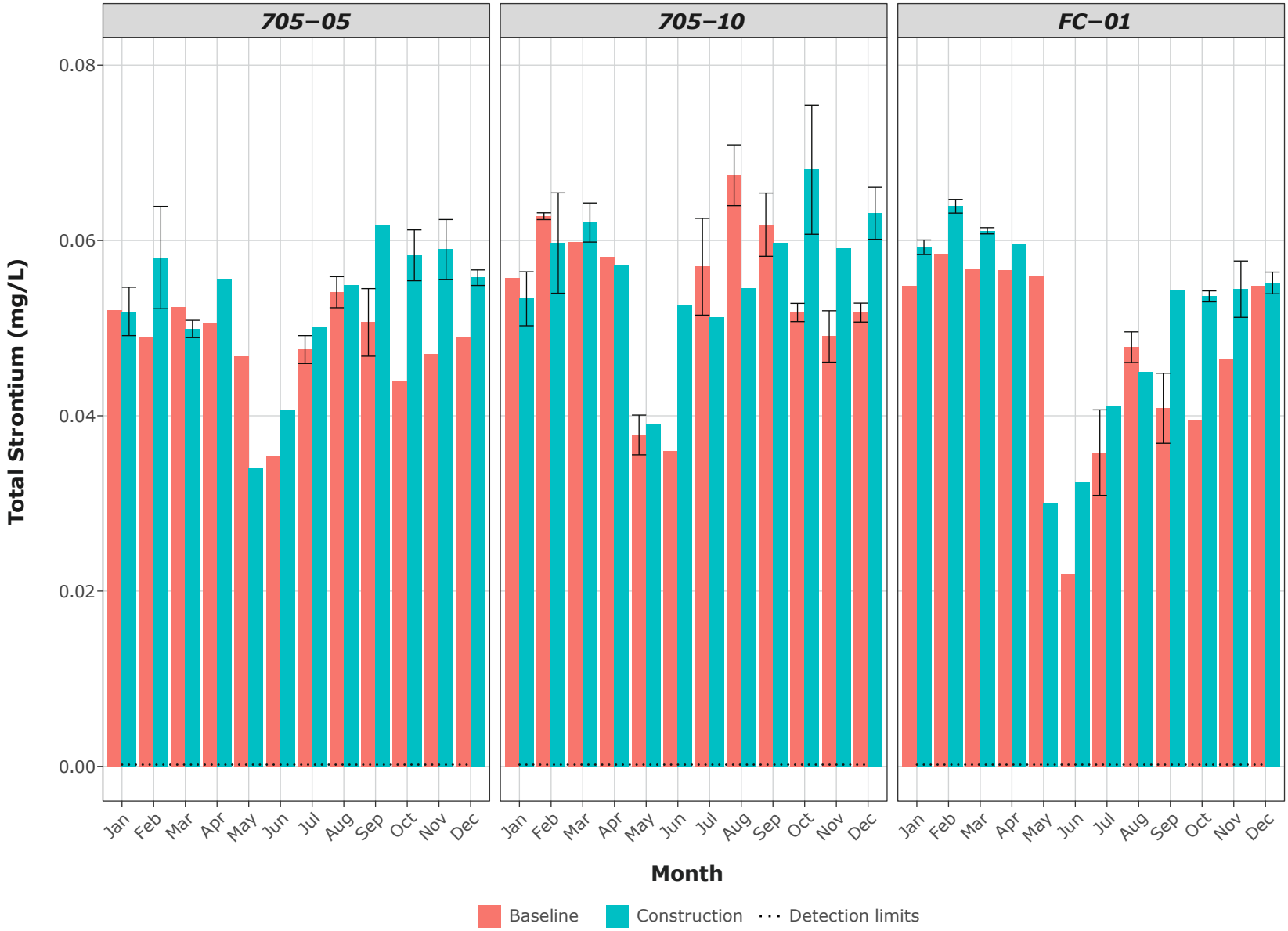


FIGURE 3.4-17 MONTHLY MEAN TOTAL STRONTIUM CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:17

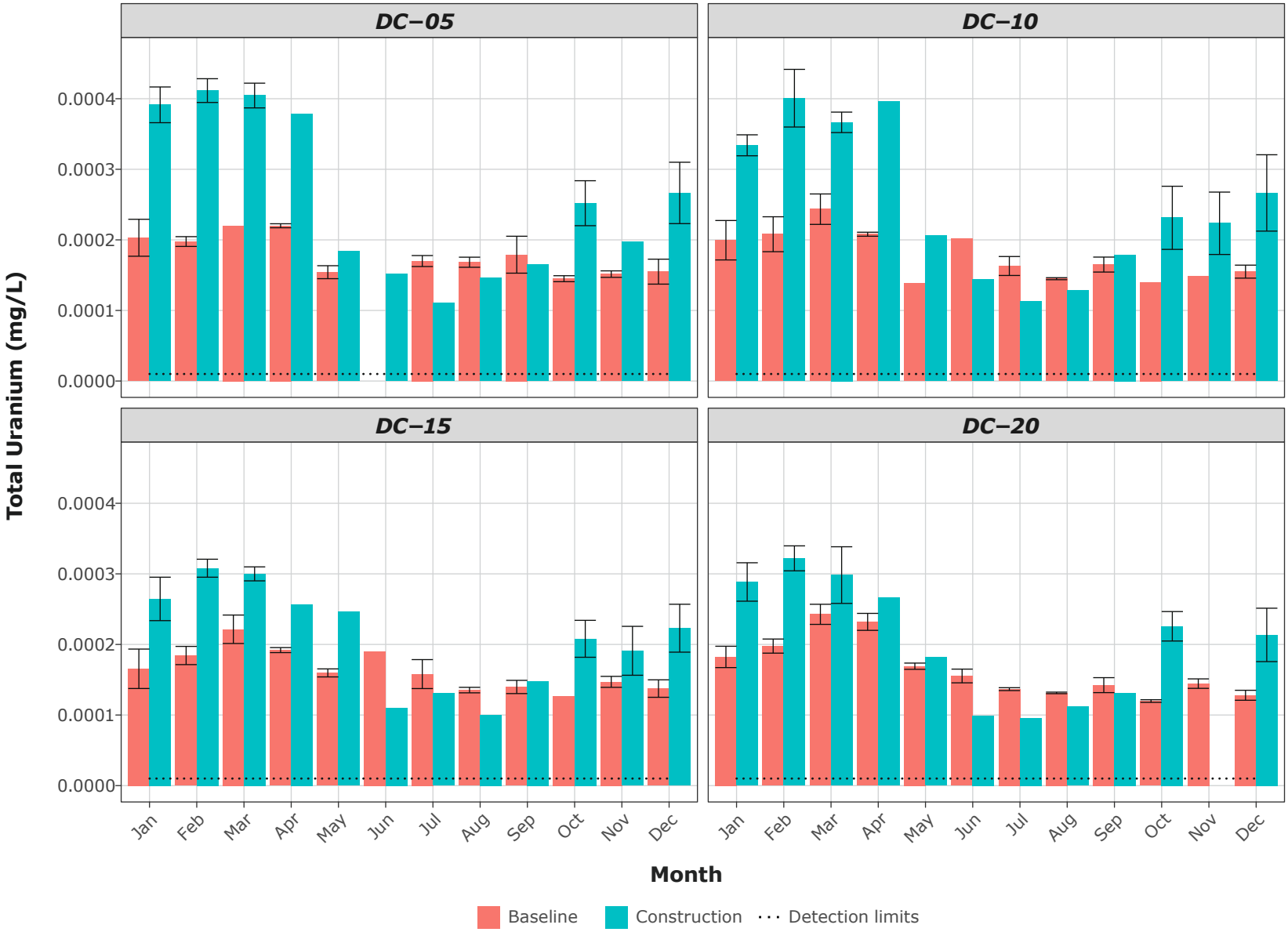
FIGURE 3.4-18 MONTHLY MEAN TOTAL STRONTIUM CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:18

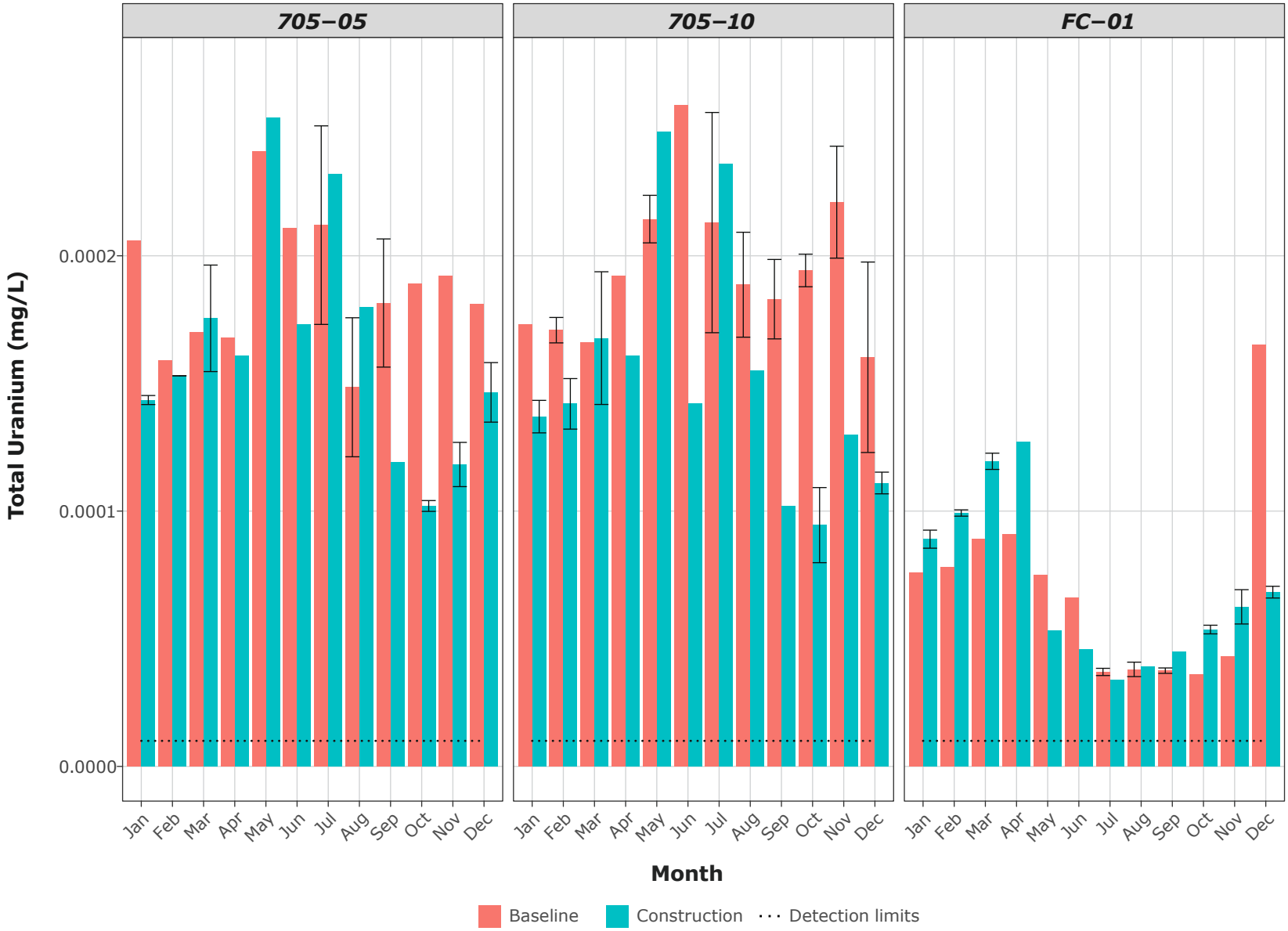
FIGURE 3.4-19 MONTHLY MEAN TOTAL URANIUM CONCENTRATIONS AT DAVIDSON CREEK SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:19

FIGURE 3.4-20 MONTHLY MEAN TOTAL URANIUM CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:20

FIGURE 3.4-21 MONTHLY MEAN PH AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS

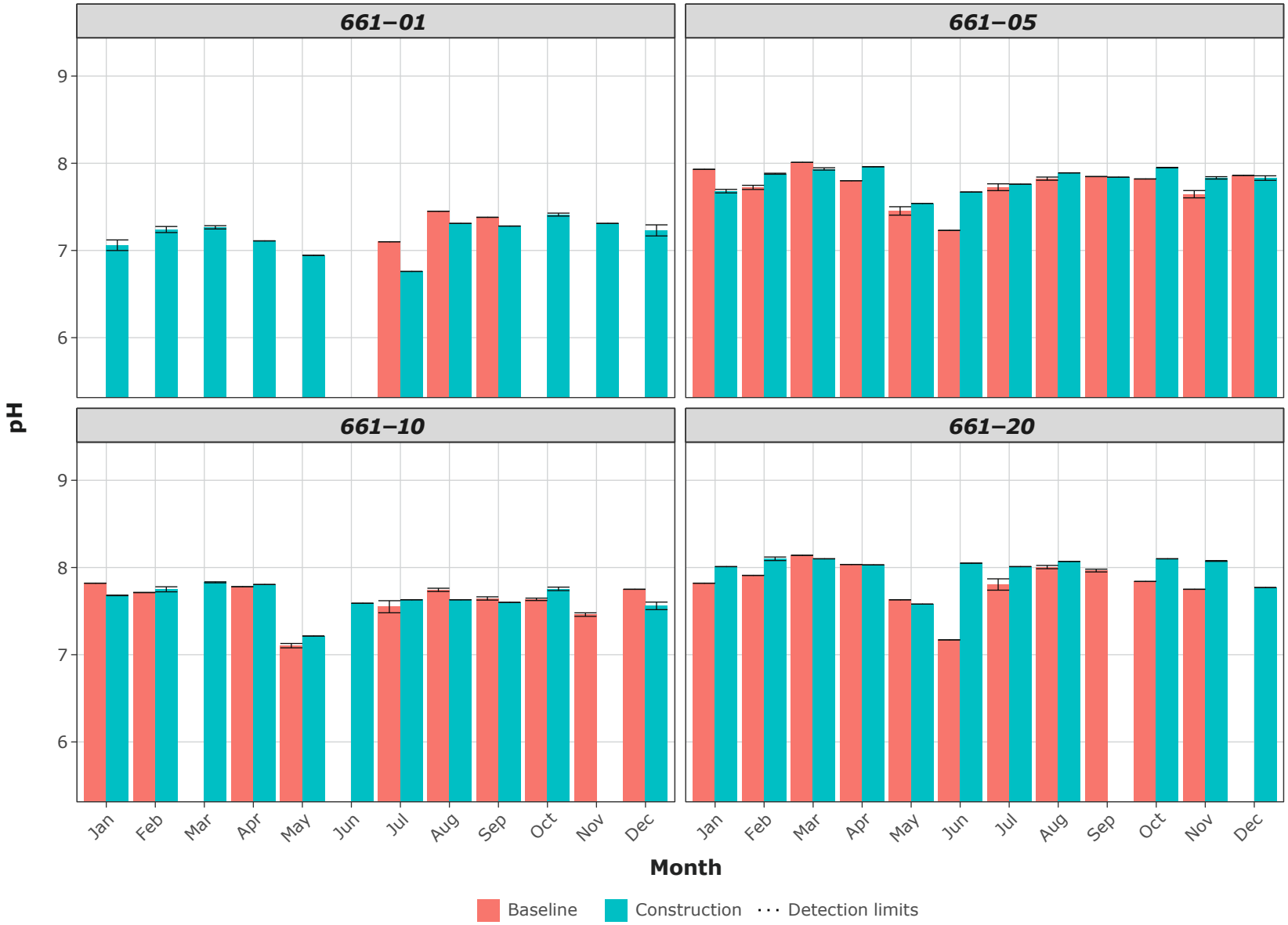
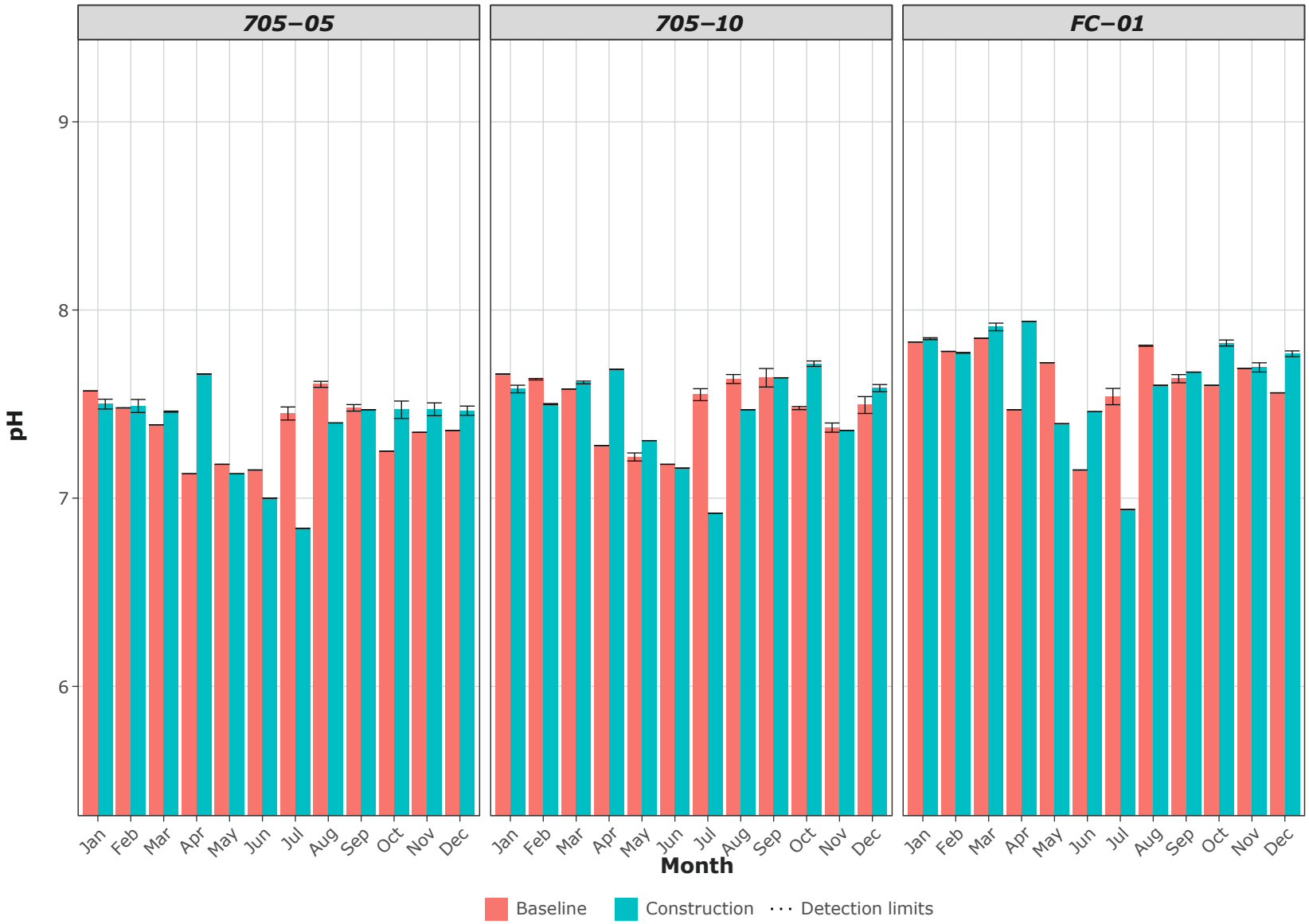


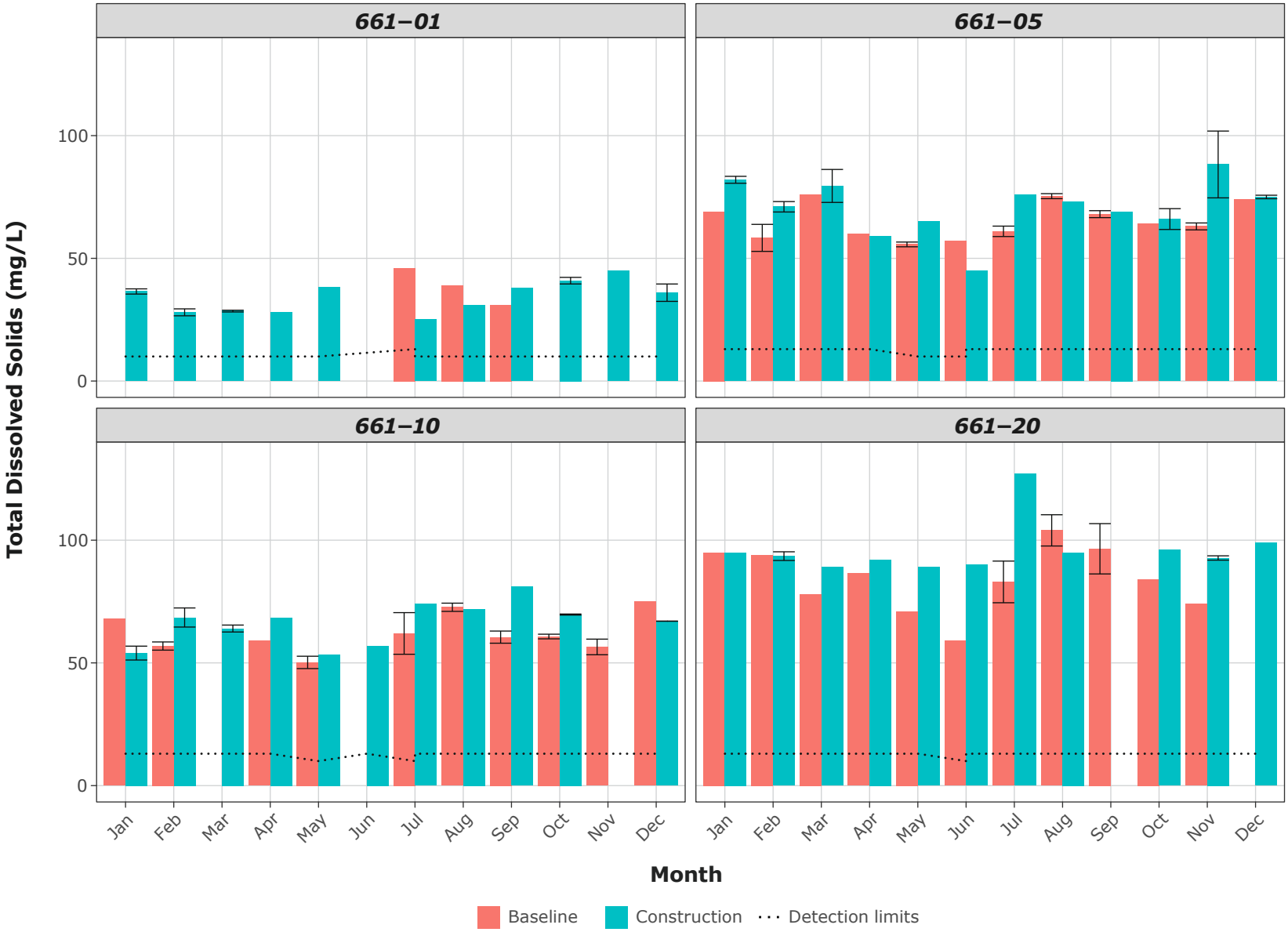
FIGURE 3.4-22 MONTHLY MEAN PH AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:22

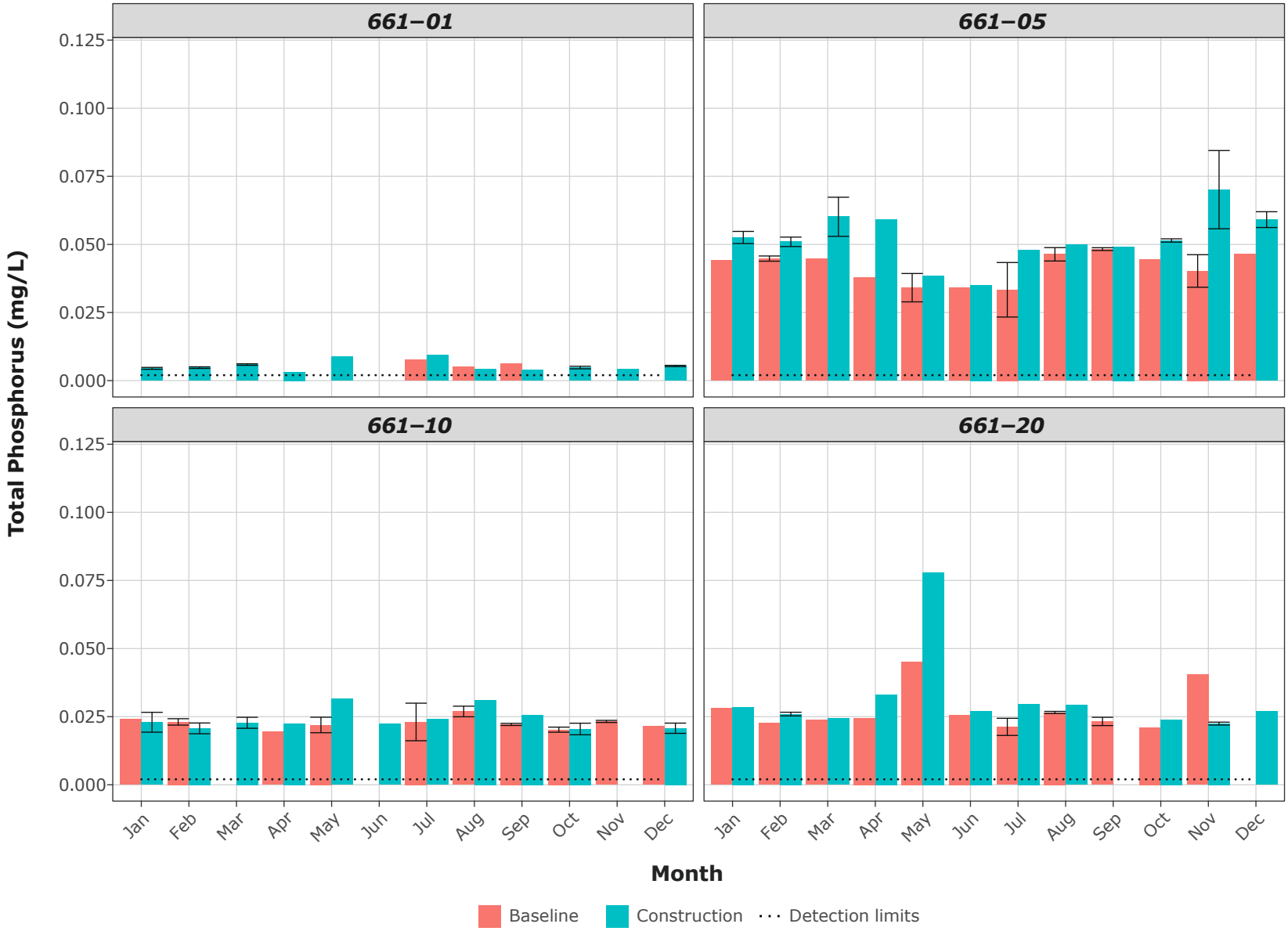
FIGURE 3.4-23 MONTHLY MEAN TOTAL DISSOLVED SOLIDS CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:23

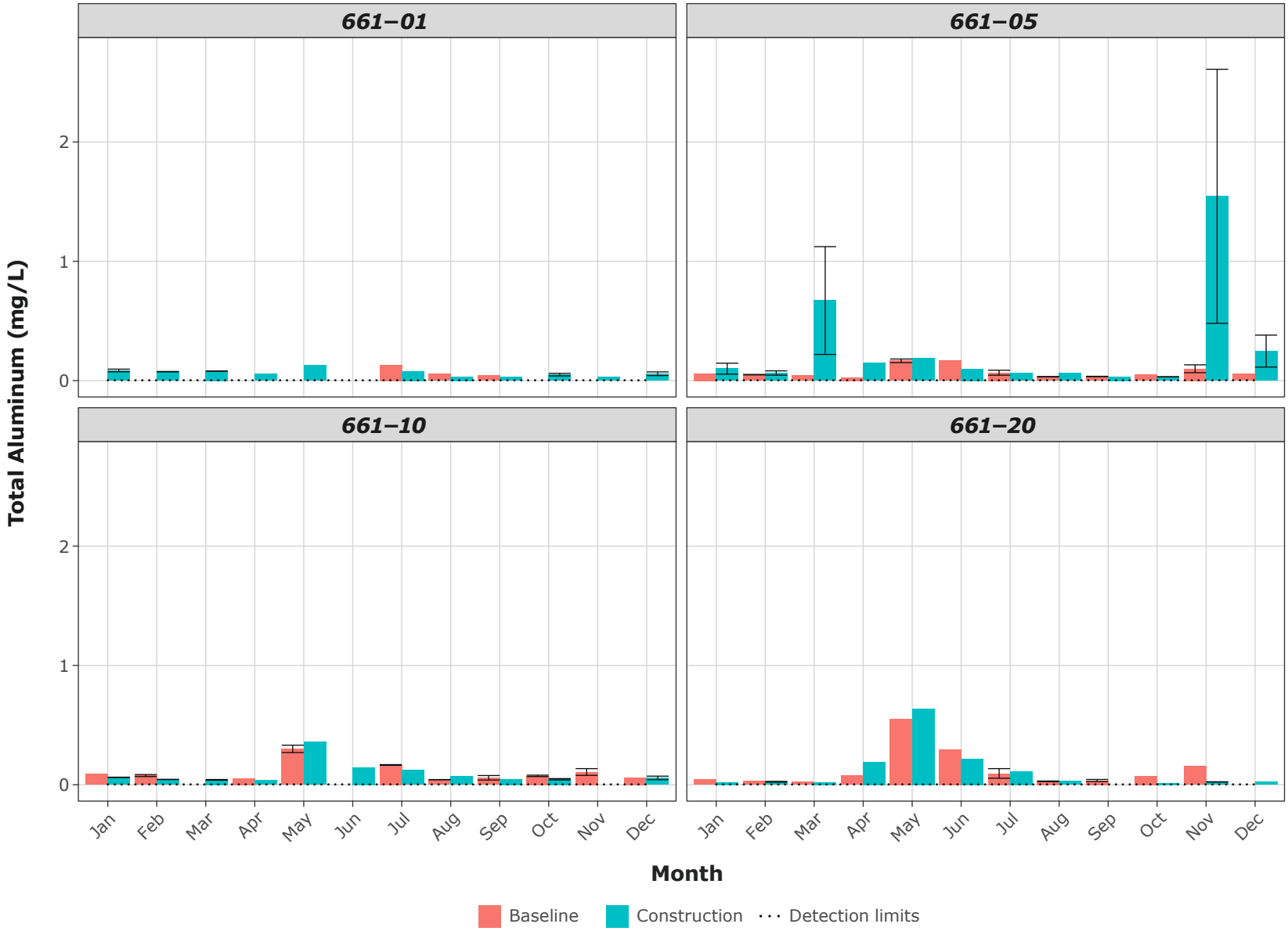
FIGURE 3.4-24 MONTHLY MEAN TOTAL PHOSPHORUS CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

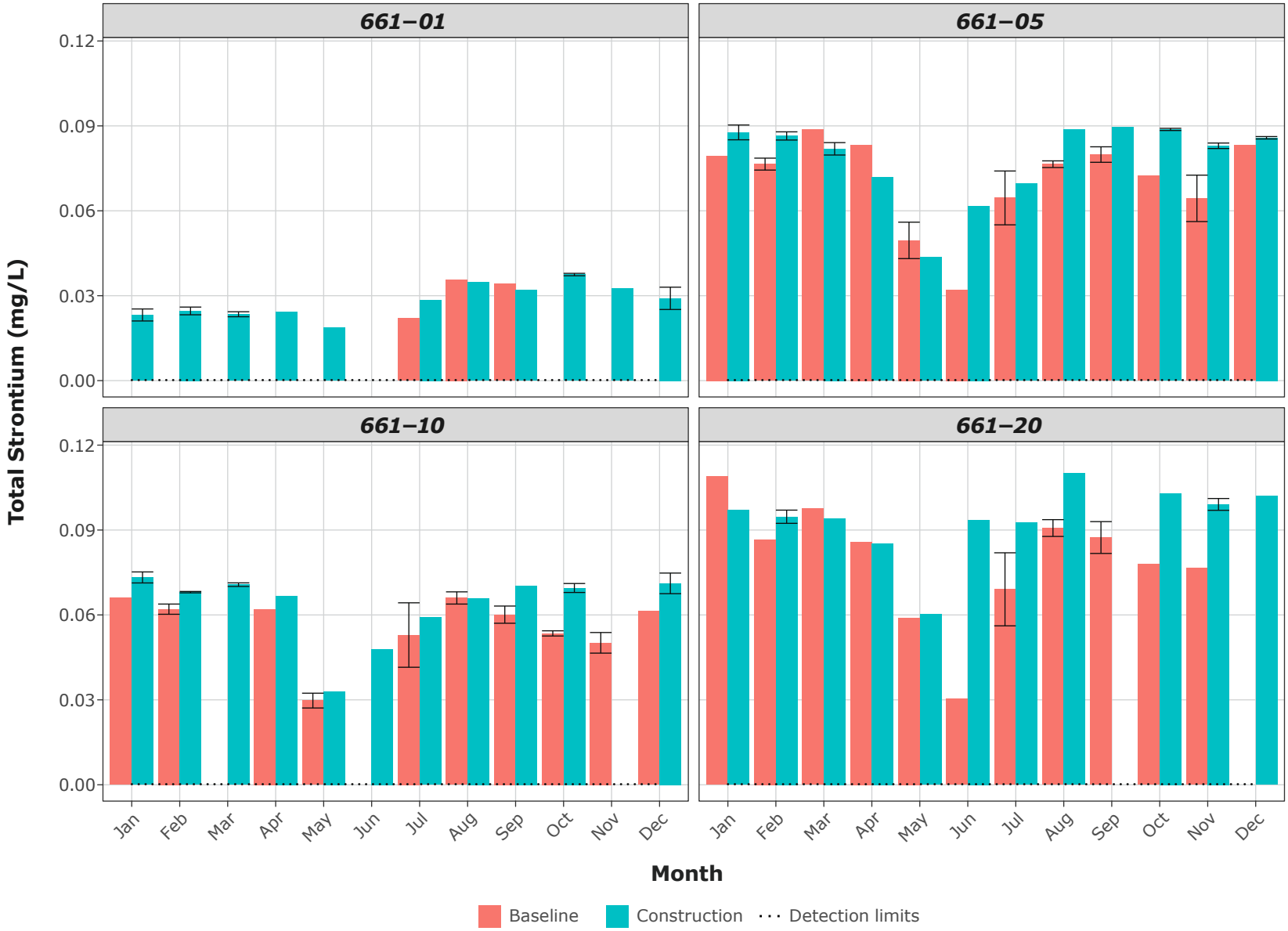
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:24

FIGURE 3.4-25 MONTHLY MEAN TOTAL ALUMINUM CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:25

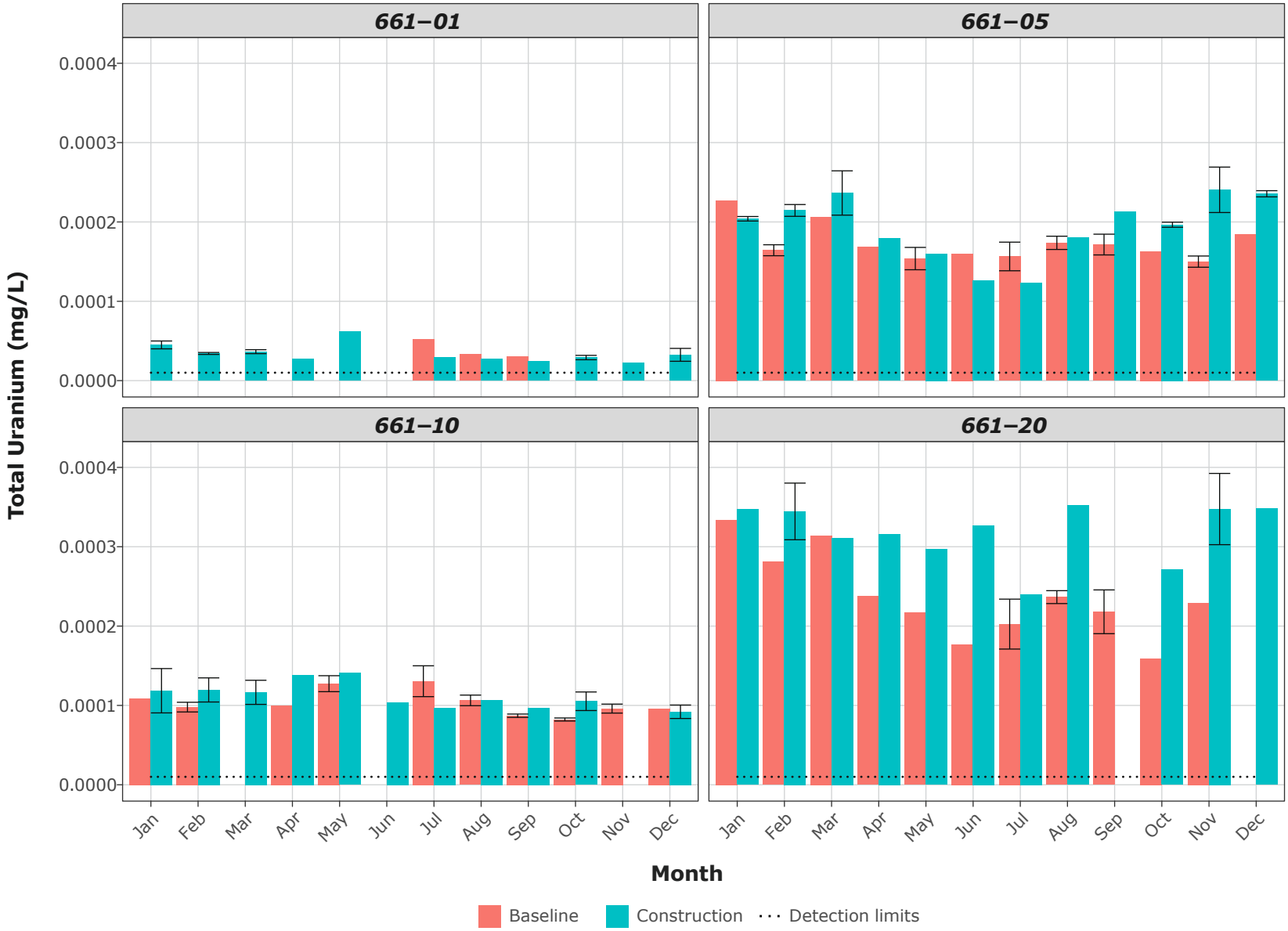
FIGURE 3.4-26 MONTHLY MEAN TOTAL STRONTIUM CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

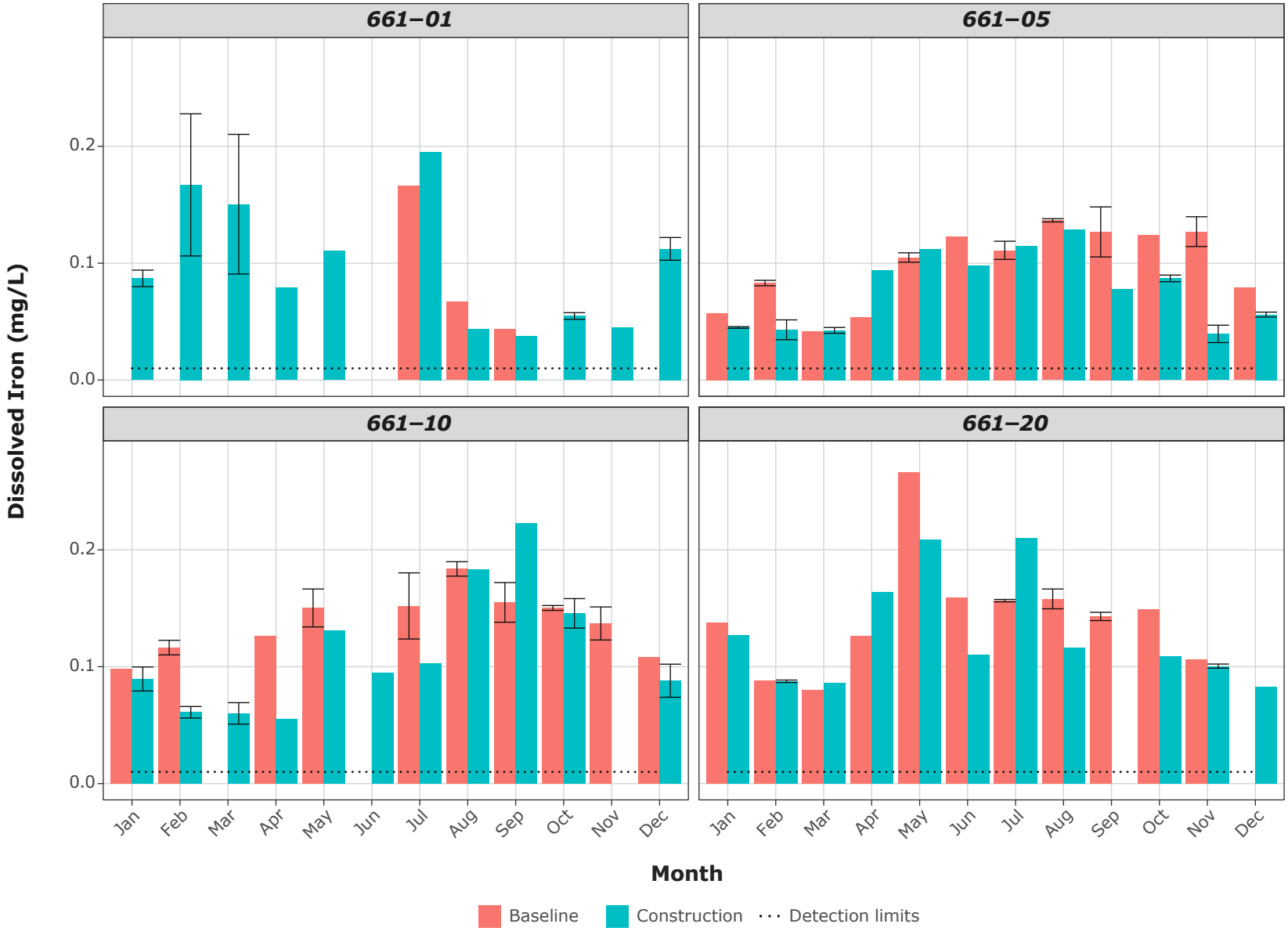
CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:26

FIGURE 3.4-27 MONTHLY MEAN TOTAL URANIUM CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:27

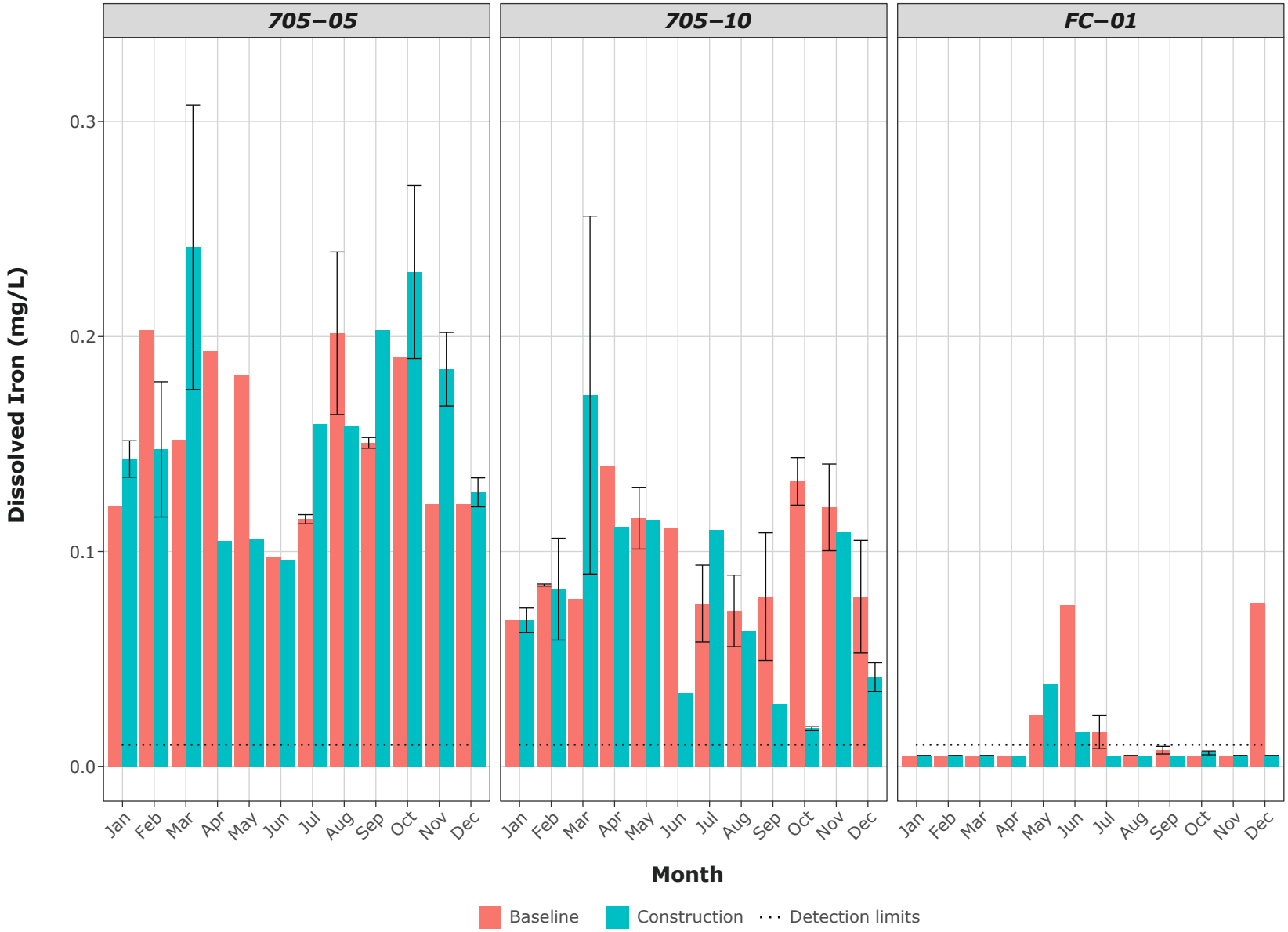
FIGURE 3.4-28 MONTHLY MEAN DISSOLVED IRON CONCENTRATIONS AT CREEK 661 SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:28

FIGURE 3.4-29: MONTHLY MEAN DISSOLVED IRON CONCENTRATIONS AT REGIONAL CONTROL SITES, BASELINE (2016 TO SEPTEMBER 2022) AND CONSTRUCTION (OCTOBER 2022 TO MARCH 2024) MONITORING PERIODS



ERM

CLIENT: BW Gold LTD.
GRAPHICS NUMBER: BWG-24ERM-028:29

3.4.2 Comparisons to Environmental Assessment

Methods

Comparison to Model Predictions

Since the CEA Agency (2019) assessment report was issued, an updated water quality model (Lorax 2022) and an updated water balance model (KP 2022) has been completed to reflect Project optimizations, in addition to an updated baseline water quality dataset (ERM 2023). Generally, parameter concentrations are predicted to be less than WQGs during the Construction and Operations phases. The exception is dissolved aluminum, where guideline exceedances are driven by background concentrations and not by the Project; an SBEB based on background concentrations has been approved for this dissolved aluminum at Davidson Creek sites to be used in place of the WQG-AL (BC ENV 2023).

Table 3.4-1 provides the assessment nodes at which water quality was predicted in the Environmental Assessment (EA) and in 2022 (Lorax 2022), along with the associated baseline and AEMP sampling sites. The monthly predicted concentrations from the CEA Agency report (2019; for the EA) and Lorax (2022) at each of the assessment nodes and the AEMP baseline sampling locations in Davidson Creek and Creek 661 were compared to observed concentrations during the early works construction.

Table 3.4-1: Water Quality Model Assessment Nodes, Baseline Sampling Sites, and Aquatic Effects Monitoring Program Sampling Sites

Criteria	EA Water Quality Assessment Nodes[1]	2022 Water Quality Model Assessment Nodes[2]	Baseline Site ID (up to 2021)	AEMP Site ID (2021 onwards)
Davidson Creek	-	WQ28	WQ-28	DC-05
	-	WQ27	WQ-27	DC-10
	WQ26	WQ26	WQ-26	DC-15
	WQ7	WQ7	WQ-7	DC-20
Creek 661	-	-	WQ-3	661-05
	WQ5_US	WQ5	WQ-5	661-10
	WQ5_DS	WQCk661	WQ-32	661-20

Notes:

EA = Environmental Assessment; AEMP = Aquatic Effects Monitoring Program.

[1] Figure 4 in CEA Agency (2019).

[2] Lorax (2022a).

Comparison to Water Quality Guidelines

Station-by-station comparisons of the monthly average water quality at AEMP sites with BC (ENV 2021a, 2021b) or federal (CCME 2022a) WQGs (Tables 3.4-2 to 3.4-4) was also completed to verify the accuracy of the EA. Comparisons of observed water quality to YDWL Standards are completed for informational purposes only and will not be used to verify the results of the EA because YDWL water quality standards were not considered in the EA.

Table 3.4-2: Water Quality Benchmarks Based on Water Quality Guidelines for the Protection of Aquatic Life, Wildlife, and Agriculture (Livestock)

Parameter	Water Quality Guideline[1]				Proposed Yinka Dene Water Law Standard	
	BC WQG	Type of Guideline	CCME WQG	Type of Guideline	DC-05	CC-15
Physical Parameters and Dissolved Anions						
pH	6.5 to 9 pH units	Aquatic life	6.5 to 9 pH units	Aquatic life	6.5 to 9 pH units	6.8 to 8.1 pH units
Total suspended solids	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	BC WQG	BC WQG
Turbidity	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	BC WQG	BC WQG
Total dissolved solids	ng[3]	ng	3,000 mg/L	Livestock	ng[3]	ng
Chloride	150 mg/L	Aquatic life	120 mg/L	Aquatic life	120 mg/L	60 mg/L
Fluoride	sample specific[2]	Aquatic life	0.12 mg/L	Aquatic life	1 mg/L	0.53 mg/L
Sulphate	sample specific[2]	Aquatic life	1,000 mg/L	Livestock	218 mg/L	111 mg/L
Nutrients						
Ammonia (as N)	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	1.83 mg/L (BC WQG)	0.84 mg/L
Nitrate (as N)	3 mg/L	Aquatic life	3 mg/L	Aquatic life	3 mg/L	1.5 mg/L
Nitrite (as N)	sample specific[2]	Aquatic life	0.06 mg/L	Aquatic life	0.02 mg/L (BC WQG)	0.011 mg/L
Total Phosphorous	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	ng	ng
Cyanides						
Total Cyanide	ng	ng	0.005 mg/L (as free cyanide)	Aquatic life	0.2 mg/L	0.1 mg/L
Cyanide, Weak Acid Dissociable	0.005 mg/L	Aquatic life	ng	ng	0.005 mg/L	0.005 mg/L
Total Metals						
Aluminum	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	n/a	n/a
Antimony	0.074 mg/L	Aquatic life	ng	ng	n/a	n/a
Arsenic	0.005 mg/L	Aquatic life	0.005 mg/L	Aquatic life	n/a	n/a

Parameter	Water Quality Guideline[1]				Proposed Yinka Dene Water Law Standard	
	BC WQG	Type of Guideline	CCME WQG	Type of Guideline	DC-05	CC-15
Barium	1 mg/L	Aquatic life	ng	ng	n/a	n/a
Beryllium	0.00013 mg/L	Aquatic life	0.1 mg/L	Livestock	n/a	n/a
Boron	1.2 mg/L	Aquatic life	1.5 mg/L	Aquatic life	n/a	n/a
Cadmium	ng	ng	sample specific[2]	Aquatic life	n/a	n/a
Chromium[4]	0.001 mg/L	Aquatic life	0.001 mg/L	Aquatic life	n/a	n/a
Cobalt	0.004 mg/L	Aquatic life	1 mg/L	Livestock	n/a	n/a
Copper	300 mg/L	Wildlife	sample specific[2]	Aquatic life	n/a	n/a
Iron	1 mg/L	Aquatic life	0.3 mg/L	Aquatic life	n/a	n/a
Lead	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	n/a	n/a
Manganese	sample specific[2]	Aquatic life	ng	ng	n/a	n/a
Mercury	0.00002 mg/L	Aquatic life	0.000026 mg/L	Aquatic life	n/a	n/a
Molybdenum	0.016 mg/L	Livestock	0.073 mg/L	Aquatic life	n/a	n/a
Nickel	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	n/a	n/a
Selenium	0.002 mg/L	Aquatic life	0.001 mg/L	Aquatic life	n/a	n/a
Silver	sample specific[2]	Aquatic life	0.00025 mg/L	Aquatic life	n/a	n/a
Thallium	0.0008 mg/L	Aquatic life	0.0008 mg/L	Aquatic life	n/a	n/a
Uranium	0.0085 mg/L	Aquatic life	0.015 mg/L	Aquatic life	n/a	n/a
Vanadium	0.1 mg/L	Livestock	0.1 mg/L	Livestock	n/a	n/a
Zinc	ng	ng	5 mg/L	Livestock	n/a	n/a

Parameter	Water Quality Guideline[1]				Proposed Yinka Dene Water Law Standard	
	BC WQG	Type of Guideline	CCME WQG	Type of Guideline	DC-05	CC-15
Dissolved Metals						
Aluminum[6]	ng	ng	ng	ng	0.14 mg/L (April to July) / 0.05 mg/L (August to March)	0.041 mg/L (April to July) / 0.029 mg/L (August to March)
Cadmium	sample specific[2]	Aquatic life	ng	ng	0.00014 mg/L	0.00009 mg/L
Copper	sample specific[2]	Aquatic life	ng	ng	0.0029 mg/L	0.0026 mg/L
Iron	0.35 mg/L	Aquatic life	ng	ng	0.3 mg/L	0.19 mg/L
Manganese	ng	ng	sample specific[2]	Aquatic life	0.02 mg/L	0.019 mg/L
Zinc	sample specific[2]	Aquatic life	sample specific[2]	Aquatic life	0.04 mg/L	0.017 mg/L

Notes:

WQG = water quality guideline; ng = no guideline; n/a = not applicable because the Yinka Dene Water Law Standard is for dissolved.

[1] Only the most conservative WQG is shown in the table. Sources of water quality guidelines include:

Approved or working BC Water quality guidelines for the protection of aquatic life, wildlife, and agriculture-livestock (BC ENV 2023b, 2021).

Canadian Council of Ministers of the Environment water quality guidelines for the protection of aquatic life or agriculture-livestock (CCME 2022).

[2] This parameter has a water quality guideline based on toxicity modifying factors (e.g., hardness, pH) and calculated as defined in Table 3.3-3. The guideline will be calculated on a sample-by-sample basis, consistent with guidance in BC MOE (2016).

[3] No aquatic life guideline is available for this parameter. A benchmark of 500 mg/L, used in effects assessment for the Joint MA/EMA Application, will be used to confirm the results of the effects assessment.

[4] Based on the guideline for hexavalent chromium, as there is no guideline for total chromium.

[6] The science-based environmental benchmark for dissolved aluminum at Davidson Creek sites is provided in Table 3.4-4.

Table 3.4-3: Water Quality Guidelines for the Protection of Aquatic Life

Parameter	BC Water Quality Guidelines[1]	CCME Water Quality Guideline[2]
Physical Parameters and Dissolved Anions		
pH	6.5 to 9.0 pH units	6.5 to 9.0 pH units
Total suspended solids	Change from background for 24-h period is 25 mg/L and 5 mg/L for 30-day period; if background is 25-100 mg/L then change from background of 10 mg/L; if background > 100 mg/L then change from background of 10%.	In clear flow, maximum increase of 25 mg/L from background levels for short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for long-term exposure. In high flow, maximum increase of 25 mg/L from background levels between 25-250 mg/L. If background is ≥ 250 mg/L, then it should not increase more than 10% of background levels.
Turbidity	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Change from background of 2 NTU at any one time for a duration of 30 d in all waters during clear flows or in clear waters. Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters.	In clear flow, maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period). In high flow or turbid waters, maximum increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than 10% of background levels when background is > 80 NTUs.
Chloride	600 maximum; 150 for 30-day period	640 short-term; 120 long-term
Fluoride	0.4 mg/L maximum, at hardness ≤ 10 mg/L $CaCO_3$ LC50 = -51.73 + 92.57 log10 (hardness) * 0.01 mg/L, at hardness > 10 mg/L	0.12 mg/L (Interim guideline)
Sulphate	30-day mean is: 128 mg/L, at hardness (as $CaCO_3$) 0-30 mg/L; 218 mg/L, at hardness 31-75 mg/L; 309 mg/L, at hardness 76-180 mg/L 429 mg/L, at hardness 181-250 mg/L site-specific guidelines apply at hardness >250 mg/L	-

Parameter	BC Water Quality Guidelines[1]	CCME Water Quality Guideline[2]
Nutrients		
Ammonia-N	30-day mean is pH- and temperature-dependent (see Table 26C in BC ENV 2021a); No more than 1 of 5 of the measured values can exceed 1.5 times the corresponding guideline	pH- and temperature-dependent (long-term)
Nitrate-N	32.8 mg/L maximum; 3.0 mg/L for 30-day period	550 mg/L short-term; 13 mg/L long-term
Nitrite-N	the maximum concentration is 0.06 mg/L and the 30-day mean is 0.02 mg/L, at chloride < 2 mg/L; the maximum concentration is 0.12 mg/L and the 30-day mean is 0.04 mg/, at chloride 2-4 mg/L the maximum concentration is 0.06 mg/L and the 30-day mean is 0.18 mg/L, at chloride 4- 6 mg/L; the maximum concentration is 0.24 mg/L and the 30-day mean is 0.08 mg/L, at chloride 6-8 mg/L; the maximum concentration is 0.30 mg/L and the 30-day mean is 0.10 mg/L, at chloride 8-10 mg/L; the maximum concentration is 0.60 mg/L and the 30-day mean is 0.20 mg/L, at chloride > 10 mg/L.	0.06 long-term
Total Phosphorous	0.005 mg/L to 0.015 mg/L (lakes)	greater than the baseline trophic status characterized as follows: < 0.004 mg/L ultra-oligotrophic; 0.004-0.01 mg/L oligotrophic; 0.01-0.02 mg/L mesotrophic; 0.02-0.035 mg/L meso-eutrophic; 0.035-0.1 mg/L eutrophic; > 0.1 mg/L hyper-eutrophic.

Parameter	BC Water Quality Guidelines[1]	CCME Water Quality Guideline[2]
Cyanides and Carbon		
Total Cyanide	-	0.005 mg/L (as free cyanide)
Cyanide, Weak Acid Dissociable	0.01 mg/L maximum; 0.005 mg/L for 30-day period	-
Total Organic Carbon	the 30-day median ± 20% of the seasonally adjusted median background concentration	-
Dissolved Organic Carbon	the 30-day median ± 20% of the seasonally adjusted median background concentration	-
Total Metals		
Aluminum	Long-term: e(0.645 * log(DOC) + (2.255 * log(hardness)) + (1.995 * pH) + (-0.284 * (log(hardness) * pH)) - 9.898))/ (3 * 1000)	0.005 mg/L if pH < 6.5; 0.1 mg/L if pH ≥ 6.5
Antimony	0.25 mg/L short-term; 0.074 mg/L long-term	-
Arsenic	0.005 mg/L 30-day period	0.005 mg/L long-term
Barium	1 mg/L (Working guideline)	-
Beryllium	0.00013 mg/L (Working guideline)	-
Boron	1.2 mg/L, 30-day period	29 mg/L short-term; 1.5 mg/L long-term
Cadmium	-	Short-term: 0.00011 mg/L, at hardness (as $CaCO_3$) is < 5.3 mg/L: 10 1.016[log10(hardness)]-1.71 / 1,000 mg/L, at hardness 5.3-360 mg/L; 0.0077 mg/L, if hardness > 360 mg/L. Long-term: 0.00004 mg/L at hardness < 17 mg/L; 10 0.83[log10(hardness)]-2.46 / 1000 mg/L, at hardness 17-280 mg/L; 0.00037 mg/L, at hardness > 280 mg/L.

Parameter	BC Water Quality Guidelines[1]	CCME Water Quality Guideline[2]
Chromium	30-day: 0.001 mg/L (hexavalent chromium; Working guideline), 0.0089 mg/L (trivalent chromium; Working guideline)	Long-term: 0.001 mg/L (hexavalent chromium), 0.0089 mg/L (trivalent chromium)
Cobalt	0.11 mg/L maximum; 0.004 mg/L for 30-day period	-
Copper	-	0.002 mg/L, if hardness (as $CaCO_3$) is < 82 mg/L; e 0.8545[ln(hardness)]-1.465 * 0.0002 mg/L, at hardness 82-180 mg/L; 0.004 mg/L, at hardness > 180 mg/L.
Iron	1 mg/L maximum	0.3 mg/L long-term
Lead	maximum concentration: 0.003 mg/L, at hardness (as $CaCO_3$) ≤ 8 mg/L; e 1.273ln(hardness)-1.460 / 1,000 mg/L, at hardness > 8 mg/L; 30-day mean is (3.31+e 1.273 ln (mean[hardness])-4.704) /1,000 mg/L, at hardness > 8 mg/L.	e 1.273[ln(hardness)]-4.705/1,000 mg/L, at hardness (as $CaCO_3$) ≤ 60 mg/L; 0.001 mg/L, at hardness 60-180 mg/L or unknown; 0.007 mg/L, hardness >180 mg/L.
Manganese	maximum = 0.01102(hardness)+0.54 mg/L 30-day mean concentration = 0.0044(hardness)+ 0.605 mg/L	-
Mercury	0.00002 mg/L when MeHg = 0.5% THg 0.00001 mg/L when MeHg = 1% THg	0.000026 mg/L
Molybdenum	46 mg/L maximum; 7.6 mg/L for 30-day period	0.073 mg/L
Nickel	30-day mean concentration: 0.025 mg/L, at hardness (as $CaCO_3$) 0-60 mg/L; e(0.76 * ln[hardness]+1.06) / 1,000 mg/L, at hardness 60-180 mg/L; 0.150 mg/L, at hardness >180 mg/L (Working guideline).	0.025 mg/L, at hardness (as $CaCO_3$) 0-60 mg/L; e(0.76 * ln[hardness]+1.06) / 1,000 mg/L, at hardness 60-180 mg/L; 0.150 mg/L, at hardness >180 mg/L.
Selenium	0.002 mg/L	0.001 mg/L

Parameter	BC Water Quality Guidelines[1]	CCME Water Quality Guideline[2]
Silver	maximum concentration is 0.0001 mg/L and the 30-day mean is 0.00005 mg/L, at hardness ≤ 100 mg/L; maximum concentration is 0.003 mg/L and the 30-day mean is 0.0015 mg/L, at hardness > 100 mg/L.	0.00025 mg/L long-term
Thallium	0.0008 mg/L (Working guideline)	0.0008 mg/L long-term
Uranium	0.0085 mg/L (Working guideline)	0.033 mg/L short-term; 0.015 mg/L long-term
Dissolved Metals		
Cadmium	the maximum concentration is: 0.000038 mg/L, at hardness (as $CaCO_3$) < 7 mg/L; e(1.03 * ln[hardness]-5.274) / 1,000 mg/L, at hardness ≥ 7mg/L; the 30-day mean concentration is: 0.0000176, at hardness < 3.4 mg/L; e(0.736 * ln[hardness]-4.943) / 1,000 mg/L, at hardness ≥ 3.4 mg/L.	
Copper	British Columbia Copper Biotic Ligand Model	
Iron	0.35 mg/L maximum	-
Manganese	-	Dissolved Manganese guideline long-term guideline is found in a look-up table with hardness and pH as the indices. The short-term = e(0.878 * ln[hardness]+4.76) / 1,000 mg/L.
Zinc	Long-term: e(0.947 * log(hardness) - 0.815 * pH + 0.398 * DOC + 4.625))/(2 * 1000), short-term: e(0.833 * log(hardness) + 0.24 * DOC + 0.526))/(2 * 1000)	e(0.947 * (ln[hardness]) - 0.815 * [pH] + 0.398 * (ln[DOC]) + 4.625)) where the Canadian Water Quality Guideline is expressed in dissolved zinc concentration (µ/L).

Notes:

[1] British Columbia Guidelines for the Protection of Freshwater Aquatic Life, approved (BC ENV 2023b); unless noted otherwise as working (BC ENV 2021).

[2] Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life, Canadian Council of Ministers of the Environment (CCME 2022).

Table 3.4-4: Site-Specific Calculated Dissolved Aluminum Science-Based Environmental Benchmarks for Davidson Creek

Dates for Comparison[1]	DC-05 (Reach A)	DC-10 (Reach B)	DC-15 (Reach C)	DC-20 (Reach D)
April 1 to July 31	0.28 mg/L	0.26 mg/L	0.25 mg/L	0.23 mg/L
August 1 to December 31	0.13 mg/L	0.11 mg/L	0.090 mg/L	0.079 mg/L

Note: [1] Water quality samples collected between January 1 and March 31 were compared to the total aluminum water quality guideline indicated in Table 3.3-3.

Comparisons of measured parameter concentrations to WQG-AL (Table 3.3-3) follows the hierarchy provided in Technical Guidance 4: Annual Reporting under the *Environmental Management Act* (BC MOE 2016), with WQG-AL applied in the following order:

1. Use the most current BC Approved WQG-AL (BC ENV 2023b) or approved SBEBs (BC ENV 2023a).
2. If no approved WQG-AL are available, use the most current Working Water Quality Guideline for British Columbia (BC ENV 2021).
3. If neither of these has yet been established, use the most current WQG-AL provided by the CCME (2022).

For pH-, hardness-, DOC-, and chloride-dependent WQG-AL, the sample-specific hardness, pH, DOC, or chloride values will be used to calculate the WQG-AL. Concentrations that are less than the DL but greater than the applicable WQG-AL will be noted but excluded from WQG-AL exceedance calculations.

Long-term average (“chronic”) WQG-AL will be used for initial comparisons. Long-term WQG-AL are the most conservative; consequently, if no exceedances of long-term guidelines are identified for a parameter, no further investigation is necessary. If exceedances of the chronic WQG-AL are noted, concentrations will also be compared to the short-term (“maximum”) WQG-AL, where available. Comparisons to the WQG-AL will be done for each sample or for the average of the five weekly (5-in-30) samples, as recommended by BC MOE (2016c).

Guideline exceedances were characterized for each month or 5-in-30 sampling period as a magnitude (factor) of exceedance (i.e., by how much the WQG-AL is exceeded, calculated as the monthly or 5-in-30 average parameter concentration divided by the WQG-AL).

Results

Comparison to Predictions

The monthly predicted concentrations (95th percentile) at each of the assessment nodes (for the EA model predictions and the 2022 model predictions) and the 2022 AEMP baseline sampling locations in Davidson Creek and Creek 661 sites (i.e., sites potentially impacted by early works construction activities) were compiled and provided in Appendix E-3 and Appendix E-4.

Water quality parameters for which the mean monthly concentrations during the reporting period exceeded the 95th percentile EA model predictions (CEA Agency 2019) for two or more consecutive months are summarized in Table 3.4-5 and exceedances of the 95th percentile 2022 model predictions (Lorax 2022) are summarized in Table 3.4-6.

Table 3.4-5: 2022 Water Quality Parameters Greater than Environmental Assessment Model Predictions

Watershed	EA Water Quality Assessment Nodes[1]	Aquatic Effects Monitoring Program Sampling Site	Water Quality Parameters[2]
Davidson Creek	WQ26	DC-15	Dissolved anions: chloride Cyanides: WAD cyanide Total metals: arsenic, barium, boron, chromium, molybdenum, strontium, uranium, vanadium
	WQ7	DC-20	Dissolved anions: chloride Cyanides: WAD cyanide Total metals: aluminum, arsenic, barium, beryllium, boron, chromium, copper, iron, lead, molybdenum, strontium, uranium, vanadium Dissolved metals: copper, iron
Creek 661	WQ5_US	661-10	Nutrients: orthophosphate Total metals: arsenic, barium, boron, cadmium, iron, nickel, zinc Dissolved metals: cadmium, copper, iron
	WQ5_DS	661-20	Dissolved anions: fluoride Nutrients: nitrate-N, total phosphorus, orthophosphate Total metals: aluminum, arsenic, barium, boron, cadmium, chromium, iron, manganese, mercury, molybdenum, nickel, strontium, uranium, vanadium Dissolved metals: copper, iron

Notes:

[1] Figure 4 in CEA Agency (2019).

[2] 2022 mean monthly concentration in one or more months of the early works construction period was greater than the model predicted 95th percentile.

Table 3.4-6: 2022 Water Quality Parameters Greater than 2022 Model Predictions

Watershed	2022 Water Quality Model Assessment Nodes[1]	Aquatic Effects Monitoring Program Sampling Site	Water Quality Parameters[2]
Davidson Creek	WQ28	DC-05	Total metals: aluminum, barium, chromium, copper, iron, lead, uranium, and zinc
	WQ27	DC-10	Total metals: barium and uranium
	WQ26	DC-15	Dissolved anion: chloride Total metals: barium and uranium
	WQ7	DC-20	Total metals: aluminum, barium, copper, iron, and uranium Dissolved metals: iron

Watershed	2022 Water Quality Model Assessment Nodes[1]	Aquatic Effects Monitoring Program Sampling Site	Water Quality Parameters[2]
Creek 661	WQ3	661-05	Dissolved anion: chloride and fluoride Nutrients: total phosphorus and orthophosphate Total metals: aluminum, arsenic, barium, boron, chromium, iron, lead, molybdenum, nickel, selenium, strontium, uranium, vanadium, and zinc Dissolved metals: iron
	WQ5	661-10	Nutrients: chloride Nutrients: total phosphorus and orthophosphate total metals: aluminum, antimony, arsenic, barium, boron, cadmium, chromium, iron, lead, manganese, molybdenum, nickel, strontium, uranium, vanadium, and zinc Dissolved metals: copper, iron, and zinc
	WQCk661	661-20	Anions: chloride, fluoride, and sulphate Nutrients: total phosphorus and orthophosphate Total metals: aluminum, arsenic, barium, boron, cadmium, chromium, cobalt, iron, lead, manganese, mercury, molybdenum, nickel, selenium, strontium, uranium, and vanadium Dissolved metals: copper, iron, and manganese

Notes:

[1] Lorax (2022a).

[2] 2022 mean monthly concentration in one or more months of the early works construction period was greater than the model predicted 95th percentile.

The mean monthly concentrations during the early works construction period were greater than the model prediction for the same month for several water quality parameters at Davidson Creek and Creek 661 sites (Table 3.4-5 and Table 3.4-6). This is likely a result of comparing the average monthly concentration for one to two years and is not indicative of a Project-related effects and the EA model predictions are based on earlier mine configurations that were optimized during permitting. However, see Section 3.4.1.3 for parameters also greater than baseline concentrations and likely Project-related. Elevated concentrations of the water quality parameters identified in Table 3.4-9 and Table 3.4-10 also tended to be elevated at the upstream control site (661-01) and regional control sites (705-05, 705-10, and FC-01; see ERM 2024a). Monitoring in future years will provide a comparison of multi-year average monthly concentrations to the predicted concentration and is expected to resolve this apparent difference in concentrations.

Comparison to Water Quality Guidelines

Stream water quality observed during the reporting period (April 1, 2023 to March 31, 2024) was compared to WQGs (Table 3.3-2). There were no concentrations that were less than the DL but greater than the applicable WQG-AL during the reporting period. The exceedance magnitudes (average magnitude of samples greater than guideline concentration) of collected samples with concentrations exceeding WQG-AL are presented in Table 3.4-9 for Davidson Creek Sites and Table 3.4-10 for Creek 661 sites. There were no exceedances of the water quality guidelines for the protection of wildlife, and agriculture-livestock at any of the monitoring sites during the reporting period.

Exceedances of WQG-AL were observed at all sites in the Davidson Creek watershed (DC-05, DC 10, DC-15, and DC-20) for five parameters (total aluminum, total chromium, total copper, total iron, and total mercury; Table 3.4-7). Three sites in the Creek 661 watershed (661-05, 661-10, 661-20) exceeded WQG-AL for five parameters (total aluminum, total chromium, total copper, total iron, and total mercury; Table 3.4-8). No WQG-AL exceedances were observed at sites in the Chedakuz Creek watershed. The total aluminum WQG-AL was exceeded once in May 2023 at the regional control site FC-01 (magnitude = 1.49 times) and once in March 2024 at regional control site 705-05 (magnitude = 1.06 times). With the exception of Davidson Creek sites, the exceedance frequencies and magnitudes observed during the reporting period were often associated with the high flow (freshet) months and similar to baseline for each of the watersheds suggesting they are not related to construction activities and no effects to aquatic life occurred (Table 3.4-8). The greater frequency of exceedances (and magnitude) observed during the reporting period for Davidson Creek sites is related to the February and March 2024 exceedances at DC-05 (Table 3.4-7) and likely related to the discharge from the TSF Stage 1 SCP to Davidson Creek in Q1 2024. However, no effects to aquatic life are expected given the magnitude of the exceedance was low (range from 1.12 to 8.95).

Dissolved aluminum SBEB exceedances were observed at two sites in the Davidson Creek watershed (DC-10 and DC-15) in May 2023 (Table 3.4-7). The SBEB exceedances occurred in a single month and were of low magnitude (less than two times the SBEB value; Table 3.4-7) therefore were not Project-related and no effects to aquatic life are expected.

The proposed YDWL standard at DC-05 was exceeded for dissolved aluminum and at CC-15 the proposed YDWL standard was exceeded for pH and dissolved manganese (Table 3.4-7 and Table 3.4-9). Although exceedances occurred in all months, they were generally of low magnitude (generally less than 2 times the YDWL standard; Table 2.3-3 and Table 2.3-6), therefore no effects to aquatic life are expected.

3.4.3 Effectiveness of Mitigation Measures and Adaptive Management

Methods

To evaluate the effectiveness of mitigation measures, monthly concentrations of water quality parameters measured in Davidson Creek (DC-05, DC-10, DC-15, DC-20) and Creek 661 (661-05, 661-10, 661-20) were assessed against the WQGs provided Tables 3.4-2 to 3.4-4 and predicted water quality benchmarks (Appendix E-3 and E-4). Mitigation measures are considered to be effective and performing as expected as long as concentrations remain lower than WQGs and the predicted water quality benchmarks.

To address DS Condition 2.5, Section 5 (Adaptive Management) of the AEMP Plan provides the quantitative triggers to assess the levels of environmental change relative to baseline conditions that would require implementation, modification, or additional mitigation measure(s). In addition, the AEMP Plan provides the mechanism for identifying the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the AEMP Plan (follow-up program) shows that the levels of environmental change referred to in DS Condition 2.5.4 have been reached or exceeded (DS Condition 2.5.5).

Table 3.4-7: Davidson Creek Water Quality Exceedances of Provincial and Federal Water Quality Guidelines, April 1, 2023 to March 31, 2024

Site	Month	Total Aluminum	Dissolved Aluminum	Dissolved Aluminum	Total Chromium	Total Copper	Total Iron	Total Mercury
		BC	SBEB	YDWL	BC long-term interim (CrVI)	CCME	BC short-term	BC[1]
DC-05	April	-	-	-	-	-	-	-
	5-in-30 (May)	1.45	-	1.43	-	-	-	-
	June	-	-	-	-	-	-	-
	July	-	-	-	-	-	-	-
	August	-	-	-	-	-	-	-
	September	-	-	-	-	-	-	-
	5-in-30 (October)	-	-	-	-	-	-	-
	November	1.66	-	1.2	-	-	-	-
	December	-	-	-	-	-	-	-
	January	-	-	-	-	-	-	-
	February	5.06	-	-	1.12	-	1.33	-
	March	8.95	-	-	1.64	1.33	2.06	-
DC-10	April	-	-	NA	-	-	-	-
	May	2.95	1.27	NA	-	-	-	1.57
	June	-	-	NA	-	-	-	-
	July	-	-	NA	-	-	-	-
	August	-	-	NA	-	-	-	-
	September	-	-	NA	-	-	-	-
	October	-	-	NA	-	-	-	-

Site	Month	Total Aluminum	Dissolved Aluminum	Dissolved Aluminum	Total Chromium	Total Copper	Total Iron	Total Mercury
		BC	SBEB	YDWL	BC long-term interim (CrVI)	CCME	BC short-term	BC[1]
DC-10 (cont'd)	November	1.78	-	NA	-	-	-	-
	December	-	-	NA	-	-	-	-
	January	-	-	NA	-	-	-	-
	February	-	-	NA	-	-	-	-
	March	4.02	-	NA	1.10	-	1.32	-
DC-15	April	-	-	NA	-	-	-	-
	May	2.23	1.16	NA	-	-	-	1.33
	June	-	-	NA	-	-	-	-
	July	-	-	NA	-	-	-	-
	August	-	-	NA	-	-	-	-
	September	-	-	NA	-	-	-	-
	October	-	-	NA	-	-	-	-
	November	-	-	NA	-	-	-	-
	December	-	-	NA	-	-	-	-
	January	-	-	NA	-	-	-	-
	February	-	-	NA	-	-	-	-
	March	2.73	-	NA	-	-	-	-
DC-20	April	-	-	NA	-	-	-	-
	5-in-30 (May)	-	-	NA	-	-	-	-
	June	-	-	NA	-	25.15	-	-
	July	-	-	NA	-	-	-	-

Site	Month	Total Aluminum	Dissolved Aluminum	Dissolved Aluminum	Total Chromium	Total Copper	Total Iron	Total Mercury
		BC	SBEB	YDWL	BC long-term interim (CrVI)	CCME	BC short-term	BC[1]
DC-20 (cont'd)	August	-	-	NA	-	-	-	-
	September	-	-	NA	-	-	-	-
	October	-	-	NA	-	-	-	-
	5-in-30 (Oct/Nov)	-	-	NA	-	-	-	-
	December	-	-	NA	-	-	-	-
	January	-	-	NA	-	-	-	-
	February	1.89	-	NA	-	-	-	-
	March	6.13	-	NA	1.54	1.26	2.08	-

Notes:

Values represents the average magnitude of samples greater than guideline concentration.

Dashes indicate no exceedance. NA = Not applicable (the guideline was not applicable to the site or month).

BC = British Columbia; CCME = Canadian Council of Ministers of the Environment; SBEB = Science Based Environmental Benchmark; YDWL = Yinka Dene Water Law Water.

Refer to Table 3.3-3 for specific guidelines.

Values below DL were replaced with half the DL for calculations.

Only parameters greater than guidelines are included in the table.

[1] Magnitude for the total mercury BC water quality guideline reflects when methylmercury is 1% of total mercury.

Table 3.4-8: Creek 661 Water Quality Exceedances of Provincial and Federal Water Quality Guidelines, April 1, 2023 to March 31, 2024

Site	Month	Total Aluminum	Total Chromium	Total Copper	Total Iron	Total Mercury
		BC	BC	CCME	BC	BC
661-01	April to March	-	-	-	-	-
661-05	April	-	-	-	-	-
	5-in-30 (May)	-	-	-	-	-
	June	-	-	-	-	-
	July	-	-	-	-	-
	August	-	-	-	-	-
	September	-	-	-	-	-
	5-in-30 (Oct/Nov)	11.45	2.72	1.43	2.60	1.31
	December	2.04	1.35	-	-	-
	January	-	1.03	-	-	-
	February	-	-	-	-	-
	March	5.81	1.84	-	1.19	-
661-10	April	-	-	-	-	-
	5-in-30 (May)	1.34	-	-	-	-
	June	-	-	-	-	-
	July	-	-	-	-	-
	August	-	-	-	-	-
	September	-	-	-	-	-
	5-in-30 (Oct/Nov)	-	-	-	-	-
	December	-	-	-	-	-

Site	Month	Total Aluminum	Total Chromium	Total Copper	Total Iron	Total Mercury
		BC	BC	CCME	BC	BC
661-10 *(cont'd)*	January	-	-	-	-	-
	February	-	-	-	-	-
	March	-	-	-	-	-
661-20	April	-	-	-	-	-
	May	1.41	1.22	-	-	-
	June	-	-	-	-	-
	July	-	-	-	-	-
	August	-	-	-	-	-
	November	-	-	-	-	-
	January	6.01	1.67	-	1.30	-
	February	-	-	-	-	-
	March	-	-	-	-	-

Notes:

Dashes indicate no exceedance.

BC = British Columbia; CCME = Canadian Council of Ministers of the Environment

Refer to Table 3.3-3 for specific guidelines.

Values below DL were replaced with half the DL for calculations.

Only parameters greater than guidelines are included in the table.

Factor represents the average magnitude of samples greater than guideline concentration.

Table 3.4-9: Stream and Lake Water Quality Frequency and Magnitude of Exceedance of Water Quality Guidelines, Baseline and April 2023 to March 2024

Watershed/ Lake	Period	Total Aluminum	Total Chromium	Total Copper	Total Iron	Total Lead	Total Mercury
		BC	BC	CCME	BC	CCME	BC
Davidson Creek	Baseline	8.2% (1.36)	0.4% (1.06)	0.8% (9.39)	0.4% (1.03)	0% (0)	2.1% (1.09)
	April 2023 to March 2024	27.5% (4.18)	13.5% (1.52)	11.5% (5.29)	13.5% (1.86)	3.8% (1.27)	3.8% (1.45)
Creek 661	Baseline	11.5% (1.3)	6.4% (1.57)	0% (0)	0% (0)	0% (0)	1.0% (1.2)
	April 2023 to March 2024	12.2% (4.40)	12.2% (1.63)	2.4% (1.45)	4.9% (1.90)	0% (0)	2.4% (1.31)
Chedakuz Creek	Baseline	0% (0)	1% (1.82)	0.3% (1.6)	0% (0)	0% (0)	0% (0)
	April 2023 to March 2024	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Regional Control Sites	Baseline	4.8% (2.28)	1.2% (2.2)	0% (0)	1.2% (1.04)	0% (0)	1.2% (1.91)
	April 2023 to March 2024	5.6% (1.28)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)

Notes:
BC = British Columbia; CCME = Canadian Council of Ministers of the Environment.
Baseline period = 2016 to September 2022.
Refer to Table 3.3-3 for water quality guideline value.
Frequency represents the percentage of the mean monthly samples that were greater than the guideline concentration, and factor (shown in brackets) represents the magnitude of the exceedance.
Magnitude for the total mercury BC water quality guideline reflects when methylmercury is 1% of total mercury.
Values below detection limit were replaced with half the detection limit for calculations.
Only parameters greater than guidelines in April 2023 to March 2024 are included in the table.

Table 3.4-10: Chedakuz Creek Site CC-15 Exceedances of Yinka Dene Water Law Standard, April 1, 2023 to March 31, 2024

Site	Month	pH	Dissolved Manganese
		YDWL	YDWL
CC-15	April	-	2.05
	5-in-30 (May)	-	-
	June	-	-
	July	-	-
	August	-	1.26
	September	1.002	1.45
	5-in-30 (October/November)	-	1.25
	December	-	-
	January	-	1.05
	February	-	-
	March	1.004	-

Notes:
Dashes indicate no exceedance.
YDWL = Yinka Dene Water Law Water.
Refer to Table 3.3-3 for specific guidelines.
Values below DL were replaced with half the DL for calculations.
Only parameters greater than guidelines are included in the table.
Factor represents the average magnitude of samples greater than guideline concentration.

Water quality parameters to be included in the Water Quality Framework were selected based on the rationale discussed in the AEMP Plan:

- Dissolved oxygen;
- pH;
- TSS and TDS;
- Ions: chloride, fluoride, and sulphate;
- Nutrients: total ammonia-N, nitrate-N, nitrite-N, and total phosphorus;
- Total metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, uranium, vanadium, and zinc; and
- Dissolved metals: aluminum, cadmium, calcium, copper, iron, manganese, and zinc.

Numeric performance metrics (NPMs) are defined as the thresholds for determining adaptive management action levels (equivalent to “qualitative and quantitative triggers” described in EAC Condition 3(g) for adaptive management). The evaluation of monitoring results against NPMs for water quality was based on near-field sites. The near-field sites represent sites closest to the influence of the

mine site discharge points and non-point source seepage. For the early works construction period, the effects of the Project on surface water are likely to be most apparent at the near-field sites, including:

- Davidson Creek: DC-05, DC-10, and DC-15; and
- Creek 661: 661-05 and 661-10 (sites 661-03, 661-04 were not included in this report because 2023 observations at these sites are considered 'baseline').

Water quality (excluding nutrients) NPMs and management responses for each action level are provided in Table 5.2-2 of the AEMP Plan (ERM 2024b). Water quality guidelines for several parameters are based on concentrations of toxicity modifying factors (e.g., hardness, DOC). For these parameters, water quality guidelines were calculated for each sample based on the concentration of the parameter and toxicity modifying factors in the same sample, as recommended by BC ENV (2016). Total ammonia-N, nitrate-N, nitrite-N, and total phosphorus was included in the nutrient response framework (as required by *Environmental Management Act* Permit PE 110652 Condition 4.6.3[d]). The nutrient response NPMs also consider periphyton biomass therefore is assessed on annually in the AEMP Interpretive Report (see ERM 2024a). The results of the 2023 assessment indicated there was no statistically significant increase in periphyton biomass or water quality nutrients observed at near-field or control sites when compared to baseline monitoring years. Observed increases of periphyton biomass and nutrients when compared to baseline were not related to the construction period and likely related to annual variability or the comparison of a single year of monitoring data to the baseline period. Therefore, no additional mitigations were suggested for construction activities.

Results

To exceed the 'none' NPM for water quality the mean monthly measured water quality (excluding nutrients) parameter concentration meets the following conditions:

- **[Condition 1]** lower than the WQG-AL, Water Quality Guideline for the protection of wildlife or approved SBEB (BC ENV 2021a, 2021b, 2023; CCME 2022a); and
- **[Condition 2]** less than or equal to (a) the 95th percentile of the predicted concentration (base case) in the same month or (b) the 95th percentile baseline concentration plus 20% in the same month.

Water quality concentrations at the near-field sites meeting both conditions indicate that there is no requirement for a change to current mitigation measures. Thus, water quality concentrations are below levels of concern and water quality is in the range predicted by the surface water quality model or within site specific baseline concentrations.

At each of the sites (DC-05, DC-10, DC-15, 661-05, and 661-10) Condition 1 was not met (Section 3.4.2) and Condition 2 (Appendix E-1, Appendix E-3 and Appendix E-4) were not met for all measured water quality parameters in one or more months during the reporting period. Therefore, results of the comparison to the 'low' NPM for Condition 1, 2a and 2b, and 3 was completed (Table 3.4-11).

To exceed the 'low' NPM for water quality the mean monthly measured parameter concentrations in water in two or more consecutive months meets the following conditions:

- **[Condition 1]** lower than the WQG-AL, Water Quality Guideline for the protection of wildlife or approved SBEB (ENV 2021a, 2021b, 2023; CCME 2022a); and
- **[Condition 2]** higher than (a) the 95th percentile of the predicted concentration (base case) in the same month and (b) the 95th percentile baseline concentration plus 20% in the same month; and
- **[Condition 3]** changes in concentration are not statistically significant between near-field and control sites or compared to baseline conditions (BACI analysis).

For those parameters that exceeded the 'low' NPMs for water quality, the mean monthly measured parameter concentrations were assessed against the 'medium' NPMs which are:

In two or more consecutive months the monthly mean parameter concentration is

- **[Condition 1]** lower than the WQG-AL, Water Quality Guideline for the protection of wildlife or approved SBEB (ENV 2021a, 2021b, 2023; CCME 2022a); and
- **[Condition 2]** higher than (a) the 95th percentile of the predicted concentration (base case) in the same month and (b) the 95th percentile baseline concentration plus 20% in the same month; and
- **[Condition 3]** changes in concentration are statistically significant between near-field and control sites or compared to baseline conditions (BACI analysis).

The results of the comparison to the 'medium' NPM for Condition 1, 2a and 2b, and 3 is also provided in Table 3.4-11 and discussed below for each parameter. Meeting the 'medium' NPMs indicates that the concentrations are increasing in a manner not predicted by the surface water quality model but are below levels of concern.

Parameters that met conditions of the 'high' NPM indicate that the parameter concentration has increased in a manner not predicted by the surface water quality model, are higher than baseline concentrations, and are at levels of concern. A high action level is exceeded when the mean monthly concentration of the parameter meets the following conditions in two or more consecutive months:

- **[Condition 1]** greater than the WQG-AL, Water Quality Guideline for the protection of wildlife or approved SBEB (ENV 2021a, 2021b, 2023; CCME 2022a); and
- **[Condition 2]** higher than (a) the 95th percentile of the predicted concentration (base case) in the same month and (b) the 95th percentile baseline concentration plus 20% in the same month; and
- **[Condition 3]** changes in concentration are statistically significant between near-field and control sites or compared to baseline conditions (BACI analysis).

Total aluminum exceeded 'low' conditions 2 and 3 at site DC-05 (Table 3.4-11) indicating that concentrations may be increasing in a manner not predicted by the surface water quality model. The exceedance of the WQG-AL in the same months (February and March) that concentrations were greater than predicted also suggests that the increases may be at levels of concern (i.e., a 'high' action level; Table 5.2-2 in the AEMP Plan [ERM 2024b]). The low level trigger at DC-05 is likely as a result of the discharge from the TSF Stage 1 SCP in Q1 2024. However, the characteristics of the discharge at TSF Stage 1 SCP remained within the EMA PE-110652 permitted limits of 6.5 to 9.0 pH criteria (ranging from 7.25 to 7.88 for field pH and 7.66 to 8.17 for laboratory pH), below the 15 mg/L maximum monthly average for total suspended solids for all months (9 mg/L January, 6.9 mg/L February, and 14.35 mg/L for March), and below the 0.001 mg/L maximum for dissolved chromium (the only detectable concentration for dissolved chromium was 0.00093 mg/L). One sample (VA24A6824-001 taken on March 31, 2024) exceeded the 30 mg/L maximum for total suspended solids (31.1 mg/L). On February 18 and March 9, 2024 TSF Stage 1 SCP water samples collected for acute toxicity testing indicated that the discharge from the SCP passed the 96-hour rainbow trout tests and the 48-hour Daphnia magna tests when specimens were subjected to an 100% effluent concentration. Therefore no effects to aquatic life are expected given discharge criteria were met, acute toxicity thresholds were met, and the magnitude of the long-term WQG-AL exceedance was low (range from 1.12 to 8.95). The spatial extent of the effect was limited to DC-05; there were no increases greater than predicted by the surface water quality model observed at further downstream sites and guideline exceedances were not observed in two consecutive months (DC-10 or DC-15).

Table 3.4-11: Comparison of 2022 Monthly Water Quality to Numeric Performance Metric (None)

Parameter	DC-05			DC-10			DC-15			661-05			661-10		
	Condition			Condition			Condition			Condition			Condition		
	1*	2a or 2b†	3‡	1*	2a or 2b†	3‡	1*	2a or 2b†	3‡	1*	2a or 2b†	3‡	1*	2a or 2b†	3‡
Dissolved oxygen (field)	**Yes**	- No	-	**Yes**	- No	-	**Yes**	- No	-	No	- No	-	**Yes**	- No	-
pH	No	- No	-	No	- No	-	No	- No	-	No	- No	**Yes**	No	- No	**Yes**
Total Suspended Solids	No	- No	-	No	- **Yes**	-	No	- No	-	No	- **Yes**	-	No	- No	-
Total Dissolved Solids	No	- **Yes**	**Yes**	No	- No	-	No	- No	-	No	- No	**Yes**	No	- No	**Yes**
Chloride	No	No **Yes**	-	No	No **Yes**	-	No	**Yes** **Yes**	-	No	No No	-	No	**Yes** **Yes**	-
Fluoride	No	No No	-	No	No -	-	No	No No	-	No	**Yes** No	-	No	No No	-
Sulphate	No	No **Yes**	**Yes**	No	No **Yes**	**Yes**	No	No **Yes**	**Yes**	No	No **Yes**	No	No	No **Yes**	No
Total aluminum	**Yes**	**Yes** **Yes**	**Yes**	No	No **Yes**	**Yes**	No	No No	**Yes**	**Yes**	**Yes** **Yes**	**Yes**	No	**Yes** No	**Yes**
Total antimony	No	No **Yes**	-	No	No No	-	No	No No	-	No	No No	-	No	**Yes** No	-
Total arsenic	No	No **Yes**	**Yes**	No	No No	**Yes**	No	No No	**Yes**	No	**Yes** **Yes**	No	No	**Yes** No	No
Total barium	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	No	No	**Yes** No	No
Total beryllium	No	No No	-	No	No No	-	No	No No	-	No	No No	-	No	No No	-
Total boron	No	No No	-	No	No No	-	No	No No	-	No	**Yes** No	-	No	**Yes** No	-
Total cadmium	No	No **Yes**	-	No	No No	-	No	No No	-	No	No **Yes**	-	No	**Yes** No	-
Total chromium	**Yes**	**Yes** **Yes**	-	No	No No	-	No	No No	-	**Yes**	**Yes** **Yes**	-	No	**Yes** No	-
Total copper	No	**Yes** **Yes**	No	No	No No	-	No	No No	-	No	No No	-	No	No No	-
Total iron	**Yes**	**Yes** **Yes**	No	No	No No	-	No	No No	-	No	**Yes** **Yes**	No	No	**Yes** No	No
Total lead	No	No **Yes**	-	No	No **Yes**	-	No	No No	-	No	**Yes** **Yes**	-	No	**Yes** No	-
Total manganese	No	No **Yes**	**Yes**	No	No No	-	No	No No	-	No	No **Yes**	No	No	**Yes** No	No
Total mercury	No	No **Yes**	-	No	No No	-	No	No No	-	No	No **Yes**	-	No	No No	-
Total molybdenum	No	No **Yes**	No	No	No **Yes**	-	No	No **Yes**	-	No	**Yes** No	No	No	**Yes** No	No
Total nickel	No	No **Yes**	-	No	No No	-	No	No No	-	No	**Yes** No	-	No	**Yes** No	-
Total selenium	No	No No	-	No	No No	-	No	No No	-	No	**Yes** **Yes**	No	No	No No	No
Total silver	No	No **Yes**	-	No	No No	-	No	No No	-	No	No No	-	No	No No	-
Total strontium	No	No **Yes**	**Yes**	No	No **Yes**	**Yes**	No	No **Yes**	**Yes**	No	**Yes** No	**Yes**	No	**Yes** No	**Yes**
Total uranium	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**	No	**Yes** **Yes**	**Yes**
Total vanadium	No	No **Yes**	-	No	No No	-	No	No No	-	No	**Yes** **Yes**	No	No	**Yes** No	No
Total zinc	No	**Yes** **Yes**	-	No	No No	-	No	No No	-	No	**Yes** No	-	No	**Yes** No	-
Dissolved Aluminum	No	No No	-	No	No No	-	No	No No	-	No	No **Yes**	No	No	No No	No
Dissolved Cadmium	No	No No	-	No	No No	-	No	No No	-	No	No No	-	No	No No	-

Parameter	DC-05				DC-10				DC-15				661-05				661-10			
	Condition				Condition				Condition				Condition				Condition			
	1*	2a or 2b†		3‡	1*	2a or 2b†		3‡	1*	2a or 2b†		3‡	1*	2a or 2b†		3‡	1*	2a or 2b†		3‡
Dissolved Copper	No	No	No	-	No	No	No	-	No	No	No	-	No	No	No	-	No	**Yes**	No	-
Dissolved Iron	No	No	No	-	No	No	No	-	No	No	No	-	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**
Dissolved Manganese	No	No	No	**Yes**	No	No	No	**Yes**	No	No	No	**Yes**	No	No	No	No	No	No	No	No
Dissolved Zinc	No	No	No	-	No	No	No	-	No	No	No	-	No	No	No	-	No	**Yes**	No	-

Notes:

Dashes indicate the parameter was not predicted or statistical analysis was not completed.

** 'Yes' indicates that the month mean concentration was greater than the guideline for two or more consecutive construction period months (October 1, 2022 to March 31, 2024).*

† 'Yes' indicates that condition 2a or 2b NPM was met (i.e., greater than baseline or predicted concentrations) at any near-field sampling location for two or more consecutive construction period months (October 1, 2022 to March 31, 2024).

‡ 'Yes' indicates changes in concentration are statistically significant between near-field and control sites or compared to baseline conditions.

Total aluminum met ‘low’ conditions 2 and 3 at site 661-05 and 661-10 (Table 3.4-11) therefore exceeding the low level trigger. However the statistically significant increase was related to November 2023 and March 2024 concentrations greater than both the predicted and baseline concentrations in the same month. An exceedance of the total aluminum WQG-AL was observed at site 661-05 in November and December 2023 and March 2024. The exceedance of the WQG-AL in the same months suggests that the increases may be at levels of concern (i.e., a ‘high’ action level; Table 5.2-2 in the AEMP Plan [ERM 2024b]). However, the relatively low magnitude of the exceedances and a similar frequency and magnitude of total aluminum exceedances observed during baseline suggest no effects to aquatic life are expected (Table 3.4-8). There has been no discharge to Creek 661, Plant Site SCP discharge to ground occurred in Q1 2024, and limited road construction activities were completed immediately upstream of Creek 661-05. Groundwater quality observation in Q1 2024 downstream of the Plant Site indicate no Project-related effects. The observed concentrations of dissolved aluminum, chromium, and iron in the groundwater wells downstream of the Plant Site SCP (and upstream of site 661-05) were greater than predicted (see Section 4.3.2). However, it was concluded that the observed aluminum and iron concentrations in the groundwater wells were not Project-related and instead related to foreign material falling into the well. Thus, the significant total aluminum increase in November and December 2023 and WQG-AL exceedances may be related to construction activities. The March 2024 increase in total aluminum and WQG-AL exceedance is likely not associated with the Plant Site SCP discharge to ground; however road construction activities upstream of site 661-05 may have contributed to the change in concentration. The spatial extent of the effect was limited to 661-05; there were no total aluminum guideline exceedances in March 2024 or increases not predicted by the surface water quality model observed at further downstream sites.

Total chromium met ‘low’ condition 2a and 2b at site DC-05 and 661-05 however a BACI analysis was not completed because of the number of values less than the detection limit (Table 3.4-11; Appendix E-2). Graphical analysis does suggest that there is an increase in total chromium in February and March 2024 at DC-05 and DC-10 not observed during baseline monitoring or at control sites (Figure C.25) and therefore likely related to the TSF Stage 1 SCP discharge. The total chromium exceeded the most conservative chromium WQG-AL (i.e., Cr [VI]) in February and March 2024 at DC-05 and in March 2024 at DC-10 (Table 3.4-7). However, chromium speciation analysis completed between July 2021 and September 2022 suggested that the proportion of hexavalent chromium was low at DC-05 and DC-10 and the trivalent chromium WQG-AL may be more appropriate (ERM 2023). February and March 2024 concentrations were well below the trivalent chromium WQG-AL (0.0089 mg/L) suggesting that the increases are not at levels of concern. Graphical analysis of total chromium at site 661-05 suggests that greater monthly mean concentrations are not Project-related with exception of the increase observed in March 2024. The increase may be as a result of the discharge to ground from the Plant Site SCP (see Section 4.3.2) and upstream road construction activities. Although exceedances of the most conservative chromium WQG-AL (i.e., Cr [VI]) in October, December, January, and March have been observed at 661-05, exceedance were also observed at a similar frequency and magnitude when compared to baseline years (Table 3.4-8 and Table 3.4-9). Thus total chromium at site 661-05 are not increasing at levels of concern.

The ‘low’ level conditions 2 and 3 were met for TDS, total arsenic, and total manganese at DC-05 (Table 3.3-11). The condition was triggered as a result of the greater concentrations in February and March 2024 when compared to baseline concentrations as a result of the TSF Stage 1 SCP. However, the spatial extent was limited to DC-05 and the concentrations are below WQG-AL indicating the increases are not at levels of concern.

The ‘low’ level conditions 2 and 3 were met for sulphate, total barium, total strontium, and total uranium at DC-05, DC-10, and DC-15 (Table 3.4-11). Although elevated concentrations in February and March 2024 are likely as a result of the TSF Stage 1 SCP, the significant increases from baseline and/or observed concentrations greater than predicted have occurred in all months (or following the July wildfire) of the

reporting period and construction activities (Figure, 3.4-3, Figure 3.4-11, Figure 3.4-17, and Figure 3.4-19; Appendix E-2). Thus the increasing trend is also likely attributed to environmental factors not related to the construction activities. Sulphate, total barium, strontium and uranium concentrations at all Davidson Creek sites were well below the WQG-AL indicating the increases are not at levels of concern.

The ‘low’ level conditions 2 and 3 were also met for total strontium, total uranium, and dissolved iron at 661-05, and 661-10 (Table 3.4-11). The significant increases of total strontium and total uranium from baseline and/or observed concentrations greater than predicted have occurred in all months of the reporting period and construction activities (Figure 3.4-26 and Figure 3.4-27; Appendix E-2). Dissolved iron concentrations were lower during the construction period when compared to baseline. Thus the significant trends is likely attributed to environmental factors not related to the construction activities. Total strontium and uranium concentrations at all Creek 661 sites were well below the WQG-AL indicating the increases are not at levels of concern.

3.5 Summary and Discussion

Construction activities at the mine site were initiated beginning in late September 2022, which included preparing the Plant Site for construction and permitting and piping for TW-13-01 as a drinking water supply. In March 2023 additional clearing activities were initiated for the construction of the mine site roads, Tailings Storage Facility, water management structures (plant site ditches and sediment pond, installation of rapid infiltration basins), ore stockpile sites, and open pit. The Plant Site RIBs were constructed in 2023 and operational in Q1 2024. Authorized Project discharges to Davidson Creek from the TSF Stage 1 SCP occurred in Q1 2024. The results of the surface water quality sampling that was conducted during the reporting period (April 1, 2023, to March 31, 2024) after construction activities began was assessed in Davidson Creek, Creek 661, and Chedakuz Creek to meet DS Condition 3.15.2. Monitoring indicated changes in Davidson Creek and Creek 661 water quality as a result of construction activities that was limited to near-field sites DC-05, DC-10 in Davidson Creek and 661-05 in Creek 661.

To address the associated DS Condition 2.9, the surface water quality observed during the construction period was compared to the baseline period, model predictions, and WQGs. A BACI analysis was also completed to identify statistically significant changes in water quality between the baseline and the construction period. Water quality parameters with significant class-period interactions indicating a change from baseline conditions were observed at Davidson Creek sites for TDS, sulphate, total phosphorus, total aluminum, total arsenic, total barium, total manganese, total strontium, total uranium, and dissolved manganese. For all other parameters analyzed the observed greater concentrations during the early works construction period was observed at both control and impact sites; therefore, the change was not as a result of Project activities. Graphical analysis suggested that the observed increase in TDS, and sulphate concentrations is likely a result of the July 2023 Davidson Creek fire and not Project-related effects. Similarly, the significant increase in total and dissolved manganese observed at DC-20 (a mid-field site) and not the near-field sites is likely the result of non-Project activities (e.g., forestry or agricultural activities downstream of the Project and upstream of DC-20). The significant increase in total strontium and uranium at Davidson Creek sites may be related to the construction activities however elevated total uranium and total strontium concentrations were also observed at other far-field sites (e.g., 661-20). The significant increase in total phosphorus, aluminum, arsenic, barium, and manganese concentrations at DC-05 in February and March 2024 was likely associated with the authorized discharge from TSF Stage 1 SCP.

Water quality parameters with significant class-period interactions were observed at Creek 661 sites for pH, TDS, total aluminum, total strontium, total uranium, and dissolved iron. For all other parameters analyzed the observed greater concentrations during the construction period was observed at both control and impact sites; therefore, it is not as a result of Project activities. Graphical analysis suggested

that the observed increase in pH, TDS, total phosphorus, and dissolved iron concentrations was not as a result of Project activities. However the significant increase in total chromium at 661-05 during the reporting period may be attributable to the discharge to ground from the Plant Site RIBs or other associated road construction activities. Significant increases in total aluminum at 661-01 was associated with construction activities and exceedances of WQG-AL were similar to Davidson Creek sites. Significantly greater concentrations of total strontium and total uranium were observed during construction activities at Creek 661 sites when compared to baseline.

To address the associated DS Condition 2.5, surface water quality was also assessed against the water quality Response Framework. Based on the results of the comparison to NPM concentrations (WQG-AL, water quality predictions, baseline water quality) for the reporting period and results of the BACI analysis, the action level in the adaptive management framework of the AEMP is “none” at Davidson Creek sites DC-05, DC-10, and DC-15 for evaluated parameters dissolved oxygen, pH, fluoride, total beryllium, total boron, total selenium and dissolved aluminum, cadmium, copper, iron, manganese, and zinc. All other parameters were either at “low” or “medium” (TDS, sulphate, total aluminum, arsenic, barium, chromium, manganese, strontium and uranium, and dissolved manganese) indicating that concentrations are greater than predicted or baseline concentrations but have not increased to a level of concern. Concentrations were generally well below WQG-AL for all parameters with the exception of total aluminum. Total aluminum concentrations observed in February and March 2024 at DC-05 were greater than WQG-AL and significantly greater than predicted and observed concentrations triggering a “high” action level. As defined in the AEMP Plan, Version 2.0 responses to triggering a high action level include:

- Actions implemented as defined in the associate separate trigger response plan applicable to the discharge and receiving environment as defined in the EAC #M19-01 Condition 26;
- Investigate to confirm root cause of changes in water concentrations;
- Implement new mitigation measures or adjust existing mitigation measures to address root cause;
- Implement a water sampling program to define the magnitude, spatial extent, and reversibility of the effect;
- If metal concentrations are meeting the NPMs for high action levels in water, implement a water-dependent wildlife study as described in Section 4.9 and as developed at the medium action level; and
- Implement monitoring to assess effectiveness of mitigation options.

Additional responses may include:

- Evaluate if an ecological risk assessment is required to identify spatial extent, magnitude, and reversibility of the effect;
- Review the water quality guidelines, or approved SBEB and propose a new SBEB, if appropriate; or
- Other responses as defined in the annual AEMP Interpretive Report.

The greater concentration of total aluminum is likely as a result of the TSF Stage 1 SCP discharge to Davidson Creek. No effects to aquatic life are expected given discharge criteria were met, acute toxicity thresholds were met, and the magnitude of the long-term WQG-AL exceedance was low (range from 1.12 to 8.95). Thus, continued monitoring of total aluminum in both TSF Stage 1 SCP discharge and downstream environment is expected confirm if the effect continues to persist through will discharge occurs in 2024 (i.e., it is possible that the observed exceedances were related to the low flow conditions during the winter discharge). Mitigations applicable to the TSF Stage 1 SCP include the use of a flocculant product to reduce sediment loading to the receiving environment. The evaluation of effectiveness of mitigation measures for the remainder of 2024 and if additional responses other than

continued monitoring are required will be documented in the 2024 AEMP Interpretive Report. The TSF Stage 1 SCP will be decommissioned in the fall of 2024, therefore no additional mitigations are required.

Based on the results of the comparison to NPM concentrations (WQG-AL, water quality predictions, baseline water quality) for the reporting period and results of the BACI analysis, the action level in the adaptive management framework of the AEMP is “none” at Creek 661 sites 661-05 and 661-10 for evaluated parameters dissolved oxygen, total beryllium, total copper, total silver, and dissolved cadmium, and manganese. All other evaluated parameters were either at “low” or “medium” (pH, TDS, total chromium, strontium, and uranium, and dissolved iron) level indicating that concentrations are greater than predicted or baseline concentrations but have not increased to a level of concern. An increase in total aluminum that exceeded WQG-AL at site 661-05 was observed in March 2024 and was likely associated with road construction activities upstream of site 661-05. The observed guideline exceedance was of low magnitude (5.81) therefore negligible effects to aquatic life are expected. Continued erosion and sediment control mitigation measures during road construction are expected to address continued potential Project-related effects to Creek 661. Graphical analysis of total chromium at site 661-05 suggests that increase observed in March 2024 may be related discharge to ground from the Plant Site SCP (see Section 4.3.2; dissolved chromium concentrations in groundwater wells downstream of the Plant Site were greater than predicted) and upstream road construction activities. Exceedances of the most conservative chromium WQG-AL (i.e., Cr [VI]) were observed at 661-05, at a similar frequency and magnitude when compared to baseline years therefore no adverse effects to aquatic life are expected. Monitoring of the RIBs during discharge to ground and at the groundwater wells immediately downstream will confirm if the effect has persisted through freshet conditions. The Plant Site SCP will be decommissioned in the fall of 2024 thus long-term effects related to the discharge to ground are not anticipated.

No additional sampling or analyses other than that described in the AEMP Plan, Version 2.0 (ERM 2024b) is recommended.

4.0 Monitoring Groundwater Quality and Quantity

4.1 Decision Statement Condition Requirements

The DS Condition 3.15.3 requires the monitoring of groundwater quality and quantity downstream of Tailings Storage Facility D (TSF D), Open Pit, west waste rock dump, and Low Grade Ore (LGO) Stockpile. Monitoring results should be compared to "*values identified by the Proponent in the modelled predictions in Section 5 of Blackwater Gold Project: Additional Water Quality Model Sensitivity Scenario (July 20, 2017) and Section 3 of Blackwater Gold Project: Water Treatment Responses for Comments 1266, 1270, 1271, 1272, and 1273 (February 15, 2017) for nitrite and contaminants of potential concern, and to verify the effectiveness of water management measures*".

Note that the west waste rock dump is no longer a mine facility in the optimized mine plan and has been replaced by the Upper and Lower Waste Stockpiles.

4.2 Field Methods

4.2.1 Overview

Groundwater quality and quantity monitoring is described in Section 7.3.4 of the MSDP and more recently in Section 4 of the Groundwater Monitoring Program (GMP; KP, 2024a). The groundwater monitoring and sampling program includes water level monitoring and water quality sampling at monitoring wells, as well as water level monitoring at standpipe piezometers and vibrating wire piezometers (VWPs). Installation details for water quality and water level monitoring locations included in the groundwater monitoring program are summarized in Tables 4.2-1 and 4.2-2, including existing and proposed locations. Groundwater monitoring locations are shown on Figures 4.2-1 to 4.2-4. Instrumentation included in the monitoring network have been selected based on location relative to proposed mine infrastructure, including positions upgradient and downgradient of proposed mine facilities and depths within shallow and deep groundwater flow systems.

Sections 4.2.2 and 4.2.3 provide a summary of the groundwater monitoring program, additional detail is provided in the MSDP.

4.2.2 Groundwater Quantity Monitoring

Water level conditions are monitored using monitoring wells, standpipe piezometers, and VWPs. Continuous monitoring of groundwater levels at the site is completed using pressure transducers installed in monitoring wells and standpipe piezometers. Manual water level measurements are collected at monitoring wells during groundwater sampling site trips to verify groundwater levels measured by pressure transducers. The pressure transducers are downloaded when the monitoring wells are sampled. Manual water level measurements are taken at every site visit and compared to pressure transducer readings on-site to ensure equipment is functioning correctly. A barometric pressure transducer is installed in a standpipe piezometer located near the TSF basin. The barometric data are used to compensate the groundwater elevation time-series data for fluctuations in barometric pressure.

Monitoring of groundwater levels is also completed using VWPs. VWPs were installed in drillholes by attaching the sensors to a PVC or steel pipe that was used as a tremie to backfill the drillhole with grout to ground surface. VWPs installed at each site are connected to a datalogger to continuously record water level data.

Table 4.2-1: Groundwater Quality Monitoring Locations and Sampling Frequency

Drillhole ID	Location Monitored	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	Sampling Frequency	Geologic Unit	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)			
Monitoring Wells Located Between TSF C and the IECD										
GT20-04	TSF C	Existing	376,215	5,898,081	1,214	22.2	27.9	Quarterly	Glacial Till (Undifferentiated)	
GT21-03S		Existing	376,287	5,897,943	1,212	16.6	19.8	Quarterly	Glaciofluvial	
MW22-02D		Existing	376,429	5,897,628	1,244	42.5	45.4	Quarterly	Glaciofluvial	Sentinel well
MW22-02S			376,432	5,897,619	1,244	14.1	15.5	Quarterly	Glaciofluvial	Sentinel well Monitoring well is dry, collect sample if water is found.
MW22-03D		Existing	376,067	5,897,828	1,229	31.4	34.4	Quarterly	Glaciofluvial	Sentinel well
MW22-03S			376,059	5,897,829	1,229	10.6	12.1	Quarterly	Glaciofluvial	Sentinel well
MW23-05D		Existing	375,972	5,898,012	1,232	32.3	35.4	Quarterly	Glaciofluvial	Sentinel well
MW23-05S			375,972	5,898,012	1,232	5.9	9	Quarterly	Glacial Till	Sentinel well
Monitoring Wells Located Between TSF D and the ECD / Seepage Collection Trenches										
MW12-07D	TSF D	Existing	376,395	5,899,440	1,221	35.4	38.6	Quarterly	Glaciofluvial	
MW12-07S			376,399	5,899,440	1,221	19.8	22.9	Quarterly	Glaciofluvial	
MW-F		Proposed Approximately Year 5	-	-	-	-	-	Quarterly	Well screens to be installed in horizons that could be potential seepage pathways (i.e., glacial till, glaciofluvial, and/or weathered bedrock).	Paired deep and shallow monitoring wells located downgradient of TSF D.
MW-G			-	-	-	-	-	Quarterly		Sentinel wells (except MW-J).
MW-H			-	-	-	-	-	Quarterly		
MW-I			-	-	-	-	-	Quarterly		
MW-J			-	-	-	-	-	Quarterly		
MW-L			-	-	-	-	-	Quarterly		
Monitoring Wells Located at the FWR and Downgradient										
MW12-08D	TSF and ECD	Existing	377,889	5,899,192	1,170	32.6	35.6	Quarterly	Glacial Till	
MW12-08S			377,899	5,899,198	1,170	16.2	19.3	Quarterly	Glaciofluvial Channel	
MW12-09D		Existing	378,334	5,899,688	1,155	30.5	33.6	Quarterly	Glacial Till	

Drillhole ID	Location Monitored	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	Sampling Frequency	Geologic Unit	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)			
Monitoring Wells Located at the Saddle Dam and Spillway										
MW12-12D	TSF	Existing	378,486	5,896,260	1,244	31.2	34.2	Quarterly	Glacial Till	
MW12-12S			378,493	5,896,256	1,244	11.2	14.2	Quarterly	Glaciofluvial Channel	
MW-K		Proposed Approximately Year 5	-	-	-	-	-	Quarterly	Well screens to be installed in horizons that could be potential seepage pathways (i.e., glacial till, glaciofluvial, and/or weathered bedrock).	Paired deep and shallow monitoring wells located downgradient of TSF C.
MW-O		Proposed	-	-	-	-	-	Quarterly		Paired deep and shallow monitoring wells located downgradient of TSF Spillway.
MW-N		Approximately Year 10	-	-	-	-	-	Quarterly		Paired deep and shallow monitoring wells located downgradient of Saddle Dam.
Monitoring Wells Downgradient of Stockpiles Area										
MW12-02S	LGO	Existing	374,704	5,894,670	1,407	8.2	9.8	Quarterly	Glacial (Lodgement) Till	Well plug is installed during winter months.
										Replaced with proposed monitoring well MW-C.
MW23-03D		Existing	374,841	5,894,551	1,430	32.1	35.1	Quarterly	Highly Weathered Bedrock	
MW23-03S			374,848	5,894,547	1,430	5.5	8.5	Quarterly	Glaciofluvial	Limited water column in well.
MW23-04D	LWS	Existing	374,754	5,894,905	1,395	32.5	35.6	Quarterly	Highly Weathered Bedrock	
MW23-04S			374,749	5,894,900	1,395	14.2	17.3	Quarterly	Glacial Till	

Drillhole ID	Location Monitored	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	Sampling Frequency	Geologic Unit	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)			
MW-C	LGO	Proposed Year -1	-	-	-	-	-	Quarterly	Well screens to be installed in horizons that could be potential seepage pathways (i.e., glacial till, glaciofluvial, and/or weathered bedrock).	Paired deep and shallow monitoring wells located downgradient of stockpiles, along Mine Area Creek. Proposed monitoring well is a replacement for MW12-02S.
MW-R		Proposed Year 1 or 2	-	-	-	-	-	Quarterly		Paired deep and shallow monitoring wells located downgradient of LGO. Proposed monitoring well installed after construction of the LGO Collection Pond.
Monitoring Wells Downgradient of Deposit Area										
MW12-03D	Open Pit	Existing	376,013	5,893,860	1,465	33.5	36.6	Quarterly	Glacial (Lodgement) Till	
Monitoring Wells Downgradient of Plant Site Area										
MW23-01	Plant Site	Existing	376,270	5,894,090	1,468	50.1	53.1	Quarterly	Glacial Till	
MW23-02D	Plant Site RIBs	Existing	376,556	5,894,566	1,443	30.2	33.3	Quarterly	Glacial Till	Monitoring well is dry, collect sample if water is found.
MW23-02S			376,564	5,894,575	1,443	7.9	9.4	Quarterly	Glacial Till	
Background Monitoring Wells										
MW12-01D	-	Existing	374,655	5,899,360	1,302	36.6	39.6	Quarterly	Moderately Weathered Bedrock	
MW12-05D	-	Existing	371,310	5,896,210	1,373	23.2	26.2	Annual	Moderately Weathered Andesite	
MW12-05S			371,309	5,896,210	1,373	7.6	10.7	Annual	Glacial (Lodgement) Till	
MW12-13S	-	Existing	370,809	5,893,841	1,353	10	13.1	Annual	Glaciofluvial Channel	

Drillhole ID	Location Monitored	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	Sampling Frequency	Geologic Unit	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)			
MW-A	-	Proposed Year 1 or 2	-	-	-	-	-	Quarterly	Shallowest and deeper water bearing zone.	Paired deep and shallow monitoring wells located upstream of TSF. Proposed background monitoring well installed during early Operations

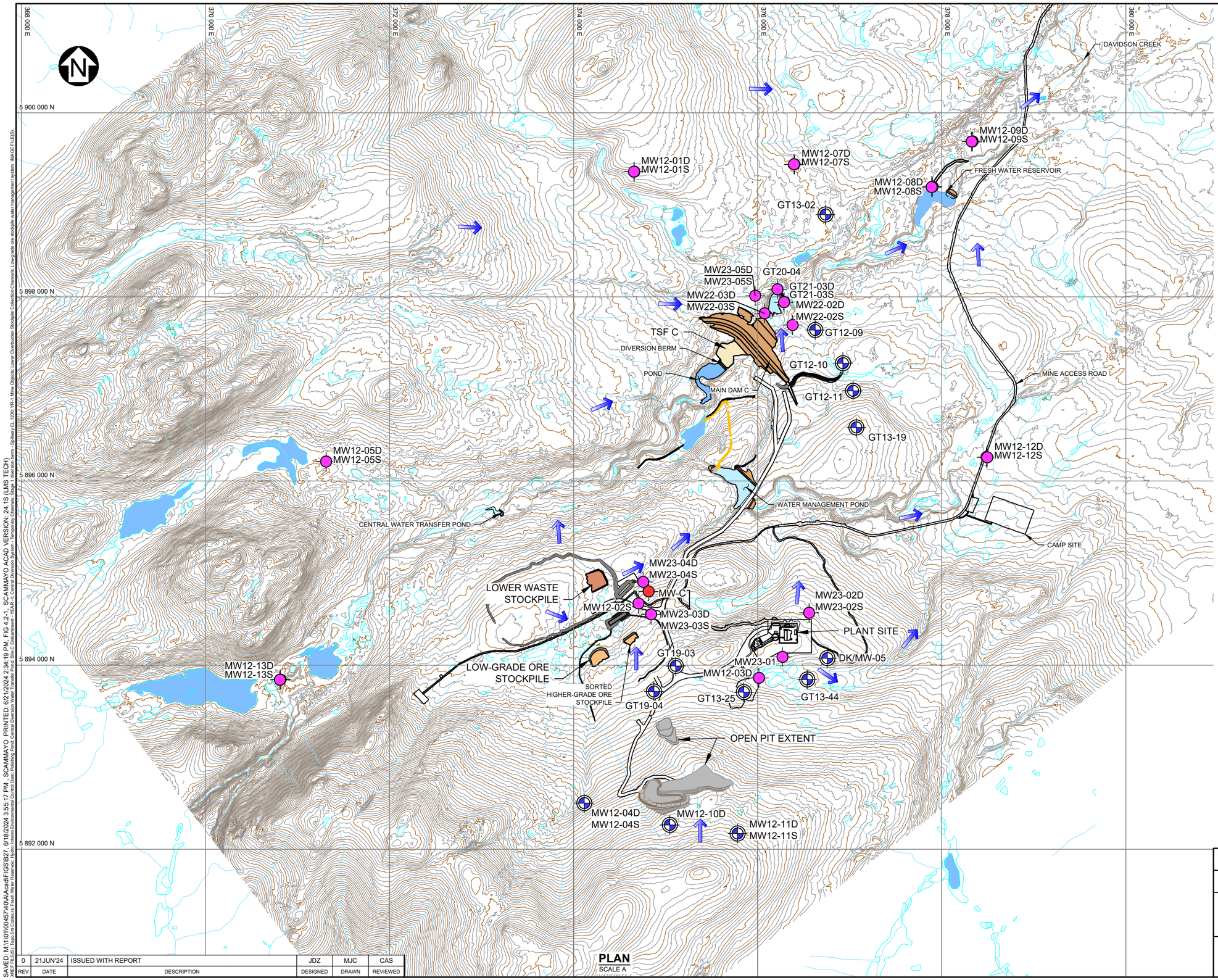
Notes:
Coordinates are UTM NAD 83.
All installations are in vertical drillholes
Sentinel Well = Monitoring well is located upgradient of seepage collection measures for the facility and provides an early warning for impacted groundwater.
A paired shallow and deep installation are planned at all proposed monitoring well locations.
masl is meters above sea level; mbgs is meters below ground surface.
TSF = Tailings Storage Facility; ECD = Environmental Control Dam; FWR = Fresh Water Reservoir; LWR = Lower Waste Stockpile; WMP = Water Management Pond; RIBs = Rapid Infiltration Basins; SCP = Sediment Control Pond.

Table 4.2-2: Groundwater Quantity (Flow) Monitoring Locations

Drillhole ID	Installation Type	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	VWP Sensor Depth	Download Frequency	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)	(m)		
Water Level Monitoring Locations in the TSF Area										
MW12-09S	SP	Existing	378,324	5,899,687	1,155	10.4	15.9	-	Quarterly	Evaluate for inclusion as a water quality sampling location.
GT21-03D	SP	Existing	376,286	5,897,943	1,212	45.1	50.6	-	Quarterly	
GT12-01	SP	Existing	376,021	5,898,690	1,245	68.6	71.6	-	Quarterly	
	VWP					-	-	23.6		
GT12-02	VWP	Existing	376,420	5,898,110	1,218	-	-	95	Quarterly	
								36		
								13		
GT13-02	VWP	Existing	376,737	5,898,895	1,223	-	-	86.6	Quarterly	
								60		
								36		
GT12-09	SP	Existing	376,624	5,897,640	1,239	106.7	109.7	-	Quarterly	
GT12-10	SP	Existing	376,926	5,897,280	1,258	28.3	31.4	-	Quarterly	
GT12-11	SP	Existing	377,036	5,896,980	1,282	11.6	14.6	-	Quarterly	
GT13-19	SP	Existing	377,072	5,896,582	1,332	7	10.1	-	Quarterly	
GT13-20	SP	Existing	377,111	5,897,022	1,275	32.5	35.1	-	Quarterly	
GT13-21	SP	Existing	377,080	5,897,297	1,259	69.2	72.1	-	Quarterly	

Drillhole ID	Installation Type	Status of Monitoring Well	Coordinates			Top of Screen	Bottom of Screen	VWP Sensor Depth	Download Frequency	Notes
			Easting	Northing	Collar Elevation					
			(m)	(m)	(masl)	(mbgs)	(mbgs)	(m)		
Water Level Monitoring Locations in the Open Pit Area										
MW12-04D	SP	Existing	374,110	5,892,500	1,558	31.8	38	-	Bi-Annual	
MW12-04S	SP	Existing	374,116	5,892,500	1,558	9	14.8	-	Bi-Annual	Well plug is installed during winter months.
MW12-10D	SP	Existing	375,045	5,892,263	1,665	33.2	42.1	-	Quarterly	
MW12-11D	SP	Existing	375,773	5,892,168	1,676	36.3	46.6	-	Quarterly	
MW12-11S	SP	Existing	375,782	5,892,171	1,676	14	19.8	-	Quarterly	
GT19-04	VWP	Existing	374,872	5,893,713	1,479	-	-	15.8	Quarterly	
								4		
GT13-25	SP	Existing	375,849	5,893,706	1,482	25.3	28.4	-	Quarterly	
GT13-44	SP	Existing	376,538	5,893,844	1,456	61.4	64.4	-	Bi-annual	Evaluate for inclusion as a water quality sampling location.
GT19-03	SP	Existing	375,109	5,893,991	1,474	16.3	19.4	-	Quarterly	
DK/MW-05	SP	Existing	376,757	5,894,076	1,461	35.3	38.4	-	Quarterly	
GT-A	-	Proposed Year 1	-	-	-	-	-	-	-	Drillhole proposed with nested VWP sensors.
Background Water Level Monitoring Locations										
MW12-01S	SP	Existing	374,658	5,899,360	1,302	7.6	13.6	-	Quarterly	
MW12-13D	SP	Existing	370,815	5,893,844	1,353	34.9	39	-	Quarterly	

SP = standpipe piezometer; VWP = vibrating wire piezometer.
Coordinates are UTM NAD 83.
All installations are in vertical drillholes.
masl is meters above sea level; mbgs is meters below ground surface.



REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
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BLACKWATER GOLD PROJECT

GROUNDWATER MONITORING LOCATIONS (END OF YEAR -1)

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF NO. VA24-01118

FIGURE 4.2-1

REV 0

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REF FILES: Topo\Sm Contours Fresh Water Flow.dwt, Infrastructure\Environmental Control Dam, Pumping Pond, Central Diversion Water Transfer Pond, Dam Embankment - TSF\A1 - Central Diversion System - Transverse Channels, Stage 1 Diversion Channel - Sta 0+000 to Sta 0+500.dwg

368 000 E
370 000 E
372 000 E
374 000 E
376 000 E
378 000 E
380 000 E
5 900 000 N
5 898 000 N
5 896 000 N
5 894 000 N
5 892 000 N

DAVIDSON CREEK
NORTH INTERCEPTION TRENCH
MW12-09D
MW12-09S
MW12-01D*
MW12-01S*
MW12-07D*
MW12-07S*
MW-L
FRESH WATER RESERVOIR
MW12-08D
MW12-08S
GT13-02
MW-F
TSF D
MW-G
SOUTH INTERCEPTION TRENCH
MW-H
PAG WASTE ROCK
MW-I
TSF C
MAIN DAM C CREST
POND
MINE ACCESS ROAD
MW-A
MW-J
MW12-05D
MW12-05S
MW12-12D
MW12-12S
MW-K
WATER MANAGEMENT POND
CAMP SITE
LOWER WASTE STOCKPILE
MW23-04D
MW23-04S
MW-C
MW23-02D
MW23-02S
MW-R
MW23-03D
MW23-03S
PLANT SITE
SORTED HIGHER-GRADE ORE STOCKPILE
GT19-03
DK/MW-05
MW23-01
MW12-13D
MW12-13S
MW12-03D
GT13-44
GT19-04
GT13-25
OPEN PIT EXTENT
LOW-GRADE ORE STOCKPILE
MW12-04D
MW12-04S
MW12-10D
MW12-11D
MW12-11S
GT-A

LEGEND:

- TAILINGS BEACH
- MINE WATER
- FRESH WATER
- EMBANKMENT FILL
- PAG WASTE ROCK
- WASTE DUMP
- LOW-GRADE ORE STOCKPILE
- EXISTING MONITORING WELLS
- PROPOSED MONITORING WELLS
- EXISTING WATER LEVEL SITE
- PROPOSED WATER LEVEL SITE
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10U.
2. NATURAL GROUND CONTOUR INTERVAL IS 5 METRES AND STOCKPILE CONTOUR INTERVAL IS 10 METRES.
3. ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
4. * INDICATES MONITORING SITE IS TO REMAIN FOR AS LONG AS POSSIBLE BUT IS LOCATED ADJACENT TO PROPOSED CONSTRUCTION AND MAY NEED TO BE DECOMMISSIONED IF CONSTRUCTION FOOTPRINT OVERLAPS WITH THE SITE.

400 200 0 400 800 1200 1600 2000 m
SCALE A

PLAN
SCALE A

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BLACKWATER GOLD PROJECT

GROUNDWATER MONITORING LOCATIONS (END OF YEAR 8)

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P/A NO.	REF NO.
VA101-457/40	VA24-01118

FIGURE 4.2-2 REV 0

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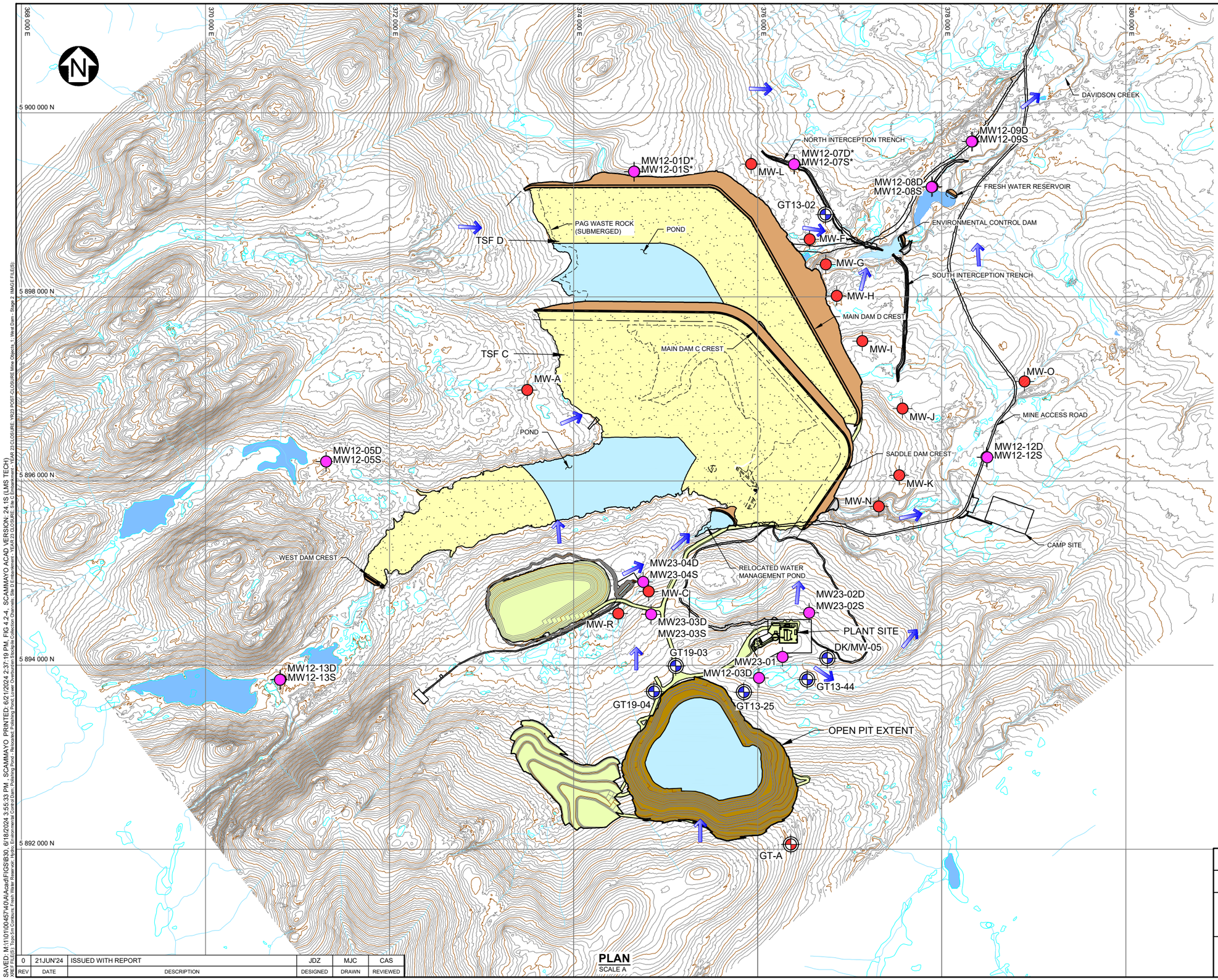
REFERENCES: Topo Info Contours: Fresh Water Flow Net: Yellow Polyline Drawing Focus: Central Diversion Water Transfer Pipe; Central Diversion System - Trenches; Channels Stage 1 diversion.dwg - Stage 1 EL 1320; Low Overburden Stockpile Stage 1.dwg

SAVED: M:\101\00457\40\A\cad\FIGS\B29, 6/18/2024 3:55:27 PM, SCANMAYO PRINTED: 6/21/2024 2:36:31 PM, FIG 4.2-3, SCANMAYO ACAD VERSION: 24.1S (LMS TECH)
REF FILES: Topo\Im Contours, Fresh Water Areas.dwg, Infrastructure\Site Layout\Site C Embankment - TSMF.dwg, Infrastructure\Site Layout\Site C Embankment and PAG



LEGEND:

- TAILINGS BEACH
- MINE WATER
- FRESH WATER
- EMBANKMENT FILL
- RECLAIMED WASTE STOCKPILE
- EXISTING MONITORING WELLS
- PROPOSED MONITORING WELLS
- EXISTING WATER LEVEL SITE
- PROPOSED WATER LEVEL SITE
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10U.
2. NATURAL GROUND CONTOUR INTERVAL IS 5 METRES AND STOCKPILE CONTOUR INTERVAL IS 10 METRES.
3. ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
4. * INDICATES MONITORING SITE IS TO REMAIN FOR AS LONG AS POSSIBLE BUT IS LOCATED ADJACENT TO PROPOSED CONSTRUCTION AND MAY NEED TO BE DECOMMISSIONED IF CONSTRUCTION FOOTPRINT OVERLAPS WITH THE SITE.

400 200 0 400 800 1200 1600 2000 m
SCALE A

PLAN
SCALE A

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	21JUN'24	ISSUED WITH REPORT	JDZ	MJC	CAS

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GROUNDWATER MONITORING LOCATIONS CLOSURE

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P/A NO.	REF NO.
VA101-457/40	VA24-01118

FIGURE 4.2-4 REV 0

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XREFS: I:\Topo\In Contours, Fresh Water Waterbodies, Hydro Environmental Control Dam, Flushing Pond, Relocated Flushing Pond, Lower Overburden Stockpile Collection Channels, Site Infrastructure, TSF\23 CLOSURE\Mine Objects, Tailings Beach, Tailings Dam, Flushing Pond, Relocated Flushing Pond, Lower Overburden Stockpile Collection Channels, Site Infrastructure, TSF\23 CLOSURE\

A range of depths is monitored to capture potential water level changes in shallow and deeper groundwater flow systems as indicated in Table 4.2-2.

4.2.3 Groundwater Quality Monitoring

Groundwater quality samples were collected using methods that are in accordance with the well purging and sampling procedures from the following documents:

- British Columbia Field Sampling Manual. Part E Groundwater (Draft). Edition. Province of British Columbia. 2021; and
- Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. 1996. United States Environmental Protection Agency. Puls, R.W., and M.J. Barcelona. EPA/540/S-95/504 (EPA 1996).

Groundwater samples were submitted to ALS Canada Ltd.'s laboratory, ALS Environmental, in Burnaby, British Columbia. ALS is a Canadian Association for Laboratory Accreditation certified laboratory for analysis with rigorous internal QA/QC procedures. Samples were submitted to ALS for the following analyses:

- Physical Tests – pH, specific conductivity, total dissolved solids (TDS), total suspended solids (TSS), hardness, acidity, alkalinity (bicarbonate, carbonate, and hydroxide), and turbidity.
- Anions – Bromide, chloride, fluoride, and sulphate.
- Nutrients – Ammonia, nitrate, nitrite, total and dissolved phosphorus, dissolved orthophosphate, total Kjeldahl Nitrogen (TKN), and total and dissolved organic nitrogen.
- Cyanide – Total cyanide, free cyanide, weak acid dissociable (WAD) cyanide, cyanate, and thiocyanate.
- Total and Dissolved Metals – Analyzed at low level detection limits with mercury.
- Organics – Total organic carbon (TOC) and dissolved organic carbon (DOC).

The water quality parameters were analyzed using standard methodologies, as recommended in BC Ministry of Environment (BC MOE; 2016). Targeted detection limits (DLs) for parameters were at least 10 times lower than water quality standards, where available, consistent with recommendations in BC MOE (2016).

In addition to monitoring groundwater at wells, groundwater discharging to surface will be monitored as part of seep surveys conducted downgradient of specific mine facilities, as described in Section 7.3.4.3 of the MSDP. Seep surveys will be completed to identify and characterize groundwater discharging to ground surface, with seep mapping and sampling for water quality where flows are sufficient.

4.3 Data Analysis

4.3.1 Annual Monitoring

Monitoring (sampling) for groundwater quality will be conducted quarterly at the majority of the groundwater quality locations, with monitoring at a few background sites conducted annually (Table 4.2-1). Monitoring for groundwater quantity (flow) will consist of continuously monitoring water levels at each location (Table 4.2-2) using pressure transducers and VWPs, with data downloads and manual water level measurements in standpipe piezometers and monitoring wells conducted quarterly. The groundwater quality and quantity monitoring locations are shown on Figures 4.2-1 to 4.2-4.

Monitoring well locations were selected for groundwater quality monitoring based on the following criteria:

- They are screened within potential groundwater flow pathways;
- They are reasonably spaced around the down-gradient area; and
- The screen depths are reasonably distributed to capture impacts to both the shallow and deeper groundwater systems.

The MSDP groundwater monitoring program includes monitoring background conditions. Monitoring background conditions is an important component of impact assessment and effective quality assurance. Six monitoring wells at four locations (MW12-05S/D, MW-A, MW12-01D/S, and MW12-13S) are proposed for monitoring background conditions during Construction and Operations. Background data will be used to distinguish between impacts due to Project activities and variation due to natural conditions such as climate change. As baseline data are still being collected, summary statistics for baseline groundwater quality are not yet available and will be added to a subsequent version of this follow-up plan, once available.

Groundwater quality results will be reviewed in a timely manner and evaluated with quality assurance/ quality control procedures such as the anion-cation balance and by comparing original and duplicate sample concentrations and dissolved and total metals concentrations. Analyses of potential impacts to groundwater quality will be conducted by comparing data against the background baseline dataset. Interpretations for potential impacts on groundwater quality will be made in conjunction with surface water studies.

Groundwater flow analyses will consider impacts on groundwater levels as well as changes to groundwater flow paths. Groundwater levels during construction and operations will be compared against reference groundwater levels established prior to breaking ground to assess the potential for impacts on surface water or changes in groundwater flow pathways. Groundwater levels are expected to decrease surrounding the Open Pit; analyses will include comparison against predicted water level drawdowns. Groundwater levels downstream of the TSF could increase associated with potential seepage from the facility; water levels downstream of the TSF will be compared against background water levels. Interpretations for potential impacts will be made in conjunction with any surface water studies.

For the Open Pit, the measured volumes of mine water pumped from the dewatering wells will be compared to the predicted values, and the models will be updated if required, to reflect these differences and improve understanding of the groundwater regime. The predicted propagation of the zone of water level depression surrounding the open pit as it is advanced will be compared against measured groundwater levels at monitoring sites.

Seepage collected by the TSF C and TSF D embankment drains and inflows to the Interim Environmental Control Dam (IECD) and ECD will be monitored and compared to predicted values. Monitoring wells located down-gradient of TSF C and TSF D will be used to monitor for potential unrecoverable seepage by monitoring water levels and water quality. Buried glaciofluvial sand and gravel channels and the weathered bedrock horizons are potential preferential groundwater flow pathways that may convey seepage down-gradient of the TSF. An increase in groundwater level downgradient of the TSF in these deeper subsurface horizons could indicate a hydraulic connection and potential for subsurface seepage flow.

Water quality of seepage collected by TSF C and TSF D embankment drains and inflows to the IECD and ECD will be monitored and compared to predicted values. Seepage from the TSF will report rapidly to the embankment drains and its quality can be assessed to predict the quality of potentially unrecoverable foundation seepage that would have a much longer travel time. Monitoring wells down-gradient of Main Dam C, Main Dam D, TSF C Saddle Dam, IECD, and the ECD will be used to monitor for indications of unrecoverable seepage.

Monitoring wells will be located down-gradient of the LGO stockpile and Upper and Lower Waste Stockpiles to provide early warning of possible seepage quantity or quality concerns. One existing monitoring well (MW12-02S) and four new monitoring sites (MW-B and MW-C) will monitor groundwater quality downgradient of all stockpiles. Proposed monitoring well MW-R will monitor groundwater down-gradient of the LGO stockpile and associated collection pond and proposed monitoring well MW-S will monitor groundwater down-gradient of the Lower Waste Stockpile.

Monitoring wells will be located down-gradient of the Plant Site to provide early warning of possible seepage quantity or quality concerns. One new monitoring site (MW-E) is proposed to monitor groundwater quality downgradient (south) of the Plant Site.

Monitoring of water levels and water quality at groundwater discharge points will assist in characterizing the potential for impacts to surface water from groundwater. Groundwater discharge quality monitoring will consist of a seep mapping and sampling program. Seep surveys are aimed at enhancing the understanding of groundwater flow in the project area and specifically down-gradient of the TSF, stockpiles, and Pit Lake, and to identify potential pathways for seepage from these facilities. Seep monitoring will include descriptions of seeps and waterbodies encountered during mapping, their frequency and location, elevation, and water quality. Where sufficient flow exists, water quality samples of the seep will be collected following the same QA/QC procedures established for surface water sampling.

Seep surveys will be conducted during construction and operations. Results of each seep survey will be compared against results of earlier surveys to assess potential groundwater flow pathways from the mine to the receiving environment and the potential for impacts to surface water from groundwater.

4.3.1.1 Groundwater Quantity Results

Time series plots of the continuous water level data record along with manual water level measurements at monitoring locations are provided in Appendix F1 through F3. Water levels on the time series plots demonstrate that the overall groundwater level response at monitoring sites installed across the Mine area to the 2023 freshet was limited and seasonal fluctuations in water level was less than 1 m at all sites. As a result, groundwater levels prior to 2024 freshet were approaching the lowest levels on record.

Water level statistics compiled in Appendix F4 present a summary of water level conditions prior to disturbance and conditions recorded following commencement of construction activities in each mine area. The range of water levels recorded following commencement of construction activities is within the range of background conditions for all sites. Groundwater level conditions are described below in each mine area.

TSF Area

Depths to groundwater during the 2023 reporting period at monitoring sites installed in the TSF area ranged between ground surface and 36 mbgs (monitoring well MW22-02D) at the monitoring wells. Artesian conditions are present year-round in Davidson Creek catchment at monitoring wells MW12-05D/S located in a headwater valley upstream of the TSF C basin. Seasonal water level fluctuations were less than 1 m at many of the sites across the TSF basin, which suggests little variation in seasonal rates of recharge. Water level fluctuations have historically ranged from about 1 to 6 m at sites adjacent to Davidson Creek, with the highest fluctuations observed at monitoring well MW12-09S. Highest groundwater levels typically occur in June following freshet. The water level fluctuations of less than 1 m water during the 2023 reporting period indicate that freshet of 2023 was drier or generated less recharge to the groundwater regime than typically observed.

Water levels measured during the 2023 reporting period suggest an upward vertical hydraulic gradient is present at monitoring wells located in the upper Davidson Creek catchment (MW12-05D/S and MW12-13D/S). Downward hydraulic gradients and/or perched water levels exist in the overburden

sequences due to the presence of lower permeability glaciolacustrine and glacial till deposits overlying more permeable pockets of glacial till and glaciofluvial deposits, such as at monitoring well pairs MW22-03D/S.

Groundwater levels and seasonal fluctuations at monitoring locations in the TSF area in the groundwater monitoring program display trends consistent with baseline behaviour and do not show influence related to Mine construction activities.

Stockpiles Area

Groundwater levels measured during the 2023 reporting period at monitoring sites installed in the stockpiles area indicate the water table is shallow. Groundwater levels measured at shallow monitoring sites are within 1 to 2 meters of ground surface at MW12-02S and GT19-04 and within 3 to 4 meters at MW23-03S and MW23-04S. Groundwater levels at deeper monitoring wells installed in the underlying highly weathered bedrock are about 15 mbgs (MW23-03D and MW23-04D). Downward vertical hydraulic gradients were observed at all monitoring sites with paired installations (MW12-02D/S, MW23-03D/S, and MW23-04D/S).

Groundwater levels measured at monitoring wells MW12-02D/S and MW23-04D/S suggest influence from the supply well installed near kilometer marker 15 (Well 3) along the mine access road. The well is used intermittently as the camp water supply and dust suppression. Water levels at the each of the monitoring wells appear to respond to periodic use of the supply well throughout the year (Figure F1.2 and Figure F1.20 in Appendix F1). The greatest water level response was recorded at MW12-02D, which exhibited up to 3 m of drawdown from background conditions.

Plant Site, RIBs, and Operations Campsite Area

The Plant Site and RIBs are located along a topographic high at the headwaters of the Creek 661 catchment. Groundwater levels measured at monitoring sites located south of the Plant Site during the 2023 reporting period were approximately 25 mbgs in the upgradient area nearer the deposit (monitoring well MW12-03D) and increase in depth to 43 mbgs downgradient at monitoring well MW23-01. Seasonal water level fluctuations south in the Plant Site at sites with an available record were less than 1 m (MW12-03D and GT13-44). Downslope, at the base of Mt. Davidson where topography becomes flatter near the proposed operations camp, measured water levels are within a few meters of ground surface (monitoring wells MW12-12D/S).

Perched water levels exist in the overburden due to the presence of low-permeability geologic units, such as glaciolacustrine units and glacial till deposits, overlying coarser and more permeable pockets of glacial till and glaciofluvial deposits. This is evidenced at monitoring well pair MW23-02D/S located downstream of the RIBs, where the water level in the shallow well was 4 to 5.4 mbgs and the deep well (screened from 30.2 to 33.2 mbgs) was dry during the period of record.

The recorded water level history at monitoring well MW23-02S shows a steady decline of approximately 3 m from September 2023 through January 2024, followed by a steady increase of 0.7 m during February 2024. Water levels recorded at the monitoring well may either by influenced by or the use of the surrounding area as a snow dump during the winter months of 2023. Additional monitoring data will help characterize the water level behaviour.

Deposit Area

The deposit area is located at the headwaters of Davidson Creek and Creek 661 catchments. Water levels during the 2023 reporting period in the deposit area ranged from slightly artesian (MW12-04S and GT19-04) to 11 mbgs (MW12-10D and MW12-11D). Available water levels in the upslope deposit area indicate that the vertical hydraulic gradient and vertical direction of groundwater flow is typically downward and the area is a groundwater recharge zone (MW12-04D/S, MW12-10D/S, and

MW12-11D/S). At the downslope area of the deposit, water levels are seasonally artesian (MW12-04S and GT19 04) and a wetland is present at the start of the small tributary at the north end of the deposit.

Groundwater monitoring sites in the deposit area are located outside of the area of 2023 construction activities and the water levels and seasonal fluctuations are consistent with baseline conditions.

Seep Survey

The 2023 seep survey was focused in areas downgradient of the deposit and proposed TSF and along the Mine Area Creek drainage contributing to the WMP. All seeps observed and recorded are considered representative of seep conditions present during the baseline period. A summary of the 2023 seep survey locations and characteristics are provided in Appendix F5 (adapted from Appendix B of the 2023 Annual Report – Hydrogeology; KP, 2024b).

Seeps were observed during the 2023 survey in higher elevation areas along the north end of the ultimate TSF C footprint. These seeps were generally located in mapped kame deposits and were near a historic water level monitoring site located beneath the Main Dam C embankment that reported artesian water level conditions (VWP site GT20-06). Ground conditions in this area were generally moist in the vicinity of the VWP installation and several seeps were observed up to 150 m upslope.

Wet ground conditions along the downslope extent of the LGO footprint were noted during the 2023 survey, with water present in roadside ditches and drill sumps, suggesting the water table is near ground surface. Wetlands present along the Mine Area Creek drainage are anticipated to be at least partially the result of groundwater discharge along the base of the hillslopes.

The groundwater table is expected to be near surface at the south extent of the deposit where a small tributary of Creek 661 is present. Ground conditions on the periphery of the proposed Open Pit were generally observed as wet with some minor seeps, ponding water, and wetlands identified.

4.3.1.2 Groundwater Quality Results

Groundwater sampling was conducted at 26 monitoring wells during the construction period. Samples were not collected from two additional monitoring wells that are monitored but were dry (MW22-02S and MW23-02D). Groundwater samples collected at the Mine in during the construction period are summarized in Table 4.3-1.

The results of all groundwater quality data collected since 2016 are illustrated in time series plots displaying temporal variation in parameter concentrations in Appendix G.

Groundwater quality during the construction period is characterized based on samples collected between January 2023 and the end of March 2024. Groundwater quality in situ and analytical results for all groundwater samples collected during the construction period are presented in Appendix H-1.

Summary statistics for groundwater sample results are provided by monitoring well location in tables in Appendix H-2, including minimum, mean, 95th percentile, and maximum concentrations. Summary statistics for groundwater quality during the baseline (pre-Construction) period is also presented in tables in Appendix H-2 and is characterized based on samples collected between January 2016 through December 2022. Parameter concentrations reported as less than the MDL are included in the summary statistics tables and time series plots as half the MDL value.

A discussion on groundwater quality during the construction period is provided below along with differences in water quality between the baseline and construction sampling periods.

Table 4.3-1: Groundwater Sample Summary

Well ID	Location (Facility)	Sample Method	MSDP Sampling Requirement	Samples Collected	Sample Collection Summary[1]					Comments
					Feb/ Mar 2023	Jun 2023	Sept 2023	Nov/ Dec 2023	Feb/ Mar 2024	
MW12-01D	Background	Low Flow	Quarterly	5	1	1 & D	1	1	1	
MW12-02S	Downgradient of Stockpiles	Low Flow	Quarterly	4	1	1	1	1	-	Water column frozen in Feb. 2024, not sampled
MW12-03D	Downgradient of Deposit	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-05D	Davidson Creek Headwaters	Low Flow	Annual	3	1	1	1	-	-	
MW12-05S	Davidson Creek Headwaters	Low Flow	Annual	2	1	1	-	-	-	
MW12-07D	Downgradient of TSF	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-07S	Downgradient of TSF	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-08D	Downgradient of ECD	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-08S	Downgradient of ECD	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-09D	Downgradient of ECD/FWR	Low Flow	Quarterly	5	1	1	1 & D	1	1	
MW12-12D	Downgradient TSF and Camp	Low Flow	Quarterly	5	1 & D	1	1	1	1	
MW12-12S	Downgradient TSF and Camp	Low Flow	Quarterly	5	1	1	1	1	1	
MW12-13S	Background	Low Flow	Annual	2	1	1	-	-	1	
GT20-04	ECD	Low Flow	Quarterly	5	1	1	1	1	1	
GT21-03S	ECD	Low Flow	Quarterly	5	1	1	1	1	1	2 of 3 samples in Nov 2022 were taken during pumping tests

Well ID	Location (Facility)	Sample Method	MSDP Sampling Requirement	Samples Collected	Sample Collection Summary[1]					Comments
					Feb/ Mar 2023	Jun 2023	Sept 2023	Nov/ Dec 2023	Feb/ Mar 2024	
MW22-02D	Downgradient of TSF C	Low Flow	Quarterly	5	1	1	1	1	1	
MW22-02S	Downgradient of TSF C	-	Quarterly	0	-	-	-	-	-	Well dry/insufficient water column to sample
MW22-03D	Downgradient of TSF C	Low Flow	Quarterly	5	1	1	1	1	1	
MW22-03S	Downgradient of TSF C	Low Flow	Quarterly	1	-	-	1	-	-	Well typically has insufficient water to sample
MW23-01	Downgradient of Plant Site	Low Flow	Quarterly	3	n/a	n/a	1	1	1 & D	
MW23-02D	Downgradient of Plant Site RIBs	-	Quarterly	0	n/a	n/a	-	-	-	Well dry
MW23-02S	Downgradient of Plant Site RIBs	Low Flow	Quarterly	3	n/a	n/a	1	1	1	
MW23-03D	Downgradient of LGO Stockpile	Low Flow	Quarterly	3	n/a	n/a	1	1	1	
MW23-03S	Downgradient of LGO Stockpile	Low Flow	Quarterly	3	n/a	n/a	-	2	1	Sample collected in November and December
MW23-04D	Downgradient of Lower Waste Stockpile	Low Flow	Quarterly	3	n/a	n/a	1	1	1 & D	
MW23-04S	Downgradient of Lower Waste Stockpile	Low Flow	Quarterly	3	n/a	n/a	-	2	1	Sample collected in November and December
MW23-05D	Downgradient of TSF C	Low Flow	Quarterly	3	n/a	n/a	1	1	1	

Well ID	Location (Facility)	Sample Method	MSDP Sampling Requirement	Samples Collected	Sample Collection Summary[1]					Comments
					Feb/ Mar 2023	Jun 2023	Sept 2023	Nov/ Dec 2023	Feb/ Mar 2024	
MW23-05S	Downgradient of TSF C	Low Flow/Purge and Return[2]	Quarterly	3	n/a	n/a	1	1	1	Well damaged March 2024 and sample excluded due to high turbidity

Notes:

"D" indicates duplicate sample collected at well.

Grey shading indicates sample collected at well but excluded from baseline dataset.

"n/a" = 2023 monitoring wells were installed in June to August 2023. Wells developed and added to sampling program starting in September 2023.

[1] Quarterly and annual sampling requirements began in June 2023 following issuance of permits in March and May 2023.

[2] Monitoring well MW23-05S sampled by purging the water level to 1 m above the top of the well screen and sampling using low flow methods the next day.

Quality Assurance and Quality Control

A quality assurance / quality control (QA/QC) program was implemented at the onset of groundwater data collection at the Mine to help identify sources of systematic and random error associated with the collection and analysis of groundwater samples (Province of British Columbia, 2013). The quality of the dataset was assessed based on adherence to pre-set data quality objectives (DQOs). DQOs provide a means of assessing the QA/QC data and determining whether the data in question are precise, accurate, representative, and complete. The results from quality control (QC) samples (travel blanks, field blanks, and duplicate samples) were reviewed to determine if sample contamination occurred, and these data were further used to determine if contamination occurred during collection, handling, storage, or shipping.

Upon receipt from the laboratory, the data were compared to the DQOs in a timely manner. Data that did not meet the respective DQO were flagged. Flagged data were investigated and may be excluded from the baseline data set, depending on the level of the deviation from the acceptable limits and on the suspected reason for that deviation. Data management QA/QC measures included the following additional comparisons in addition to the blank and duplicate samples:

- Comparison of dissolved and total fractions of parameters.
- Calculation of ion balance to detect error associated with the analysis of the major ionic.
- Turbidity as a criterion for representative groundwater samples.

The total number of QC samples (blanks plus duplicates) is recommended to represent a minimum of 10% of the total number of samples (e.g., 1 in 10 samples) based on guidance by Canadian Council of Ministers of the Environment (CCME, 2011). A total of 103 groundwater samples were collected during the construction period. The total number of QC samples (blanks plus duplicates) collected during the four sampling events is 16, which represents 15% of the total number of samples. All samples were submitted to ALS Environmental in Burnaby, BC for analysis. Results of the QAQC analysis are described briefly below.

- Five travel blank and six field blank samples were collected. No parameters were reported in the travel and field blank samples at concentrations greater than five times the MDL.
- Five duplicate samples (co-located samples collected at the same time as the original sample) were collected. The RPDs for all measured constituents in the duplicate and original samples are less than 20% except for three dissolved parameter concentrations and five instances of total parameter concentrations in four samples. The dissolved concentrations with DQO exceedances between the duplicate and original sample are within the historic range of sample concentrations and no samples or parameters were rejected from the baseline dataset based on the duplicate sample analysis.
- Ion balances were calculated for all samples. The calculated ion balances for groundwater samples were below the DQO of 10%, except the September sample collected from monitoring well MW23-05D (15% excess cations) and the December samples collected from MW23-03D (21% excess cations) and MW23-05D (17% excess anions). The ion imbalance of the samples collected from monitoring wells MW23-03D and MW23-05D is correlated with high pH water in the wells. The cation surplus at monitoring well MW23-03D is largely attributed to elevated sodium and potassium concentrations, which is consistent with impacts from grout or bentonite.
- Dissolved and total metals and organic carbon concentrations in all samples were compared and highlighted if the reported concentration of a dissolved analyte is greater than the concentration of the total analyte. Three analyses reported dissolved concentrations that exceeded the corresponding total concentration with an RPD greater than 20%. Results of the metals concentrations resulted in the September 2023 dissolved zinc concentration being excluded from GT21-03S as it was elevated above the concentration of other recent samples collected from the well.

- The accepted methods for groundwater quality sampling (BC ENV, 2016) indicate low turbidity (i.e., less than 50 NTU) as a criterion for representative groundwater samples. One sample (MW23-05S in March 2024) did not meet the DQO of 50 NTU for turbidity (in situ and laboratory). The PVC stick-up became disconnected from the monitoring well and sand located in the annulus between the PVC stickup and the well's protective monument fell down into the well, trapping the transducer and cable, and preventing the pump from fitting down the well. The sample was subsequently collected with Waterra tubing with and had high turbidity. The entire sample was rejected.
- Results of in situ pH are reviewed to confirm DQOs are met. The following results were rejected based on pH:
- All in situ pH values from samples collected during the March 2023 site visit are lower than the typical range of values at each well. These in situ pH values are likely attributed to improper calibration of the pH probe and have been excluded from the baseline dataset.
- The December 2023 sample from monitoring well MW23-03D had an in-situ pH of 11.55 and laboratory pH of 10.2, which suggests the well may be grout contaminated, as high groundwater pH values (values greater than 10) typically indicate grout contamination of the well. Well development notes were reviewed, and the well had been developed over several days due to a slower recharge rate. The water was relatively clear and had a pH of 8.4 at the end of development. Additional well development is recommended to attempt to improve the pH. This sample has been highlighted for potential rejection during future review.

The following additional parameters or sample results were flagged or excluded from the baseline dataset as part of the QA/QC review of the groundwater quality data:

- Elevated total and dissolved zinc concentrations were identified in several monitoring wells attributed to zinc contamination contributed by non-stainless steel cables and fittings used to hang pressure transducers installed in monitoring wells after 2019 and at monitoring wells with well plugs installed to depress shallow water levels. The cables and fittings were replaced with stainless steel cables and fittings in March 2023. The total and dissolved zinc concentrations that are considered unrepresentative of groundwater conditions have been excluded from the baseline dataset.
- Total and dissolved aluminum concentrations at monitoring wells MW23-02S and MW23-05S are elevated compared to other monitoring wells. The PVC stick-up detached from the monitoring well during well development and silica sand used to fill the annulus of the protective monument surrounding the stick-up fell down the well. It is believed that material that fell into the well provided a source of aluminum and, possibly, iron contamination as a result of the material being in contact with the aluminum protective monument. The dissolved aluminum and iron concentrations have been flagged for further review following additional well development and as additional groundwater data are collected and have not been excluded from the baseline dataset.

Major Ion Chemistry

Groundwater in the Mine area is generally characterized as neutral to basic pH, alkaline with strong buffering capacity, and with variable (soft to very hard) hardness. The mean pH at monitoring sites ranged from 6.3 to 8.9, excluding monitoring wells MW23-03D and MW23-05D where elevated pH in samples is attributed to impacts from drilling. The mean total hardness varied across monitoring wells, ranging from 17 mg/L at MW22-03S to 170 mg/L at MW12-01D. In general, water hardness was higher in the deeper monitoring well compared to the shallower well at paired well sites. Similarly, alkalinity varied across the Project area with reported total mean alkalinity values during the construction period ranging from 23 mg/L $CaCO_3$ at monitoring well MW22-03S to 193 mg/L $CaCO_3$ at monitoring well MW12-01D. All groundwater samples collected at the Mine during the construction period are classified as a calcium bicarbonate (Ca-HCO_3) hydrochemical water type, as calcium and bicarbonate are the dominant cation and anion, respectively.

Trends in Groundwater Concentration

Comparison of groundwater concentrations in samples collected during the construction period (January 2023 through March 2024) to concentrations of samples collected during the baseline period (2016 through 2022) indicates groundwater quality at the monitoring sites during construction is unchanged as discussed below.

Construction in the vicinity of the TSF, Plant Site, RIBs, and Operations Campsite areas begun in 2023. Pre-construction (baseline) conditions at monitoring sites in these areas was assessed by comparing sample concentrations collected from 2016 through the end of 2022 at monitoring wells with available historic data; these sites with sampling records prior to 2023 include five monitoring wells in the TSF area (MW12-08D/S, MW12-09D, GT20-04, and GT21-03S), one monitoring well in the stockpiles area (MW12-02S), and two monitoring wells in the camp site area (MW12-12D/S). Groundwater samples are also available at an additional six monitoring wells characterizing background conditions (MW12-01D, MW12-05D/S, MW12-07D/S, and MW12-13S).

A change in water quality between baseline conditions (2016 to 2022) and the construction period was assessed by comparing the mean concentrations of parameters for sites with available baseline samples. This method of evaluation was chosen due to the relatively smaller size of the construction period sample dataset (5 or less at each site). Groundwater samples are available during the 2016 to 2022 baseline period at monitoring sites in the TSF, stockpile, and camp site areas. A percent change in mean concentration was not calculated for sample parameters with reported concentrations below the MDL in 70% or more of the samples. The difference in mean concentrations between the construction period and baseline period for all parameters are included on tables in Appendix H-2. Groundwater parameters displaying a change in mean concentration greater than 20% are summarized in Table 4.3-2 for parameters reported at concentrations at least 5 times the MDL concentration for that parameter. The comparison focuses only on the dissolved metal and metalloid concentrations in the groundwater samples rather than the total concentrations, as this is the predominant form of transport of parameters through a groundwater formation and total metals concentrations may be influenced by differences in suspended sediment.

- TSF area: Mean concentrations of parameters from the five monitoring wells in the TSF area are unchanged (vary by less than 20%) from baseline conditions.
- Stockpiles area: Monitoring well MW12-02S displays an increase in mean concentration of uranium (49%) relative to baseline conditions.
- Camp Site area: Monitoring well MW12-12D displays an increase in mean concentration of nitrate (37%) relative to baseline conditions.
- Background monitoring wells display increased mean concentrations of nutrients (dissolved ammonia and nitrate), dissolved aluminum, and dissolved uranium. The increased mean dissolved aluminum concentration calculated for monitoring wells MW12-01D and MW12-07D during the construction period is the result of spikes in the concentration and not considered a trend. The mean aluminum concentrations during the construction period are only slightly higher than 5 times the MDL (0.006 mg/L at MW12-01D and 0.007 mg/L at MW12-07D).

The increase in dissolved uranium concentrations at MW12-05S (background site; mean concentration of 0.0005 mg/L) and MW12-02S (stockpiles area; mean concentration of 0.0003 mg/L) is a gradual increase that began in approximately 2019 and is not Project-related.

The mean nitrate concentration at monitoring well MW12-12D during the Baseline period was 0.12 mg/L and the mean concentration during the construction period was 0.17 mg/L. Measured nitrate concentrations during the construction period are more than an order of magnitude lower than the

long-term chronic BC water quality guidelines for Aquatic Life – Freshwater (3 mg/L) and several orders of magnitude lower than the Contaminated Sites Regulation aquatic life standard (400 mg/L).
Nitrate concentrations will continue to be monitored and observed at monitoring well MW12-12D to identify if a future increasing trend in concentration is observed. Additional investigation into the nitrate concentrations is not recommended at present given the measured concentrations and the change in mean concentration are relatively low.

Table 4.3-2: Trends in Groundwater Concentration

Area	Monitoring Well	Mean Concentration Increase >20%
Background	MW12-01D	229% Alkalinity Carbonate as $CaCO_3$ 56% D-Ammonia 117% D-Aluminum*
	MW12-05D	-
	MW12-05S	77% D-Uranium**
	MW12-07D	102% D-Aluminum*
	MW12-07S	-
	MW12-13S	128% Nitrate
TSF Area	GT20-04	-
	GT21-03S	-
	MW12-08D	-
	MW12-08S	-
	MW12-09D	-
Stockpiles	MW12-02S	49% D-Uranium**
Camp Area	MW12-12D	37% Nitrate
	MW12-12S	-

Notes:
"D-" = indicates parameter dissolved fraction
Table includes sites with data available during the Baseline Period for comparison (2016-2022)
**Baseline mean concentration is less than 5 times MDL*
***Increase in uranium concentrations is a gradual increase that began in approximately 2019.*

All groundwater quality results for samples collected during the construction period were compared against the Contaminated Sites Regulations Aquatic Life (CSR-AL) Standards . No exceedances of CSR-AL standard concentrations were reported at any of the monitoring wells. The CSR-AL standards are summarized in Table H-3.1 of Appendix H-3 and all groundwater sample results in Appendix H-1 are screened against CSR-AL standards. CSR standards are applicable to the dissolved parameter concentrations as that is the form that is readily transported in a groundwater system.

Results of all cyanide analyses (including thiocyanate and cyanate) were reported at concentrations less than the detection limit in samples from all monitoring wells during the construction period.

Results of all dissolved mercury analyses were reported at concentrations less than the detection limit except for one sample collected from MW23-03S in March 2024 (0.0000064 mg/L). The dissolved

mercury was reported at a low concentration close to the detection limit (1.3 times above the MDL) and is therefore associated with analytical uncertainty.

4.3.2 Comparison to Environmental Assessment

Methods

DS Condition 3.15.3 requires that results from groundwater quality and quantity monitoring were compared to predictions made in the EA for nitrite and contaminants of potential concern as follows:

- Section 5 of Blackwater Gold Project: Additional Water Quality Model Sensitivity Scenario (July 20, 2017).
- Section 3 of Blackwater Gold Project: Water Treatment Responses for Comments 1266, 1270, 1271, 1272, and 1273 (February 15, 2017).

The two documents referenced by DS 3.15.3 specifically focus on Closure and Post-Closure water quality. Section 5 of the July 20, 2017, document provides summary statistics of predicted surface water quality in TSF D supernatant and Davidson Creek (WQ26) in Post-closure. Section 3 of the February 15, 2017, document provides predicted surface water quality in the TSF D Pond, TSF D spillway, plunge pool, and Davidson Creek (WQ26) in Closure and Post-closure. Predicted water quality predictions made in the EA for mine facilities during Construction and Operations are presented in Section 5 of the Updated Surface Water Quality Model Report (ERM 2016b) and appears to be more relevant than the references provided in DS Condition 3.15.3. The predicted geochemical source term for tailings seepage from the EA is presented in Table 4.3-3 reproduced from Table E-3 of ERM (2016b).

Table 4.3-3: Geochemical Source Terms for Tailings Seepage

Parameter	Average Concentration from Saturated Columns (mg/L)
Alkalinity (as $CaCO_3$)	129
Sulphate (SO_4^-)	2,300
Nitrate (NO_3^-)	0.005
Nitrite (NO_2^-)	0.01
Total Cyanide	0.1
Weak-acid Dissociable Cyanide	0.015
Aluminum	0.002
Antimony	0.00595
Arsenic	0.00305
Barium	0.0346
Boron	0.0291
Cadmium	0.000052
Calcium	446
Chromium	0.0001
Cobalt	0.034

Parameter	Average Concentration from Saturated Columns (mg/L)
Copper	0.0001
Iron	0.09
Lead	0.00012
Magnesium	20.7
Manganese	7.2
Molybdenum	0.035
Nickel	0.0073
Phosphorus	0.001
Selenium	0.00035
Silver	0.000005
Uranium	0.00545
Zinc	0.55
Chloride	19
Fluoride	0.02
Ammonia	33.5

Source: Table E-3 in ERM (2016b).

Note:

Average concentration-based results of two saturated columns.

The Project's potential effects on groundwater quality and quantity were described together with surface water quality and quantity in Section 6.1 of the Federal Assessment Report (CEA Agency 2019). Due to the relationship between groundwater and surface water, their predicted effects were considered together and are discussed in Section 3.2.2. Updated groundwater modelling (KP 2021) and water quality modelling (Lorax 2022) have been completed as well as an updated baseline dataset since the CEA Agency (2019) assessment report was issued. The assessment nodes at which water quality was predicted in the EA and the 2022 model are presented in Table 3.4-1.

Water quality and water level results were compared against background parameter concentrations and water levels to identify potential seepage pathways. If potential seepage is identified, the increase in measured parameter concentrations will be used to estimate seepage rates and groundwater flow velocities that will then be compared against predicted rates and velocities from the numerical groundwater modelling (KP 2021). Measured concentrations of parameters are to be compared against concentrations in TSF seepage predicted in the EA and against updated predictions of seepage concentrations originating from TSF C, TSF D, LGO Stockpile, Upper and Lower Waste Stockpiles, and Plant Site presented in the Joint MA/EMA Application (BW Gold 2022).

As discussed in Section 1.1, construction has begun in the vicinity of TSF C and the Plant Site. Construction in the TSF C area included excavations and mass earth fills for embankment construction and water management. Excavation of the Open Pit, processing of ore, and deposition of tailings have not yet commenced. Comparison of measured groundwater concentrations to EA predicted concentrations of TSF seepage will be completed in the next annual report following placement of either tailings or potentially acid generating (PAG) waste rock in the TSF. Measured groundwater

concentrations are compared against predicted seepage concentrations from the 2022 model, including the Plant Site source term and the TSF C Year -1 seepage source term, as discussed below. The Plant Site seepage source term concentrations and TSF C Year -1 seepage source term concentrations were obtained from Table 4-15 and Appendix C1-1, respectively, of the *Geochemistry Source Term Report* (Lorax 2021).

Results

Plant Site

The source term concentrations for Plant Site seepage from the 2022 model predictions are presented in Table 4.3-4 along with the measured groundwater sample results during the construction period for monitoring wells located downgradient of the Plant Site (MW23-01 and MW23-02S). Water quality parameters for which the measured concentrations in groundwater during the construction period exceed the 2022 model predictions (Lorax 2021) at the Plant Site monitoring wells are summarized in Table 4.3-5.

Table 4.3-4: Plant Site Seepage Source Term (2022 Model Predictions) and Measured Construction Period Groundwater Quality Results

Parameter	Mine Site Source Term (Base Case)1	MW23-01			MW23-02S			CSR AL Standard[2]
		26/Sep 2023	12/Dec 2023	29/Feb 2024	25/Sep 2023	01/Dec 2023	04/Mar 2024	
Chloride (Dissolved)	1.5	<0.5	<0.5	<0.5	0.76	0.74	0.58	1500
Fluoride (Dissolved)	88	0.063	0.072	0.081	0.025	0.029	0.03	3
Sulphate (Dissolved)	-	1.09	0.84	1.02	0.54	0.57	0.47	3090
Ammonia (Dissolved)	0.06	<0.005	0.0084	<0.005	<0.005	<0.005	<0.005	-
Ammonia (Total)	-	<0.005	<0.005	<0.005	<0.005	0.0114	<0.005	3.7
Nitrate (as N)	3.5	0.117	0.137	0.136	0.0202	0.0356	0.0505	400
Nitrite (as N)	0.037	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.2
Cyanide (WAD)	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
Aluminum (Dissolved)	0.0063	0.0024	0.0028	0.0014	**0.59***	**0.692***	**0.428***	-
Antimony (Dissolved)	0.014	0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	0.09
Arsenic (Dissolved)	0.023	0.0012	0.0012	0.0012	0.0005	0.0007	0.0005	0.05
Barium (Dissolved)	0.024	0.0091	0.0096	0.0082	0.0096	0.0121	0.0081	10
Beryllium (Dissolved)	0.00099	<0.00002	<0.00002	<0.00002	3E-05	3E-05	<0.00002	0.0015
Boron (Dissolved)	0.099	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	12
Cadmium (Dissolved)	0.0005	<0.000005	7E-06	<0.000005	1E-05	2E-05	6E-06	0.0015
Calcium (Dissolved)	50	18.4	18.2	18.6	9.1	12.1	8.48	-
Chromium (Dissolved)	0.00022	**0.0007**	**0.0008**	**0.0007**	**0.0005**	**0.0006**	<0.0005	0.01 [(3)]
Cobalt (Dissolved)	0.0061	<0.0001	<0.0001	<0.0001	0.0001	0.0002	<0.0001	0.04
Copper (Dissolved)	0.0032	<0.0002	<0.0002	<0.0002	0.0007	0.0007	0.0004	0.04

Parameter	Mine Site Source Term (Base Case)1	MW23-01			MW23-02S			CSR AL Standard[2]
		26/Sep 2023	12/Dec 2023	29/Feb 2024	25/Sep 2023	01/Dec 2023	04/Mar 2024	
Iron (Dissolved)	0.0034	**<0.01**	**<0.01**	**<0.01**	**0.366***	**0.393***	**0.22***	-
Lead (Dissolved)	0.00066	<0.00005	<0.00005	<0.00005	0.0003	0.0003	0.0001	0.05
Lithium (Dissolved)	0.036	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Magnesium (Dissolved)	2.6	**3.72**	**3.92**	**3.93**	1.38	2.18	2.48	-
Manganese (Dissolved)	0.67	0.0048	0.0032	0.0012	0.014	0.0129	0.0046	-
Mercury (Dissolved)	0.000079	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00025
Molybdenum (Dissolved)	0.012	0.0005	0.0005	0.0005	0.0001	0.0001	0.0001	10
Nickel (Dissolved)	0.0061	<0.0005	<0.0005	<0.0005	0.0006	0.0005	<0.0005	0.65
Phosphorus (Metal) Dissolved	0.0018	**0.071**	**0.087**	**0.087**	**<0.05**	**<0.05**	**<0.05**	-
Potassium (Dissolved)	35	0.745	0.809	0.683	0.553	0.674	0.518	-
Selenium (Dissolved)	0.0011	9E-05	9E-05	0.0001	<0.00005	<0.00005	<0.00005	0.02
Silicon (Dissolved)	7.9	**9.84**	**10.5**	**10.3**	**8.26**	**8.63**	**8.45**	-
Silver (Dissolved)	0.00011	<0.00001	<0.00001	<0.00001	2E-05	2E-05	<0.00001	0.0005
Sodium (Dissolved)	7.4	5.72	5.51	5.5	2.44	2.58	2.66	-
Strontium (Dissolved)	0.29	0.121	0.13	0.127	0.0353	0.0421	0.033	-
Thallium (Dissolved)	0.00036	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.003
Titanium (Dissolved)	-	<0.0003	<0.0003	<0.0003	0.0128	0.0153	0.0084	1
Uranium (Dissolved)	0.0011	0.0005	0.0004	0.0004	4E-05	1E-04	4E-05	0.085
Vanadium (Dissolved)	0.011	0.0013	0.0015	0.0015	0.0009	0.0012	0.0007	-
Zinc (Dissolved)	0.028	<0.001	<0.001	<0.001	0.003	0.0034	0.0018	0.075

Notes:

Units are mg/L unless otherwise stated.

Bold font indicates value exceeds source term prediction.

[*] Results are considered suspect

[1] Seepage source term concentrations are from Table 4-15 of Geochemistry Source Term Report (Lorax 2021).

[2] CSR AL = Contaminated Sites Regulations (CSR) Aquatic Life (AL) Standards. BC Environmental Management Act, 2023. BC Reg. 375/96.

[3] Based on the standard for hexavalent chromium, as there is no standard for total chromium.

** Dissolved aluminum and iron results at MW23-02S are considered suspect and not representative of groundwater conditions.*

Table 4.3-5: 2023 Groundwater Quality Parameters Greater than 2022 Model Predictions

Facility	Groundwater Monitoring Well	Water Quality Parameters[1]
Plant Site	MW23-01	metals: chromium, magnesium, phosphorus (metal), silicon
	MW23-02S	metals: aluminum[2], chromium, iron[2], silicon

[1] 2023 concentration in one or more samples during the construction period was greater than the predicted source term concentration (Lorax, 2021) incorporated in the 2022 Model.

[2] Dissolved aluminum and iron results at MW23-02S are considered suspect and not representative of groundwater conditions.

Groundwater quality observed during the construction period at MW23-01 and MW23-02S at the Plant Site area are compared to CSR Standards for Aquatic Life (CSR-AL) in Table 4.3-4. No exceedances of CSR-AL standard concentrations were reported for any parameters at the two monitoring wells.

Water quality parameters with measured concentrations exceeding predicted concentrations that were identified as Parameters of Potential Concern (POPC; Lorax, 2022) within the mine site in untreated effluent include dissolved aluminum, chromium, and iron. Magnesium, phosphorus (metal), and silicon were not identified POPCs. None of the parameters with measured concentrations exceeding source term concentrations in the Plant Site area (Table 4.3-5) were identified as Parameters of Concern (POC) in the receiving environment.

The magnitude of exceedance of the predicted 2022 model concentrations by the measured sample concentration is summarized for each POPC in Table 4.3-6. For completeness, the table includes exceedances for dissolved aluminum and iron for samples from monitoring well MW23-02S; however, these exceedances are anticipated to be related to foreign material falling into the well (sand with aluminum, and possibly, iron contamination), and these results are not indicative of Project-related effects for the two parameters (see Section 4.3.1.2).

Table 4.3-6: 2023 Groundwater Quality Parameters Exceedances of 2022 Model Predictions for POPCs

Parameter	Mine Site Source Term (Base Case)[1]	MDL (mg/L)	MW23-01			MW23-02S		
			26/Sep 2023	12/Dec 2023	29/Feb 2024	25/Sep 2023	01/Dec 2023	04/Mar 2024
D-Aluminum	0.0063	0.001	-	-	-	94*	110*	68*
D-Chromium	0.00022	0.0005	3	4	3	2	3	<MDL
D-Iron	0.0034	0.01	<MDL	<MDL	<MDL	108*	116*	65*

Notes:

MDL = laboratory method detection limit

<MDL indicates the parameter concentration was reported as less than the method detection limit.

Values represent the magnitude the sample parameter concentration is greater than the seepage source term concentration.

Dashes indicate the parameter concentration is less than the seepage source term concentration.

[1] Source term concentrations are from Table 4-15 of Geochemistry Source Term Report (Lorax, 2021).

** Dissolved aluminum and iron results at MW23-02S are considered suspect and not representative of groundwater conditions.*

The mean concentrations of dissolved chromium measured in groundwater samples at Plant Site monitoring wells (MW23-01 and MW23-02S) during the construction period were only slightly greater than the 2022 model predictions for Plant Site seepage (Lorax 2021).

All water quality results for the plant site monitoring wells were reported at concentrations below BC WQG (long-term chronic and short-term acute), except for the dissolved iron and dissolved aluminum parameters considered suspect at monitoring well MW23-02S. These sample results greater than BC WQGs for freshwater aquatic life are summarized along with the magnitude of exceedance in Table 4.3-7.

Table 4.3-7: 2023 Groundwater Quality Parameters Exceedances of BC WQGs

Monitoring Well	Parameter	BC WQG (mg/L)[1]	Sample Concentration (mg/L)			WQG Exceedance Factor[2]		
			25/Sep 2023	01/Dec 2023	04/Mar 2024	25/Sep 2023	01/Dec 2023	04/Mar 2024
MW23-02	D-Aluminum	0.032-0.0059 (3)	0.59	0.692	0.428	16	12	13
	D-Iron	0.35	0.37	0.39	0.22	1.0	1.1	-

Notes:

Units are mg/L unless otherwise stated.

WQG = water quality guideline

Dashes indicate no exceedance.

[1] BC Water quality guideline for the protection of freshwater aquatic life (BC ENV 2024).

[2] Values represent the magnitude the sample parameter concentration is greater than the BC water quality guideline.

[3] Guideline values shown for total aluminum and are dependent on sample values of pH, dissolved organic carbon, and hardness.

TSF C

A geochemical source term is available from the 2022 model predictions representing TSF C seepage concentrations in Year -1 (Appendix C1-1 in Lorax 2021). This source term represents the conditions where PAG waste rock is placed behind Main Dam C, which did not occur by the March 2024 reporting cut-off date. Notwithstanding the difference between the source term and the conditions onsite, a cursory comparison between the 2022 model predictions for Year -1 TSF C seepage and measured concentrations at monitoring wells downgradient of TSF C was completed. The predicted concentrations for POPCs in the 2022 model are presented in Table H-4.1 in Appendix H-4 along with the measured groundwater sample results during the construction period at monitoring wells located downgradient of the TSF (MW12-08D/S, MW12-09D, GT20-04, GT21-03S, MW22-02D, MW22-03D/S, and MW23-05D).

POPCs for which the measured parameter concentrations at monitoring wells downgradient of TSF C during the construction period were detected at concentrations greater than the 2022 model predictions (Lorax 2021) for Year -1 TSF C seepage are summarized in Table 4.3-8 along with the greatest magnitude of exceedance considering all samples collected from each monitoring well during the construction period. Measured concentrations at the monitoring wells were higher than the 2022 model predicted concentrations for dissolved cadmium in one sample from monitoring well MW23-05D and routinely higher than the model predicted concentrations for dissolved chromium in five monitoring wells. All factors of exceedance are 1.5 or less and indicate measured groundwater sample results are close to or less than modelled POPC concentrations for TSF C seepage in Year -1.

The one measured dissolved cadmium concentration reported at monitoring well MW23-05D at a concentration higher than the 2022 model value is less than both the long-term chronic and short-term acute BC WQG-AL for dissolved cadmium. Baseline concentrations of dissolved chromium at monitoring wells located along Davidson Creek and downgradient of the TSF naturally occur at concentrations slightly above 0.001 mg/L and these results are consistent with baseline conditions and not indicative of Project-related effects.

No exceedances of CSR-AL standard concentrations were reported for any parameters at the monitoring wells downgradient of the TSF C construction area.

Table 4.3-8: 2023 Groundwater Quality Parameters Greater than 2022 Model Predictions for POPCs Downgradient of TSF C

Facility	Monitoring Well	Total Samples	Dissolved Cadmium		Dissolved Chromium	
			Factor	No.	Factor	No.
TSF C	MW12-08S	5	-	0	1.4	5
	MW12-08D	5	-	0	1.2	5
	MW12-09D	5	-	0	1.5	5
	GT21-03S	5	-	0	-	-
	GT20-04	5	-	0	1.4	4
	MW22-03S	1	-	0	-	0
	MW22-03D	6	-	0	-	0
	MW22-02D	6	-	0	-	0
	MW23-05D	5	1.2	1	1.4	4

Notes:

'Factor' represents the magnitude the highest sample parameter concentration from the monitoring well exceeds the seepage source term concentration.

'No.' indicates the number of samples with parameter concentrations greater than the seepage source term concentration.

Dashes indicate the measured groundwater parameter concentration is less than the seepage source term concentration.

[1] Seepage source term concentrations are from Appendix C1-1 of Geochemistry Source Term Report (Lorax 2021).

4.3.3 Effectiveness of Mitigation Measures and Adaptive Management

Mitigation measures are considered to be performing as expected if measured groundwater quality and quantity is similar to what was predicted and water quality concentrations remain lower than water quality standards.

In the event that there are substantive deviations between what was predicted and what is measured, preliminary triggers for additional mitigation, monitoring, and/or management are included in the MSDP. Table 11-1 of the MSDP provides facility-specific triggers and responses in the event that groundwater levels deviate from those predicted and concentrations of water quality parameters increase above predicted levels. Section 11.1 of the MSDP includes contingency measures specific to groundwater that could be implemented in the event that monitoring suggests the mitigation measures are not performing as expected.

In addition to the triggers and responses provided in Section 10 (Nonconformity and Corrective Actions) and Section 11 (Adaptive Management) of the MSDP, a groundwater Trigger Response Plan (TRP) has been drafted and submitted to BC ENV as a condition of the Environmental Management Act effluent discharge permit (PE-110652). The TRP will build on the triggers and actions or responses described in the MSDP to check that the results of monitoring are within the expected (predicted) range and mitigation measures are performing as expected so that corrective actions, if required, can be implemented before adverse effects can occur in the receiving environment outside of the mine site.

The groundwater Trigger Response Plan (KP,2024) provides a framework to manage and respond to trends in groundwater quality. The TRP serves as a proactive tool to identify the preliminary signs of contact water (seepage) in the groundwater system and promote a response or remedial action, if required, to manage

and mitigate seepage to ensure impacts to the receiving environment are avoided. The TRP applies to authorized non-point source discharges listed in Section 1.5 of permit PE-110652, which include the TSF, Upper and Lower Waste Stockpiles, LGO Stockpile, and Operations Camp Site area.

Results of groundwater sampling will be compared against trigger concentrations in the next report following approval of the groundwater TRP. To evaluate the effectiveness of mitigation measures, measured concentrations of parameters in groundwater were assessed against water quality standards for aquatic life (CSR-AL). As discussed in Section 4.3.1.2, no exceedances of CSR-AL standard concentrations were reported at any of the monitoring wells.

4.4 Summary and Discussion

Groundwater monitoring and sampling was conducted at 28 monitoring wells during the construction period (January 2023 through March 2024), consistent with the sampling program specified in the Groundwater Monitoring Program (GMP; KP 2024). Water level monitoring was conducted at 48 monitoring sites, comprising monitoring wells, standpipe piezometers, and vibrating wire piezometers. Groundwater sampling during the construction period was conducted during five sampling events, including quarterly in 2023 (March, June, September, and December) and in March 2024.

Construction activities at the Mine were not identified to have an impact on groundwater levels or groundwater quality at monitoring locations in the groundwater monitoring program. Groundwater levels at monitoring locations during the construction period generally fluctuated within the range of historic measurements at the sites, although they were at the lower end of that range at many sites.

Groundwater quality results measured during the construction period were compared to mean results during the baseline period, model predictions, and water quality standards. A change in concentration between baseline and the construction period was assessed using graphical analysis and by comparing the mean concentrations of parameters during the two periods. No increases in parameter concentrations greater than 20% relative to baseline concentrations was observed for monitoring wells in the TSF area. An increase in mean concentration greater than 20% was identified for nitrate and dissolved uranium at one monitoring well in each of the stockpile and the Operations camp site areas; however, neither of the increases were attributed to project related activities. Increases in mean annual concentration greater than 20% were also observed for ammonia, nitrate, dissolved aluminum, and dissolved uranium concentrations at background monitoring wells.

Water quality at monitoring wells adjacent to the Plant Site was compared against predicted concentrations of seepage included in the 2022 modelling presented in the Joint MA/EMA Application (BW Gold 2022). Parameters identified as POPCs that reported concentrations greater than the predicted Plant Site seepage concentrations included dissolved aluminum, chromium, and iron. The elevated concentrations of aluminum and iron at MW23-02S are anticipated to be unrelated to project activity and due to material ingress into the well. The mean concentrations of dissolved chromium measured in groundwater samples at Plant Site monitoring wells (MW23-01 and MW23-02S) during the construction period were greater than the 2022 model prediction for Plant Site seepage (Lorax 2021). Although exceedances of model predicted concentrations occurred during all sampling events, they were generally of low magnitude, therefore no effects to aquatic life are expected. Exceedances of BC WQGs in surface water were observed for total aluminum and iron at downstream surface monitoring station 661-05 as discussed in Section 3.4.3. No effects to aquatic life were expected given the magnitude of the surface water quality exceedance during construction and previous exceedances observed during the baseline period. Additional development is recommended at MW23-02S to remove the sand at the bottom of the well. Water quality at MW23-02S will be re-assessed following the additional development activity and subsequent sampling of MW23-02S.

Water quality at monitoring wells downgradient of the TSF construction area were compared against predicted concentrations of TSF seepage in Year -1 included in the 2022 modelling presented in the Joint MA/EMA Application (BW Gold 2022). Measured groundwater sample results for all POPCs were close to (maximum exceedance factor of 1.5) or less than model predicted concentrations for TSF C seepage in Year -1.

No trends in groundwater quality were observed from baseline conditions at any of the groundwater sampling locations attributed to project related activity. No sample exceedances of Environmental Management Act, Contaminated Sites Regulation (CSR) Aquatic Life standards – Schedule 3.2 were reported at any of the monitoring wells.

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Appendix A 2023 Hydrology and Water Temperature Annual Report

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Canada

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BLACKWATER GOLD PROJECT
2023 HYDROLOGY AND WATER TEMPERATURE ANNUAL REPORT

Rev	Description	Date
0	Issued in Final	March 26, 2024

Knight Piésold CONSULTING

Management System Certified By:
bsi
ISO 9001 Quality Management Systems CERTIFIED FS 64925
ISO 14001 Environmental Management CERTIFIED EMS 550121
ISO 45001 Occupational Health and Safety Management CERTIFIED OHS 550122

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Appendix A Site Hydrology Stations and Data
Appendix B Site Water Temperature Stations Data

ABBREVIATIONS

ADCP	Acoustic Doppler Current Profiler
AEMP	Aquatic Effects Monitoring Program Plan
BC	British Columbia
BWG	Blackwater Gold Ltd.
COT	Cut off Trench
DCDB	Davidson Creek Diversion Berm
EMA	Environmental Management Act
FSR	Forest Service Road
KP	Knight Piésold Ltd.
MAC	Mine Area Creek
MDC	Main Dam C
SCP	Sediment Control Pond
the Project	Blackwater Gold Project
WMP	Water Management Pond

1.0 INTRODUCTION

1.1 GENERAL

This report presents the 2023 Annual Summary of hydrology and water temperature data for the Blackwater Gold Project (the Project). The Project is a large gold-silver deposit located approximately 112 km southwest of Vanderhoof in central British Columbia (BC). The Project is being developed by BW Gold Ltd. (BWG), a wholly owned subsidiary of Artemis Gold Ltd. Knight Piésold Ltd (KP) is assisting BWG with several activities related to the Project, including permitting, as it goes through the construction phase.

The Project site is situated on the Nechako Plateau, which is part of the Interior Plateau east of the Coast Mountain Range. This area is characterized by gently undulating, northwest-trending hills cut by small to medium-sized drainages. The elevation of the Blackwater property ranges from just over 1,000 m in low-lying areas northeast of the proposed mine to just under 1,700 m south of the proposed Open Pit. The highest local peak in the area is the summit of Mt. Davidson, at 1,800 m. Mt. Davidson is on the south-west side of the property and is the highest peak in the Fawnie Range. The Blackwater deposit is located on the northern flanks of the mountain, as shown on Figure 1.1.

1.2 PROJECT AREA CREEKS

Numerous creeks drain the watersheds in the Project area and an extensive flow monitoring program has been established to help characterize the hydrology of these streams. The five major drainage systems within the Project area are: Davidson Creek, Chedakuz Creek, Tatelkuz Creek, Turtle Creek, and Fawnie Creek. Hydrometric monitoring stations have been operated in the Project watersheds during the period of 2011 to 2023; details about the stations are provided in Section 2.0 and 2023 hydrometric monitoring results for each station are presented in Appendix A.

Davidson Creek, Chedakuz Creek, Tatelkuz Creek, Turtle Creek, Fawnie Creek, and their tributaries are further described below.

Davidson Creek Watershed:

- Davidson Creek drains lake 01682LNRS (Lake 16) and flows northeast from the Project site towards Chedakuz Creek, with a confluence approximately 800 m downstream of Tatelkuz Lake. The Blackwater deposit lies within the upper reaches of the Davidson Creek catchment area. The terrain in this area is predominantly gently inclined, except along the incised portions of Davidson Creek.
- Creek 668-328 flows east from the Fawnie Range and drains into Davidson Creek

Chedakuz Creek Watershed:

- Chedakuz Creek drains Tatelkuz Lake and flows north-west, passing under a bridge at the Kluskus Forest Service Road (FSR), approximately 2 km downstream from the lake.

Tatelkuz Lake Watershed:

- An unnamed creek drains Snake Lake north-east into Tatelkuz Lake. This unnamed creek is located between the Davidson Creek and Creek 661 catchments.
- The Snake Lake catchment area drains directly into Tatelkuz Lake.
- Creek 661 flows northeast from the Project site into Chedakuz Creek upstream of Tatelkuz Lake.

Turtle Creek Watershed:

Turtle Creek, located to the north of Davidson Creek, drains another catchment running parallel to Davidson Creek towards Chedakuz Creek. Turtle Creek flows close to Davidson Creek near the base, before flowing north under the Kluskus FSR to its confluence with Chedakuz Creek downstream of the Kluskus FSR. Chedakuz Creek flows north-west from this point for approximately 25 km to the Nechako Reservoir.

Fawnie Creek Watershed:

Along the south-west side of the Project site, Fawnie Creek, Mathews Creek and Creek 705 all flow south-west from the deposit area.

- Fawnie Creek flows south-west from Top Lake to Johnny Lake, into Entiako Provincial Park, and ultimately forming a portion of the flow of the Entiako River into the Nechako Reservoir.
- Creek 705 drains Lake 01538NRS (Lake 15), and then combines with Fawnie Creek and flows towards Laidman Lake and joins with Mathews Creek.
- Mathews Creek flows west from an unnamed lake to Laidman Lake, where it joins with Fawnie Creek.

NECHAKO RESERVOIR
KNEWSTUBB LAKE
BREWSTER LAKES
LOOSE LAKE
CHUTANLI LAKE
Chedakuz Creek
IR-28
TATELKUZ LAKE
Creek
Forde
ENTIAKO LAKE
SNAKE LAKE
TOP LAKE
Creek 661
Creek 668-328
SUSCHA LAKE
FAWNIE RANGE
NECHAKO RANGE
COW LAKE
Creek 709
Mt Davidson
Fawnie Creek
LAIDMAN LAKE
JOHNNY LAKE
KUYAKUZ LAKE
EUCHINIKO LAKES
WILLIAMSON LAKE
Matthews Creek
MOOSE LAKE
KLUSKUS
KLUSKUS LAKES
TSACHA LAKE
WOLF LAKE

5,920,000
5,900,000
5,880,000
340,000
360,000
380,000
400,000

N

LEGEND

- CITY/TOWN
- FIRST NATIONS RESERVE
- PROPERTY BOUNDARY
- PROPOSED PROJECT FACILITIES
- KLUSKUS FSR
- FLOW DIRECTION

2 1 0 2 4 6 8 10 km

NOTES:

1. BASE MAP: ESRI ARCGIS ONLINE MAP.
2. COORDINATE GRID IS IN METRES/DEGREES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:200,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	25MAR'24	ISSUED WITH REPORT	MJB	LEN	JGC

BW GOLD LTD

BLACKWATER GOLD PROJECT

2023 HYDROLOGY AND WATER TEMPERATURE ANNUAL REPORT
PROJECT LOCATION

Knight Piésold CONSULTING

P/A NO. VA101-457/40 | REF NO. 4

FIGURE 1.1 | REV 0

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1.3 SCOPE OF THE REPORT

This report focuses on hydrometric data collected in 2023 but summarises all Project hydrometric data collected since monitoring began in 2011. The data were collected in fulfillment of the requirements specified in the following permits and management plans:

- Environmental Management Act (EMA) Permit 110652
- Mines Act Permit No. M-246
- Aquatic Effects Monitoring Program Plan (AEMP) (BWG, 2022)

EMA Permit 110652 was issued to ensure that the Project complies with environmental standards to protect the environment and public health. Mines Act Permit M-246 was issued to regulate and oversee the Project mining operations, to ensure that they are conducted safely, responsibly, and with minimal environmental impact. Tables 1.1 and 1.2 summarize the conditions of the above permits that are addressed by this report.

Table 1.1 EMA Permit 110652 Table of Concordance

PE-110652 Section	Reporting Requirement	Section Where Requirement is Addressed
5.3.3 (k)	A review of the receiving environment hydrometric monitoring program required in section 4.4 of the permit, including:	
i)	Description of measurement methods, field procedures and data calculation methods.	Section 2.2 & Appendix A
ii)	Summary table of the discharge measurements recorded during the year. The summary must include staff gauge measurements, calculated flow values from a stage-discharge curve (rating curve), and manual flow measurements.	Section 2.2 & Appendix A
iii)	Hydrograph(s) at a scale appropriate for visually comparing flow values between stations.	Section 2.3 & Appendix A
iv)	Rating curve figures for each monitoring station that include a visual representation and all stage-discharge measurements used to define the active relationship, as well as the relationship equation. Changes to the rating curve(s) for any monitoring location must be clearly identified, with rationale.	Section 2.2 & Appendix A
v)	Evaluation of data quality grade for each monitoring station using the methodology with interpretation outlined in the RISC (2018). Hydrometric monitoring results that do not meet data grade B, as specified in section 4.4.6, must be identified along with a rationale and actions to be implemented by the permittee to achieve data grade B.	Section 2.7 & Appendix A
vi)	Manual discharge measurements and estimated continuous flow data records with data grade and associated rating curves must be provided in Excel Format.	Included in transmittal VA24-00411

Table 1.2 Mines Act Permit No. M-246 Table of Concordance

M-246 Section	Reporting Requirement	Conditions Satisfied
4(d)(i)	The Permittee must report results of surface water quantity monitoring, including QA/QC results, in the Annual Reclamation Report by March 31, annually. The Permittee must assess significant changes or trends in water quantity and include discussion of that assessment in the report.	Section 2.0 & Appendix A

The 2023 data presented in this report do not represent baseline hydrologic conditions due to the construction disturbances that commenced in 2023. All data collected prior to 2023 represent baseline conditions. Construction disturbances at the Project are further discussed in Section 1.5.

This annual summary report includes all streamflow, lake level, and water temperature data collected to date. The hydrology data related to streamflow and lake level measurements are presented in Section 2.0, while the water temperature measurements are discussed in Section 3.0. The content of this report supersedes all prior published hydrology data for the Project. The locations of all Blackwater Project stations installed for measuring streamflows, stream levels, lake levels, and water temperatures are shown on Figure 1.2.

1.4 2023 CONSTRUCTION PROGRESS

A summary of some of the major 2023 construction activities is provided below:

- **Plant Site:** Activities have primarily involved foundation preparation of the plant site pad, partial construction of several plant site buildings and facilities as well as partial construction of surface water collection channels, the sediment control pond (SCP), and Rapid Infiltration Basins (RIBs). The Plant Site SCP and RIBs have yet to be commissioned.
- **WMP:** Activities included the construction of the Mine Area Creek (MAC) Diversion, the North and East Berms, partial HDPE lining of the WMP and initial construction of the WMP dewatering decant tower system. All MAC flows will be diverted into Davidson Creek until the WMP is commissioned.
- **Lake 16 Diversion Berm:** The Lake 16 Diversion Berm and connector channel were constructed and diversion of Lake 16 flows into Lake 15 has commenced.
- **Davidson Creek Diversion System (DCDS):** Activities included the construction of the Davidson Creek Diversion Berm (DCDB) and construction and commissioning of the DCDS pump system upstream of the Stage 1 MDC. The purpose of the DCDS is to manage the inflows from Davidson Creek, as well as the inflows from the MAC diversion works, to maintain a dry working area for construction of the Cut off Trench (COT) and initial embankment construction. The diversion berm is located approximately 500 metres upstream of the Stage 1 MDC centerline. Flows discharge downstream of the Stage 1 MDC work area.
- **Stage 1 MDC:** Activities related to the Stage 1 MDC have involved grubbing and stripping of surficial materials in select areas of the proposed embankment footprint, partial construction of the sediment control pond, partial construction of the COT, excavation of Borrow Pit 1, and the initial fill placements in both Davidson Creek and Mine Area Creek.
- **Road construction:** Several haul and construction/access roads have been established across the Project.
- **Construction Camp:** Completion of the construction camp.

1.5 CONSTRUCTION DISTURBANCES

In years prior to 2023, the hydrometric network remained unaffected by construction disturbances from Project activities. Construction activities during 2023 such as the fish salvage operations, the construction of the DCDB, and the construction of the Lake 16 Diversion Berm may have influenced the flow patterns in Davidson Creek, Chedakuz Creek and Creek 705. Turtle Creek, Creek 661, Creek 705, Creek 668 and Tatelkuz Lake have not been affected by any construction disturbances.

The construction activities have altered flow fluctuations in the discharge records. Figure 1.2 shows the flow disruptions that occurred at stations H2 and DC-04 (downstream of the DCDB) during the month of October when a diversion pump system was setup for initial construction work on the DCDB.

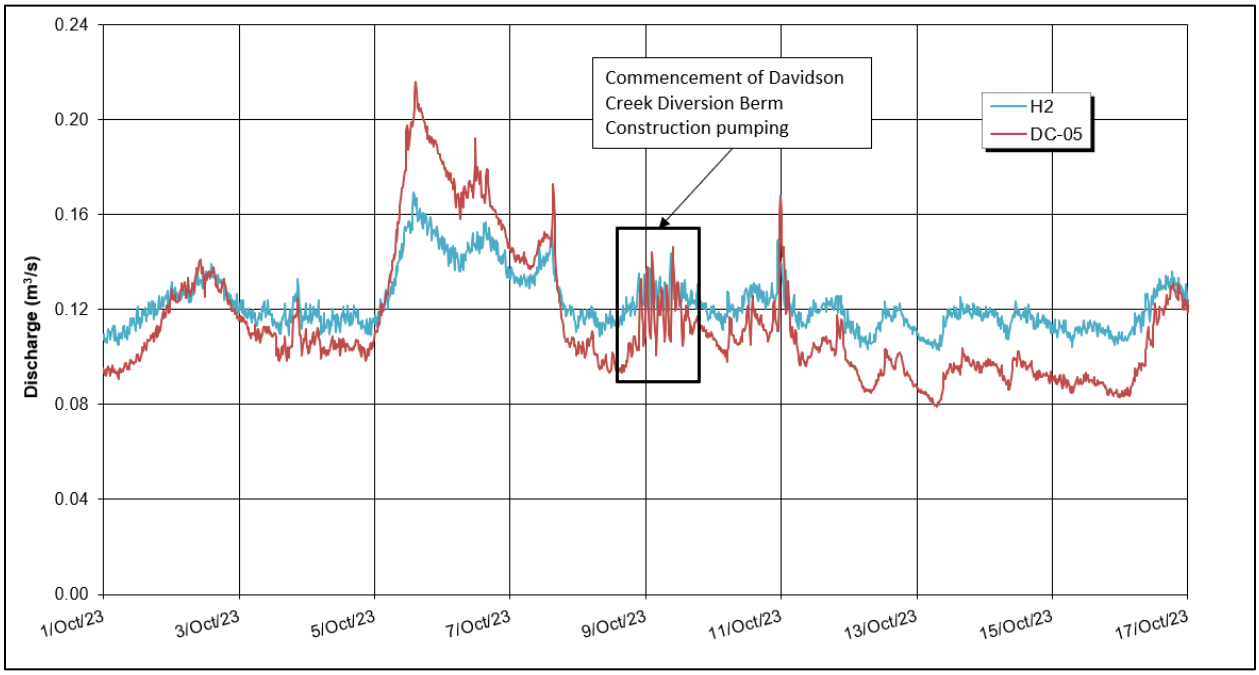


Figure 1.2 Davidson Creek Construction Disturbances Example

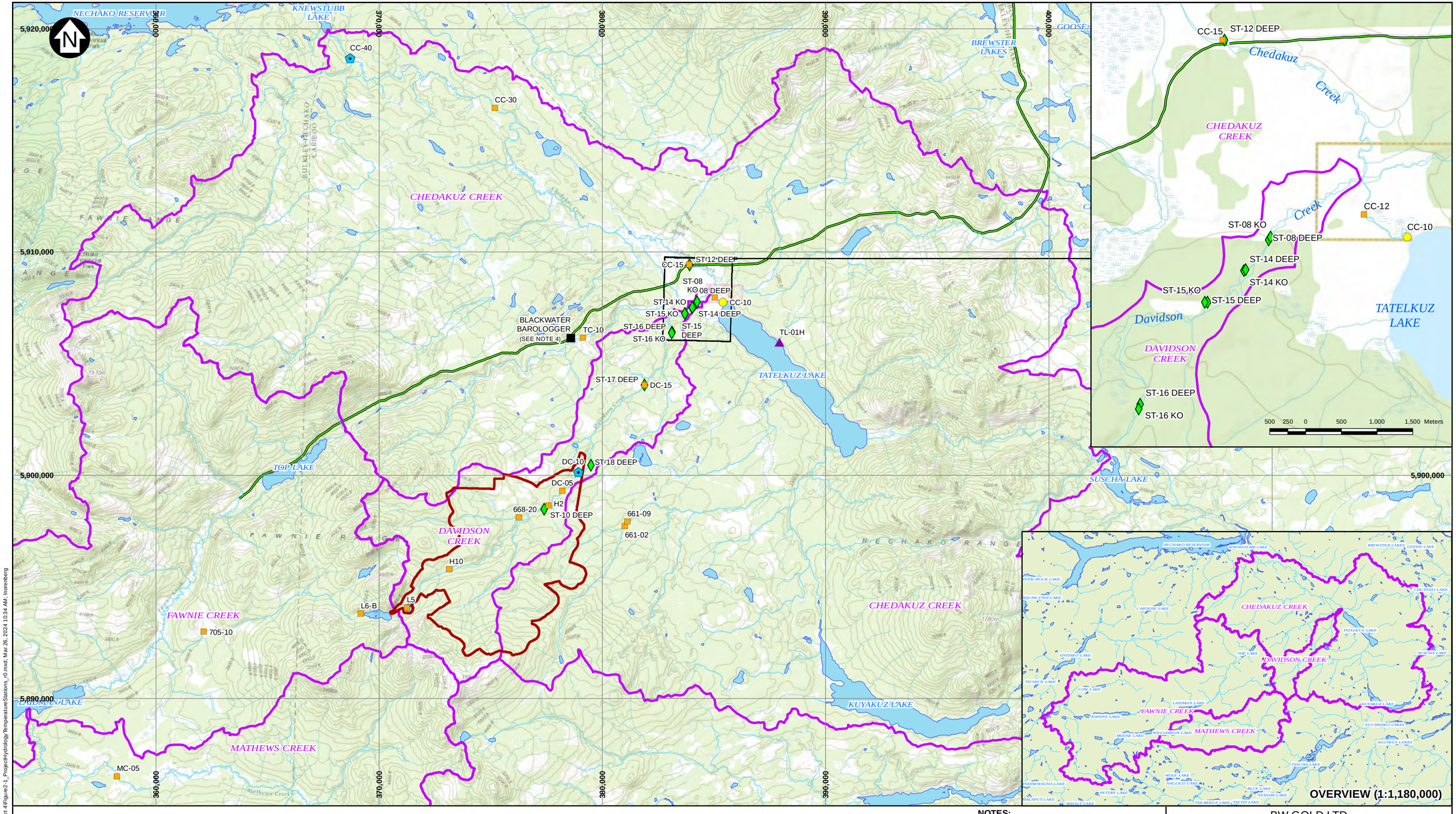
2.0 HYDROLOGY DATA

2.1 PROJECT STATIONS

This report presents the station history, rating curves, and discharge hydrographs for all active hydrology stations within the Project study area.

There are 17 dedicated hydrology stations that are active within the Project study area and two water quality monitoring locations where manual discharge measurements are taken. The hydrology stations are installed in the Davidson Creek, Tatelkuz Lake, Chedakuz Creek, Turtle Creek, and Fawnie Creek watersheds. The water quality monitoring locations utilized for manual discharge measurements are located on Davidson Creek and Chedakuz Creek. The locations of all active stations are shown on Figure 2.1. The hydrology stations typically consist of a pressure transducer sensor placed inside a protective aluminum pipe that is installed on the bank of the creek or lake. Each pressure transducer is secured at the end of an aluminum pipe and positioned a few centimetres above the creek bottom. Eight of the 17 hydrology stations have backup transducers installed to validate the accuracy of the collected stage data. A Solinst Barologger is installed on site and used to correct any non-vented pressure transducer data to atmospheric pressure. Detailed summaries of all active streamflow and water level monitoring stations, along with the water quality station manual discharge measurements, are presented in Appendix A. Details about Station CC-15 are presented as an example throughout Section 2.0. No stage measurements were recorded with the water quality station manual discharge measurements.

Streamflow stations were previously denoted with an H, lake level and lake outflow stations were denoted with an L, and the water quality stations were denoted with WQ. The station identification convention has been updated to align with the identifiers used in the Joint *Mines Act* / *Environmental Management Act* Permits Application (the Application). The previous and updated station identifiers and station characteristics are summarized in Table 2.1. Stations H2 and H10 were not referred to in the Application and do not have updated identifiers. Only the updated station IDs are referenced throughout this report.



LEGEND

- PERMIT M-246 BOUNDARY
- WATERSHED BOUNDARY
- FIRST NATIONS RESERVE
- KLUSKUS FSR
- PROJECT FACILITIES
- ACTIVE STREAMFLOW AND TEMPERATURE MONITORING STATIONS
- STREAM FLOW MONITORING STATION
- WATER QUALITY STATION
- WATER LEVEL AND TEMPERATURE MONITORING STATIONS
- TEMPERATURE MONITORING STATION
- BAROMETRIC LOGGER

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	25MAR'24	ISSUED WITH REPORT	MJB	LEN	JGC

NOTES:

1. BASE MAP: ESRI ARCGIS ONLINE MAP.
2. COORDINATE GRID IS IN METRES/DEGREES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 10N.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:160,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. THE BLACKWATER BAROLOGGER WAS PREVIOUSLY INSTALLED AT DC-05 AND RELOCATED ON JULY 6, 2023, TO THE LOCATION SHOWN.

BW GOLD LTD

BLACKWATER GOLD PROJECT

PROJECT HYDROLOGY AND WATER TEMPERATURE MONITORING STATIONS

Knight Piésold CONSULTING

PIA NO. VA101-457/40

REF NO. 4

FIGURE 2.1

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Table 2.1 Summary of Site Hydrology Stations

Watershed		Location		Parameters Collected	Station Identifier		Background Station [1]	EMS ID	Easting	Northing	Elevation	Drainage Area	Installed
					Previous	New	(Y/N)		(m)	(m)	(masl)	(km^2)	
Chedakuz Creek	Davidson Creek	Lake 01682LNRS		Continuous and Instantaneous Water Level	L5		N	-	371,245	5,894,057	1,353	2	July 26, 2012
		Upper Davidson Creek		Continuous Water Level & Instantaneous Stage and Discharge Measurements	H10		N	-	373,139	5,895,780	1,311	7	May 8, 2012
				Continuous Water Level & Instantaneous Stage and Discharge Measurements	H2		N	-	377,586	5,898,645	1,181	44	May 19, 2011
				Continuous Water Level & Instantaneous Stage and Discharge Measurements	H2B	DC-05	N	E331279	378,205	5,899,299	1,158	46	February 14, 2018
				Instantaneous Discharge Measurements	WQ27	DC-10	N	E331280	378,925	5,900,138	1,136	47	N/A
		Middle Davidson Creek		Continuous Water Level & Instantaneous Stage and Discharge Measurements	H4B	DC-15	N	E331281	381,893	5,904,051	1,041	61	May 9, 2012
		Creek 668328		Continuous Water Level & Instantaneous Stage and Discharge Measurements	-	668-20	N	-	376,279	5,898,112	1,205	9.5	August 4, 2023
	Turtle Creek	Turtle Creek		Continuous Water Level & Instantaneous Stage and Discharge Measurements	N/A	TC-10	Y	E331285	379,129	5,906,160	1,024	57	May 21, 2021
	Tatelkuz Lake	Tatelkuz Lake		Continuous and Instantaneous Water Level	L1	TL-01H	Y	E331309	387,946	5,905,964	934	392	April 11, 2012
		Outlet of Tatelkuz Lake		Instantaneous Stage and Discharge Measurements	L1-Outlet	CC-10	Y	E331297	385,404	5,907,760	934	392	May 10, 2012
		Creek 661	Creek 661	Continuous Water Level & Instantaneous Stage and Discharge Measurements	H1	661-02	Y	E331288	380,977	5,897,748	1,172	9	May 19, 2011
			Tributary of Creek 661	Continuous Water Level & Instantaneous Stage and Discharge Measurements	H11	661-09	Y	E331294	381,129	5,897,914	1,165	15	June 12, 2013
	Chedakuz Creek	Upper Chedakuz		Continuous Water Level & Instantaneous Stage and Discharge Measurements	-	CC-12	Y	E331298	385,044	5,907,955	930	392	February 16, 2023
				Continuous Water Level & Instantaneous Stage and Discharge Measurements	H5	CC-15	N	E331299	383,898	5,909,443	930	593	April 19, 2011
		Lower Chedakuz		Continuous Water Level & Instantaneous Stage and Discharge Measurements	WQ29	CC-30	N	E331301	375,187	5,916,462	896	689	July 27, 2023
	Chedakuz Creek	Lower Chedakuz		Instantaneous Discharge Measurements	WQ30	CC-40	N	E331302	368,695	5,918,685	871	819	N/A

Watershed		Location	Parameters Collected	Station Identifier		Background Station [1]	EMS ID	Easting	Northing	Elevation	Drainage Area	Installed
				Previous	New	(Y/N)		(m)	(m)	(masl)	(km^2)	
Fawnie Creek	Mathews Creek	Mathews Creek	Continuous Water Level & Instantaneous Stage and Discharge Measurements	H12	MC-05	Y	E331306	358,247	5,886,498	1,076	117	October 30, 2014
	Creek 707	Outlet of Lake 01538NRS	Continuous Water Level & Instantaneous Stage and Discharge Measurements	L6-B		N	-	369,191	5,893,789	1,356	4	May 24, 2013
		Creek 705	Continuous Water Level & Instantaneous Stage and Discharge Measurements	H7	705-10	Y	E331304	362,143	5,892,983	1,102	42	May 8, 2012

Note(s):

1. Stations marked “Y” are considered to be background stations that will be unaffected by Project activities.

2.1.1 MANUAL DISCHARGE MEASUREMENTS

In accordance with condition 4.4.2 of Environmental Management Act (EMA) Permit 110652, a minimum of three manual discharge measurements were taken at each automated monitoring station during the open water season. Manual discharge measurements were taken for a range of flow conditions throughout the open water season to monitor the stage-discharge relationship for shifts.

2.2 RATING CURVE DEVELOPMENT

A rating curve describes the relationship between water level (stage) and discharge at a specific location in a stream. A rating curve was developed for each monitoring station and was applied to the respective continuous water level record to derive a continuous streamflow record for each station. Stage and discharge measurements, which are required to develop these rating curves, were obtained for each station during several site visits. During each site visit, the stage was determined independently of the data logger record either from reference mark observations or by surveying the water level from the station benchmarks. Typically, at least two discharge measurements were taken during each site visit, and if the stage remained constant throughout the visit, the average of the two discharges was used for the delineation of the rating curve. A minimum of five such stage-discharge measurements over a wide range of streamflows are required to establish a rating curve, as required by EMA Permit 110652.

Three different techniques have been used to collect discharge measurements at the hydrometric stations:

- Current meter (Marsh-McBirney Flo-Mate 2000 or Hach FH950 Flow Meter): Used if streamflow in the channels allowed for safe wading. Depth measurements were made using a wading rod and the area-velocity technique was used to establish the total discharge. This is the primary discharge measurement method that was used at the Project and it was used to complete all discharge measurements during the 2023 monitoring period.
- Dilution: Used if streamflow was too high to allow for safe wading, or conditions were too turbulent. The dilution technique was employed using a Rhodamine WT dye slug injection. This discharge measurement method was performed at MC-05 on June 18, 2014).
- Acoustic Doppler Current Profiler (ADCP): Used at sites with unwadeable flow conditions whose channel characteristics did not allow for thorough mixing of Rhodamine dye. This method also makes use of the velocity-area technique but utilizes Doppler technology to collect high-resolution depth and velocity data with a floating instrument that is pulled across the channel on a tethered rope, or a motorized boat controlled by an operator on shore. This discharge measurement method was performed at the following stations in previous years: H10, MC-05, CC-10, and CC-30.

Detailed summaries of the data collected at all active streamflow and water level monitoring stations are presented in Appendix A. An example summary presenting all the 2023 measurements for Chedakuz Creek (CC-15) is presented in Table 2.2. This station has one of the longest monitoring records within the Project study area and remains active during the winter months due to open water conditions. The location of this stream gauge will remain unaffected by the direct development of the mine site and the station will remain active for long-term monitoring purposes.

Table 2.2 Chedakuz Creek Hydrology Station CC-15 - 2023 Stage-Discharge Measurements

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
5-Jan-23	2	Current Meter	0.579	0.912	10%	0.005
16-Feb-23	2	Current Meter	0.58	1.019	10%	0.005
1-Jun-23	2	Current Meter	0.732	3.209	10%	0.005
9-Aug-23	2	Current Meter	0.598	1.322	10%	0.005
15-Sep-23	2	Current Meter	0.526	0.536	10%	0.005
13-Oct-23	2	Current Meter	0.525	0.540	10%	0.005
1-Nov-23	2	Current Meter	0.521	0.467	10%	0.005

The uncertainty associated with all the discharge measurements indicated in Table 2.2 is ±10%. At other sites, the uncertainty at times increased to over 25% during some of the highest and lowest measurements due to more difficult measurement conditions. Discharge measurements with greater than 25% uncertainty were considered erroneous and were not included in the rating curve development. The guidance used for estimating uncertainty for discharge measurements collected with each technique are detailed below:

- Current meter: The uncertainty is based on a qualitative assessment of the measurement transect for areas of excessive turbulence or flow reversal, and the distribution of cross-sectional discharge across the depth-velocity measurement cells.
- Dilution: The discharge uncertainty estimate is based on the quality of dye mixing, instrument calibration, and measurement location.
- ADCP: The discharge uncertainty estimate is quantified by assessing the difference between successive measurements as well as the difference between the measured discharge and the total discharge, which includes estimates of the flow along the edges and bottom of the channel.

Each rating curve was matched to the measured data by manually fitting 'visual-best-fit' lines to the calibration data, with consideration of the physical conditions at each site and with the objective of minimizing the difference between the rating curve predicted discharges and the measured discharges. The hydraulic characteristics of the control section were also considered during the delineation of the rating curves. The basic form of the rating curve equation is based on general hydraulic theory pertaining to open channel flow, and the values of the coefficient and exponent are dependent on the hydraulic characteristics of the control section at the gauge, which provides a means of checking the validity of the derived equation (Maidment, 1993). The stage-discharge rating curves are represented by an equation, or series of equations, of the form:

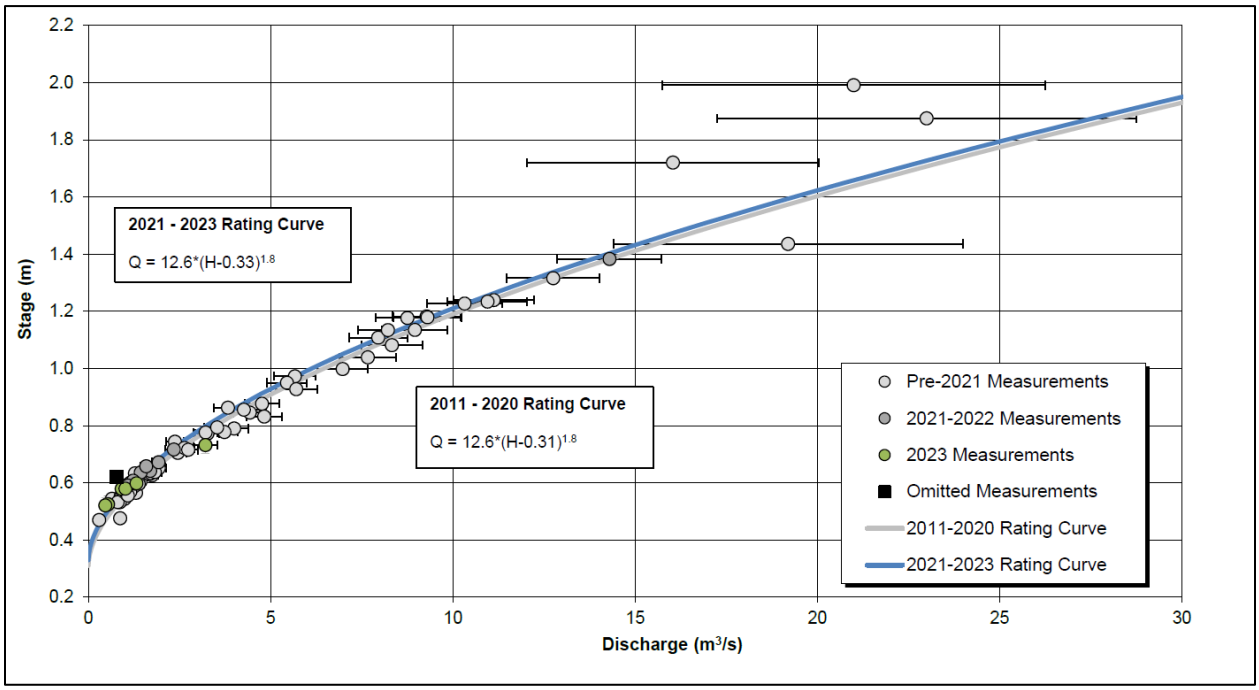
$$\boldsymbol{Q = C \times (Stage - A)^n}$$

Where Q is the discharge in cubic meters per second (m^3/s), C is a curve coefficient, $Stage$ is the height of the water surface above an arbitrary site datum, A is an offset (frequently given as the stage of zero flow), and n is a curve exponent.

Rating curves for each station were developed and are presented in Appendix A. Rating curves extrapolated over the entire range of recorded stage for each station are also presented in Appendix A, which provides a measure of how much extrapolation of a curve is required to develop the flow series. An

example rating curve for Chedakuz Creek station CC-15 is presented on Figure 2.2 and an example of the extrapolated rating curve for Chedakuz Creek station CC-15 is shown on Figure 2.2.

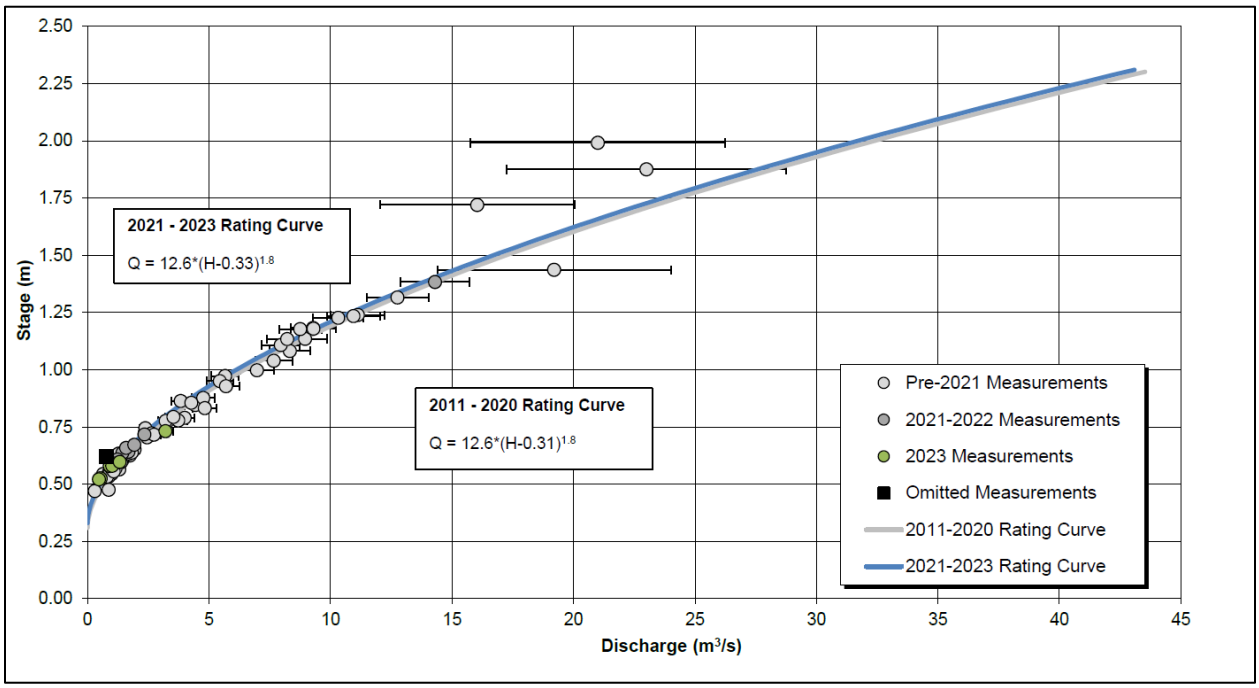
All stage-discharge measurements collected before 2021 and which are associated with the initial rating curve are presented as light grey points and are denoted as “pre-2021 measurements.” The initial rating curve is also presented in light grey. A slight upward shift in the curve is indicated by the 2021-2023 stage-discharge measurements, so a new curve was developed for this period. The 2021-2022 stage-discharge points are presented as dark grey points and the 2023 points are presented as green points, with the current rating curve presented in blue.



Note(s):

1. Figure source: Figure A 5.5 included in Appendix A.
2. This station was previously named “H5”.

Figure 2.2 Chedakuz Creek Hydrology Station CC-15 Rating Curves



Note(s):

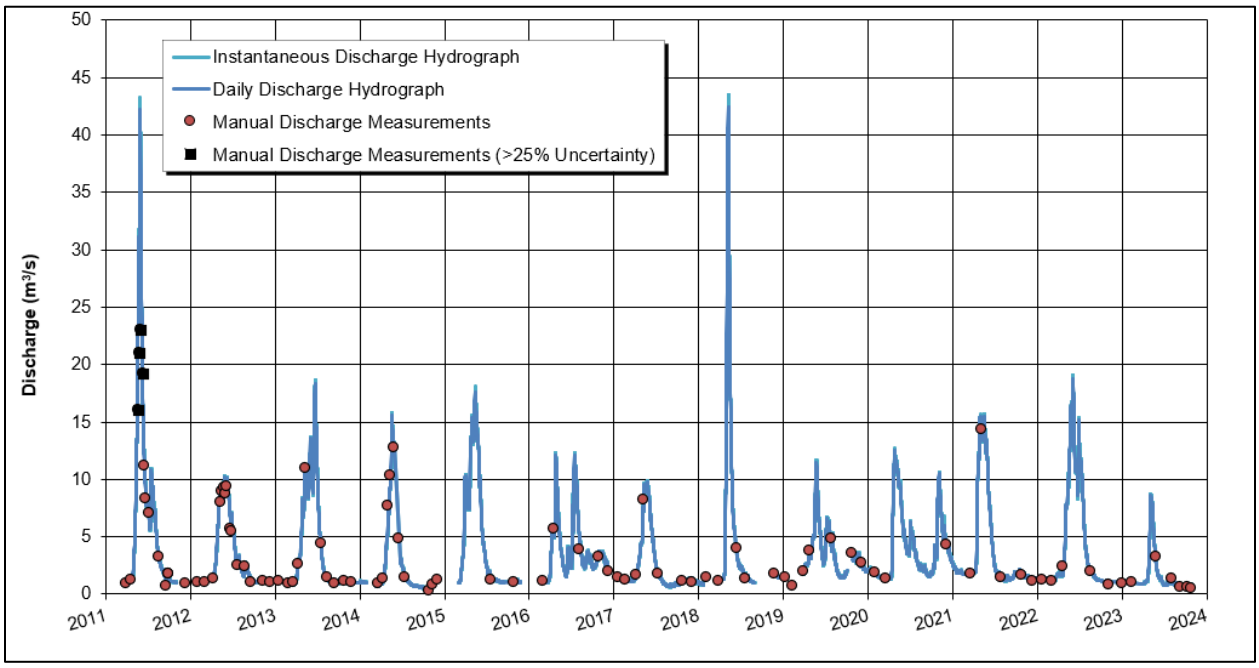
1. Figure source: Figure A 5.6 included in Appendix A.
2. This station was previously named “H5”.

Figure 2.3 Chedakuz Creek Hydrology Station CC-15 Rating Curves – Extrapolated to Maximum Recorded Stage

2.3 MEASURED DISCHARGE RECORDS

Measured discharge records were developed for each hydrology station by applying rating curves to their respective stage records. Prior to application of the rating curves, the water level data were corrected to the station datum for all data collected during open water conditions, when the stage-discharge relationship was not altered by transient effects such as icing of the channel. The offset for water levels was based on the benchmark surveys completed throughout the period of record and the corrected water level data are referred to as stage data. Periods with erroneous water level data that could be due to ice effects, instrumentation malfunction, and sensor or clock drift, were reviewed and corrected or removed from the data sets. Water level to stage corrections were undertaken in KP’s FULCRUM data management system, which allows for advanced data correction and correction tracking.

The resulting discharge hydrographs are typically characterised by high spring snowmelt-driven flows, low summer and fall flows sustained by groundwater inflows and periodic rainfall events, and very low winter flows fed by groundwater. Winter discharge is very low because of cold temperatures and freezing conditions, as observed during winter site visits. 15-minute discharge values were averaged to produce daily discharge records for each station. Discharge hydrographs for each station are presented in Appendix A and an example hydrograph for Chedakuz Creek station CC-15 is shown on Figure 2.4.



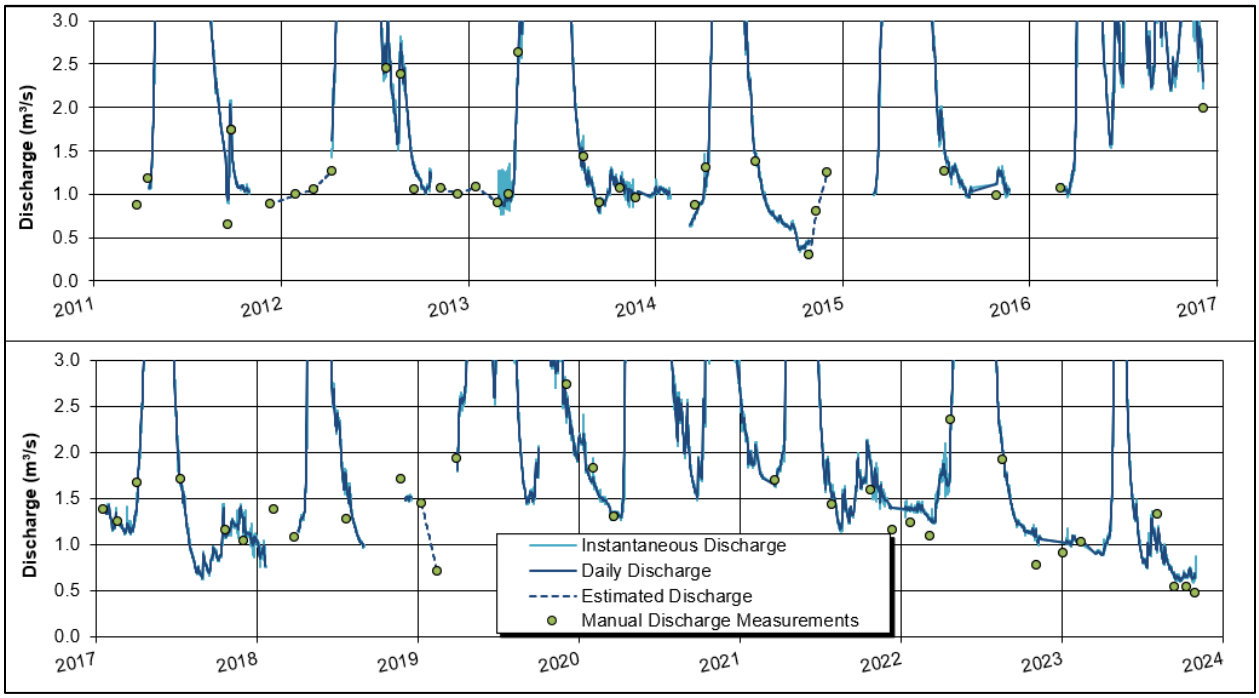
Note(s):

1. Figure source: Figure A 5.7 included in Appendix A.
2. This station was previously named “H5”.

Figure 2.4 Chedakuz Creek Hydrology Station CC-15 Discharge Hydrograph

2.3.1 ESTIMATED WINTER STREAMFLOW

Winter discharge is typically very low due to cold temperatures and freezing conditions. Discharge measurements were collected during the winter months (typically late October to early April) at monitoring stations where site conditions allowed. The uncertainty associated with these discharge measurements was generally estimated to be in the range ±10% to ±15%, although the uncertainty increased up to ±20% in the most difficult measurement conditions. Measurements that were ice affected were not used for rating curve development but rather were used to characterise winter streamflows. Estimated winter flow values were calculated using linear interpolation between winter discharge measurements to infill the gap between individual measurements. This approach is valid because there is little to no rainfall during the winter so flows in the creeks are almost exclusively supplied by groundwater discharge that occurs in a very controlled and slowly decreasing manner (flows drop as the groundwater table drops). Winter flows were calculated when a sufficient number of measurements were made during a short period to estimate the hydrograph shape with some certainty. The estimated winter discharge values were added to the discharge records for each station. Low flow hydrographs that focus on estimated winter and summer low flows for each station are presented in Appendix A, and an example low flow hydrograph for Chedakuz Creek station CC-15 is shown on Figure 2.5.



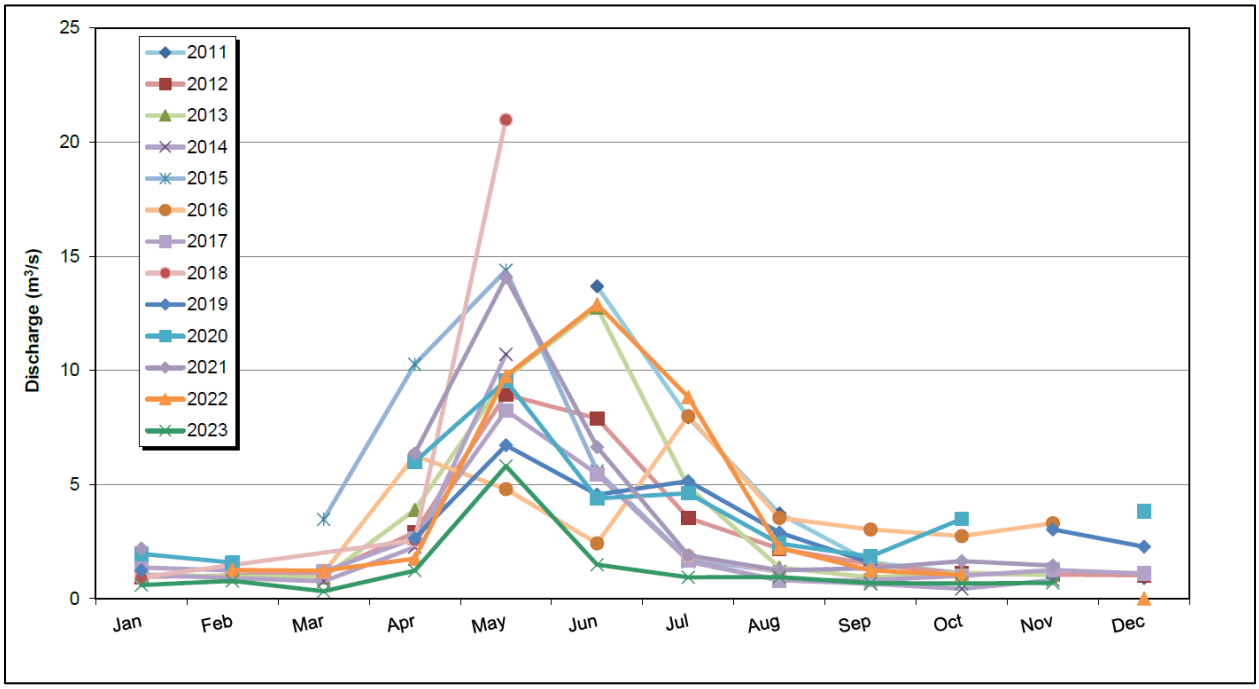
Note(s):

1. Figure source: Figure A 5.4, which is included in Appendix A.
2. Winter flow values have been estimated by extrapolating between sequential individual discharge measurements.
3. This station was previously named “H5”.

Figure 2.5 Chedakuz Creek Hydrology Station CC-15 Low Flow Hydrograph

2.4 MEAN MONTHLY DISCHARGE

The monthly mean discharge for each year of record between 2011 and 2023 was calculated for all hydrology stations and presented in Appendix A. Monthly mean discharge values are only presented for months with at least 20 days of discharge data. An example of the monthly mean discharge for Chedakuz Creek Station CC-15 is presented on Figure 2.6.



Note(s):

1. Figure source: Figure A 5.4 is included in Appendix A.
2. Monthly means are only presented for months with at least 20 days of record.
3. This station was previously named “H5”.

Figure 2.6 Chedakuz Creek CC-15 Mean Monthly Discharge

This figure indicates that the typical annual hydrograph at the CC-15 station has a unimodal shape, with the peak occurring in May or June. The hydrograph in 2016 was bimodal, with an initial peak in the spring due to snowmelt followed by a pronounced second peak in the summer due to unusually wet conditions. The hydrographs for 2019 and 2020 appear to have three high flow periods, with a primary peak during the spring freshet period followed by unusually high flow periods in July and again in the fall due to unusually wet conditions observed at all Chedakuz Creek hydrometric monitoring stations.

2.5 COMPARISON OF UNIT RUNOFF HYDROGRAPHS

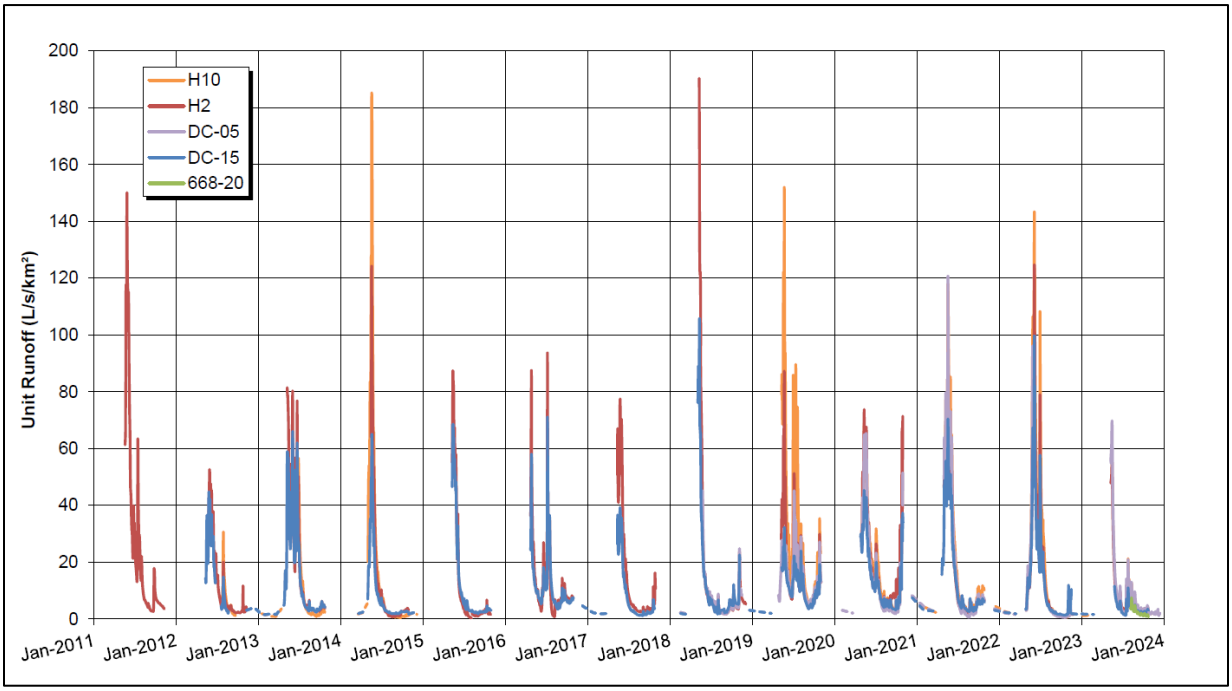
The discharge hydrographs for each station included in Appendix A have been converted to daily unit runoff. The stations have been separated into five major catchments for clarity, as follows:

- The Davidson Creek catchment, consisting of stations H10, H2, DC-05, DC-15 and 668-20.
- The Turtle Creek catchment, consisting of station TC-10.
- The Creek 661, Tatelkuz Lake and Chedakuz Creek catchments, consisting of stations 661-02, 661-09, CC-10, CC-12, CC-15, and CC-30.
- The Fawnie Creek catchment, consisting of stations 705-10 and MC-05.

Overall, all streamflows measured within the Project study area show consistent relationships and trends. As described above for Chedakuz Creek station CC-15, with the exception of 2016, 2019, and 2020, during all years since hydrometric monitoring began in 2011 the annual hydrograph has a unimodal shape, with one distinct freshet peak in late May or June due primarily to snowmelt. In 2016, 2019, and 2020, the creeks experienced two or three high flow periods, with the initial peak in the spring due primarily to snowmelt followed by high flow periods in the summer and/or fall due to unusually wet conditions. Furthermore, the streamflow records indicate that stations with higher elevations and smaller catchments tend to experience relatively higher unit runoff during the spring freshet period and lower unit runoff during the summer, while stations directly downstream of a lake show runoff attenuation (flatter hydrographs) related to the storage capacity of the upstream lake. Estimated winter flows are represented by a dashed line in all hydrographs. Winter flow data were estimated by means of linear interpolation between individual winter discharge measurements.

2.5.1 DAVIDSON CREEK CATCHMENT

The unit runoff comparison for the Davidson Creek Watershed is presented on Figure 2.7.



Note(s):

1. Estimated data are shown as a dashed line.

Figure 2.7 Davidson Creek Catchment Unit Runoff Hydrographs

Streamflows at all stations are generally very similar in magnitude and shape, though there are some notable differences between the flows in the small upper catchments and those in the larger lower catchments. Streamflows in the small upper catchments (H10, H2 and DC-05) have higher unit runoff during freshet than streamflows in the larger lower catchments (DC-15), as expected, considering that the upper catchments have greater snowpack depths. Due to the very short streamflow record for 668-20 station data, which began in August 2023, it is difficult to determine the annual runoff pattern for this station; however, it appears to follow a similar pattern to that of the other small upper catchments.

Streamflows in the small upper catchments have lower unit runoff during the summer than in the larger lower catchments because the upper catchments have lower groundwater storage and discharge potential.

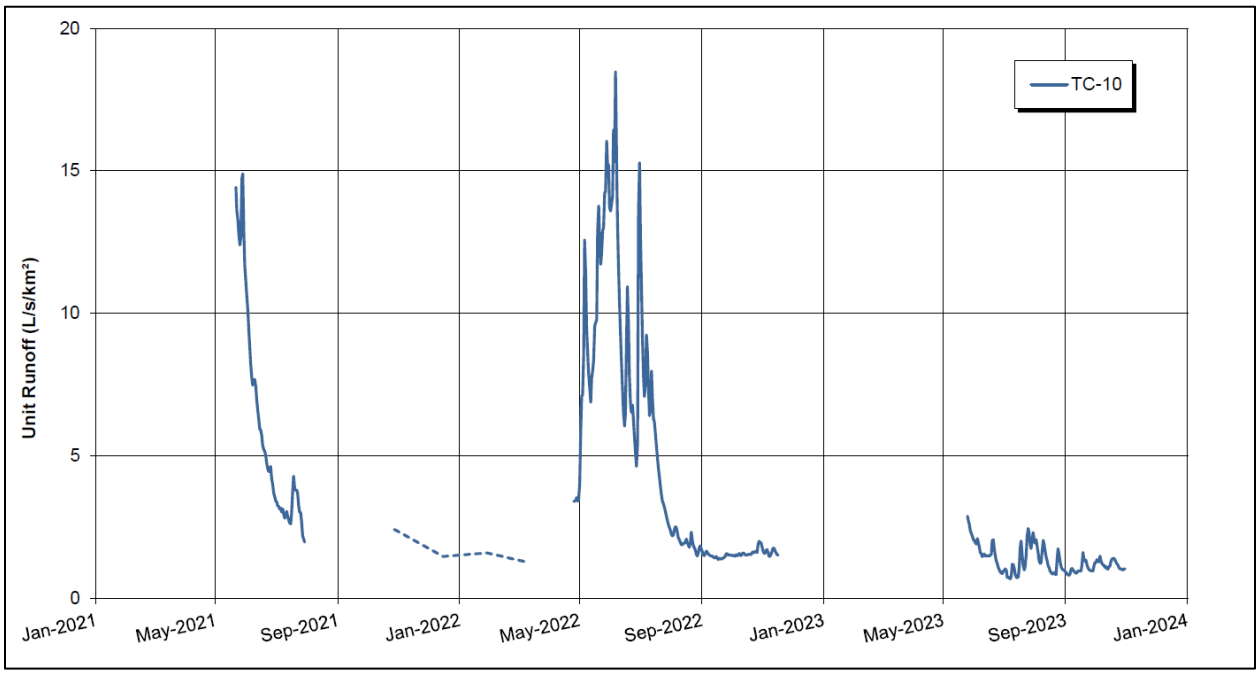
The calculated discharges at H2 were greater than the calculated discharges at DC-15 during the freshet periods of 2014, 2017, 2019, and 2020, despite H2 being upstream of DC-15 and having a smaller drainage area. The discharge hydrographs for the two stations are included in Appendix A on Figure A 2.10 (station H2) and Figure A 2.20 (station DC-15). Screening of DC-15's logger data revealed a roughly 20 cm drop in the long-term water level condition after the highest-on-record peak flow event in May 2018, but this has been accounted for in the rating curve. Furthermore, the rating curves for both the H2 and DC-15 stations are good quality and the calculated discharges for H2 have been validated by concurrent discharges at downstream station DC-05. Therefore, data quality can be ruled out as the cause of the apparent discrepancy in peak flow discharges.

It is hypothesized that some flow in Davidson Creek was bypassing DC-15 in a side channel during very high flow events, as indicated by the 2014 discharge record. This side channel became larger during 2017, redirecting enough flow that the recorded data indicated greater flow at the H2 station than downstream at DC-15 station throughout the entire 2017 record. The peak flow event in May 2018 was geomorphologically significant, resulting in unstable channel geomorphology during the 2018 to 2020 recording seasons. It is possible that the channel geomorphology stabilized after the 2020 recording season.

The unstable geomorphology is indicated by the calculated discharge at DC15 being greater than those for H2 for all flows in 2018, 2021, and 2022, but lesser for flows greater than approximately 1 m^3/s in 2019 and 2020. Conversely, the 2023 flows at the two stations are almost identical. It is possible that the side channel closed after the peak flow event in May 2018, as indicated by a change in the flow patterns. For instance, the 2022 peak flows were higher than those in 2014 but resulted in flows at DC15 that were greater than those at H2; the opposite of what was observed in 2014. Peak flows of the magnitude observed in 2014 and 2022 were not observed in the recording period of 2019 to 2021, so it cannot be determined exactly when the side channel may have closed. The discrepancy in flows between H2 and DC15 will continue to be monitored as the hydrology field program continues.

2.5.2 TURTLE CREEK CATCHMENT

The unit runoff hydrograph for the single station in the Turtle Creek catchment, TC-01, is presented on Figure 2.8. TC-01 was established in May of 2021 and services a relatively large and low elevation watershed. The three years of available freshet record show lower unit runoff than for smaller, higher elevation stations in the Project area. The two years of available summer fall record show higher unit runoff than for smaller, higher elevation stations in the Project area.



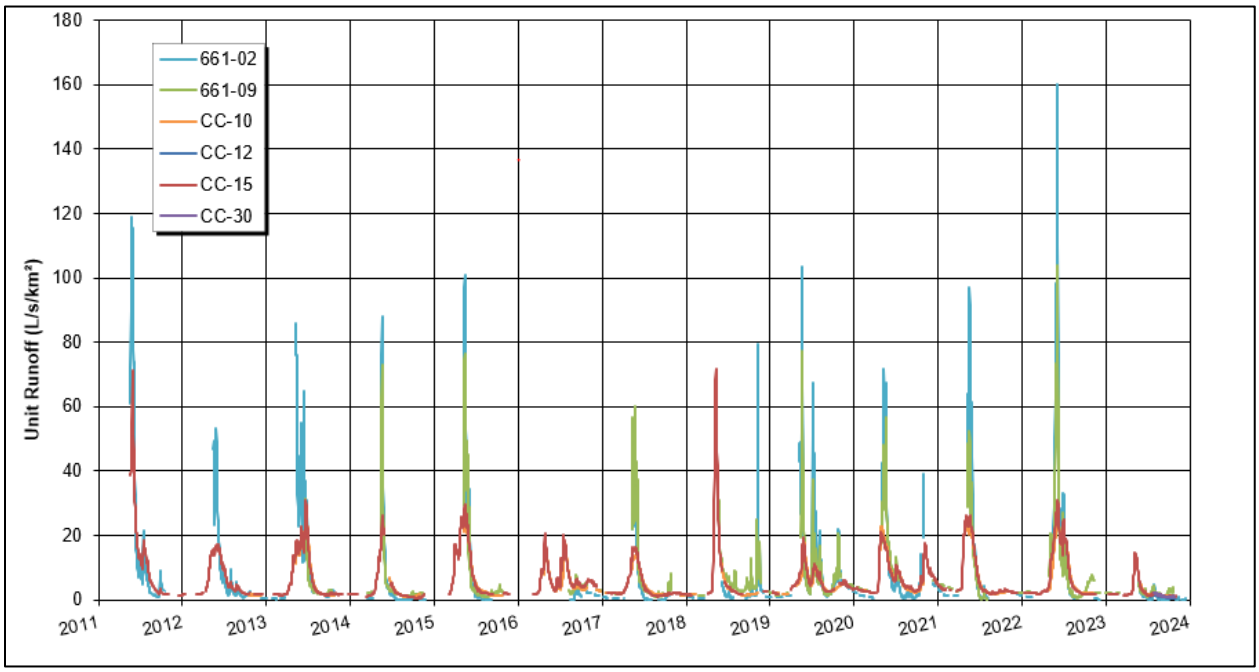
Note(s):

1. Data estimated from winter manual discharge measurements are shown as a dashed line.

Figure 2.8 Turtle Creek Catchment – H6 Unit Runoff Hydrograph

2.5.3 CREEK 661, TATELKUZ LAKE AND CHEDAKUZ CREEK CATCHMENTS

A unit runoff comparison for the Creek 661, Tatelkuz Lake, and Chedakuz Creek catchments is presented on Figure 2.9. Unit runoff for Tatelkuz Lake Outlet station CC-10 and Chedakuz Creek station CC-15 are quite similar, with slightly higher freshet unit peak flows at CC-10 but very similar rising and falling limb flows as well similar summer and fall low flows. It is difficult to ascertain the exact annual hydrograph shape of flows at the Chedakuz Creek stations CC-12 and CC-30 due to the lack of collected record from years prior to 2023, but they appear to follow a similar pattern to flows at the other Chedakuz Creek stations. Unit runoff values at these stations are notably lower than those at the much smaller and higher elevation stations on Creek 661 (661-02 and 661-09), indicating the effect of watershed size, elevation, and lake attenuation. Unit runoff values at the two stations in the Creek 661 watershed are quite similar. 661-02 generally has a higher unit runoff during the peak of the freshet and lower base flows when compared to 661-09. The 661-09 watershed is roughly 1.5 times larger than the 661-02 watershed, and the creek on which 661-09 is located has a confluence with Creek 661 immediately downstream of the two stations.



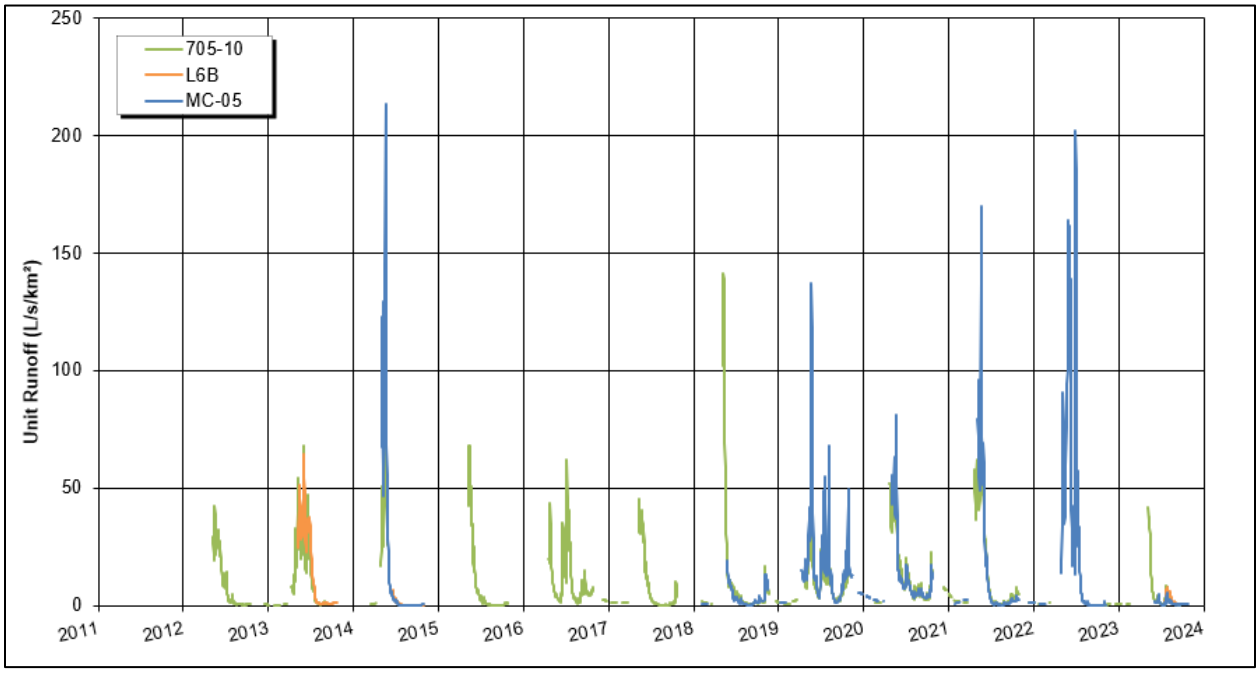
Note(s):

1. Data estimated from winter manual discharge measurements are shown as a dashed line.

Figure 2.9 Creek 661, Tatelkuz Lake and Chedakuz Creek Catchments Unit Runoff Hydrographs

2.5.4 FAWNIE CREEK CATCHMENT

The unit runoff comparison for the stations in the Fawnie Creek watershed is presented on Figure 2.10. The flows from these stations agree with the overall trends observed at the other stations. It is difficult to determine the exact flow patterns for lake outlet station L6B, but it appears to show higher unit runoff during freshet which could be attributed to the effects of elevation caused by larger snowpack depth. In general, the unit runoff values and annual patterns between stations 705-10 and MC-05 are very similar, though MC-05 exhibits slightly higher freshet unit peak flows.



Note(s):

1. Data estimated from winter manual discharge measurements are shown as a dashed line.

Figure 2.10 Fawnie Creek System Unit Runoff Hydrographs

2.6 QUALITY ASSURANCE AND QUALITY CONTROL

The hydrometric data collected for the Project have been reviewed by a qualified Hydrometric Data Reviewer in general accordance with the "Standard Process for Review of Hydrometric Data," as detailed in the Manual of British Columbia Hydrometric Standards (RISC 2018). Many of the hydrometric data sets were assigned an overall Grade E (RISC, 2018), due to benchmark surveys having been completed using less than three reference points because of some historical benchmarks having poor stability. Aside from the benchmark surveys, the project hydrometric data sets are of good quality, predominantly Grade A (RISC, 2018), and are appropriate for assessing and monitoring the hydrological characteristics of the Project.

A summary of the 2023 data quality is presented in Table 2.3, which includes the RISC grading score for each station's data. The RISC standards range from Grade A, which is the highest level of data quality in the hierarchy of provincial standards, to Grade U, which is for data of unknown quality that cannot be assigned a standard quality level.

Table 2.3 Hydrometric Monitoring Station 2023 Data Quality

Station ID	Discharge Data			Stage/Water Level Data			Overall Grade	Comments
	Instrumentation	Field Procedure	Data Calculation and Assessment	Instrumentation	Field Procedure	Data Calculation and Assessment		
661-02	A	E	B	A	E	A	**E**	Less than 3 benchmarks used in 2 of 3 surveys.
661-09	A	B	B	A	A	A	**B**	Discharge measurements deviated from rating curve by up to approximately 30%.
668-20	A	A	A	A	A	A	**A**	
705-10	A	E	B	A	E	A	**E**	Less than 3 benchmarks used in 5 of 6 surveys.
CC-10	A	E	E	-	E	A	**E**	Less than 3 benchmarks used in 7 of 7 surveys. Discharge measurements deviated from rating curve by up to approximately 80% for low flow conditions.
CC-12	A	A	A	A	A	A	**A**	
CC-15	A	E	E	A	E	A	**E**	Less than 3 benchmarks used in 7 of 7 surveys. June 1 discharge measurement deviated from rating curve by approximately 30%.
CC-30	A	E	A	A	E	A	**E**	Less than 3 benchmarks used in 6 of 6 surveys.
CC-40	A	A	A	-	-	-	**A**	Water quality and manual discharge measurement monitoring station - no stage data.
DC-05	A	E	C	A	E	A	**E**	Less than 3 benchmarks used in 7 of 7 surveys.
DC-10	A	A	A	-	-	-	**A**	Water quality and manual discharge measurement monitoring station - no stage data.
DC-15	A	A	A	A	A	A	**A**	
H10	A	A	C	A	A	A	**C**	June 2 discharge measurement deviated from rating curve by approximately 20%.
H2	A	E	B	A	E	A	**E**	Less than 3 benchmarks used in 4 of 4 surveys.
L5	-	-	-	A	A	A	**A**	Lake station - no discharge data.
L6-B	A	B	E	A	B	A	**E**	August 22 discharge measurement deviated from rating curve by approximately 40%.
MC-05	A	A	A	A	A	A	**A**	
TC-10	A	A	C	A	A	A	**C**	May 25 discharge measurement deviated from rating curve by 32%.
TL-01H	-	-	-	A	E	A	**E**	Less than 3 benchmarks used in 4 of 5 surveys. Lake station - no discharge data.

Note(s):

1. RISC standards are referenced from the Manual of British Columbia Hydrometric Standards, Version 2.0 (RISC, 2018).

Further to this review, the Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (MOE, 2016) lists the following information that should be documented as part of the QA/QC process:

- Error bounds of instruments, data loggers, conversion factors, rating curves, etc.
- Operational limits of sensors (i.e., performance in sub-zero temperatures).
- Sensor drift and correction procedures.
- Benchmark surveys and shift corrections.
- Sensitivity analyses.
- Chronological record of field visits, maintenance, and calibration programs.
- Whether discharge data have been estimated by extrapolating beyond measured discharge on the rating curve (may introduce error at the low and high ends of the curve).

The following information has therefore been provided to satisfy these requirements.

Error Bounds:

Uncertainty exists in the measurement of both water level and discharge recorded as part of a hydrometric program. Water level uncertainty primarily arises from wave action above the water level sensor and is positively correlated to the magnitude of discharge (i.e., larger water level uncertainties exist at higher flows). To document this uncertainty, an estimate of the variability in the true water level was recorded during each site visit. This estimate was determined during the reading of the water level from the reference mark or during a benchmark survey and was considered when determining the rating curve for each station. Uncertainty in the manual discharge measurements was also recorded during each site visit when discharge was recorded. Discharge uncertainty was estimated based on the characteristics of the measurement cross-section, the percent discharge recorded in each flow column, and the variability in calculated discharge between multiple measurements recorded during a single site visit. Discharge uncertainty is presented graphically as error bounds on the rating curve figures.

Operational Limits of Sensors:

The water level sensors installed for the Project will operate in a water depth up to 4 m and in temperatures ranging from 0°C to 50°C. Considering that air temperatures routinely drop below -5°C during the winter and that freezing of the sensor could cause pressures to exceed pressures equivalent to 4 m of water depth, the sensors were removed from stations that were likely to have very low flows during the winter months or were winterized to prevent freezing.

Sensor Drift and Correction Procedures:

Sensor drift refers to the ability of electronic sensors to “drift” out of calibration. Sensor drift was monitored at the Project stations by tracking the offset between gauge height determined from reading a staff gauge or reference mark and the water level recorded by the sensor during each site visit. If the staff gauge or reference mark were determined to be stable over time (by conducting periodic benchmark surveys) and the relationship between gauge height and water depth measurement was found to linearly increase or decrease over time, the cause would most often be sensor drift. If that was found to be an issue the sensor was replaced.

Benchmark Surveys and Shift Corrections:

Benchmark surveys were conducted during the establishment of each monitoring station and at the start and end of each open water season. Furthermore, during each site visit, an independent measure of gauge height was obtained. If sensors were moved during the monitoring period, a correction was applied by adjusting the entire record to a common datum established through the benchmark surveys. It should be noted that at a few stations there have been ongoing issues with benchmark stability. Sites such as CC-10 have noted movement of benchmarks in the past. If a benchmark was confirmed to have moved, it was either removed from use, or the elevation was updated if appropriate to do so.

Sensitivity Analysis:

Measured hydrologic conditions for the Project are presented in this report. The magnitude and timing of flows were found to be consistent amongst various Project stations and also consistent with regional patterns, as confirmed in past analyses such as the 2022 Hydrometeorology Report (KP, 2023). The data were also validated through multiple site visits and repeated measurements, and for these reasons, a sensitivity analysis was not considered necessary at this time.

Chronological Record of Field Visits, Maintenance, and Calibration Programs:

Information regarding all aspects of the Project hydrometric monitoring field program is recorded and documented on KP's FULCRUM online data management system, and it has been reviewed for quality and completeness. Data are available for remote viewing by external agencies at the approval of BWG.

Discharge Extrapolated Beyond the Maximum Rating Curve Stage-Discharge Measurement:

Discharge data derived by the extrapolation of the stage-discharge rating curves are discussed in Appendix A. Rating curve extrapolation at these stations has been done to the maximum measured stage; however, at most stations the extrapolated flows represent a relatively small proportion of the annual measured flow record. Considering the limited extrapolation involved, there is generally high confidence in the resulting flow records. Caution should, however, be applied when considering extrapolated discharges.

3.0 WATER TEMPERATURE DATA

3.1 PROJECT STATIONS

This report section presents the station history for water temperature monitoring, the continuous temperature monitoring data, and in-situ temperature measurements for water temperature stations within the Project study area, as outlined in the AEMP (BWG, 2022) and the receiving environment monitoring program summarized in Appendix B of EMA Permit 110652.

Water temperature data are available for 28 continuous monitoring stations located in the Project study area, which are comprised of 12 dedicated temperature stations plus 16 non-dedicated stations that are paired with hydrology stations. The water temperature stations are installed in the Davidson Creek, Turtle Creek, Creek 661, Tatelkuz Lake, Chedakuz Creek and Fawnie Creek watersheds. The locations of all active stations are shown on Figure 1.2.

The 12 dedicated temperature monitoring stations include “ST” in their name and most of them were installed in typical Kokanee spawning habitat in the lower reaches of Davidson Creek. These stations consist of an Onset TidbiT v2 Temperature Data Logger held in the centre of a short PVC pipe that is attached to a double concrete cinder block, as shown in Photo 3.1. The cinder blocks were placed horizontally on a creek bottom and, together with the PVC pipe, help shade the sensor from direct sunlight. Station names have suffixes “DEEP” or “KO.” DEEP indicates that the station was installed in a pool, near maximum pool depth, while KO indicates that the station was installed in a shallower riffle area. The DEEP and KO stations with the same “ST” number were sited together in pairs.

Photo 3.1 Typical Dedicated Water Temperature Station Installation

The 16 non-dedicated temperature monitoring stations are hydrology stations that were primarily installed for monitoring streamflows or water levels. The typical station set-up for the hydrology stations is described in Section 2.1. Detailed summaries of all active water temperature monitoring stations and a detailed review and discussion of the collected water temperature data are presented in Appendix B.

As mentioned in Section 2.1, the naming convention for the hydrology stations was updated. However, the naming convention for the dedicated temperature monitoring stations was not updated. The previous and updated station identifiers and station characteristics are summarized in Table 3.1.

Table 3.1 Summary of Site Water Temperature Stations

Watershed		Location	Parameters Collected	Station Name		EMS ID	Easting (m)	Northing (m)	Elevation (m)	Drainage Area (km²)	Installed
				Previous	New						
Chedakuz Creek	Davidson Creek	Lake 01682LNRS	Continuous Water Temperature	L5		-	371,245	5,894,057	1353	2.00	May 10, 2012
		Upper Davidson Creek	Continuous Water Temperature & Manual Water Temperature	H10		-	373,139	5,895,780	1,311	7	May 8, 2012
			Continuous Water Temperature & Manual Water Temperature	ST-10 DEEP		-	377,397	5,798,485	1,182	44	November 5, 2015
			Continuous Water Temperature & Manual Water Temperature	H2		-	377,586	5,898,645	1,181	44	May 19, 2011
			Continuous Water Temperature & Manual Water Temperature	H2B	DC-05	E331279	378,205	5,899,299	1,158	46	February 14, 2018
			Continuous Water Temperature & Manual Water Temperature	ST-18 DEEP		-	379,497	5,900,454	1,131	53	November 5, 2015
		Middle Davidson Creek	Continuous Water Temperature & Manual Water Temperature	ST-17 DEEP		-	381,891	5,904,060	1,041	61	November 5, 2015
			Continuous Water Temperature & Manual Water Temperature	H4B	DC-15	E331281	381,893	5,904,051	1,041	61	May 9, 2012
		Lower Davidson Creek	Continuous Water Temperature & Manual Water Temperature	ST-16 KO		-	383,118	5,906,374	974	70	November 5, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-16 DEEP		-	383,130	5,906,413	973	70	November 5, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-15 KO		-	383,694	5,907,253	947	75	November 4, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-15 DEEP		-	383,717	5,907,252	946	75	November 4, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-14 DEEP		-	384,028	5,907,510	939	76	November 4, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-14 KO		-	384,044	5,907,521	938	76	November 4, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-08 DEEP		-	384,243	5,907,763	939	76	November 4, 2015
			Continuous Water Temperature & Manual Water Temperature	ST-08 KO		-	384,257	5,907,788	937	76	November 4, 2015
		Creek 668328	Continuous Water Temperature & Manual Water Temperature	668-20		-	376,279	5,898,112	1,205	9.5	August 4, 2023
	Turtle Creek		Continuous Water Temperature & Manual Water Temperature	N/A	TC-10	E331285	379,129	5,906,160	1,024	57	May 21, 2021

Watershed			Location	Parameters Collected	Station Name		EMS ID	Easting (m)	Northing (m)	Elevation (m)	Drainage Area (km²)	Installed
					Previous	New						
Chedakuz Creek	Tatelkuz Lake	Tatelkuz Lake		Continuous Water Temperature & Manual Water Temperature	L1	TL-01H	E331309	387,946	5,905,964	934	392	April 11, 2012
		Creek 661	Creek 661	Continuous Water Temperature & Manual Water Temperature	H1	661-02	E331288	380,977	5,897,748	1,172	9	May 19, 2011
			Tributary of Creek 661	Continuous Water Temperature & Manual Water Temperature	H11	661-09	E331294	381,129	5,897,914	1,165	15	June 12, 2013
	Chedakuz Creek			Continuous Water Temperature & Manual Water Temperature	CC-12		E331298	385,044	5,907,955	930	392	February 16, 2023
				Continuous Water Temperature & Manual Water Temperature	H5	CC-15	E331299	383,898	5,909,443	930	593	April 19, 2011
				Continuous Water Temperature & Manual Water Temperature	ST-12 DEEP		-	383,912	5,909,442	931	593	November 5, 2015
				Continuous Water Temperature & Manual Water Temperature	CC-30		E331301	375,187	5,916,462	896	689	July 27, 2023
Fawnie Creek	Lake 01538NRS		Outlet of Lake 01538NRS	Continuous Water Temperature & Manual Water Temperature	L6B		-	369,191	5,893,789	1356	4	October 29, 2014
	Mathews Creek			Continuous Water Temperature & Manual Water Temperature	H12	MC-05	E331306	358,247	5,886,498	1,076	117	May 1, 2014
	Creek 705			Continuous Water Temperature & Manual Water Temperature	H7	705-10	E331304	362,143	5,892,983	1,102	42	May 8, 2012

3.2 WATER TEMPERATURE VALIDATION

Continuous temperature monitoring data were verified with manual measurements, beginning in October 2015. Stations that were decommissioned prior to this date were not validated using manual measurements; however, the results of the temperature validation at other sites from October 2015 are likely a good representation for all stations that were used previously to monitor temperatures because the instrumentation is consistent. In situ data were measured using a YSI Pro Plus multiparameter probe and temperature readings were verified on a regular basis with a second instrument. Manual and concurrent logged water temperature data collected from October 2015 onward are compared for each station in Appendix B. The differences between the manual measurements and the logged data are typically within ± 0.5 °C, and therefore the recorded data are considered valid and were not corrected.

3.3 MEASURED WATER TEMPERATURE RECORDS

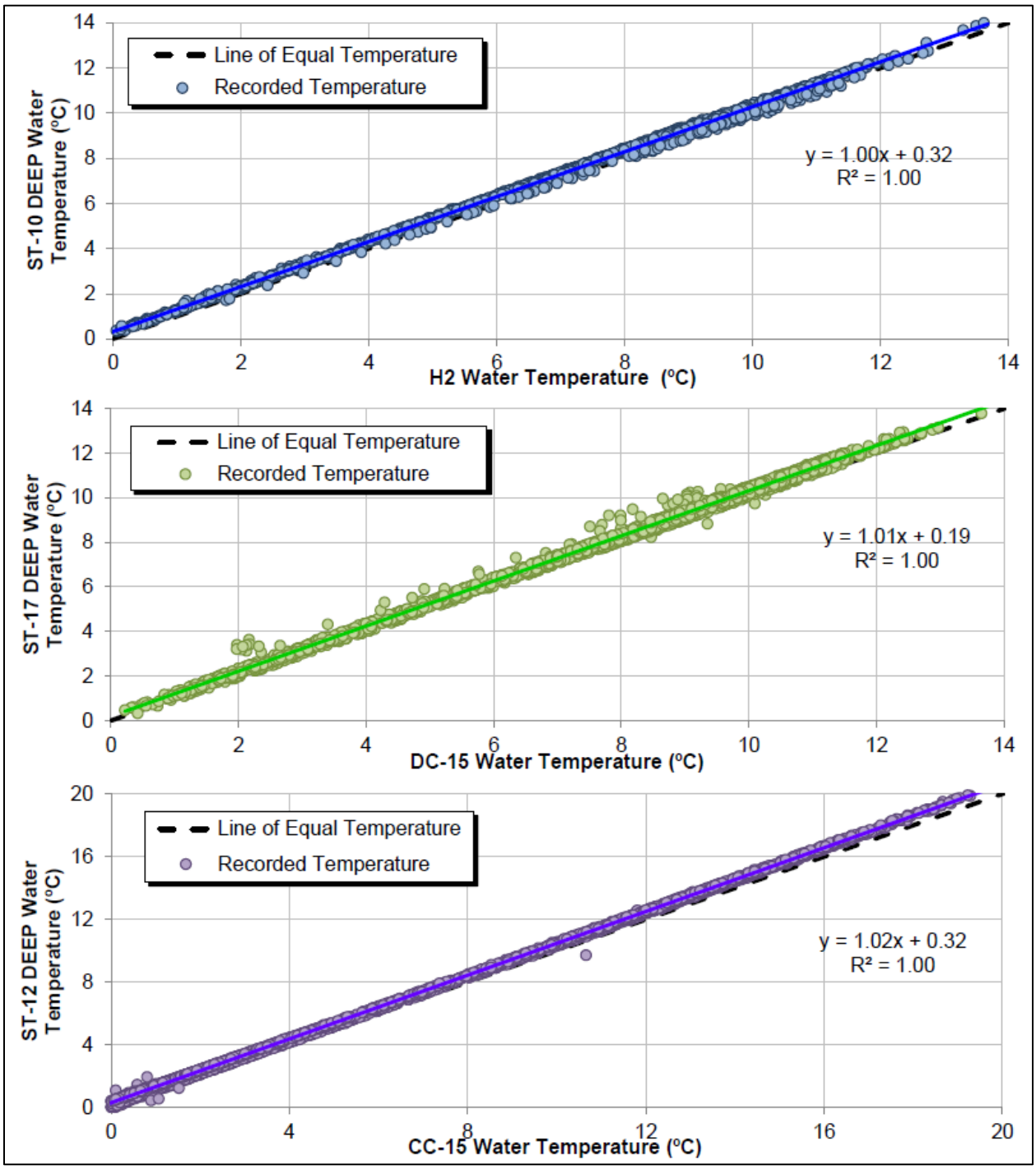
Temperature records were developed for each temperature station using the continuous monitoring data from each site and the manual measurements that were recorded to verify the recorded temperatures. In some cases, up to several days of data were removed from the temperature record because of erroneous readings that occurred at the time that the sensor was installed. In these cases, it is likely that the sensor was collecting temperature data prior to being installed in water. At most sites, sensors were removed during the winter season to prevent damage and were replaced prior to the onset of freshet. All stations were last visited in the fall of 2023, so data are presented up until October or November 2023. The resulting temperature records for each station are presented in Appendix B.

Data were recorded at 15-minute intervals and at most sites water temperatures fluctuated on an hourly basis. The signal from diurnal temperature fluctuations was stronger at the shallower KO sites than at the corresponding DEEP or combined hydrology sites. This indicates that the shallow Kokanee spawning habitat on riffles is subject to higher temperature fluctuations than the deeper sections of the creeks.

3.3.1 COMPARISON OF WATER TEMPERATURE STATIONS FOR DIFFERENT SENSOR TYPES

Dedicated water temperature stations, denoted with the prefix ST, were established near hydrology stations at three locations to compare temperature data collected by the two systems. Three such pairings exist: ST-10 DEEP/H2, ST-17 DEEP/DC-15, and ST-12 DEEP/CC-15. The data comparisons are included on Figure 3.1 for the three pairs of stations.

In all cases, the data from the two types of instruments are very well correlated ($R^2 = 1.00$); however, the trendlines through the concurrent data sets indicate that the hydrology stations consistently record slightly warmer water temperatures. The magnitude of the difference between water temperatures recorded at each station by different sensor types is in the order of +0.07°C to +0.3°C, which is similar to the average difference between manual measurements and logged data. For the purposes of baseline characterization, data from both station types are considered to be equivalent and representative of true conditions.



Note(s):

1. Water temperatures recorded at temperature stations (prefaced with "ST") were compared to the water temperature readings recorded at hydrology stations in close proximity.

Figure 3.1 Comparison of Recorded Water Temperatures at Collocated Stations

3.3.2 COMPARISON OF PAIRED ST DEEP AND ST KO STATIONS

In some areas, paired water temperature stations have been installed to represent two different types of aquatic habitat at different depths within the same general location. Such temperature stations are identified with the suffix “DEEP” for the station representing pools at maximum depth and “KO” for the corresponding station representing the spawning kokanee riffle habitat. Four such paired stations have been installed in Middle and Lower Davidson Creek: ST-16, ST-15, ST-14, and ST-08. A comparison of water temperatures recorded at the paired stations is included on Figure 3.2, Figure 3.3, Figure 3.4, and Figure 3.5, respectively, along with daily streamflow from the nearby hydrology station, DC-15.

Water temperature data at the paired stations are generally closely correlated. The standard deviation of the difference in water temperature is ± 0.2°C for all the station pairs. The observed deviations are near the published accuracy range of the sensors (Onset, 2016), and for the purposes of baseline characterization, the two datasets in each pair of datasets are considered equivalent.

There are a few instances when the measurements at two stations diverge. When they differ, they generally show an expected relationship related to air temperature and proximity to air; shallower water is warmer than deeper water when the air temperature is warm, but cooler than deeper water when the air temperature is cool. Predominantly, the differences are observed after a spring or summer high flow event, which result in the KO station recording warmer temperatures than the DEEP station. Not all high flow events resulted in a perceptible measurement difference, but those that did always resulted in the KO station reading higher temperatures than the DEEP station.

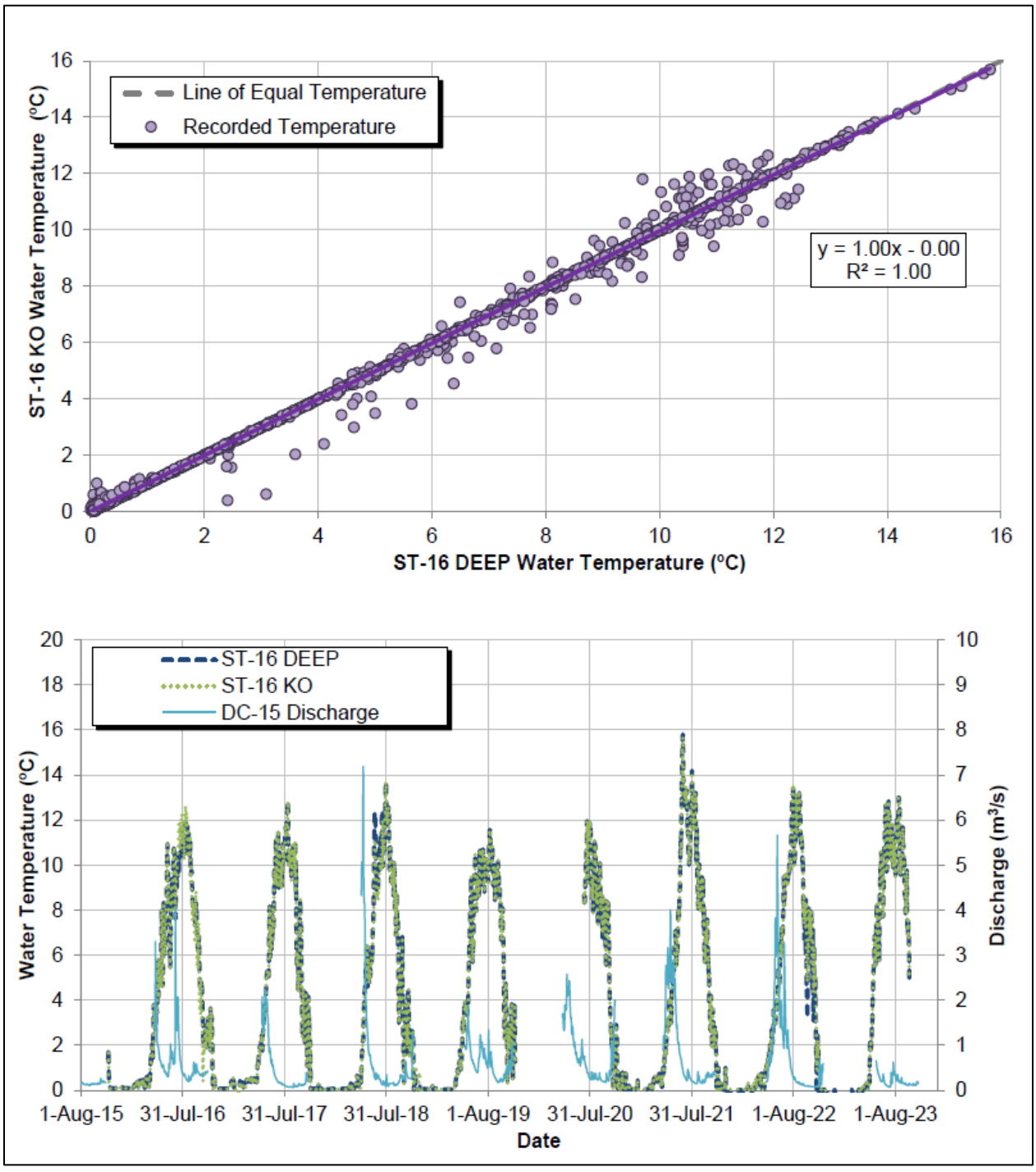


Figure 3.2 Comparison of Water Temperature at ST-16 DEEP and KO Stations

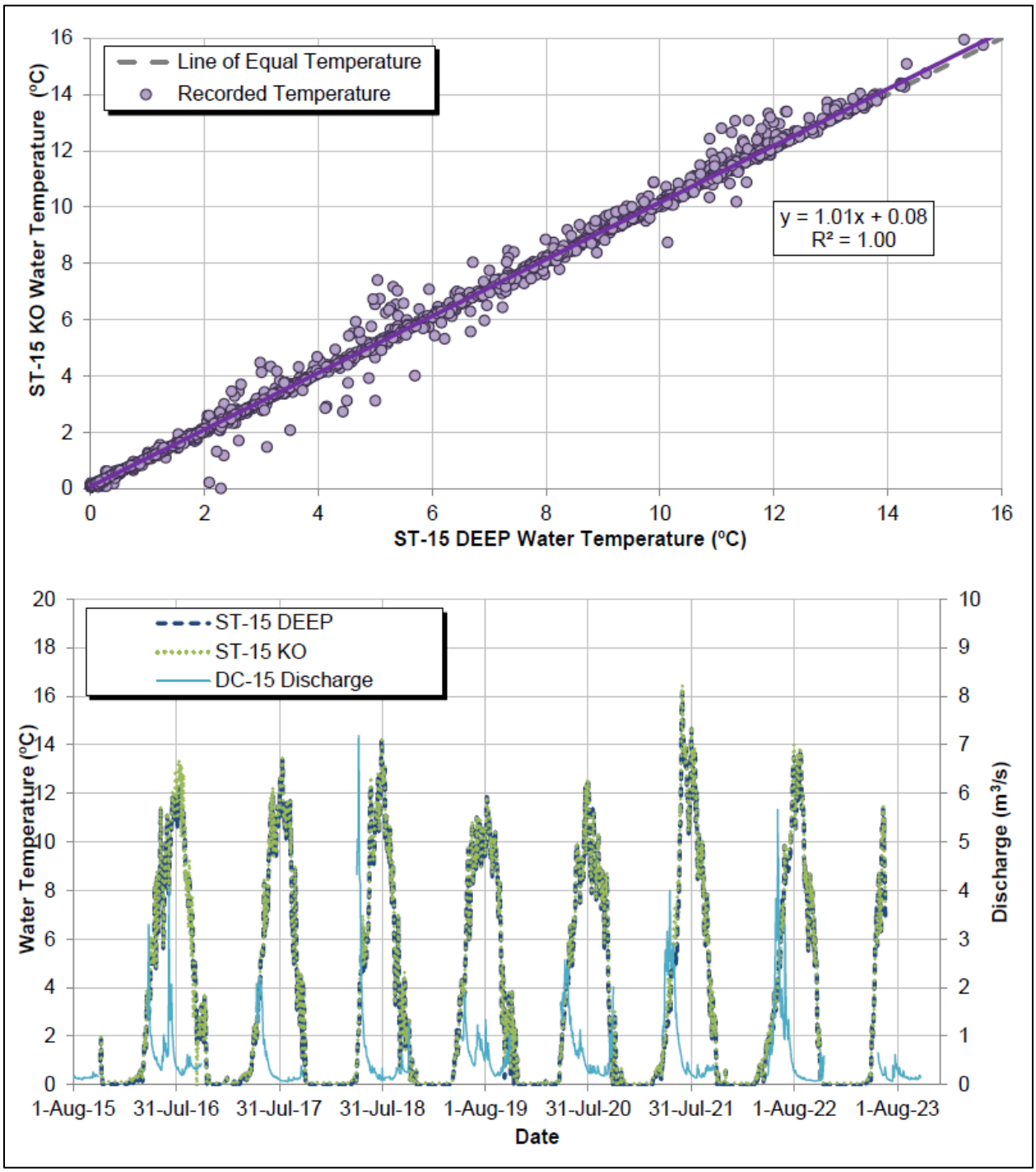


Figure 3.3 Comparison of Water Temperature at ST-15 DEEP and KO Stations

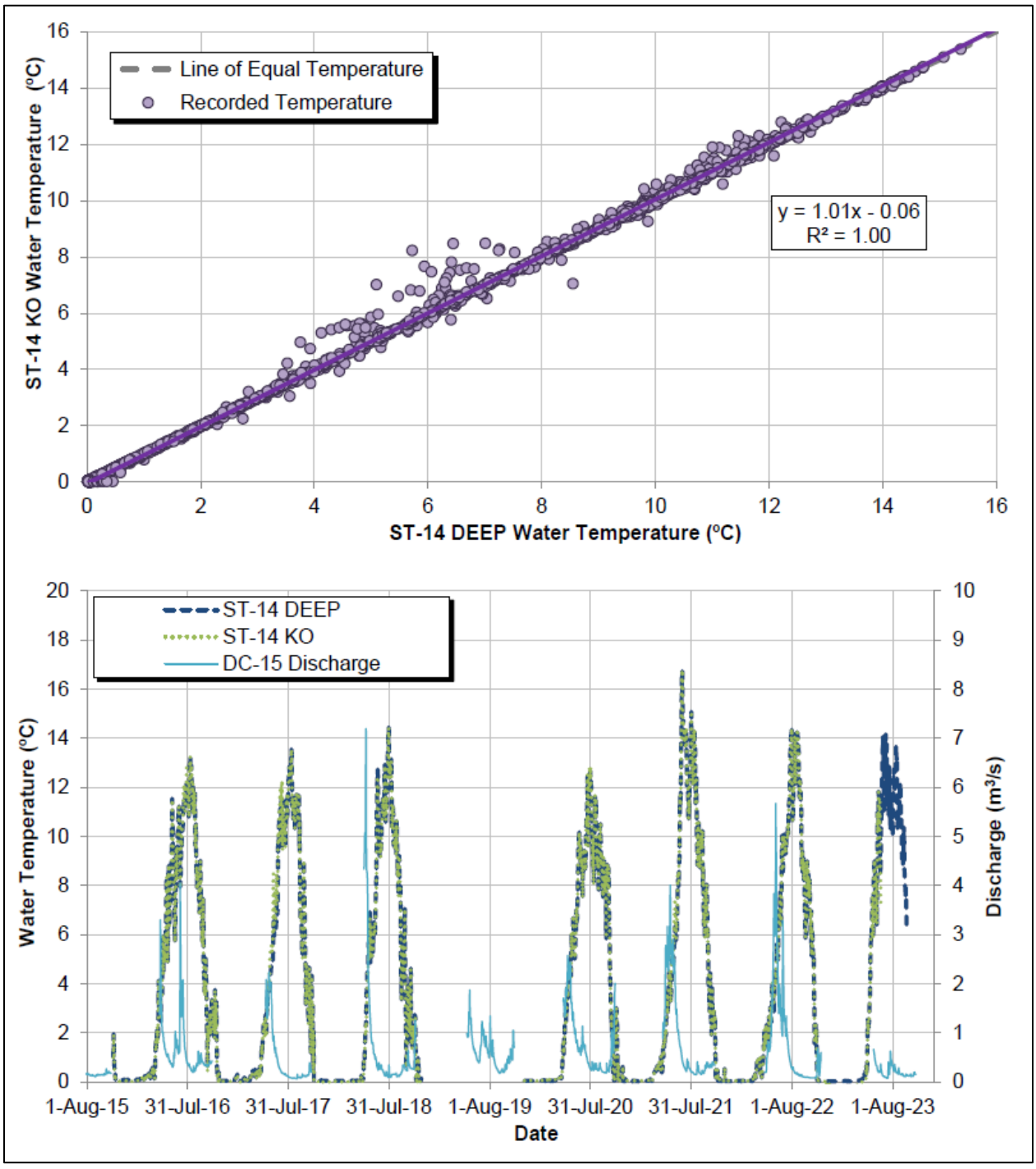


Figure 3.4 Comparison of Water Temperature at ST-14 DEEP and KO Stations

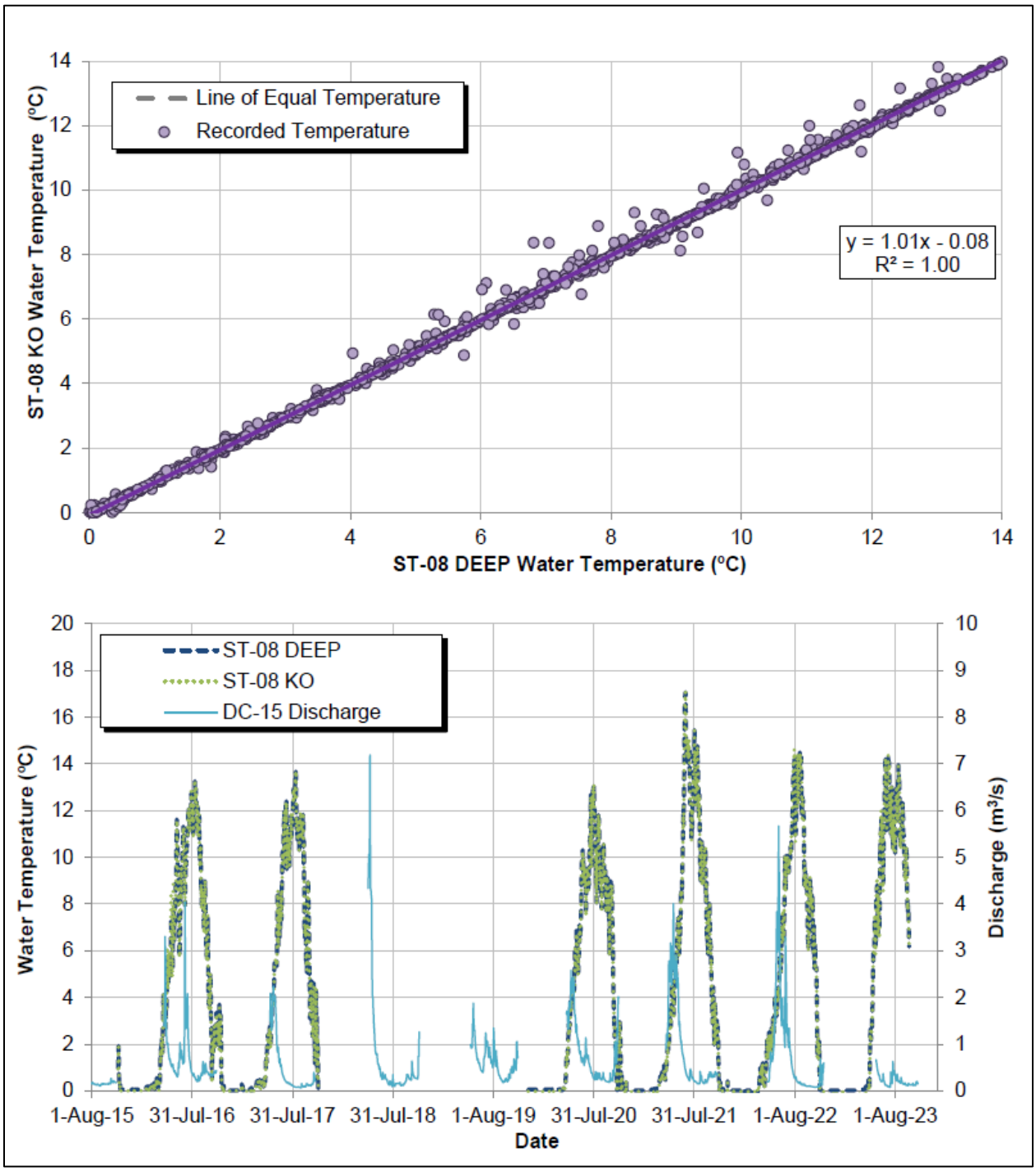


Figure 3.5 Comparison of Water Temperature at ST-08 DEEP and KO Stations

3.3.3 MEASURED WATER TEMPERATURES ALONG DAVIDSON CREEK

The temperature records for all stations are typically characterised by near freezing temperatures prior to the spring freshet followed by a gradual warming period until July and August, which are the warmest months. Temperatures then decrease steadily back to near freezing temperatures by November or December.

A spatial comparison of average daily water temperatures at dedicated water temperature stations along Davidson Creek, from the time of installation in November 2015 to the most recent site visit in September 2023, is included on Figure 3.6. The monthly mean temperatures for the corresponding temperature stations are also presented in Table 3.2. During the winter, the warmest water temperatures were recorded at the higher elevation stations. In contrast, water temperatures at the lower elevation stations were consistently and progressively warmer than at the higher elevation stations throughout the freshet, summer, and fall periods. This is likely due to the atmospheric cooling or warming of the creek water as it flows downstream.

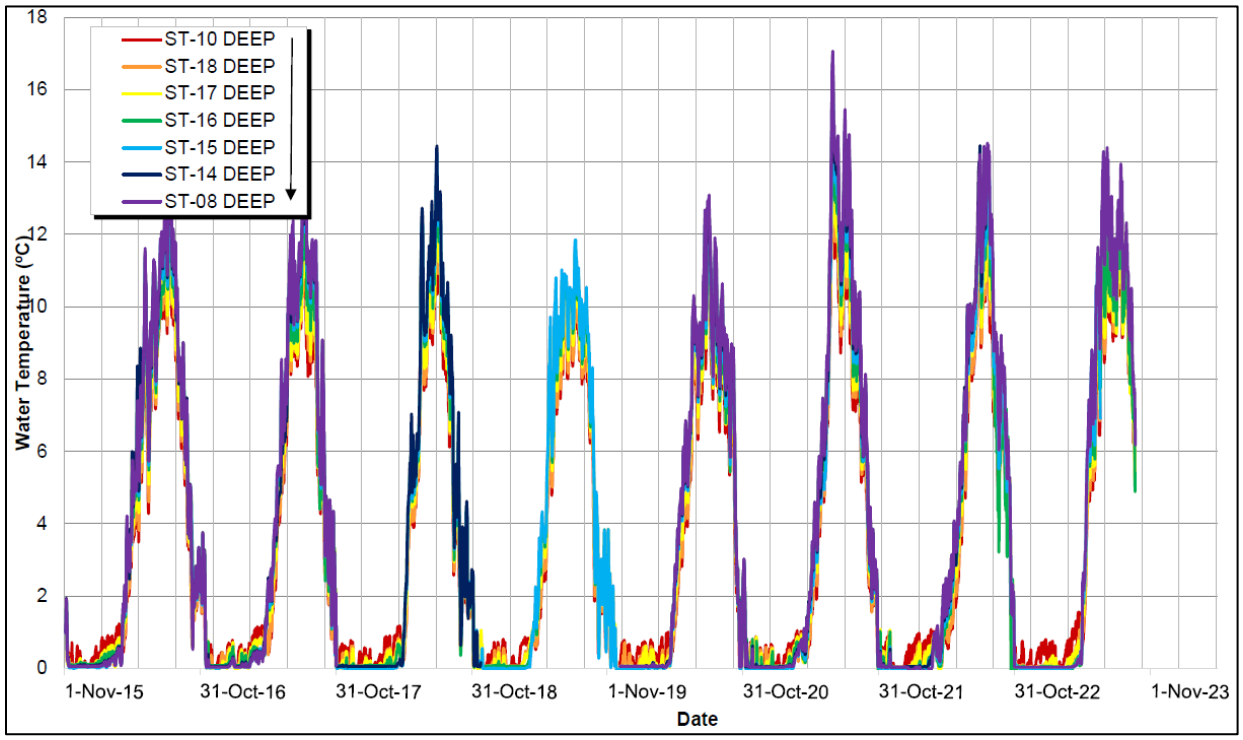


Figure 3.6 Spatial Comparison of Average Daily Temperatures in Davidson Creek

Knight Piésold CONSULTING

TABLE 3.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

DAVIDSON CREEK
MONTHLY MEAN WATER TEMPERATURES (^{o}C)

Print Mar/06/24 16:04:46

Month	ST-10 Deep	ST-18 Deep	ST-17 Deep	ST-16 Deep	ST-15 Deep	ST-14 Deep	ST-08 Deep
Nov-15	0.3	0.2	0.2	0.3	0.3	0.3	0.3
Dec-15	0.2	0.1	0.1	0.1	0.0	0.1	0.1
Jan-16	0.2	0.1	0.1	0.1	0.0	0.1	0.0
Feb-16	0.5	0.2	0.3	0.2	0.1	0.1	0.1
Mar-16	0.7	0.4	0.5	0.4	0.3	0.3	0.3
Apr-16	1.5	1.7	2.0	2.2	2.2	2.3	2.3
May-16	5.0	5.3	5.7	6.0	6.2	6.3	6.0
Jun-16	7.7	8.0	8.3	8.7	9.0	9.1	9.2
Jul-16	9.6	9.9	10.2	10.0	10.6	10.7	10.9
Aug-16	10.1	10.5	10.7	10.9	11.2	11.7	11.8
Sep-16	6.5	6.7	6.9	7.5	7.5	7.3	7.4
Oct-16	2.3	2.4	2.6	3.2	3.1	2.8	2.8
Nov-16	1.3	1.2	1.3	1.3	1.3	1.3	1.3
Dec-16	0.2	0.1	0.0	0.1	0.0	0.1	0.0
Jan-17	0.4	0.4	0.3	0.2	0.1	0.1	0.1
Feb-17	0.2	0.2	0.1	0.1	0.0	0.1	0.0
Mar-17	0.5	0.4	0.4	0.3	0.2	0.2	0.2
Apr-17	1.0	0.7	0.8	0.6	0.6	0.6	0.5
May-17	1.9	2.1	2.7	3.1	3.2	3.1	3.4
Jun-17	6.4	6.7	7.1	7.5	7.6	7.0	7.9
Jul-17	9.3	9.5	9.7	10.2	10.6	10.7	10.9
Aug-17	9.5	10.1	10.3	11.0	11.7	11.9	11.9
Sep-17	6.9	7.3	7.4	7.7	8.3	8.4	8.5
Oct-17	2.5	2.6	2.8	2.9	3.1	3.1	3.1
Nov-17	0.4	0.2	0.1	0.1	0.1	0.1	-
Dec-17	0.2	0.1	0.1	0.1	0.0	0.1	-
Jan-18	0.3	0.1	0.1	0.1	0.0	0.1	-
Feb-18	0.1	0.1	0.1	0.1	0.0	0.1	-
Mar-18	0.5	0.2	0.2	0.1	0.0	0.1	-
Apr-18	0.7	0.4	0.4	0.3	0.1	0.1	-
May-18	2.9	3.0	3.5	3.8	3.8	4.0	-

Month	ST-10 Deep	ST-18 Deep	ST-17 Deep	ST-16 Deep	ST-15 Deep	ST-14 Deep	ST-08 Deep
Jun-18	7.2	7.4	7.7	8.1	8.2	8.4	-
Jul-18	9.9	10.3	10.5	11.1	11.4	11.6	-
Aug-18	9.4	9.9	10.1	10.5	10.9	11.0	-
Sep-18	5.1	5.4	5.6	5.8	6.2	6.2	-
Oct-18	2.0	2.2	2.3	2.3	2.5	2.4	-
Nov-18	0.7	0.7	0.7	0.8	0.8	0.7	-
Dec-18	0.2	0.1	0.0	0.1	0.0	0.1	-
Jan-19	0.4	0.2	0.1	0.1	0.0	0.0	-
Feb-19	0.1	0.1	0.0	0.1	0.0	0.0	-
Mar-19	0.4	0.2	0.1	0.1	0.0	0.0	-
Apr-19	0.8	0.8	1.0	0.9	0.9	0.9	-
May-19	3.2	3.5	4.2	4.5	4.7	4.8	-
Jun-19	7.4	7.6	8.1	8.4	8.6	8.8	-
Jul-19	9.0	9.2	9.7	10.1	10.3	10.4	-
Aug-19	9.1	9.3	9.7	10.0	10.2	10.3	-
Sep-19	6.9	7.1	7.4	7.6	7.8	7.9	-
Oct-19	2.2	2.3	2.5	2.5	2.5	2.6	-
Nov-19	1.2	1.3	1.3	-	1.3	1.3	-
Dec-19	0.4	0.1	0.0	-	0.0	0.0	0.1
Jan-20	0.3	0.1	0.0	-	0.0	0.1	0.1
Feb-20	0.5	0.3	0.3	-	0.0	0.1	0.1
Mar-20	0.3	0.1	0.1	-	0.0	0.1	0.1
Apr-20	0.5	0.4	0.4	-	0.5	0.6	0.6
May-20	2.9	3.2	3.7	-	4.2	4.3	4.4
Jun-20	6.4	6.6	7.1	-	7.6	7.8	7.8
Jul-20	8.8	-	9.4	10.3	10.0	10.2	10.3
Aug-20	8.7	-	9.1	9.5	9.7	10.0	10.2
Sep-20	7.6	-	7.9	8.2	8.4	8.7	8.8
Oct-20	3.2	-	3.4	3.5	3.5	3.6	3.7
Nov-20	0.7	0.2	0.6	0.7	0.5	0.6	0.6
Dec-20	0.4	0.2	0.1	0.1	0.0	0.0	0.0
Jan-21	0.3	0.2	0.1	0.1	0.0	0.0	0.0
Feb-21	0.2	0.0	0.0	0.1	0.0	0.0	0.0
Mar-21	0.6	0.4	0.4	0.4	0.2	0.2	0.2
Apr-21	0.6	0.6	0.7	0.8	0.8	0.9	1.0
May-21	2.9	3.1	3.6	3.9	3.5	3.9	4.2

Month	ST-10 Deep	ST-18 Deep	ST-17 Deep	ST-16 Deep	ST-15 Deep	ST-14 Deep	ST-08 Deep
Jun-21	7.9	8.2	8.6	9.1	8.4	9.2	9.7
Jul-21	10.9	11.3	11.6	12.3	12.8	13.1	13.4
Aug-21	9.9	10.4	10.6	11.2	11.6	12.0	12.2
Sep-21	6.6	6.9	7.2	7.5	7.8	8.0	8.1
Oct-21	2.2	2.3	2.6	2.7	2.7	2.8	2.9
Nov-21	0.4	0.3	0.2	0.2	0.1	0.1	0.1
Dec-21	0.1	0.1	0.0	-0.2	0.0	0.0	0.0
Jan-22	0.2	0.0	0.0	-0.2	0.0	0.0	-0.1
Feb-22	0.4	0.2	0.2	0.0	0.0	0.0	-0.3
Mar-22	0.7	0.5	0.4	0.2	0.2	0.2	0.0
Apr-22	0.7	0.6	0.6	0.5	0.8	1.0	1.1
May-22	1.3	1.5	2.2	2.3	2.5	2.7	2.8
Jun-22	4.7	5.0	5.6	6.1	6.3	6.4	6.4
Jul-22	9.2	9.5	10.0	10.5	10.1	10.9	10.7
Aug-22	10.5	10.8	11.2	11.8	12.2	12.7	13.0
Sep-22	6.9	7.2	7.4	7.1	8.2	8.5	8.7
Oct-22	4.2	4.4	4.5	3.7	4.7	4.8	4.9
Nov-22	0.2	0.1	0.0	-0.1	0.0	0.0	0.0
Dec-22	0.1	0.0	-0.1	-0.5	0.0	0.0	0.0
Jan-23	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Feb-23	0.3	0.1	0.1	-0.2	0.0	0.0	0.0
Mar-23	0.3	0.0	0.0	-0.3	0.0	0.0	0.0
Apr-23	1.0	0.5	0.4	0.1	0.1	0.2	0.1
May-23	3.7	4.0	4.5	4.8	5.1	5.2	5.2
Jun-23	8.2	8.7	8.9	9.4	9.0	10.4	10.5
Jul-23	9.9	10.3	10.4	10.9	-	11.9	12.1
Aug-23	10.8	10.9	10.8	11.1	-	11.7	11.9
Sep-23	8.1	8.2	8.0	8.3	-	9.0	9.1

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Summary Graphs and Tables.xlsx]Summary Table

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

4.0 CONCLUSION

4.1 2023 METEOROLOGICAL CONDITIONS

Meteorological monitoring is performed at the Project using two climate stations and three snow survey stations established during 2011 and 2012. The annual precipitation in 2023 was lower than average at both climate stations, ranking between the mean and 10-year dry values at Blackwater High, and between the 20-year and 50-year dry values at Blackwater Low. Regional snow survey stations suggest that snowpack in the Project area in 2023 was close to the historical normal in terms of timing and magnitude, with the peak Snow Water Equivalent (SWE) occurring in late April and snowpack disappearing by the end of May (KP, 2024).

4.2 JULY 2023 WILDFIRE

In July 2023, a wildfire occurred within the Project area, affecting multiple watersheds and damaging the Upper Davidson Creek (H10) hydrometric monitoring station. Effects of the wildfire are not evident in the 2023 hydrometric monitoring data; however, these effects could influence hydrologic patterns in future monitoring periods. Wildfires affect forest hydrology by eliminating vegetation and, in extreme cases, creating a water-repellent layer of surficial soil that can last for several years and impede the infiltration of water into the ground. Such reduced infiltration can result in higher-than-expected peak flows both from snowmelt (FPB, 2006) and intense rainfall, and the increased erodibility of soils and availability of debris in burned-out areas could result in increased erosion and debris flows, possibly affecting monitoring stations and hydraulic controls.

4.3 RECOMMENDATIONS

Upon review of the 2023 hydrometric and temperature monitoring data, KP developed the following recommendations to be implemented during the 2024 monitoring year:

- Earlier re-installation of hydrometric monitoring stations or winterization of all stations: Most of the hydrometric monitoring stations were re-installed for the 2023 hydrometric monitoring period in the months of May and June, after the period of freshet peak flows. Re-installing the stations well in advance of the spring freshet or winterizing all of them instead of removing them at the end of the open water season would facilitate the collection of a more complete hydrologic data set.
- Replace transducers with vented alternatives: Vented transducers do not require barometric compensation and avoid the anomalous fluctuations associated with measuring absolute pressure. The installation of vented transducers at hydrometric monitoring stations would result in the collection of data sets with more accurate data, particularly in times of very low water levels.
- Use of three benchmarks when collecting gauge heights by the method of benchmark survey: A total of nine hydrometric monitoring stations were assigned Grade E (RISC, 2016) for data quality in 2023. Eight of the nine data sets were assigned this grade due to insufficient (less than three) benchmarks being used for benchmark surveys. In the case of discovering a discrepancy between surveyed benchmarks, the use of three benchmarks allows field staff and reviewers to isolate the source of the discrepancy. A minimum of three benchmarks should be used during future site visits at all hydrometric

monitoring stations. If three stable benchmarks are not available at all sites, additional benchmarks should be installed, or different benchmark types should be used.

- Re-install ST-15 Deep and ST-15 KO stations at a new location: The ST-15 temperature monitoring stations had a beaver dam built on top of them during the 2023 monitoring period. A new location will need to be established for these stations in 2024.

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6.0 CERTIFICATION

This report was prepared and reviewed by the undersigned.

Prepared:

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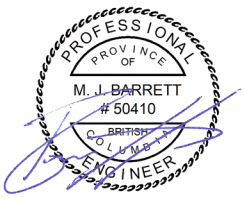
Junior Engineer



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APPENDIX A

Site Hydrology Stations and Data

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APPENDIX A
SITE HYDROLOGY STATIONS AND DATA

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1.0 HYDROLOGY STATIONS AND DATA

The locations of the Blackwater Gold Project streamflow and water level gauging stations are shown on Figure 1.2 of the main report. A total of 19 hydrology stations are installed in the Davidson Creek, Turtle Creek, Tatelkuz Lake, Chedakuz Creek, and Fawnie Creek watersheds. The dates of installation or establishment for the stations vary and are presented in Table 2.1 of the main report. The details of the data collection activities and rating curve development for all stations are summarized by watershed in the following sections of this appendix. The overall validity and goodness of fit for each rating curve were assessed visually by a qualified professional, with special attention paid to the low flow measurements.

Measured discharge records were developed for each hydrology station by applying the rating curves to their respective stage records. The water level data were corrected to the station datum for data collected during open water conditions when the stage-discharge relationship is not altered by transient effects such as icing of the channel, prior to application of the rating curves. The offset for water levels was based on benchmark surveys completed throughout the period of record. The corrected water level data are referred to as stage data. Periods with erroneous water level data; due to ice effects, instrumentation malfunction, or sensor or clock drift, were reviewed and corrected or removed from the data sets. Water level to stage corrections were undertaken with KP's FULCRUM data management software, which allows for advanced data correction and correction tracking.

Winter measurements that were collected when the stage was believed to be ice affected were not used for rating curve development; however, the discharges measured were used to help characterise winter streamflows (i.e., low flows). Estimated winter streamflow values were calculated using linear interpolation between winter discharge measurements to infill the gaps between individual measurements. These estimated flows were calculated when a sufficient number of measurements were made during a short period to estimate the hydrograph shape with some certainty. The estimated winter discharge values were added to the discharge records and low flow hydrographs were developed.

The monthly mean discharges for individual years from 2011 to 2023 were calculated at each station where a gauge was installed. The monthly mean discharge values are only presented for months with at least 20 days of available discharge data.

2.0 DAVIDSON CREEK WATERSHED

2.1 GENERAL

There are five hydrology stations currently operated in the Davidson Creek Watershed, one water quality monitoring site where manual discharge measurements are taken, and one lake station. The hydrology stations, listed from upstream to downstream, are installed in the upper reaches of Davidson Creek (H10 (near Lake 01682LNRS), H2, and DC-05), the middle reaches of Davidson Creek (DC-15), and on Creek 668-328 (668-20) just upstream of the confluence with Davidson Creek. The water quality monitoring site (DC-10) is in the upper reaches of Davidson Creek. The lake station (L5) is installed in Lake 01682LNRS. The station and discharge measurement locations are shown on Figure 1.2 of the main report. The Blackwater deposit lies within the upper reaches of the Davidson Creek watershed.

2.2 LAKE 01682LNRS HYDROLOGY STATION L5

The L5 station was installed on Lake 01682LNRS, a headwater lake in the upper Davidson Creek watershed, on May 10, 2012. The station was decommissioned on October 29, 2014, and then recommissioned on July 7, 2023. The station is shown in Photo A 2.1 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe secured to the bank of the lake. The station is removed each year during the winter months to avoid damage to the sensor from ice. The station is then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on July 7, 2023 and then removed for the winter on October 26, 2023.

Photo A 2.1 Upper Davidson Creek Hydrology Station L5 (September 21, 2023)

A total of four stage measurements were collected at L5. The individual stage measurements are summarized in Table A 2.1.

Stage data from September 21 to October 26, 2023 are of uncertain quality due to anomalous fluctuations in the record, which are likely due to disturbances caused by construction of the Lake 15/16 connector channel and access road. A stage data point on July 12 was removed from the stage data time series due to an anomalous spike; such readings are unlikely given that the lake is not prone to rapid increases and decreases in water level due to its size.

The stage hydrograph from the L5 station site is presented on Figure A2.1. Figure A2.2 shows the monthly mean stages for each month of 2023. The 2023 stage hydrograph for the L5 station has a unimodal shape with the peak in the month of August. The timing of the stage hydrograph peak can be attributed to runoff from summer precipitation events since the station was installed after the spring freshet period. When compared against the RISC hydrometric standards (2018), the 2023 stage data for L5 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 2.1

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SUMMARY OF 2023 STAGE MEASUREMENTS
LAKE 01682LNRS HYDROLOGY STATION L5

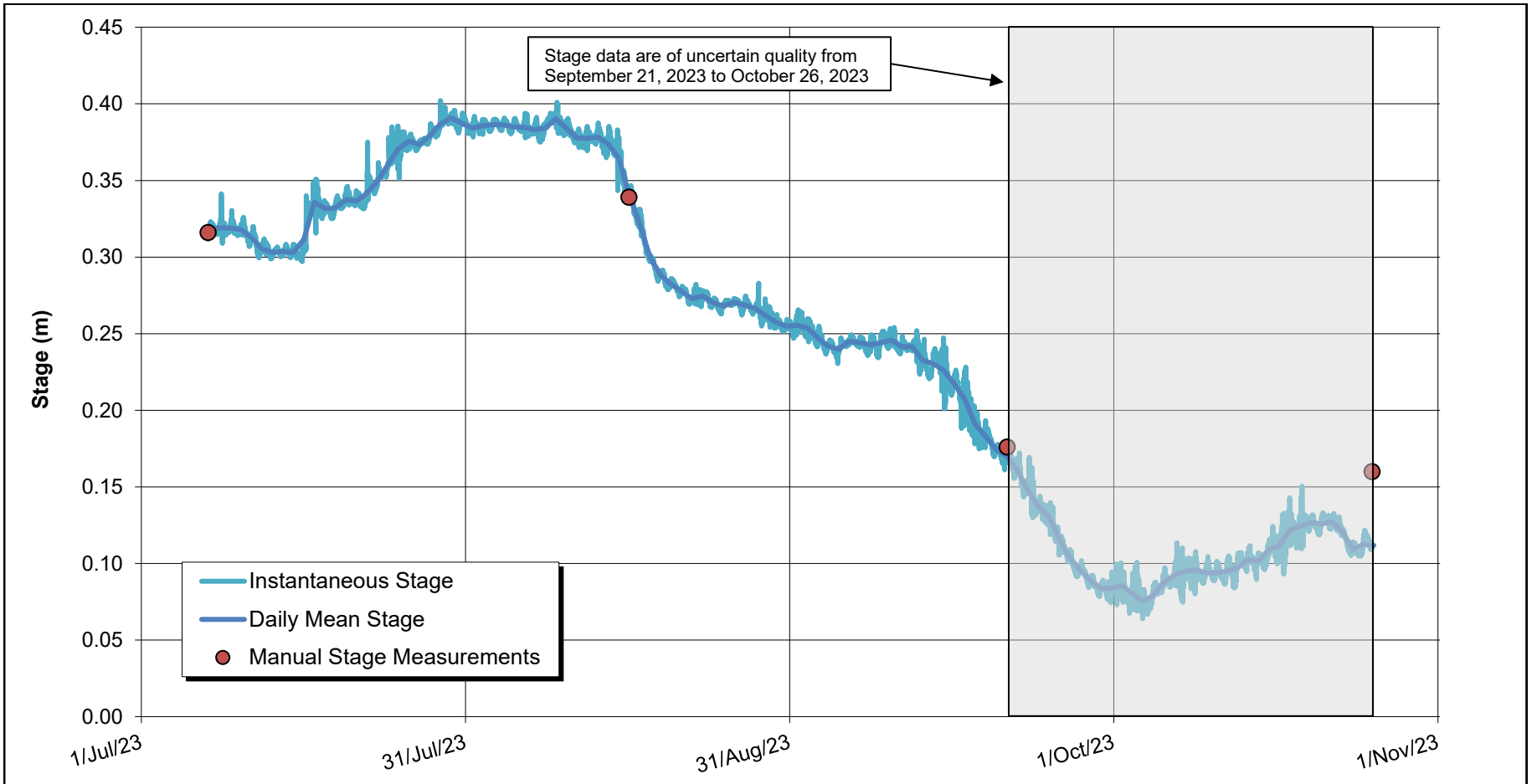
Date	Stage Measurement Method	Stage	Stage Measurement Uncertainty
		(m)	(m)
7-Jul-23	Benchmark Survey	0.316	0.005
16-Aug-23	Benchmark Survey	0.339	0.005
21-Sep-23	Benchmark Survey	0.176	0.002
26-Oct-23	Benchmark Survey	0.160	0.002

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\L5\[L5 Workfile 2023.xlsm]Table A 2.1

NOTES:

1. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL AT THE TIME OF STAGE MEASUREMENT.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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STATION L5
LAKE 01682LNRS
STAGE HYDROGRAPH

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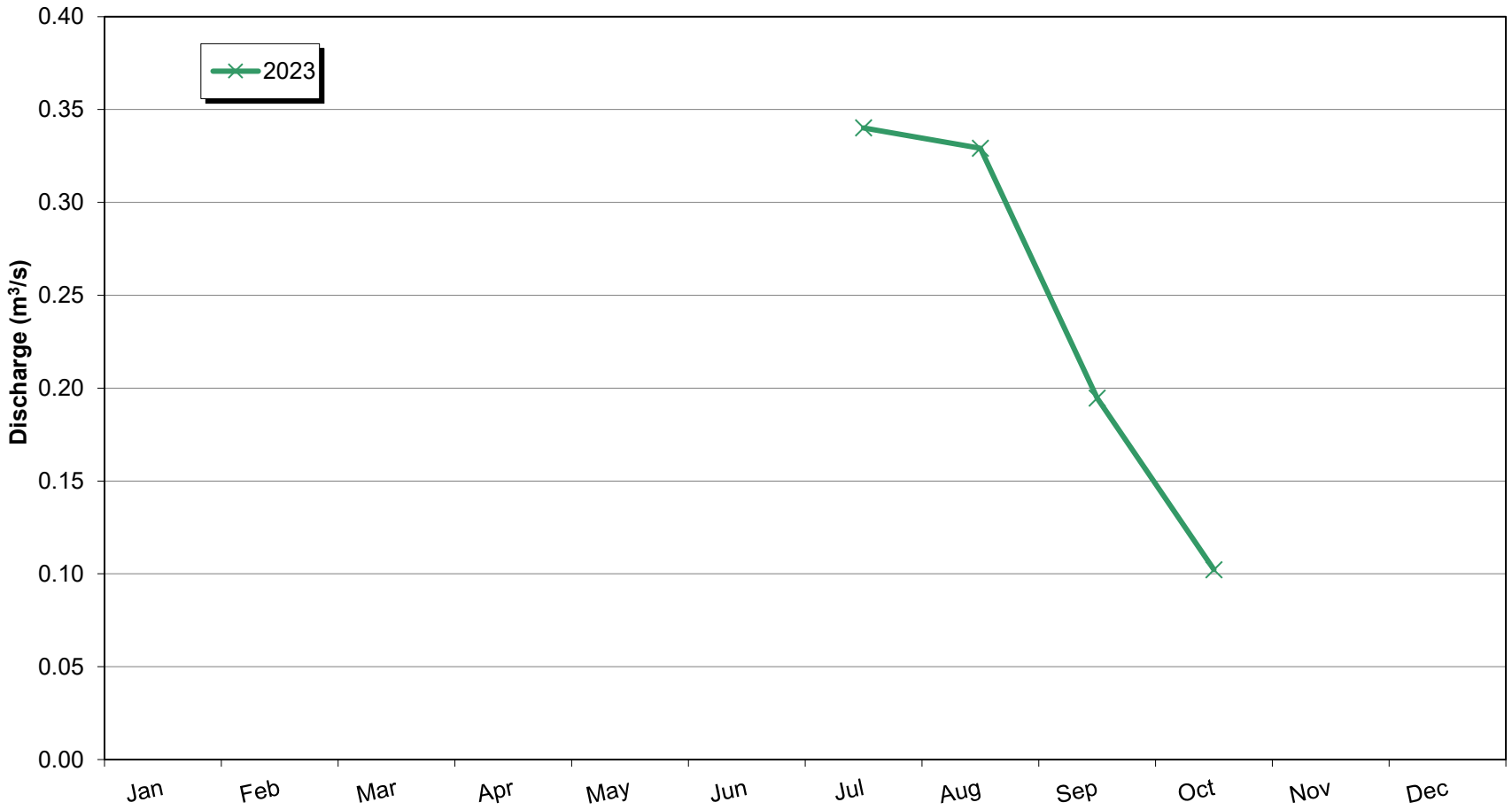
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.1

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

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TATELKUZ LAKE HYDROLOGY STATION L5
MEAN MONTHLY DISCHARGE

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P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.2

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

2.3 UPPER DAVIDSON CREEK HYDROLOGY STATION H10

The H10 station was installed on Upper Davidson Creek on May 8, 2012. The station was decommissioned on October 29, 2014 and then recommissioned on March 28, 2019. The station is shown in Photo A 2.2 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the left bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. The station is then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on June 2, 2023 and then removed for the winter on November 2, 2023.

Photo A 2.2 Upper Davidson Creek Hydrology Station H10 (September 27, 2023)

A total of 40 discharge measurements with associated stage values have been collected at this site, as well as 24 discharge measurements without stage values. The stage-discharge measurements and individual discharge measurements are summarized in Table A 2.2.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset. Stage data from August 13 to September 27 were removed from the dataset due to anomalous fluctuations in the record.

The July 2023 wildfire burned through this area and the fire and clean up work caused damage to the station, including the destruction of all the station benchmarks. New benchmarks were installed but without the historical benchmarks for reference, the new benchmarks cannot be surveyed into the site datum. Consequently, all stage data collected after July 2023 were considered in this summary report.

All 40 stage-discharge measurements collected prior to the station's destruction were used to develop the respective rating curves. A total of 11 stage-discharge measurements were used to develop the 2012 rating curve. The single measurement collected in 2023 falls in the same scatter as the points collected from 2013 to 2022, and therefore 29 measurements were used to develop the current 2013-2023 rating curve. Both curves are shown on Figure A 2.3. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 2.4. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2012 rating curve: the rating curve was not extrapolated since the maximum recorded stage resulted in a calculated discharge of 0.26 m³/s, which was less than the maximum measured discharge of 0.40 m³/s.
- 2013-2023 rating curve: the maximum measured discharge was 0.69 m³/s and the maximum extrapolated discharge is 1.64 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2013-2023 rating curve, there is notable uncertainty in the high flow portions of the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 2.5. The hydrograph shown on Figure A 2.6 focuses on the low flow periods and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 2.7 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal with a spring freshet peak in all years except 2019, which displays a bimodal shape with peaks occurring both during the spring freshet and the summer. Insufficient data are available to comment on the shape of the 2012 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for H10 were determined to be of variable quality (Grade C) due to the June 2 discharge measurement deviating from the rating curve by approximately 20%. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

TABLE A 2.2

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SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
UPPER DAVIDSON CREEK HYDROLOGY STATION H10

Print Mar/07/24 10:56:23

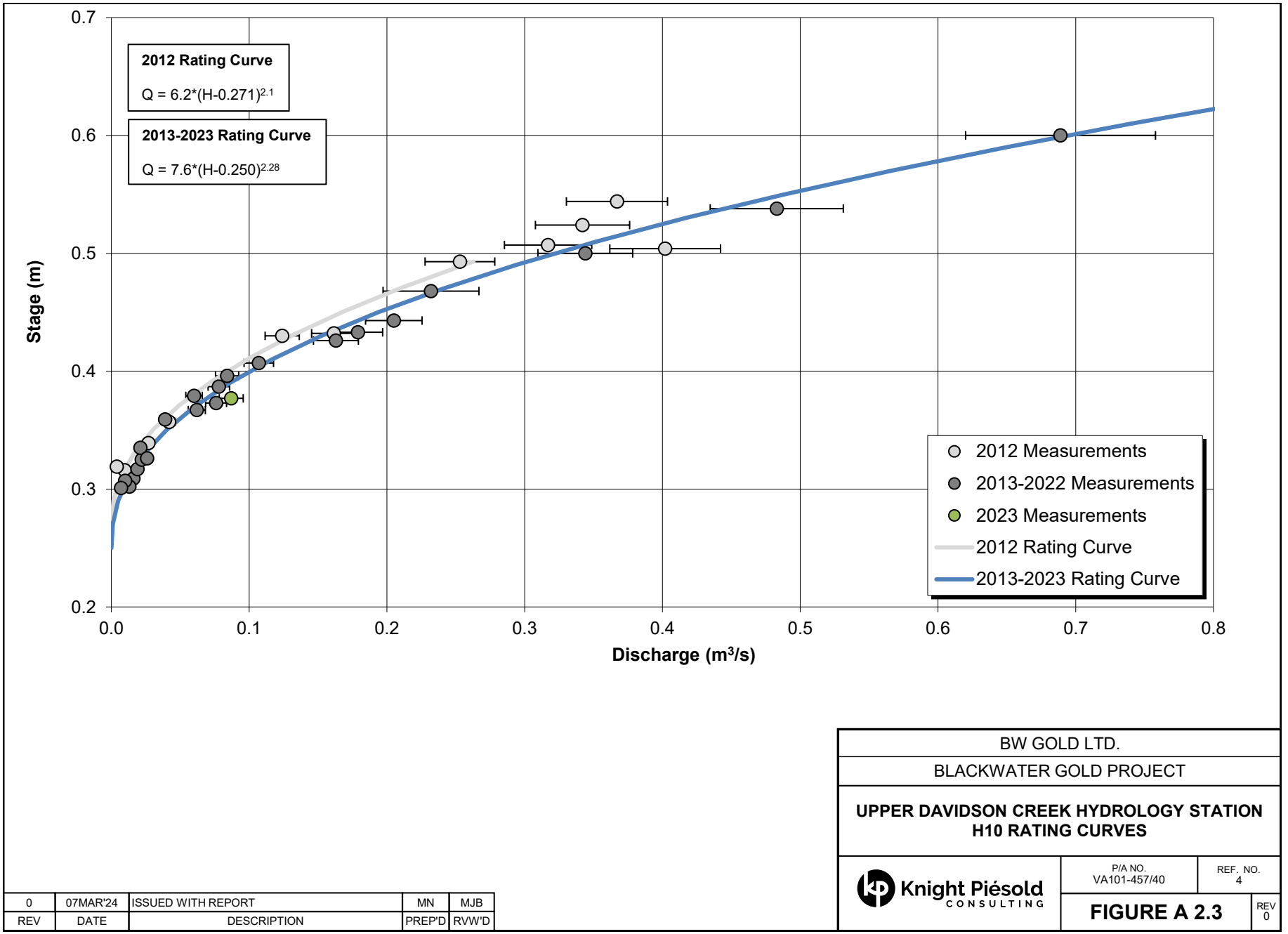
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
4-Jan-23	2	Current Meter	-	0.008	10%	-
17-Feb-23	2	Current Meter	-	0.009	10%	-
2-Jun-23	2	Current Meter	0.377	0.087	10%	0.005
1-Sep-23[4]	2	Current Meter	-	0.032	10%	-
27-Sep-23[4]	2	Current Meter	-	0.017	10%	-
2-Nov-23	2	Current Meter	-	0.012	10%	-
6-Nov-23	2	Current Meter	-	0.014	10%	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\H10\[H10 Workfile 2023.xlsx]Table A 2.2

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. BENCHMARK NETWORK DESTROYED BY WILDFIRE CLEANUP.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	MN	MJB



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UPPER DAVIDSON CREEK HYDROLOGY STATION
H10 RATING CURVES

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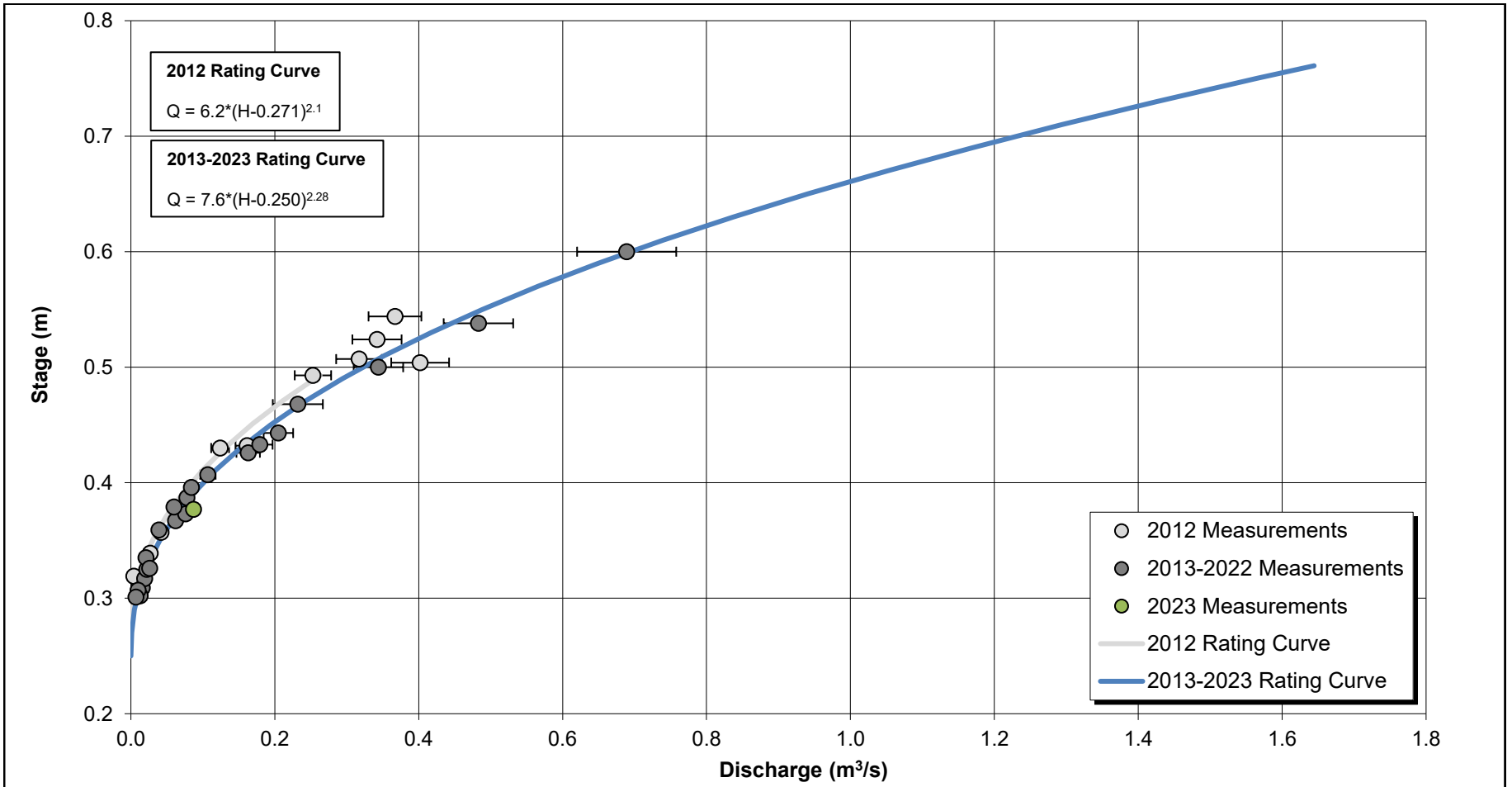
REF. NO. 4

FIGURE A 2.3

REV 0



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UPPER DAVIDSON CREEK HYDROLOGY STATION H10 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

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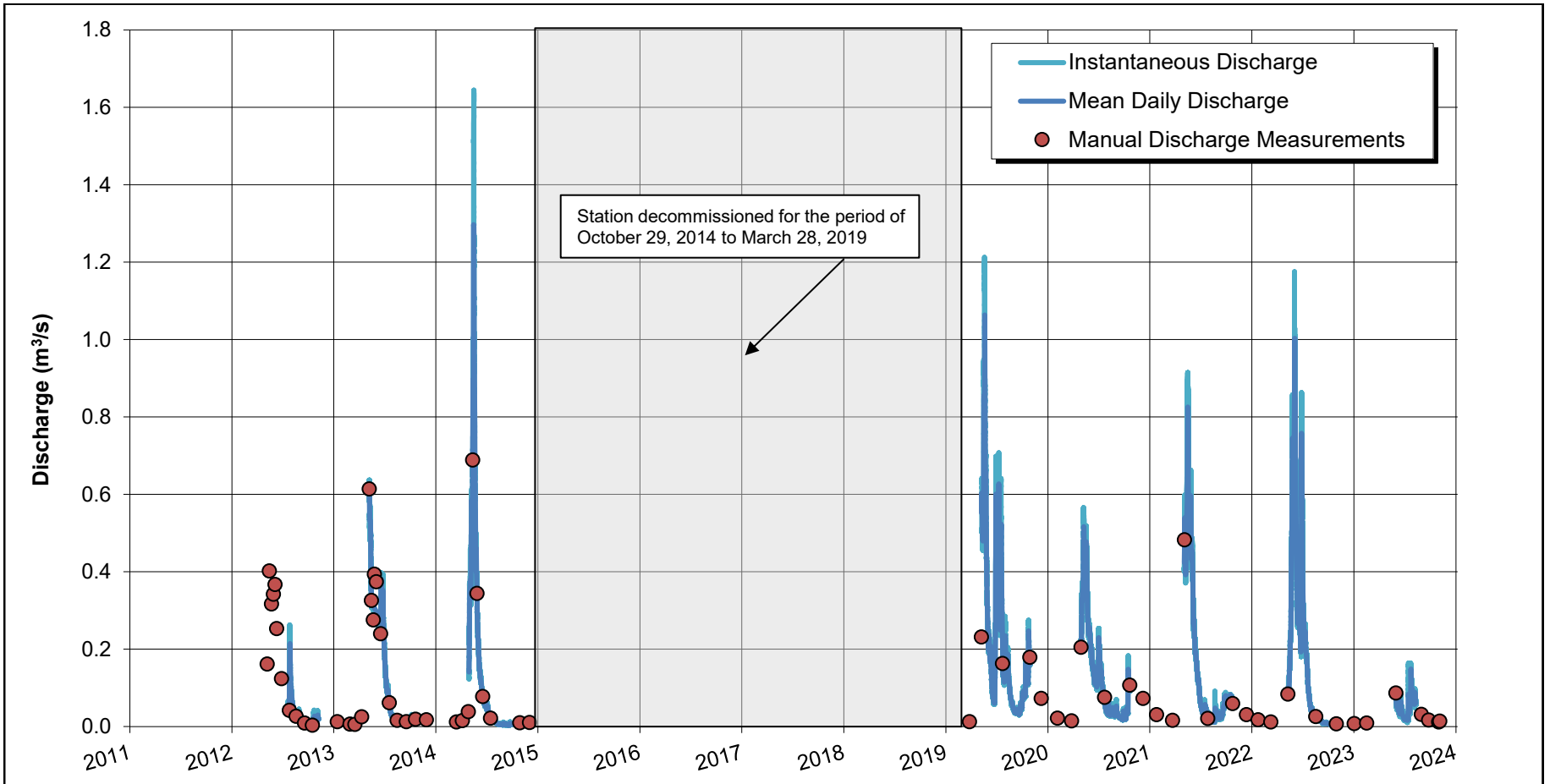
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.4

REV 0



REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H10 HYDROGRAPH

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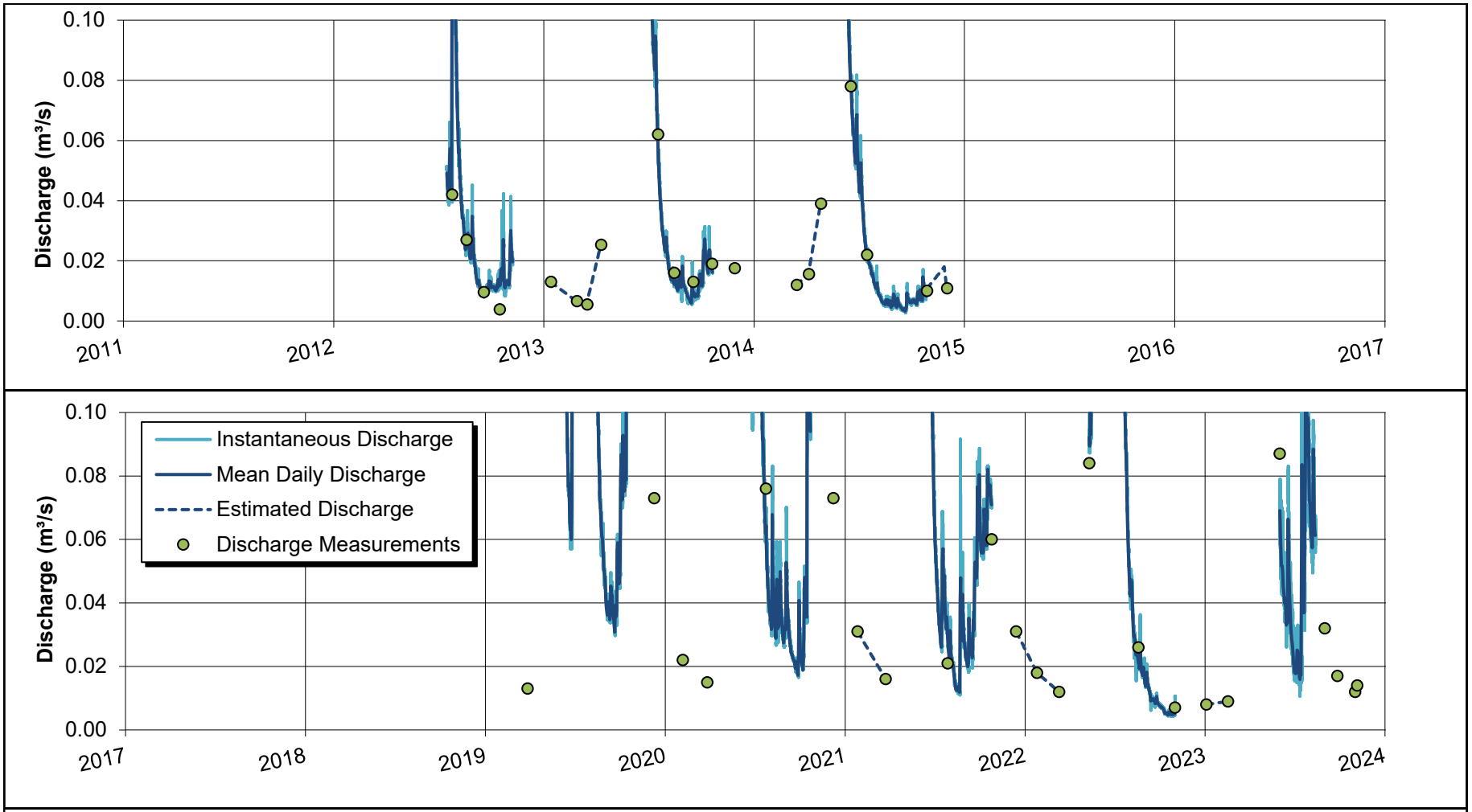
REF. NO. 4

FIGURE A 2.5

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.

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UPPER DAVIDSON CREEK HYDROLOGY STATION
H10 LOW FLOW HYDROGRAPH

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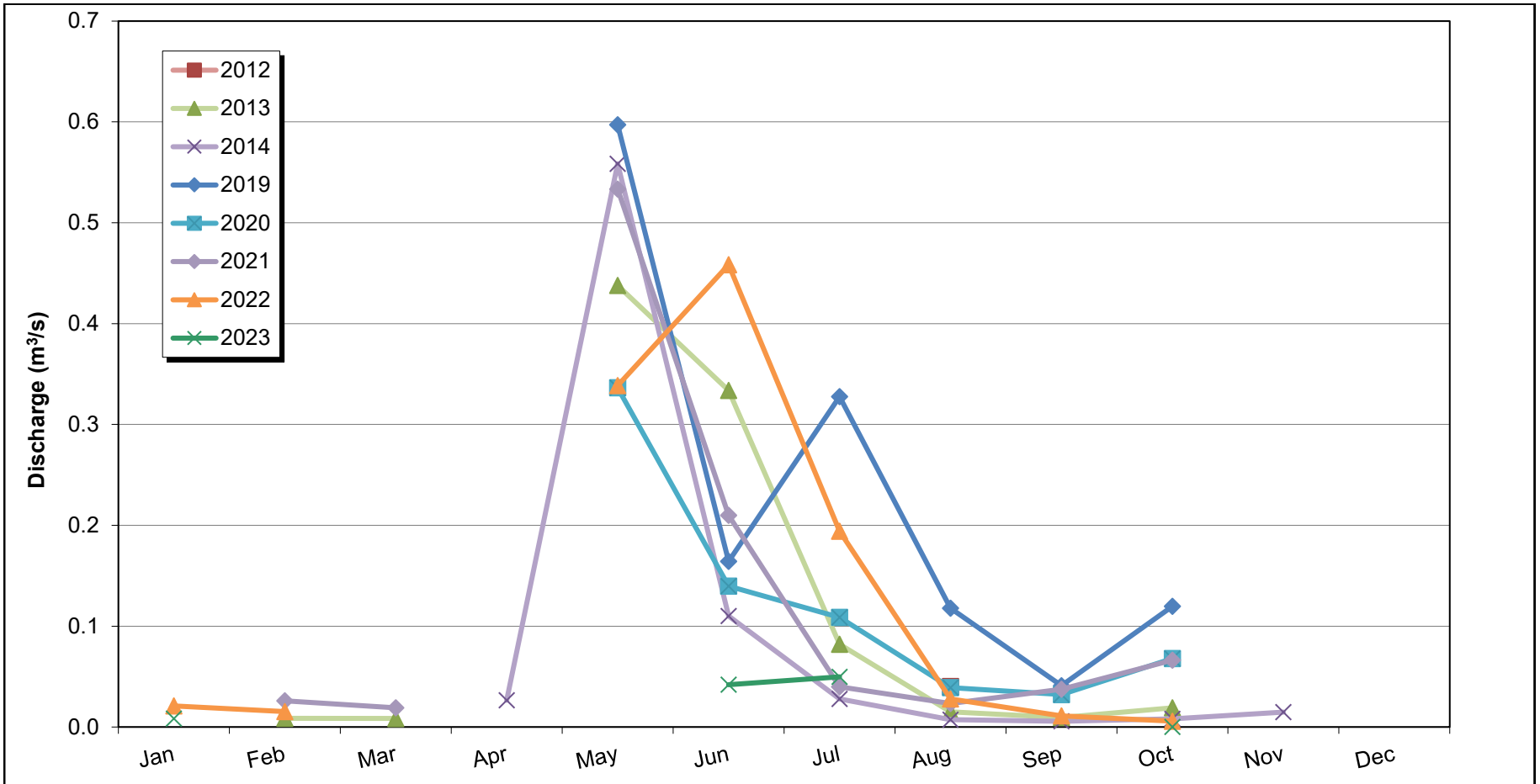
REF. NO. 4

FIGURE A 2.6

Rev 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

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BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION
H10 MEAN MONTHLY DISCHARGE

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P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.7

REV 0

2.4 UPPER DAVIDSON CREEK HYDROLOGY STATION H2

The H2 station was installed in a middle reach of Davidson Creek on May 19, 2011. The station is shown in Photo A 2.3 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 9, 2023 and then removed for the winter on October 23, 2023.

Photo A 2.3 Upper Davidson Creek Hydrology Station H2 (July 23, 2019)

A total of 63 discharge measurements with associated stage values have been collected at this site, as well as 33 winter discharge measurements without stage values. The stage-discharge measurements and individual discharge measurements are summarized in Table A 2.3.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset.

The rating curves were developed using 61 of the 63 stage-discharge measurements. The hydraulic control section at this site is subject to shifts as the gauge pool is influenced by a downstream log jam, resulting in five different rating curves. A total of 11 stage-discharge measurements were used to develop the 2011 rating curve, 21 measurements were used to develop the 2012-2014 rating curve, six measurements were used to develop the 2014-2015 rating curve, three measurements were used to develop the 2015-2016 rating curve, and 22 measurements were used to develop the 2016-2023 rating curve. The rating curves

are shown on Figure A 2.8. The 2016-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was modified to better fit the scatter of points collected in this period. Changes in the downstream log jam are believed to be changing the point-of-zero flow (PZF) for this location, possibly due to sediment accumulation; however, such changes are not believed to be substantially altering the underlying geomorphologic structure of the channel such as the bed slope and channel width, which have been relatively consistent since 2011. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 2.9. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2011 rating curve: the rating curve was not extrapolated as the maximum recorded stage resulted in a calculated discharge of 4.55 m³/s, which was less than the maximum measured discharge of 6.05 m³/s.
- 2012-2014 rating curve: the maximum measured discharge was 2.98 m³/s and the maximum extrapolated discharge is 3.89 m³/s.
- 2014-2015 rating curve: the maximum measured discharge was 2.10 m³/s and the maximum extrapolated discharge is 4.53 m³/s.
- 2015-2016 rating curve: the maximum measured discharge was 1.43 m³/s and the maximum extrapolated discharge is 3.16 m³/s.
- 2016-2023 rating curve: the maximum measured discharge was 1.70 m³/s and the maximum extrapolated discharge is 8.35 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2014-2015, 2015-2016, and 2016-2023 rating curves, there is notable uncertainty in the high flow portions of the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 2.10. The hydrograph shown on Figure A 2.11 focuses on the low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 2.12 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal with a spring freshet peak in all years except 2016 and 2019, which display a bimodal shape with peaks during the spring freshet and summer. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for H2 were determined to be of variable quality (Grade E) due to less than three benchmarks being used for all four benchmark surveys performed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 2.3

BW GOLD LTD.
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
UPPER DAVIDSON CREEK HYDROLOGY STATION H2

Print Mar/07/24 10:37:47

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
2-Mar-23	2	Current Meter	-	0.061	10%	-
9-May-23	2	-	0.919	-	-	0.02
1-Aug-22	2	Current Meter	0.602	0.335	10%	0.005
20-Sep-23	2	Current Meter	0.542	0.142	10%	0.002
23-Oct-23	2	Current Meter	0.116	0.116	10%	0.005

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\H2\[H2 Workfile 2023.xlsm]Table A 2.2

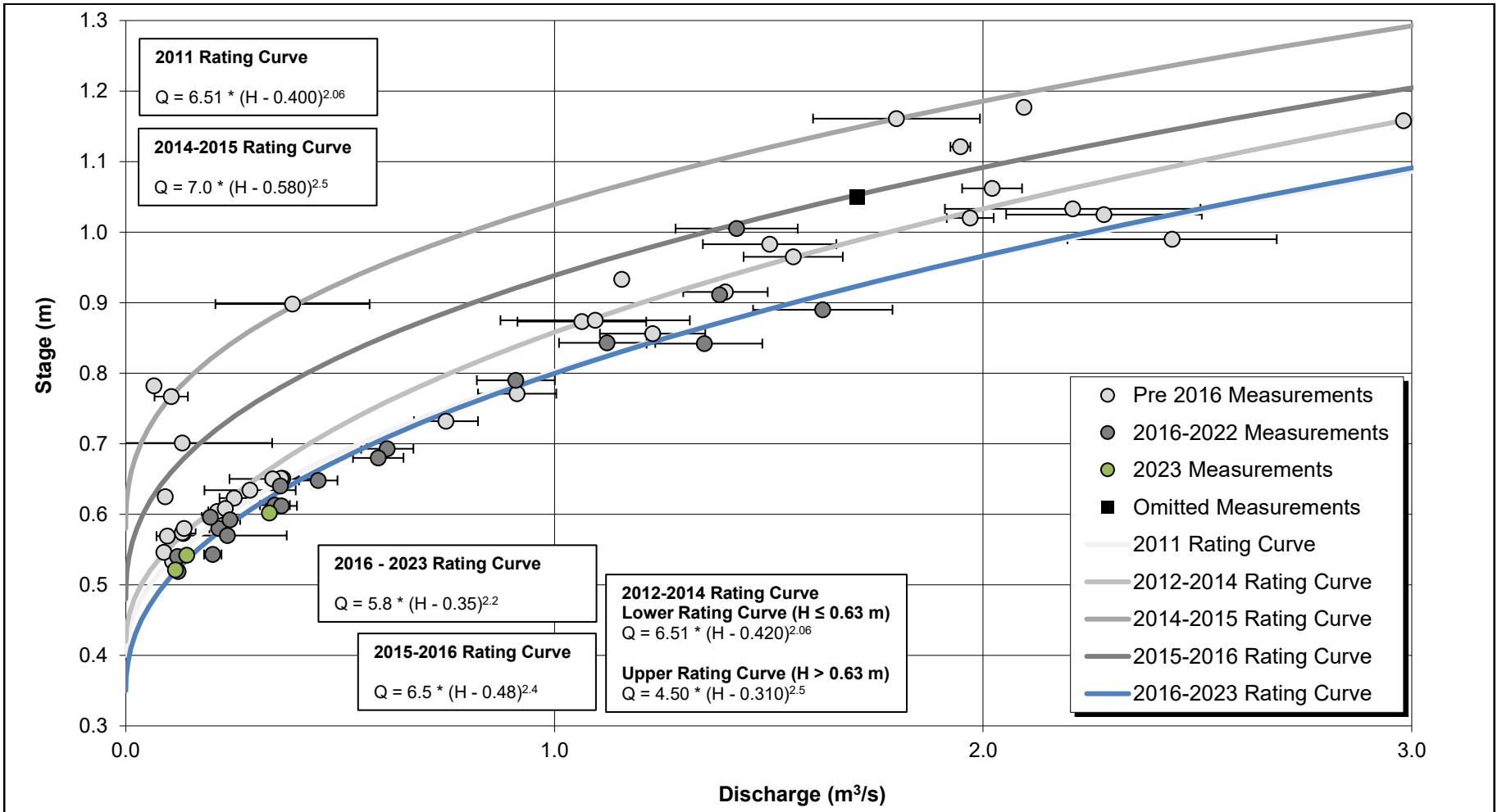
NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.

2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.

3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	MN	MJB



REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H2 RATING CURVES

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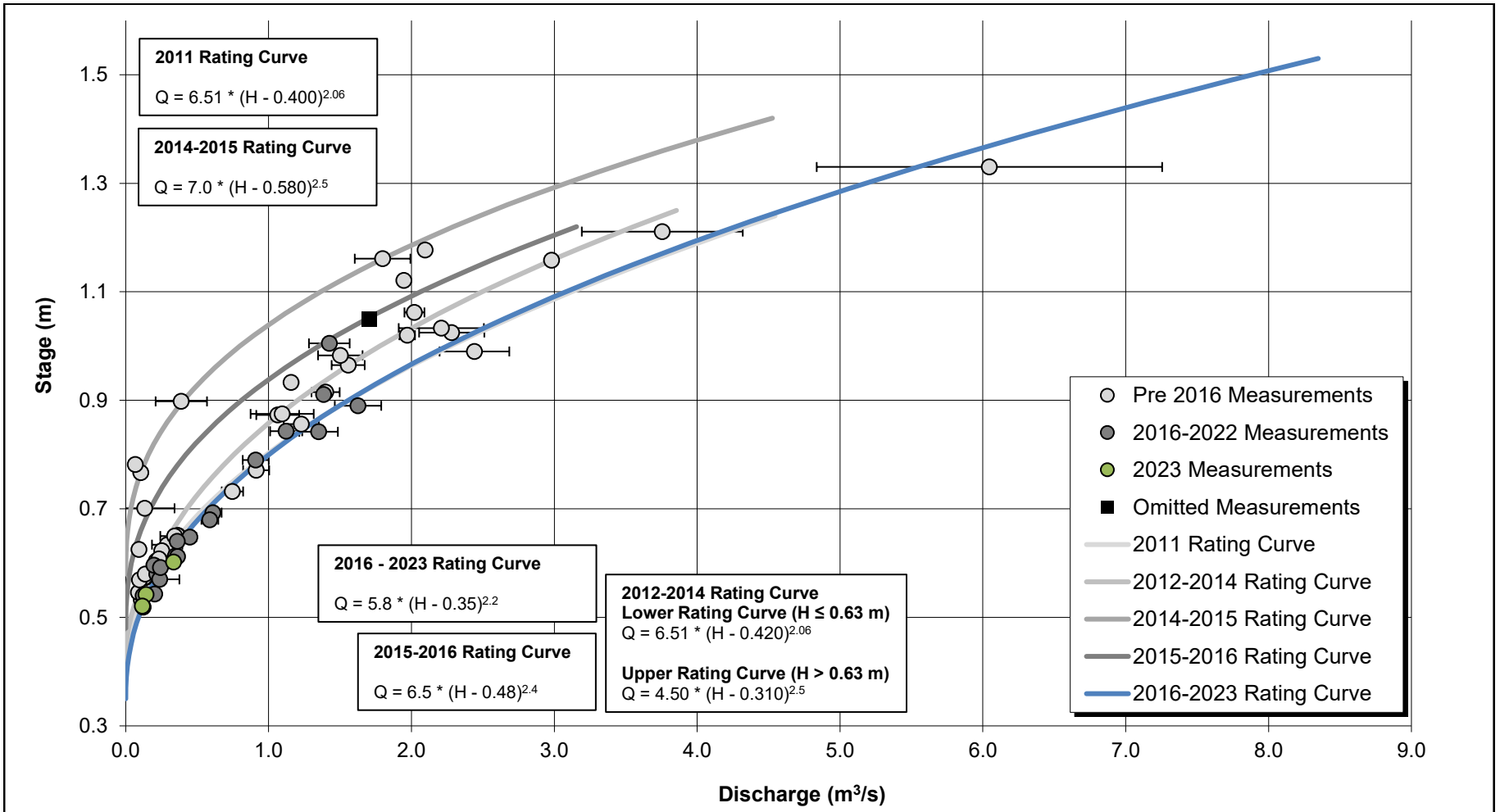
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.8

REV 0



REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H2 RATING CURVES

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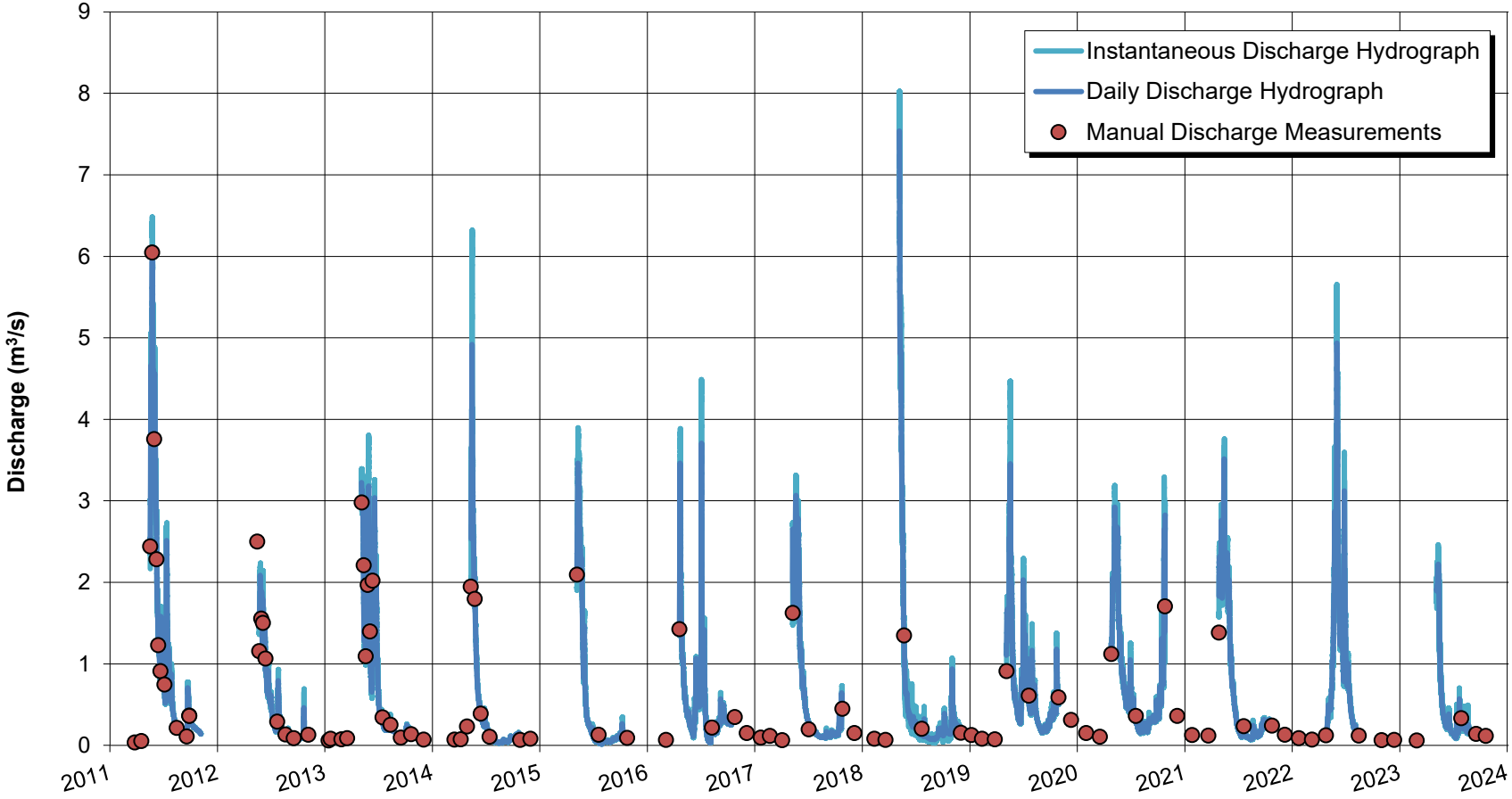
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.9

REV 0



REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H2 HYDROGRAPH

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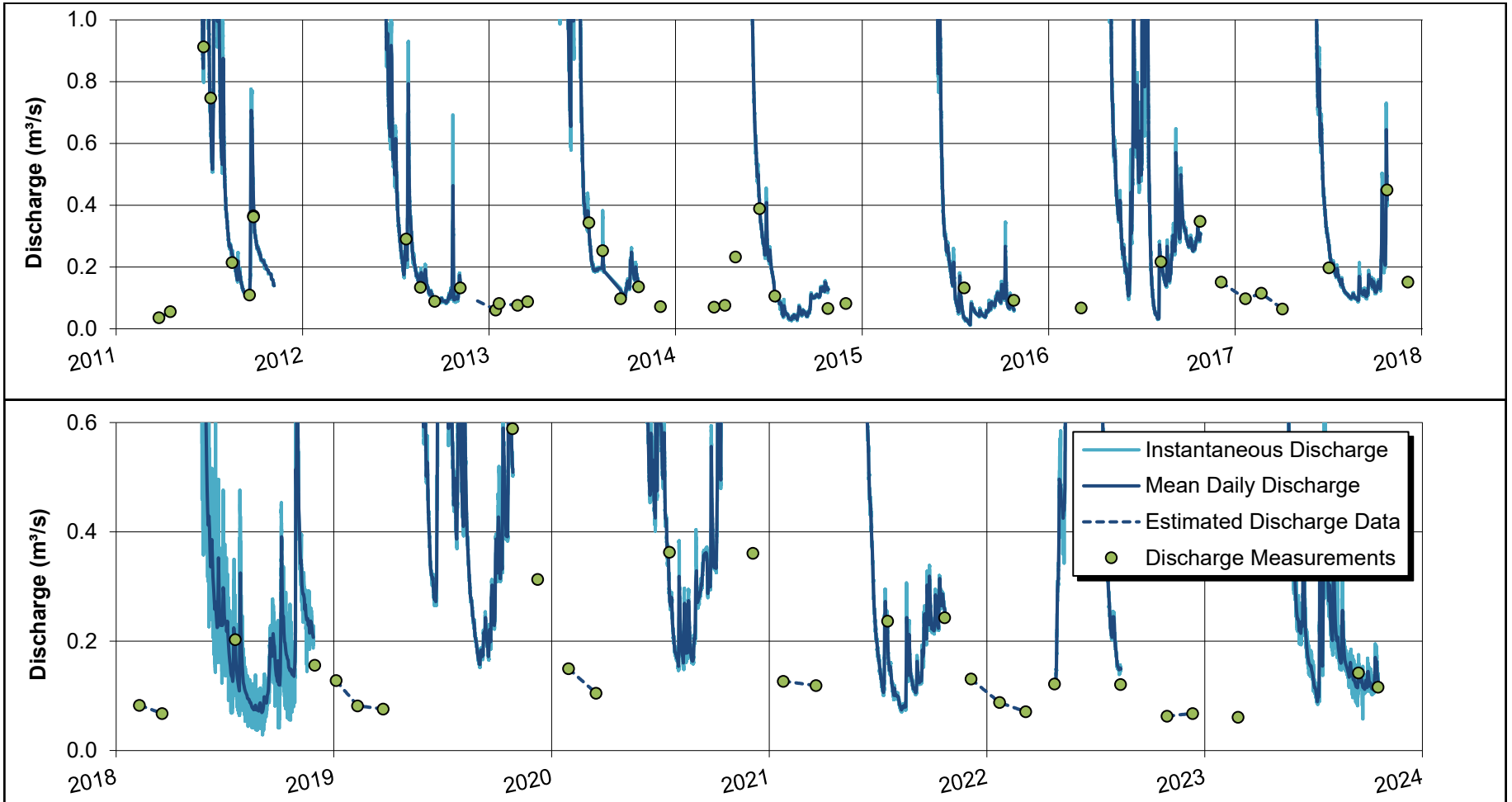
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.10

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H2 LOW FLOW HYDROGRAPH

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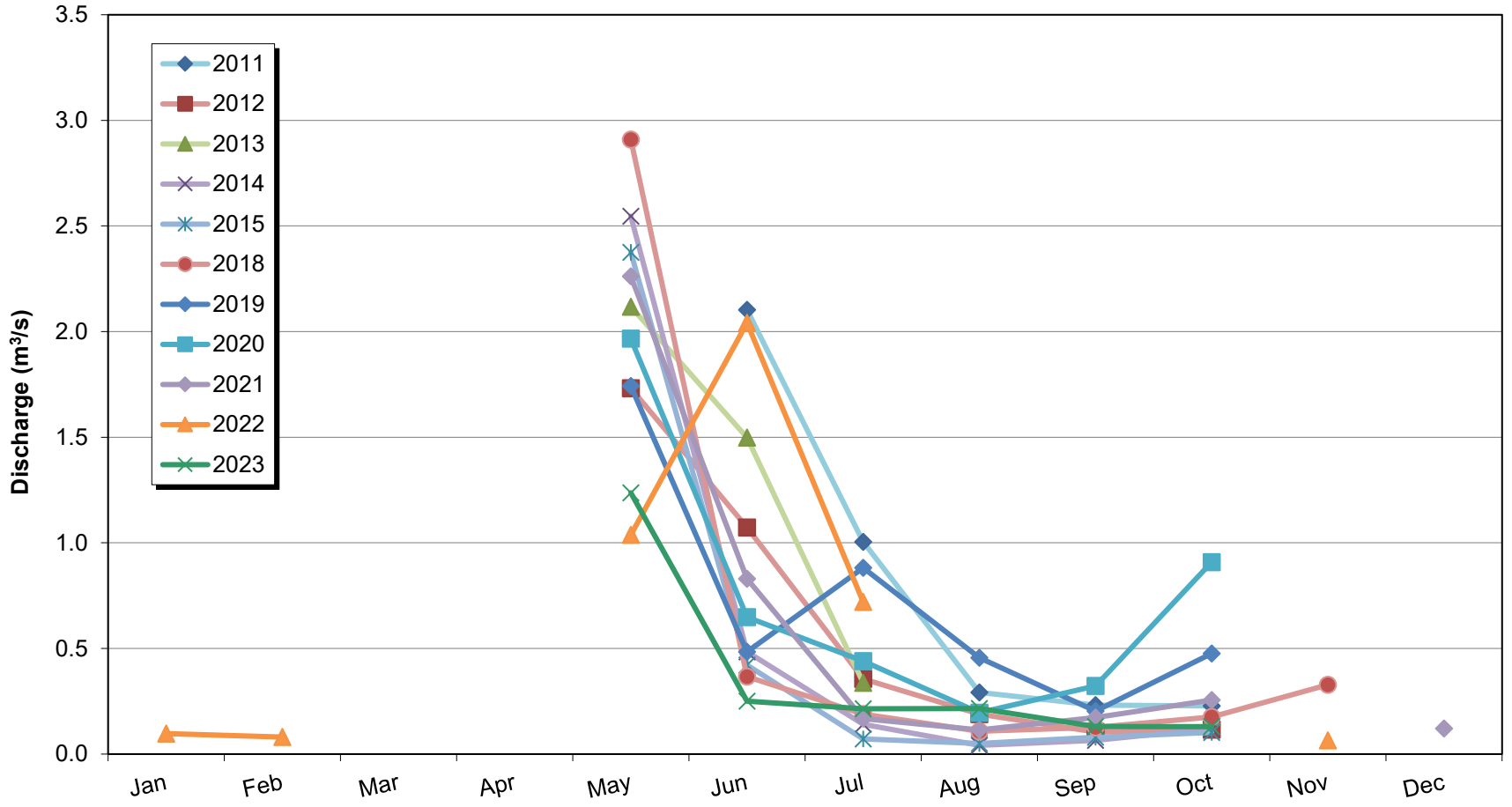
REF. NO. 4

FIGURE A 2.11

REV 0



NOTE:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION H2
MEAN MONTHLY DISCHARGE

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P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.12

REV 0

2.5 UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05

The DC-05 station, previously known as H2B, was installed in an upper reach of Davidson Creek on May 23, 2018. The station is shown in Photo A 2.4 and consists of a Solinst levelogger 5 installed inside a protective aluminum pipe that is attached to a rock on the bank of the creek. The station was historically removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it was safe to do so. Starting in fall 2023, the DC-05 station remains operational all year as the sensor was winterized at that time.

Photo A 2.4 Upper Davidson Creek Hydrology Station DC-05 (April 25, 2019)

A total of 22 discharge measurements with associated stage values have been collected at this site, as well as 30 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 2.4.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset. Stage data from October 23, 2023, to November 6, 2023 were removed from the stage record due to icing. Stage data are of uncertain quality during freshet from May 9, 2023, to May 27, 2023, due to significant wave action in the gauge pool, directly above the instrumentation.

Of the 22 stage-discharge measurements collected at this site, 21 were used to develop the respective rating curves. A total of six stage-discharge measurements were used to develop the 2018-2019 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2020 to 2022; therefore, 15 measurements have now been used to develop the current 2020-2023 rating curve. Both curves are shown on Figure A 2.13. The rating curves are extrapolated to the maximum measured stage

for their respective periods on Figure A 2.14. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2018-2019 rating curve: the maximum measured discharge was 1.93 m³/s and the maximum extrapolated discharge is 2.15 m³/s.
- 2020-2023 rating curve: the maximum measured discharge was 2.13 m³/s and the maximum extrapolated discharge is 5.96 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2020-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 2.15. The hydrograph shown on Figure A 2.16 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 2.17 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal in 2018, 2020, 2021, and 2023, with a spring freshet peak, while the 2019 hydrograph displays a bimodal shape with peaks during the spring freshet and summer. Insufficient data are available to comment on the shape of the 2022 hydrograph. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for DC-05 were determined be of variable quality (Grade E) due to less than three benchmarks being used in all seven of the benchmark surveys performed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 2.4

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SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05

Print Mar/07/24 10:25:01

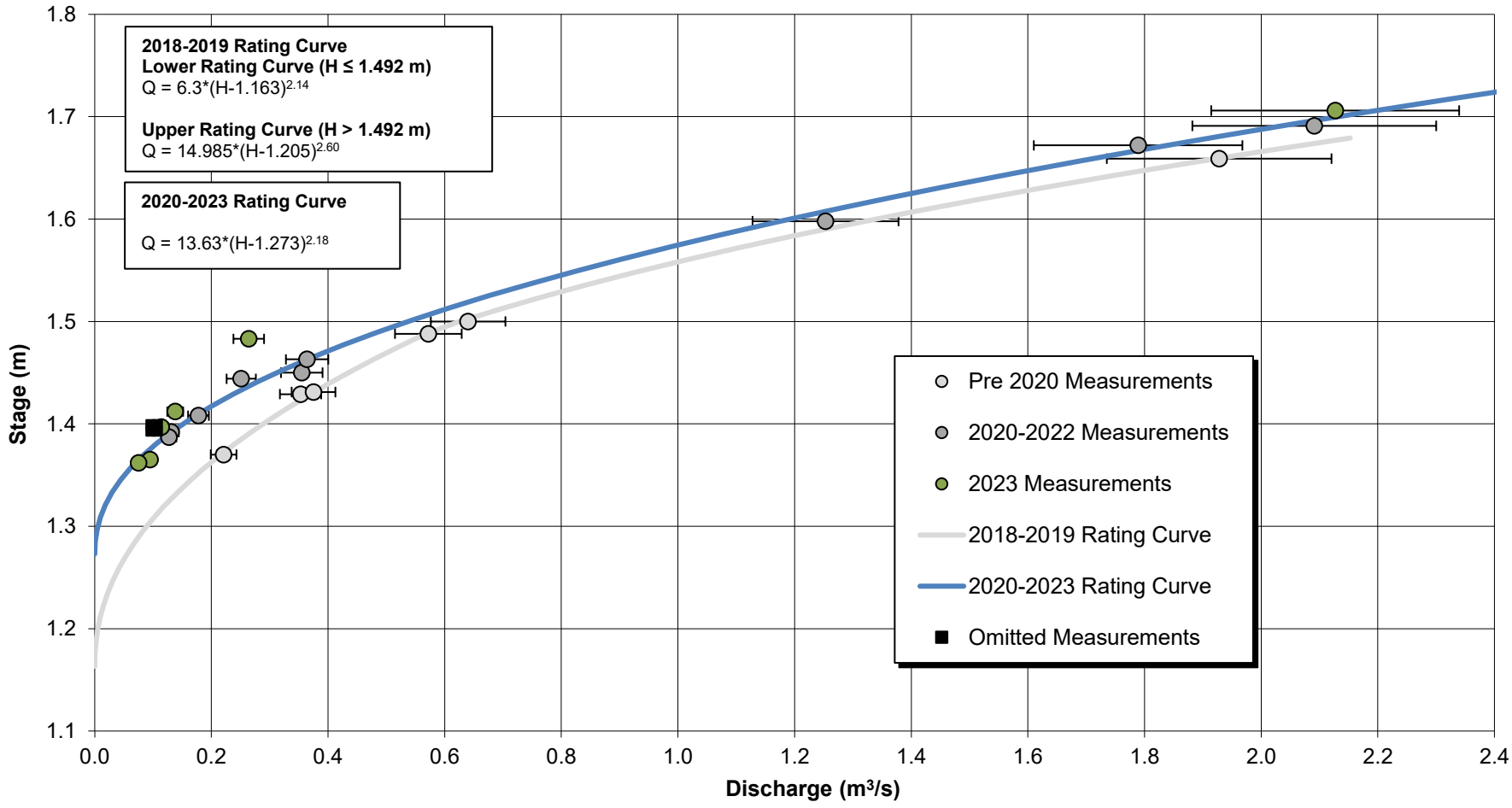
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
2-Mar-23	2	Current Meter	-	0.089	10%	-
9-May-23	2	Current Meter	1.706	2.127	10%	0.010
6-Jul-23	2	Current Meter	1.365	0.095	10%	0.005
1-Aug-23	2	Current Meter	1.483	0.264	10%	0.005
20-Sep-23	2	Current Meter	1.412	0.138	10%	0.002
24-Oct-23	2	Current Meter	1.396	0.102	10%	0.002
27-Oct-23	2	Current Meter	-	0.085	10%	-
31-Oct-23	2	Current Meter	-	0.083	10%	-
3-Nov-23	2	Current Meter	-	0.077	10%	-
6-Nov-23	2	Current Meter	1.397	0.114	10%	0.005
9-Nov-23	2	Current Meter	-	0.146	10%	-
13-Nov-23	2	Current Meter	-	0.120	10%	-
17-Nov-23	2	Current Meter	1.362	0.075	10%	0.005
21-Nov-23	2	Current Meter	-	0.072	10%	-
24-Nov-23	2	Current Meter	-	0.133	10%	-
28-Nov-23	2	Current Meter	-	0.088	10%	-
1-Dec-23	2	Current Meter	-	0.070	10%	-
5-Dec-23	2	Current Meter	-	0.164	10%	-
8-Dec-23	2	Current Meter	-	0.053	10%	-
11-Dec-23	2	Current Meter	-	0.088	10%	-
15-Dec-23	2	Current Meter	-	0.090	10%	-
18-Dec-23	2	Current Meter	-	0.101	10%	-
21-Dec-23	2	Current Meter	-	0.097	10%	-
28-Dec-23	2	Current Meter	-	0.112	10%	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\DC-05 (H2B)\[DC-05 (H2B) Workfile 2023_2.xlsm]Table A 2.4

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT ERROR ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05 RATING CURVES

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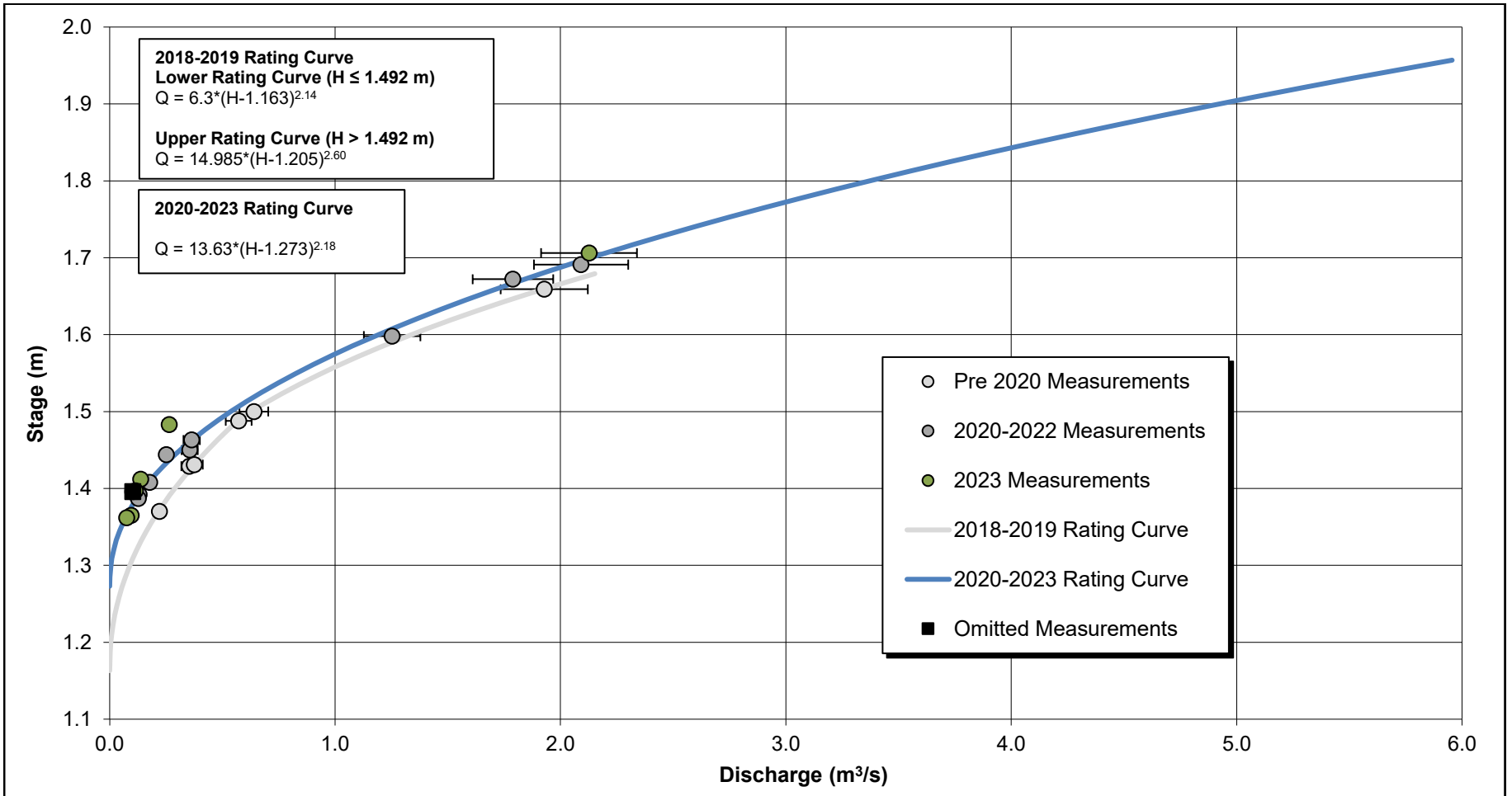
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.13

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

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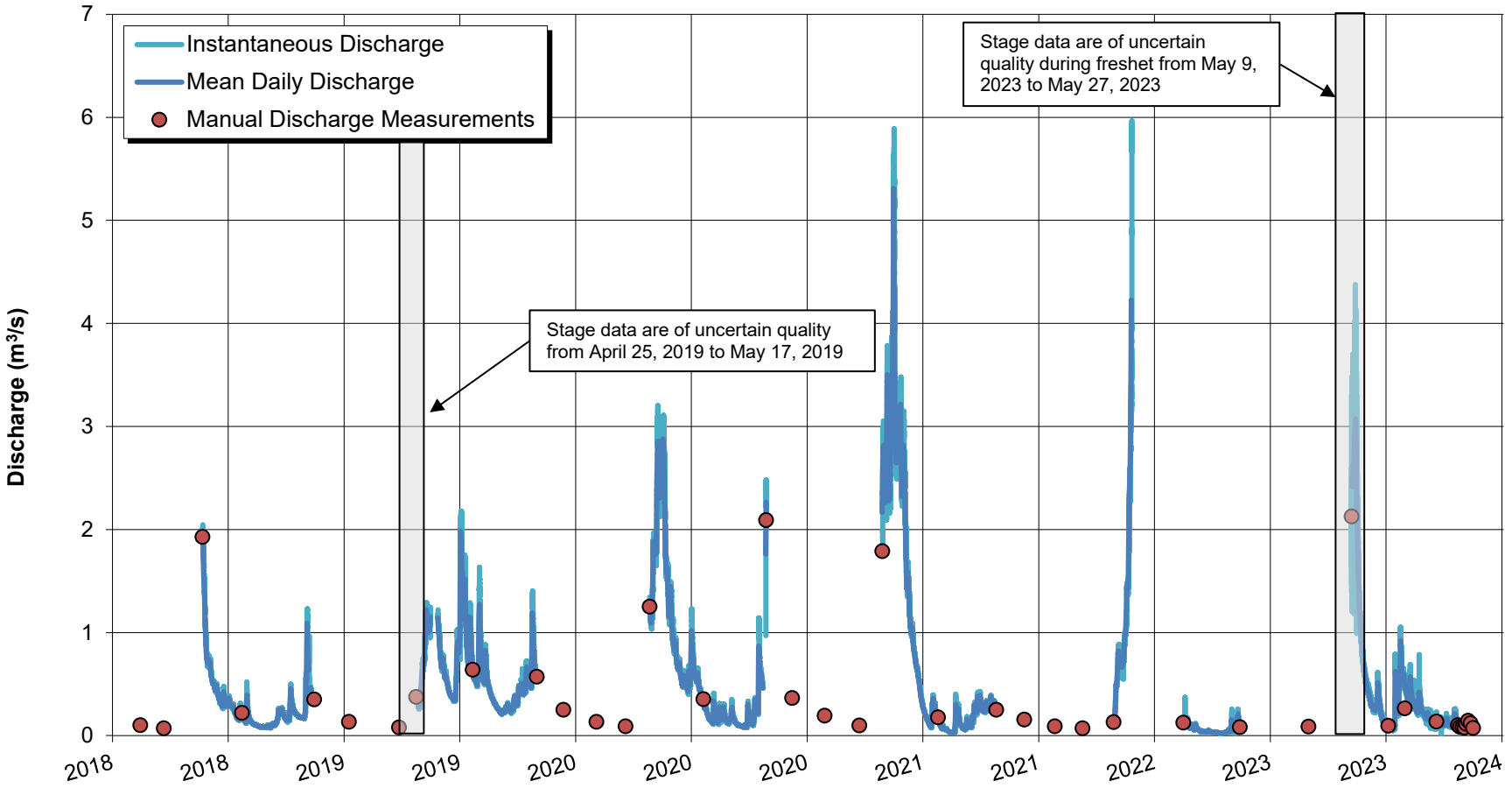
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.14

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05 HYDROGRAPH

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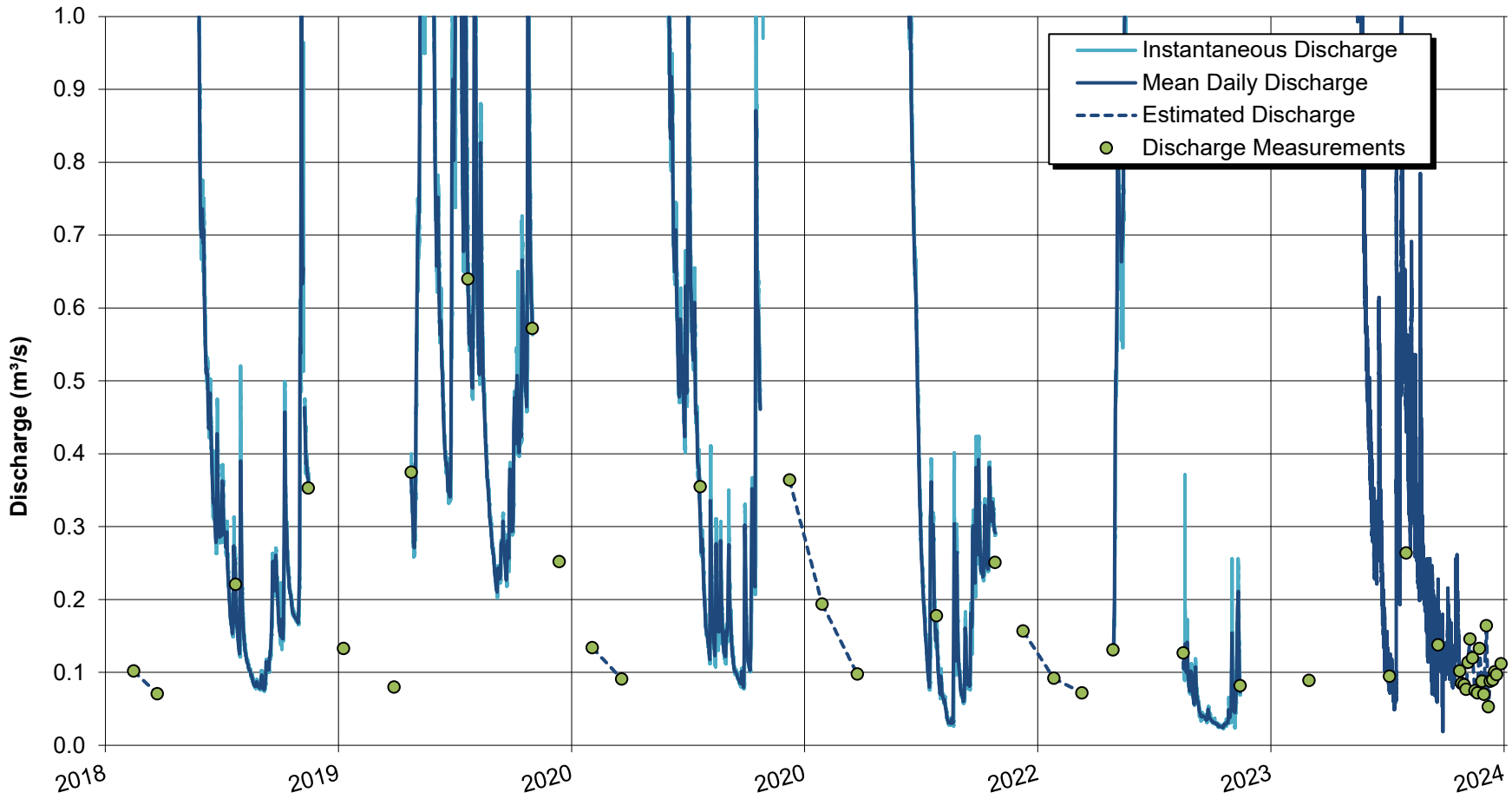
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.15

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION
DC-05 LOW FLOW HYDROGRAPH

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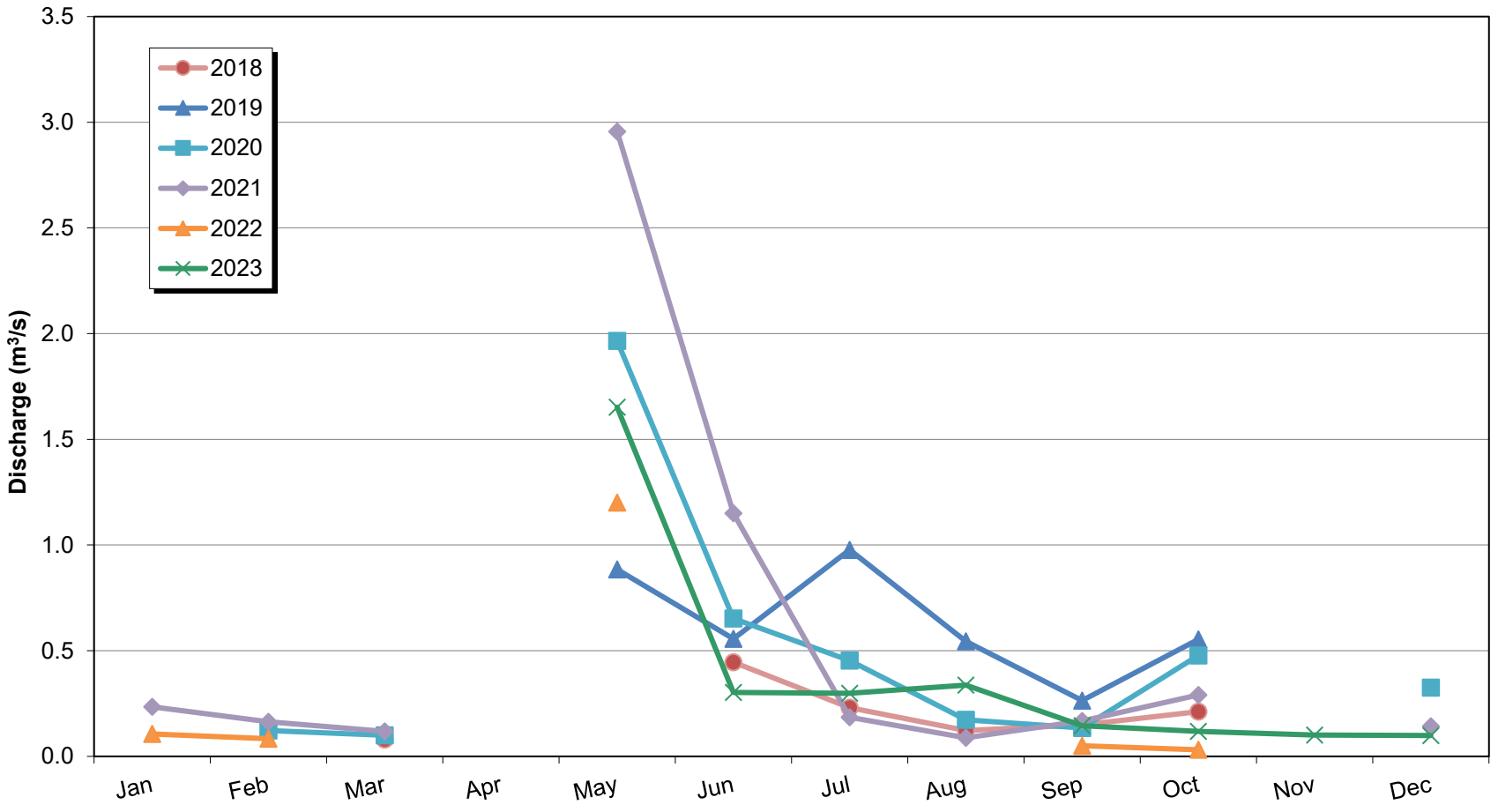
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.16

Rev 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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UPPER DAVIDSON CREEK HYDROLOGY STATION
DC-05 MEAN MONTHLY DISCHARGE

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P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.17

REV 0

2.6 UPPER DAVIDSON CREEK DISCHARGE MEASUREMENT LOCATION DC-10

The DC-10 location is on Davidson Creek approximately 1.1 km downstream of DC-05. The location was established for water quality monitoring and no hydrology instrumentation are installed at this location. A total of eight discharge measurements were recorded at the station. No associated stage values were recorded. The discharge measurements from 2023 are summarized in Table A 2.5. When compared against the RISC hydrometric standards (2018), the 2023 discharge data for DC-10 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

Table A 2.5 2023 Water Quality Location DC-10 Summary of Discharge Measurements

Date	Discharge			
	Number of Measurements	Measurement Method	Measurement (m^3/s)	Uncertainty (%)
31-Oct-2023	2	Current Meter	0.091	10
22-Sep-2023	2	Current Meter	0.130	10
06-Sep-2023	2	Current Meter	0.155	10
09-Aug-2023	2	Current Meter	0.390	10
09-May-2023	2	Current Meter	2.372	10
02-Mar-2023	2	Current Meter	0.052	10
05-Jan-2023	2	Current Meter	0.080	10

2.7 MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15

The DC-15 station, previously known as the H4B station, was installed on Davidson Creek on May 9, 2012 to replace the H4 station that was decommissioned at the end of 2011. The H4 station was only operated during 2011. The H4 water level data, stage-discharge measurements, and associated rating curve for 2011 are shown in the 2016 Hydrology Baseline Report (KP, 2018).

The DC-15 (H4B) station is shown in Photo A 2.5 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is attached to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 25, 2023 and then removed for the winter on October 30, 2023.

Photo A 2.5 Lower Davidson Creek Hydrology Station DC-15 (May 25, 2023)

A total of 55 discharge measurements with associated stage values have been collected at this site, as well as 34 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 2.6.

In 2023, data from October 24 to 30 were removed from the stage record due to icing effects.

The rating curves were developed using 53 of the 55 stage-discharge measurements. The May 3, 2018 site visit measurement was disregarded as it likely coincided with a rating curve shift during a period of high flows, and the April 24, 2019 site visit measurement was disregarded due to its anomalously low stage level. A total of 37 stage-discharge points were used to develop the 2012-2017 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2018 to 2022; therefore, a total of 16 measurements delineate the 2018-2023 rating curve. Both curves are shown on Figure A 2.18. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 2.19. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2012-2017 rating curve: the maximum measured discharge was 2.93 m³/s and the maximum extrapolated discharge is 4.30 m³/s.
- 2018-2023 rating curve: the maximum measured discharge was 2.20 m³/s and the maximum extrapolated discharge is 11.67 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2018-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 2.20. The hydrograph on Figure A 2.21 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created

for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 2.22 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2012 to 2015, 2017, 2018, and 2020 to 2023, while a bimodal shape was observed in 2016 and 2019. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for DC-15 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 2.6

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SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15

Print Mar/07/24 10:32:00

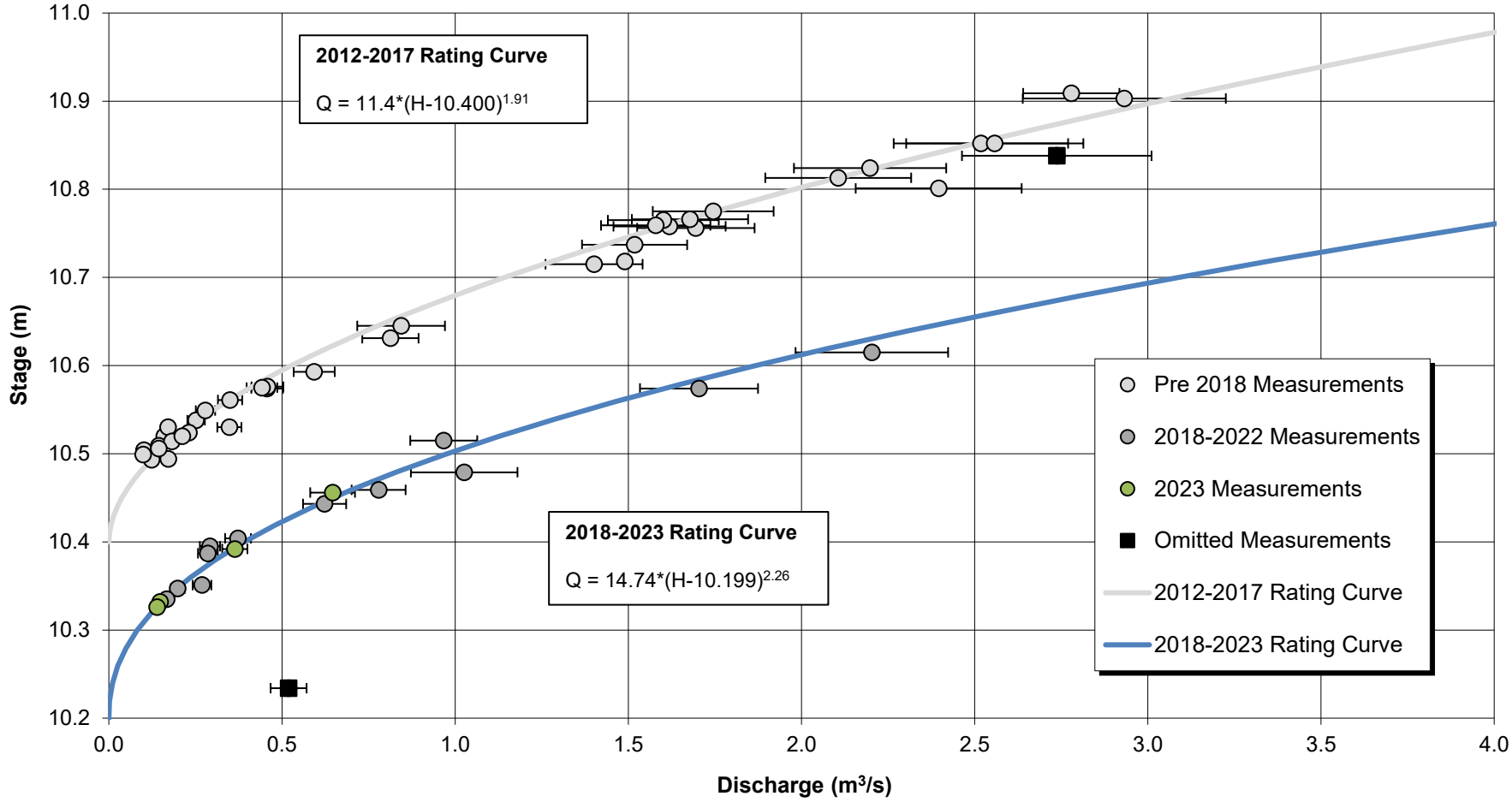
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
22-Feb-23	2	Current Meter	-	0.090	10%	-
25-May-23	2	Current Meter	10.456	0.646	10%	0.005
28-Jul-23	2	Current Meter	10.392	0.364	10%	0.005
8-Sep-23	2	Current Meter	10.332	0.148	10%	0.005
22-Sep-23	2	Current Meter	10.326	0.139	10%	0.002
30-Oct-23	2	Current Meter	-	0.162	10%	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\DC-15 (H4B)\[DC-15 Workfile 2023.xlsm]Table A 2.6

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15 RATING CURVES

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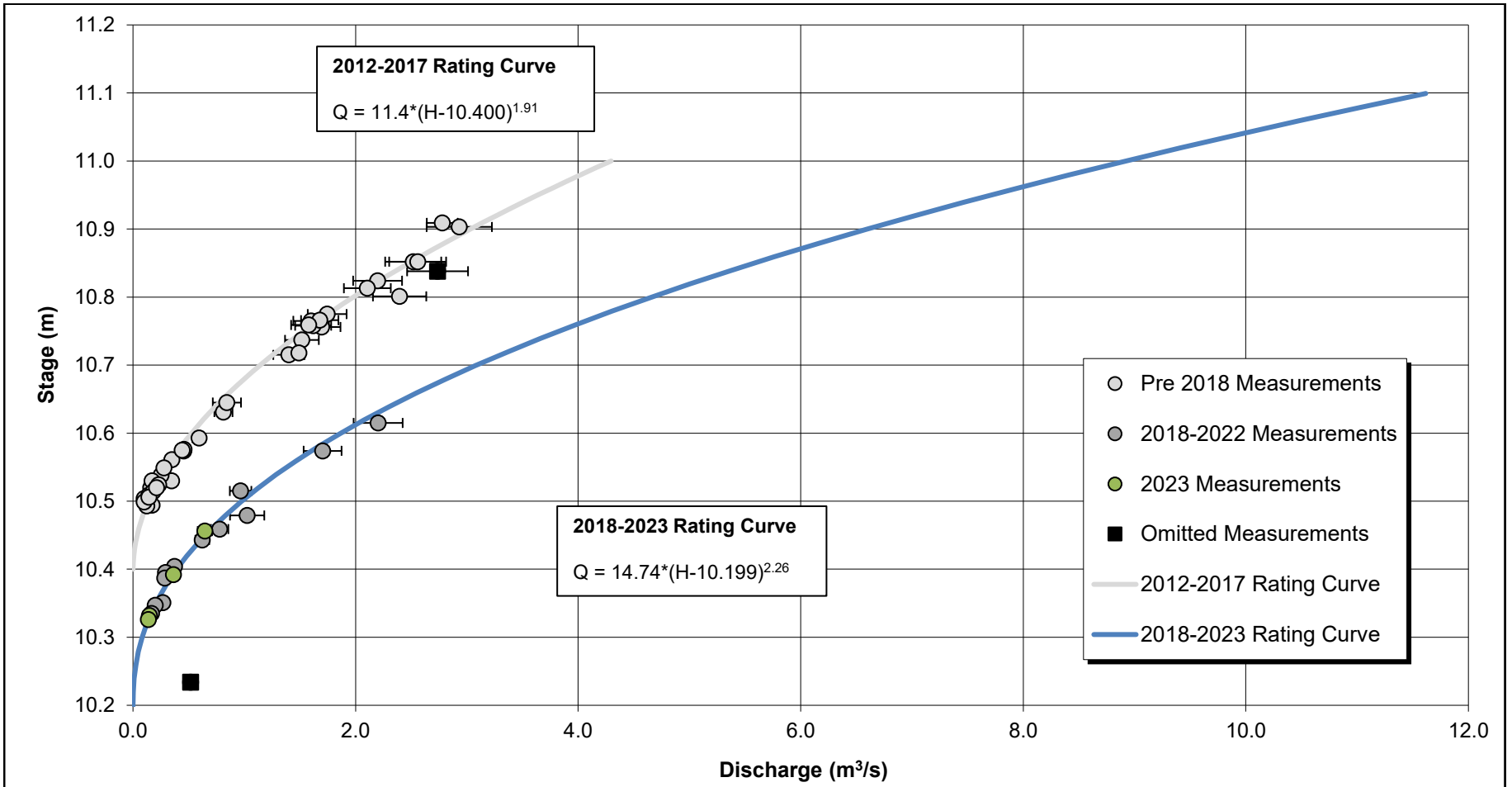
REF. NO. 4

FIGURE A 2.18

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

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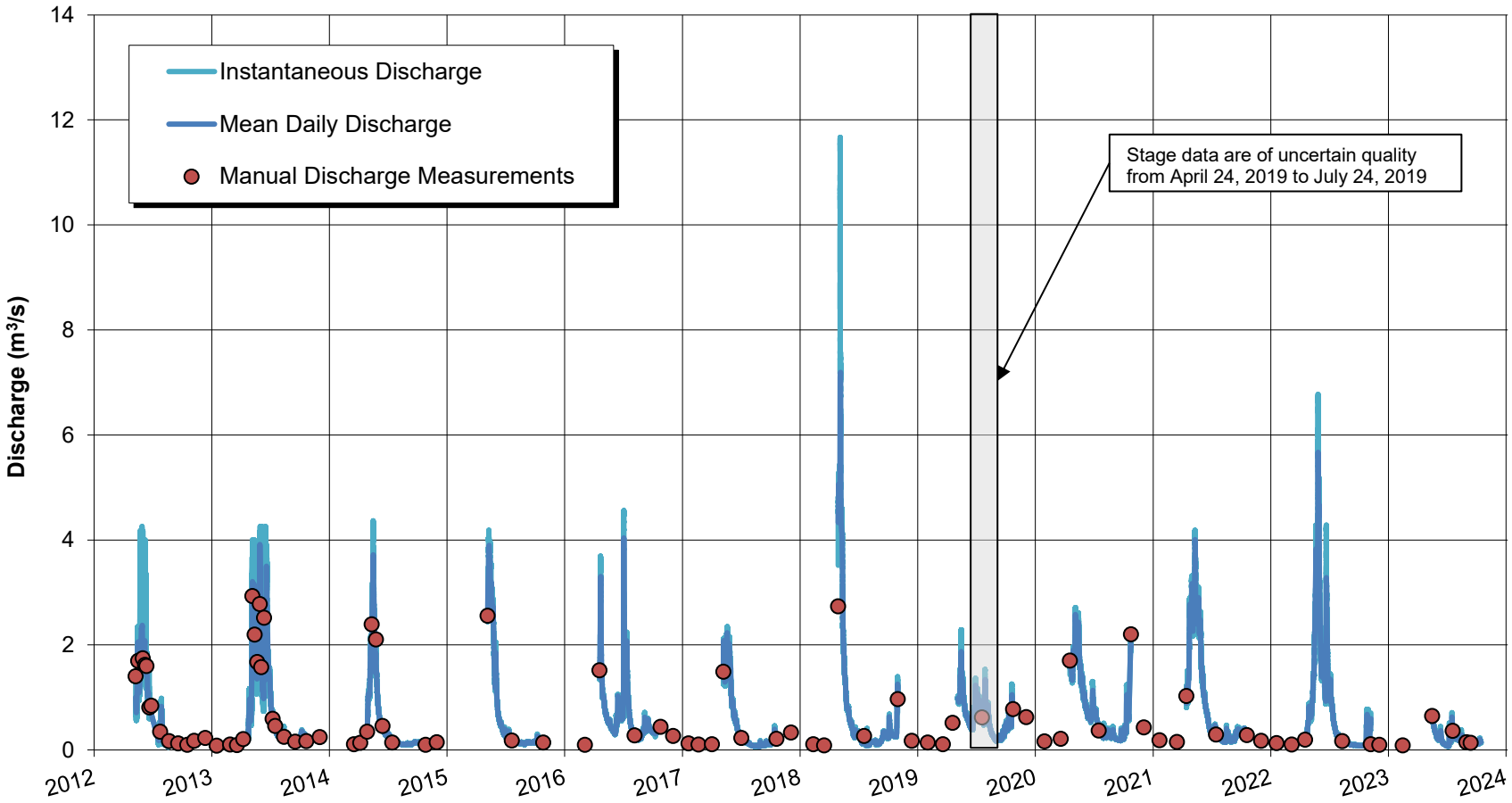
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.19

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY STATION
DC-15 HYDROGRAPH

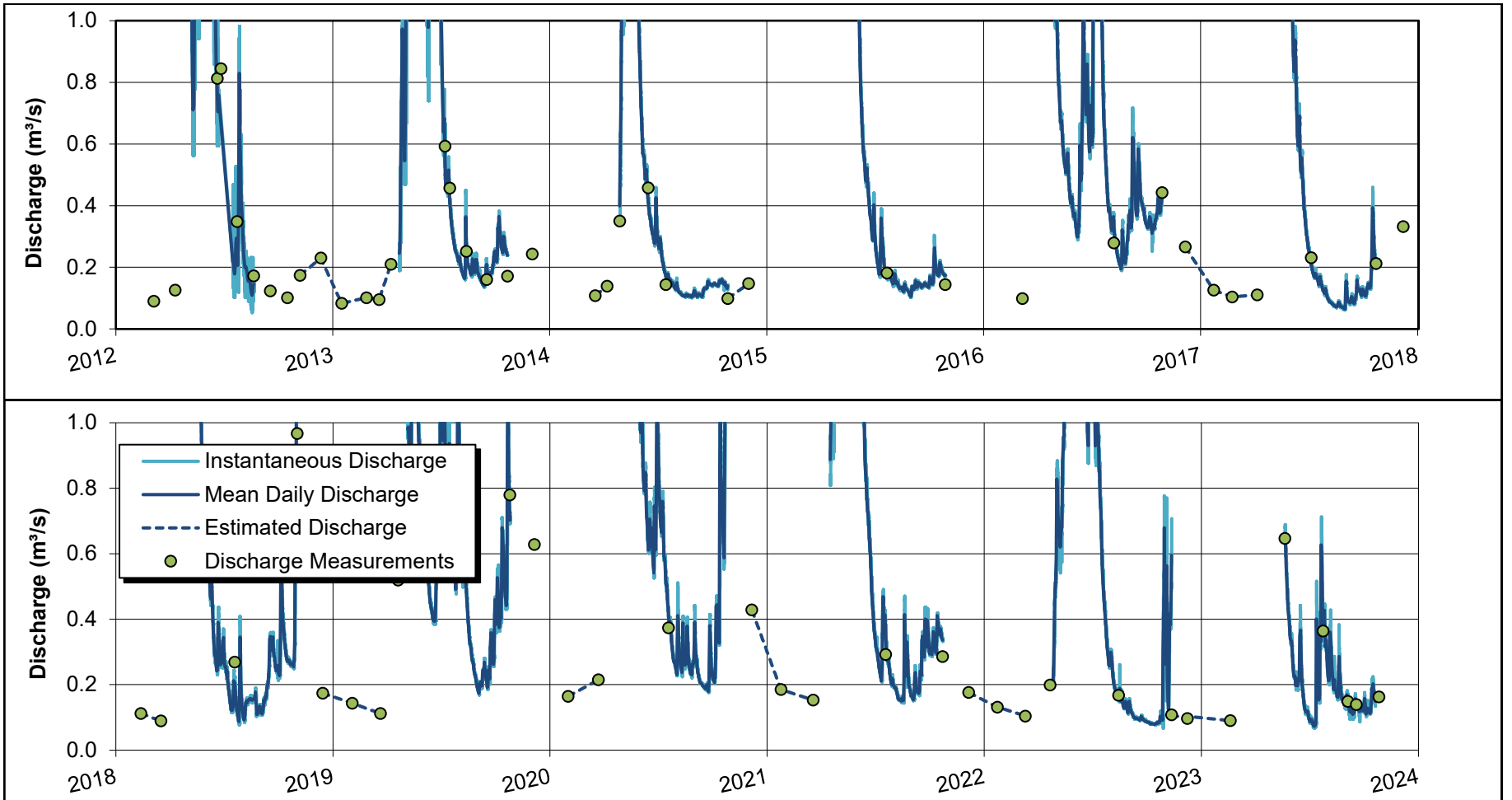
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.20

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY STATION
DC-15 LOW FLOW HYDROGRAPH

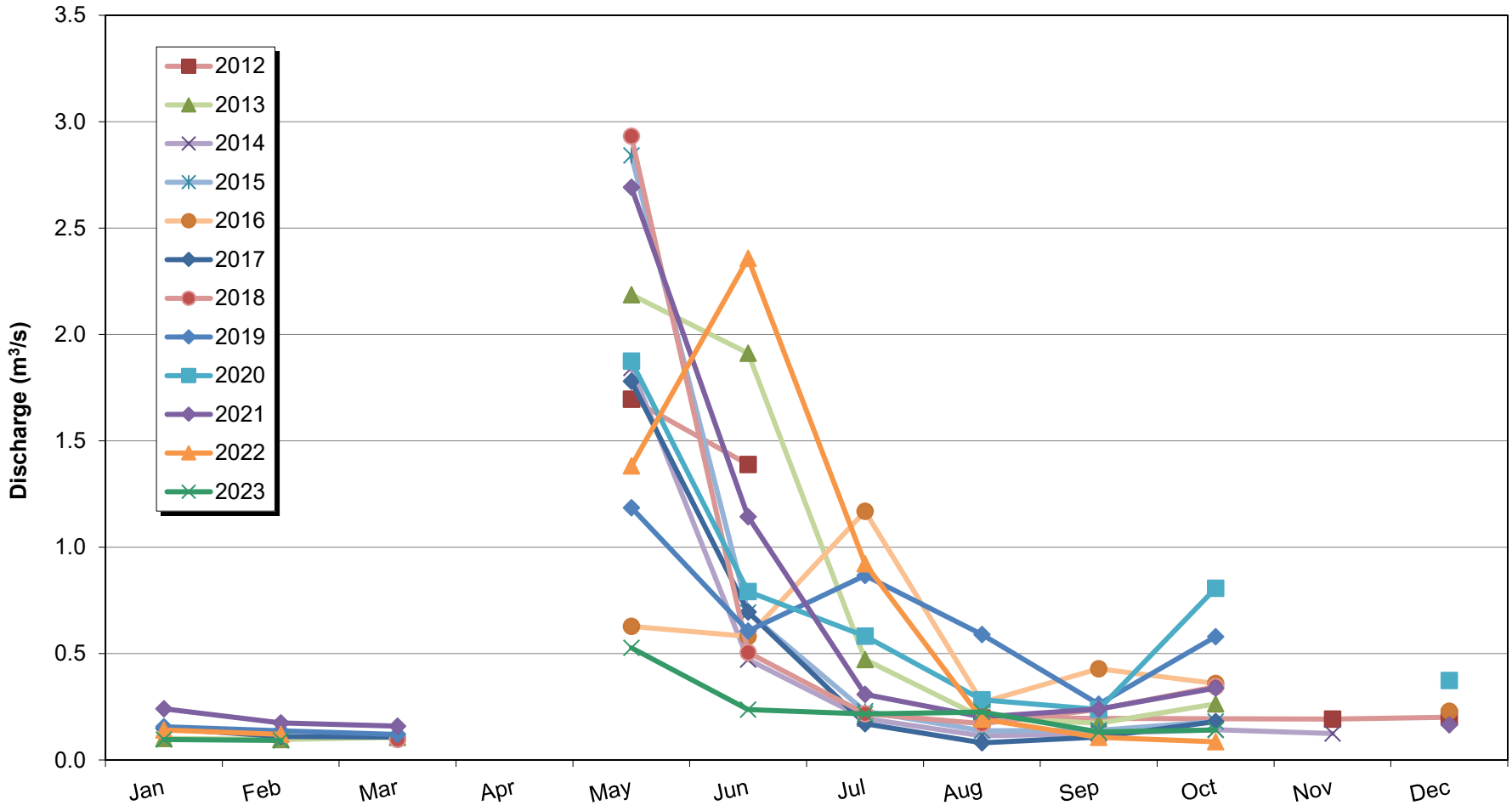
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.21

Rev 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H4B".

BW GOLD LTD.

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK HYDROLOGY STATION
DC-15 MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.22

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

2.8 CREEK 668-328 HYDROLOGY STATION 668-20

The 668-20 station was installed on Creek 668-328 on August 4, 2023. This station is shown in Photo A 2.6 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is attached to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was removed for the winter on October 27, 2023.

Photo A 2.6 Creek 668-328 Hydrology Station 668-20 (August 4, 2023)

A total of six discharge measurements with associated stage values have been collected at this site, as well as one winter discharge measurement without an associated stage value. The stage-discharge and individual discharge measurements are summarized in Table A 2.7.

It is suspected that the instrument at this station may be experiencing sensor drift. A preliminary comparison between stage data recorded by the logger and manual surveys indicates that there is a linear but disproportional relationship between the two stages. The stage reported by the logger data is consistently slightly higher than the manually measured stage.

A preliminary rating curve was developed using all five stage-discharge measurements, as shown on Figure A 2.23. The rating curve extrapolated to the maximum measured stage is shown on Figure A 2.24. The maximum reliable measured discharge and maximum extrapolated discharge for the rating curve are summarized below:

- 2023 preliminary rating curve: the maximum measured discharge was 0.037 m³/s and the maximum extrapolated discharge is 0.079 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2023 preliminary rating curve, there is particular uncertainty in the high flow portions of both the rating curve and the associated discharge hydrograph.

Applying the rating curve to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 2.25. Figure A 2.26 shows the monthly mean flows for the three months of data collected in 2023. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for 668-20 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 2.7

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CREEK 668 HYDROLOGY STATION 668-20

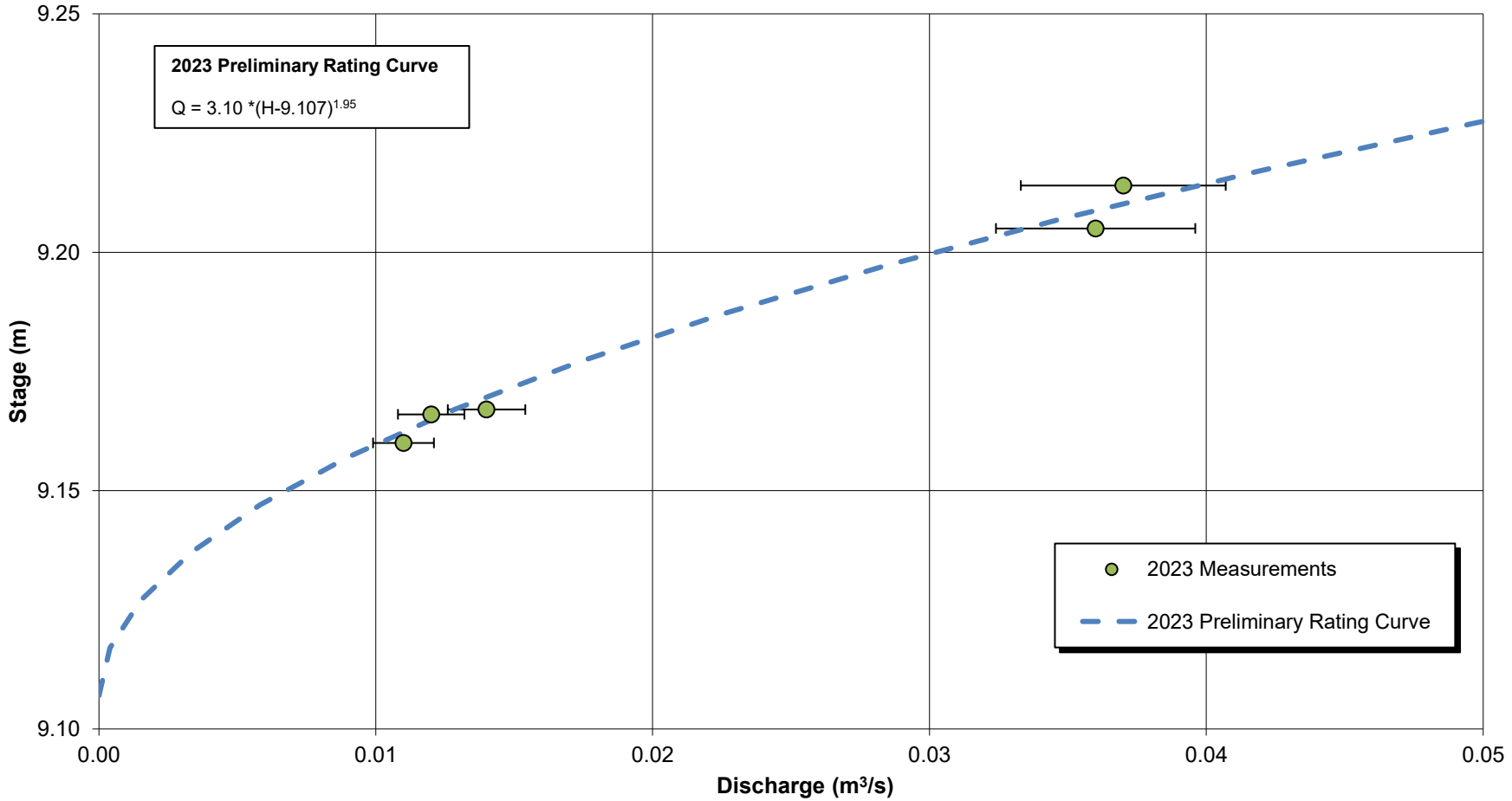
Print Mar/07/24 8:24:16

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
4-Aug-23	2	Current Meter	9.214	0.037	10%	0.002
23-Aug-23	2	Current Meter	9.205	0.036	10%	0.002
27-Sep-23	2	Current Meter	9.167	0.014	10%	0.005
13-Oct-23	2	Current Meter	9.160	0.011	10%	0.002
23-Oct-23	2	Current Meter	9.166	0.012	10%	0.002
27-Oct-23	2	Current Meter	-	0.006	10%	-

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT ERROR ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT VA101-00457/40-4	BTN	MJB



NOTES:
1. THIS STATION WAS ESTABLISHED AUGUST 4, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 668 HYDROLOGY STATION
668-20 PRELIMINARY RATING CURVE

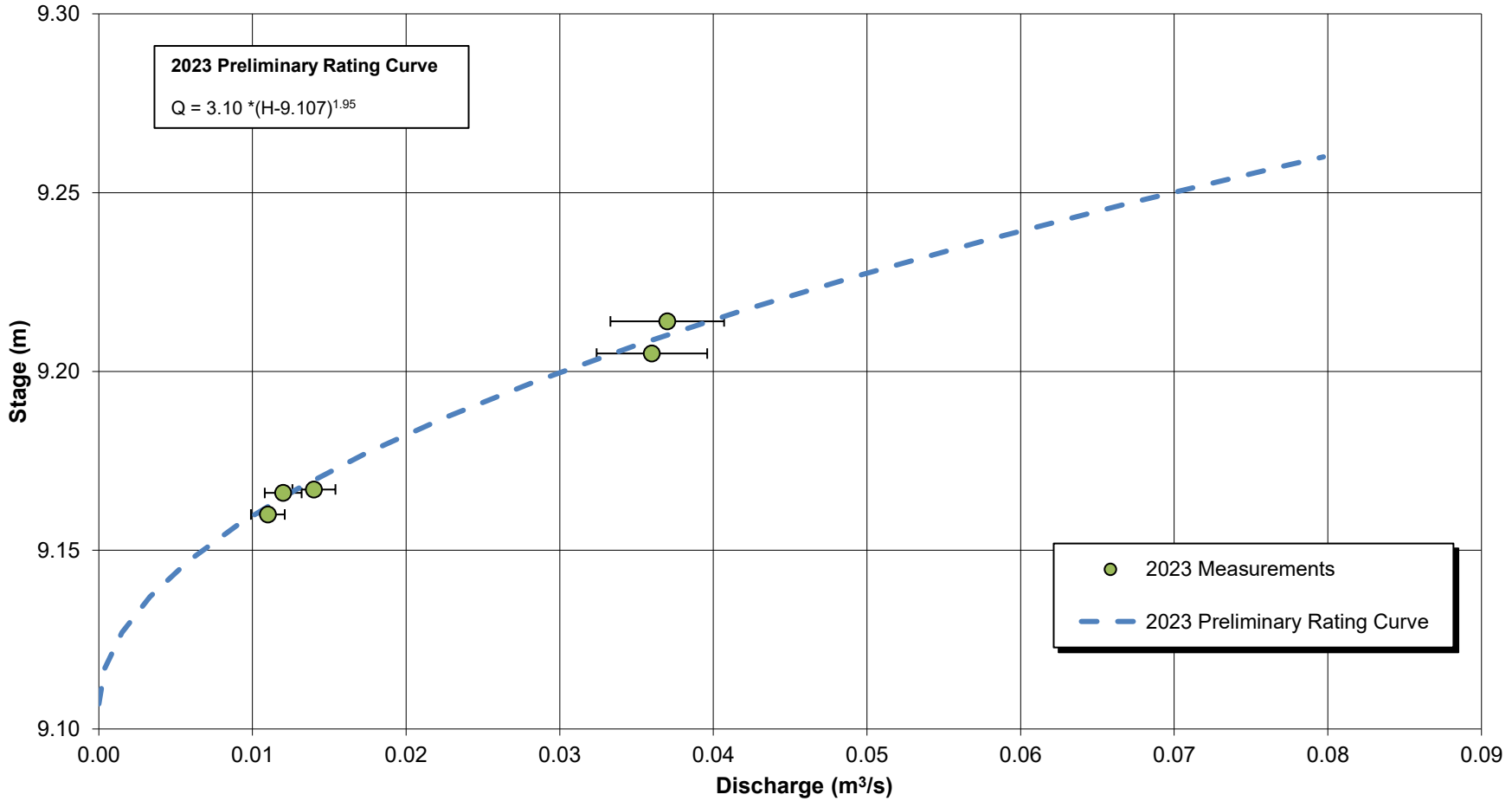
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 2.23

REV 0



NOTES:
1. THIS STATION WAS ESTABLISHED AUGUST 4, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 668 HYDROLOGY STATION
668-20 PRELIMINARY RATING CURVE -
EXTRAPOLATED TO MAXIMUM RECORDED STAGE

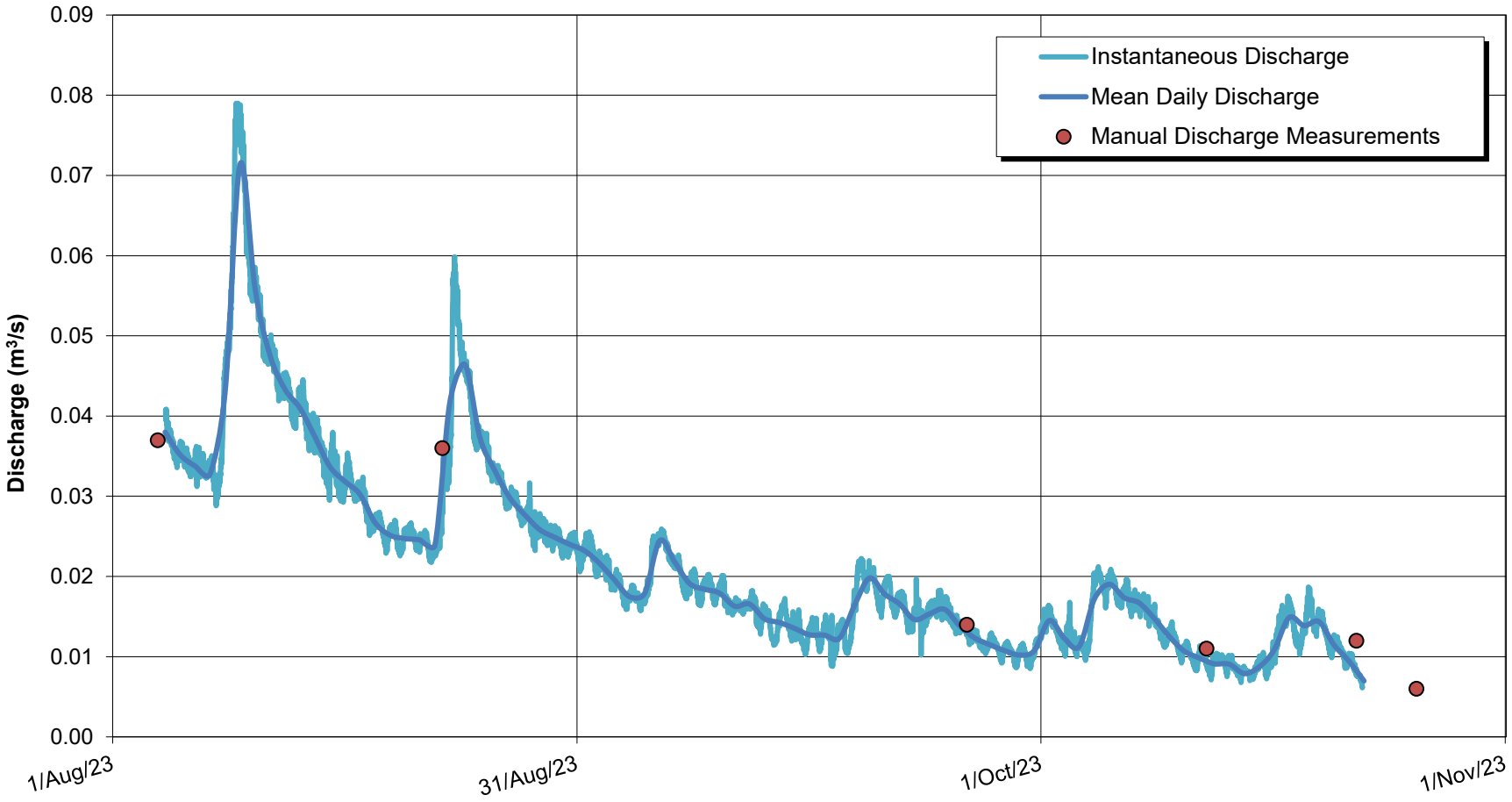
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 2.24

REV 0



NOTES:
1. THIS STATION WAS ESTABLISHED AUGUST 4, 2023.
2. HYDROGRAPH DATA DEVELOPED USING A PRELIMINARY RATING CURVE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 668 HYDROLOGY STATION
668-20 HYDROGRAPH

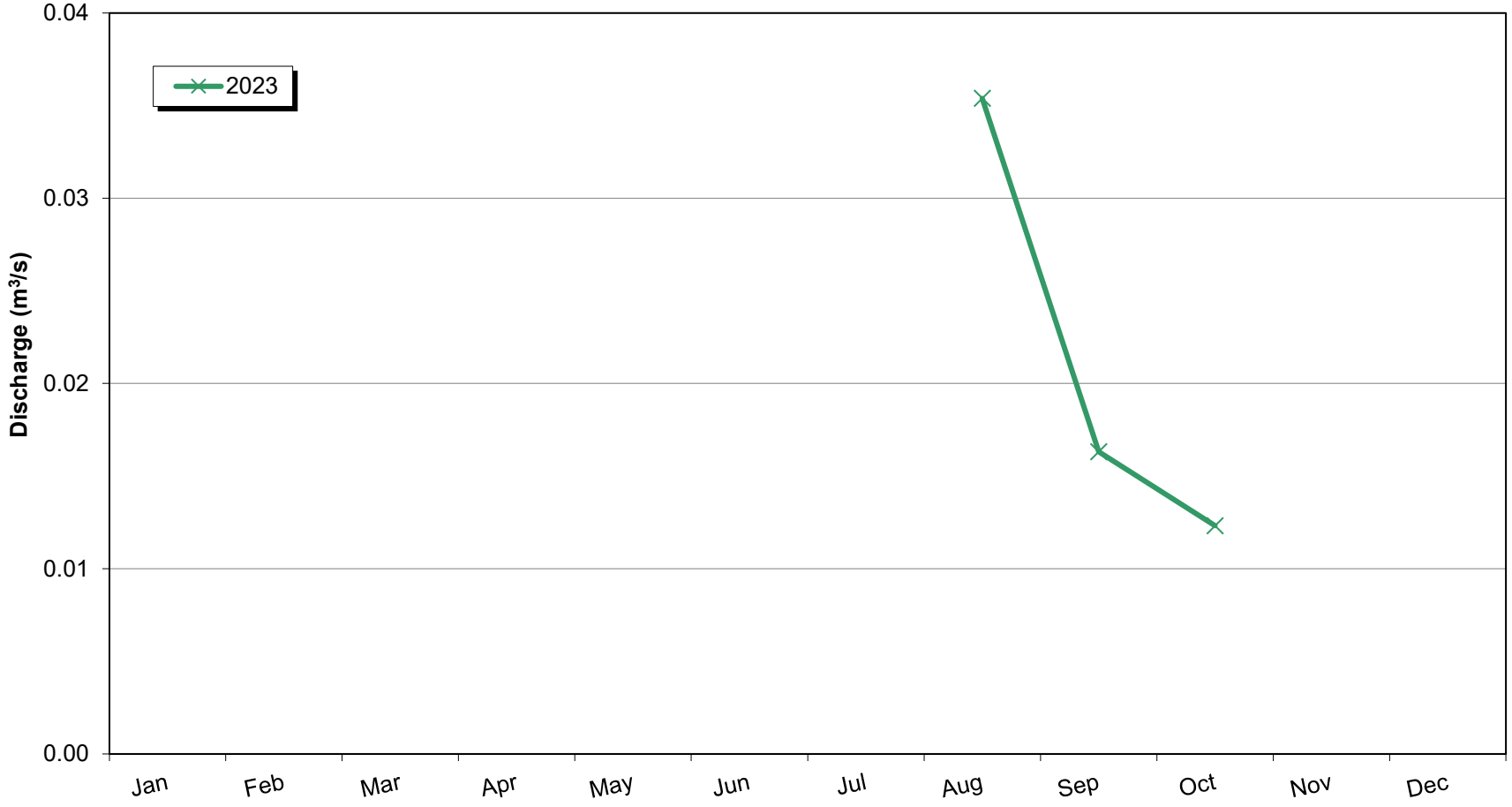
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 2.25

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CREEK 668 HYDROLOGY STATION 668-20
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 2.26

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

3.0 TURTLE CREEK WATERSHED

3.1 TURTLE CREEK HYDROLOGY STATION TC-10

The TC-10 station, previously known as the H6B station, was installed on Turtle Creek on May 21, 2021, and is the only station that serves the Turtle Creek watershed. The station location is shown on Figure 1.2 of the main report. The Turtle Creek Watershed has not been affected by the Project thus far. The TC-10 (H6B) station replaced the H6 station, which was decommissioned at the end of 2019. The H6 station was operated from 2012 to 2014 and from 2017 to 2019. The H6 water level data, stage-discharge measurements, and associated rating curve are shown in the 2020 Hydrology Baseline Report (KP, 2021). No data are available for 2019 or 2020 due to beaver activity. The TC10 station is shown in Photo A 3.1 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the pressure transducer from ice and is then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 25, 2023 and then removed for the winter on October 30, 2023.

Photo A 3.1 Turtle Creek Hydrology Station TC-10 (May 21, 2021)

A total of ten stage-discharge measurements with associated stage values have been collected at this site, as well as six winter measurements without stage values. The stage-discharge and individual discharge measurements for 2023 are summarized in Table A 3.1.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed

in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset.

All ten stage-discharge measurements were used to develop the current rating curve for 2021 to 2023. The rating curve is shown on Figure A 3.1. The 2021-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was modified slightly to better incorporate the five low-flow stage-discharge points measured in 2023. The rating curve is extrapolated to the maximum measured stage on Figure A 3.2. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2021-2023 rating curve: the maximum measured discharge was 0.50 m³/s and the maximum extrapolated discharge is 1.09 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2021-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curve and the associated discharge hydrograph.

Applying the rating curve to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 3.3. The hydrograph on Figure A 3.4 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for the winter of 2021/2022 and 2022/2023. Figure A 3.5 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal with a spring freshet peak in 2022. Insufficient data are available to comment on the shape of the 2021 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018) the 2023 hydrometric data for TC-10 were determined to generally be of variable quality (Grade C) due to the May 25 discharge measurement deviating from the rating curve by approximately 32%. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 3.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
TURTLE CREEK HYDROLOGY STATION TC-10

Print Mar/07/24 11:26:07

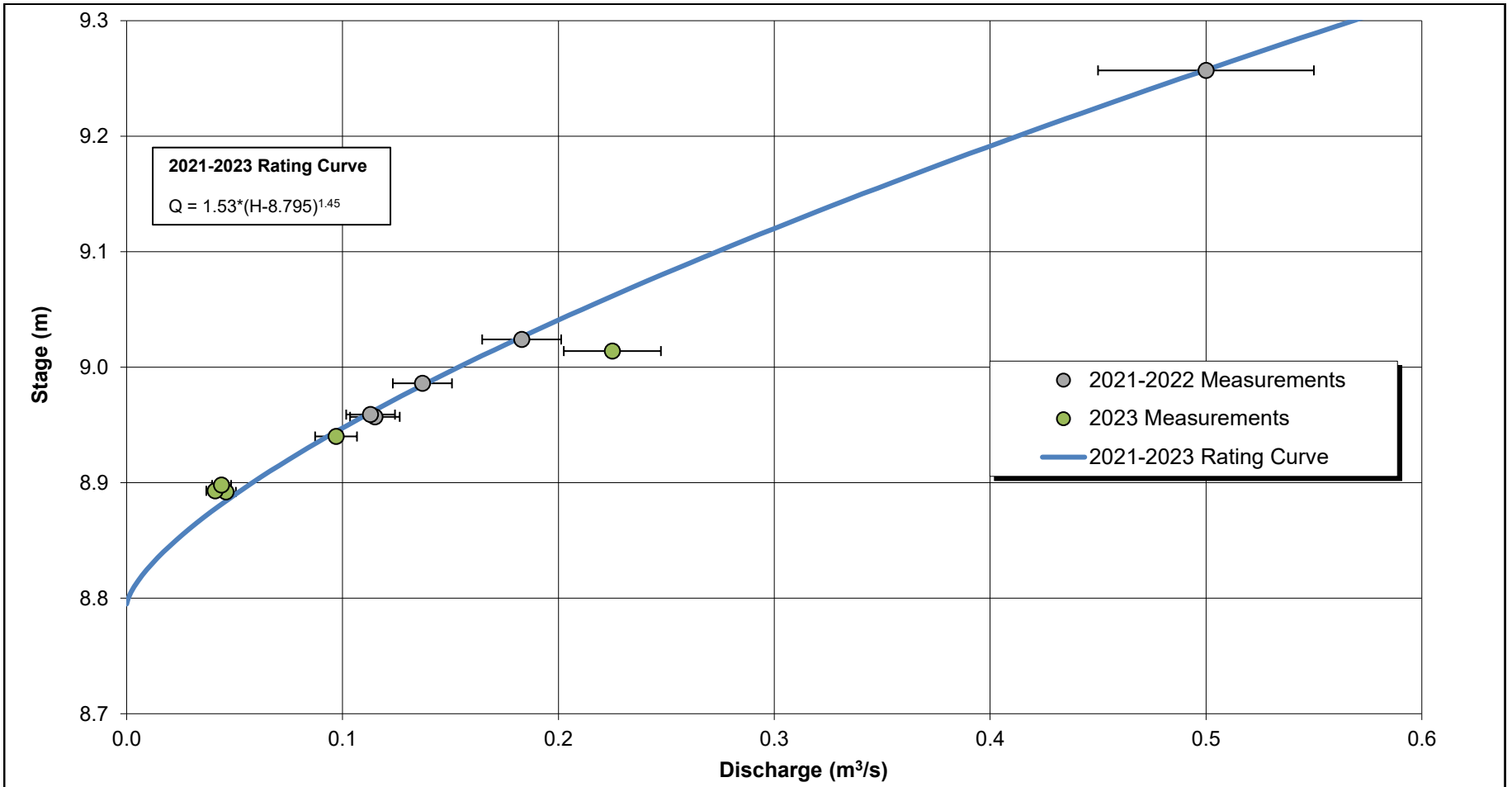
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
22-Feb-23	2	Current Meter	-	0.071	10%	-
25-May-23	2	Current Meter	9.014	0.225	10%	0.002
28-Jul-23	2	Current Meter	8.940	0.097	10%	0.005
31-Aug-23	2	Current Meter	8.892	0.046	10%	0.002
26-Sep-23	2	Current Meter	8.893	0.041	10%	0.005
30-Oct-23	2	Current Meter	8.898	0.044	10%	0.005

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\TC-10 (H6B)\[TC-10 (H6B) Workfile 2023.xlsm]Table A 3.1

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT ERROR ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H6B".

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BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10
PRELIMINARY RATING CURVE

Knight Piésold CONSULTING

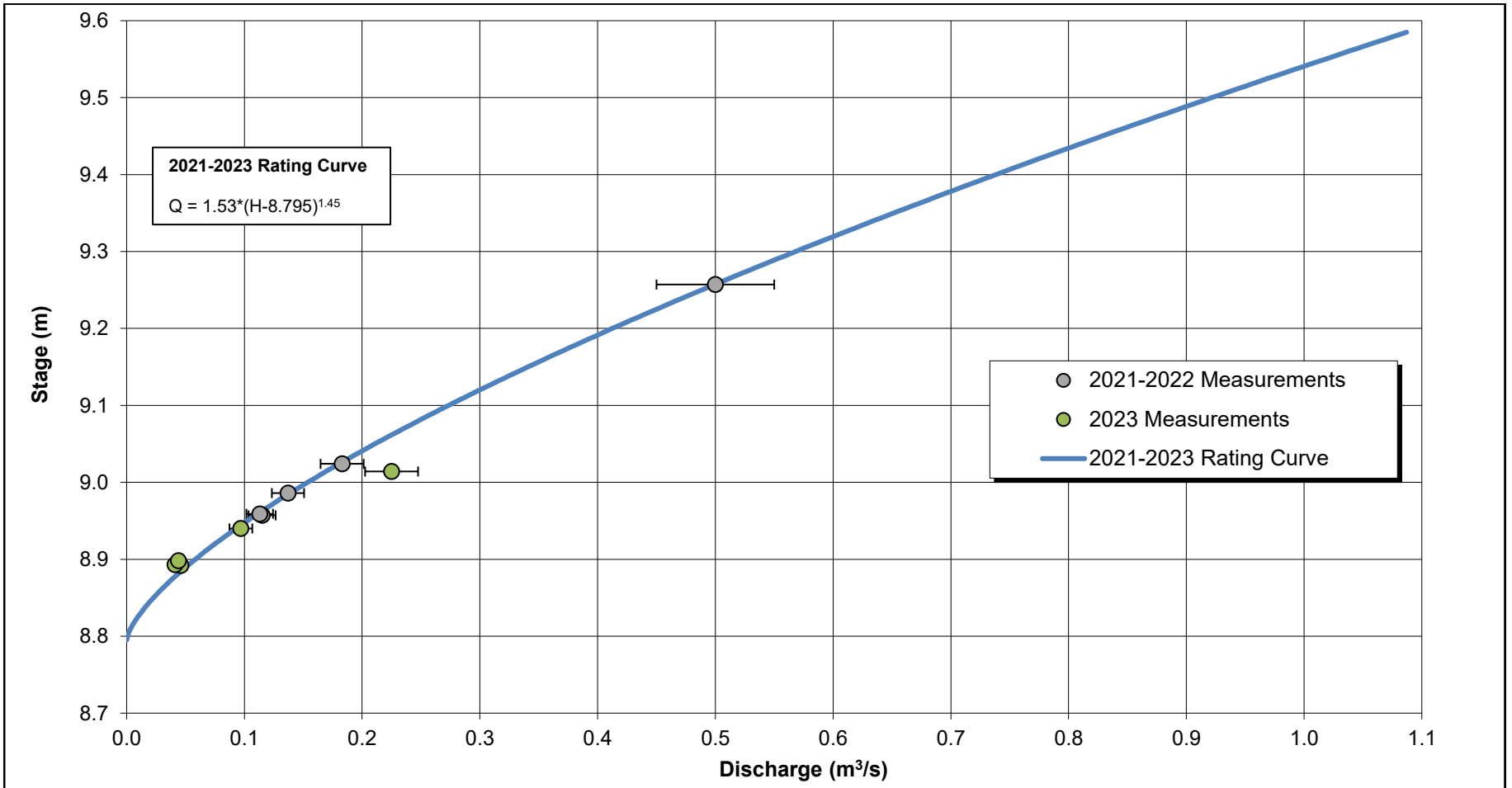
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 3.1

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10 PRELIMINARY RATING CURVE - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

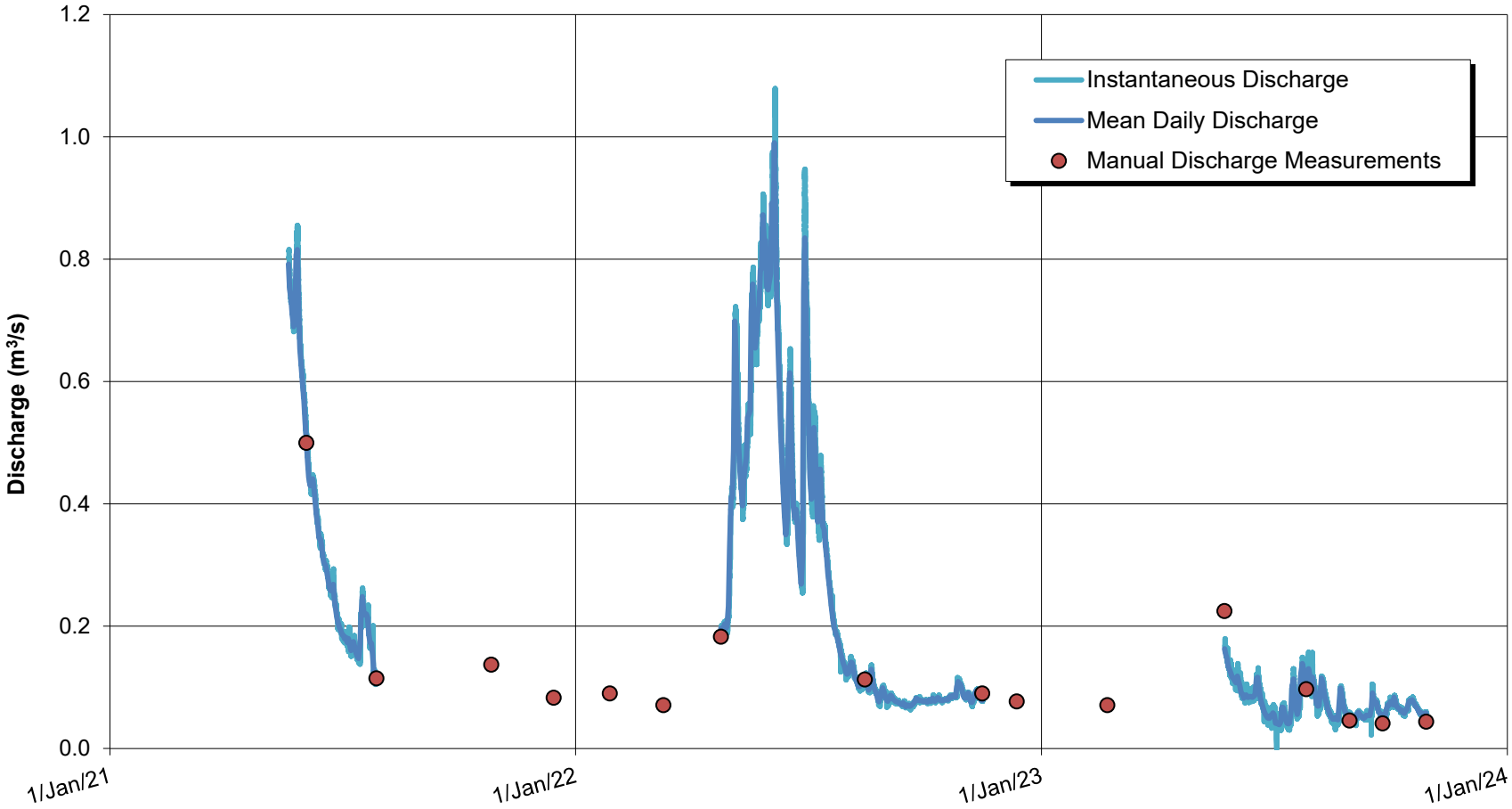
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 3.2

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10 HYDROGRAPH

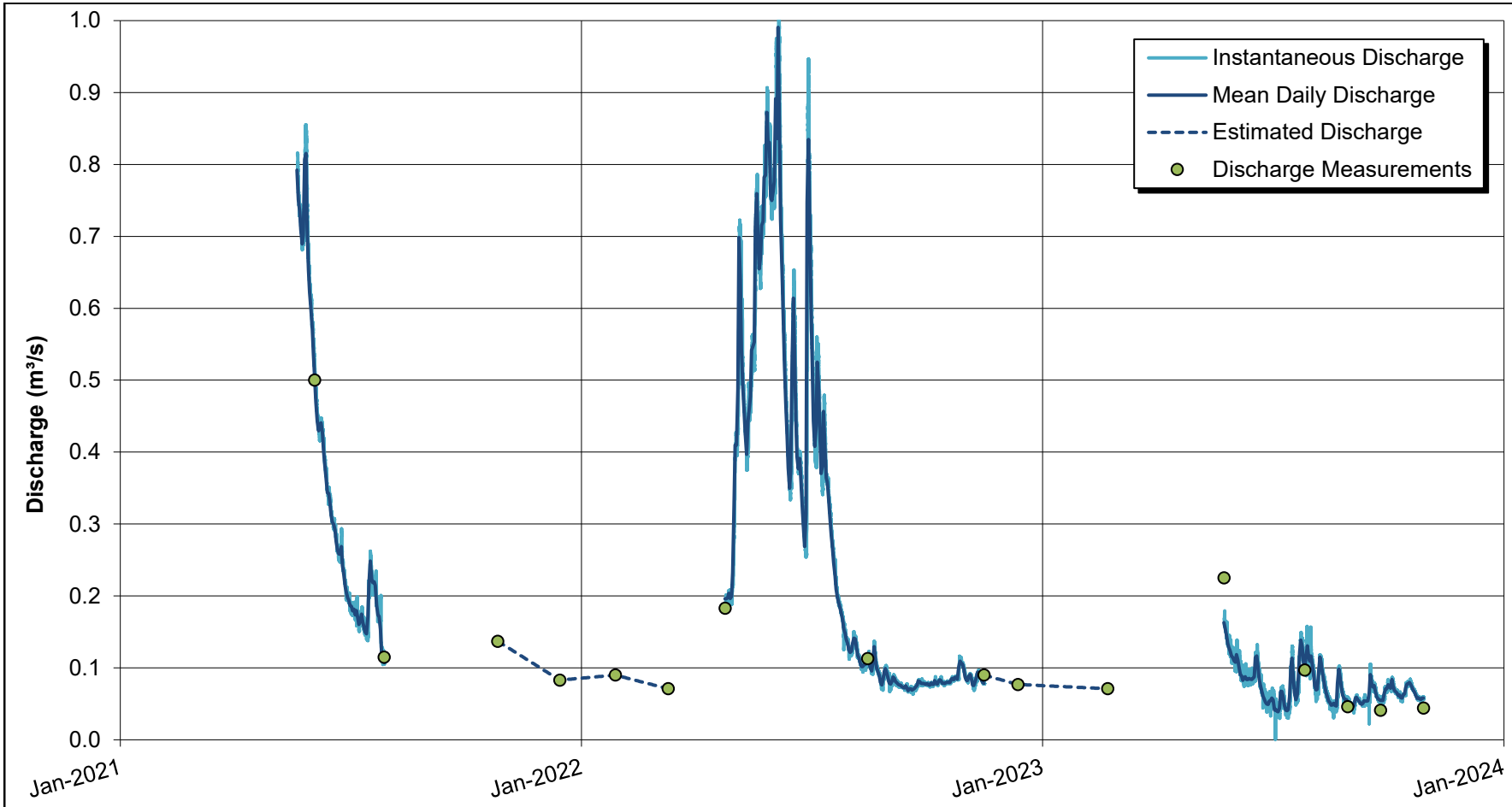
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 3.3

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10
LOW FLOW HYDROGRAPH

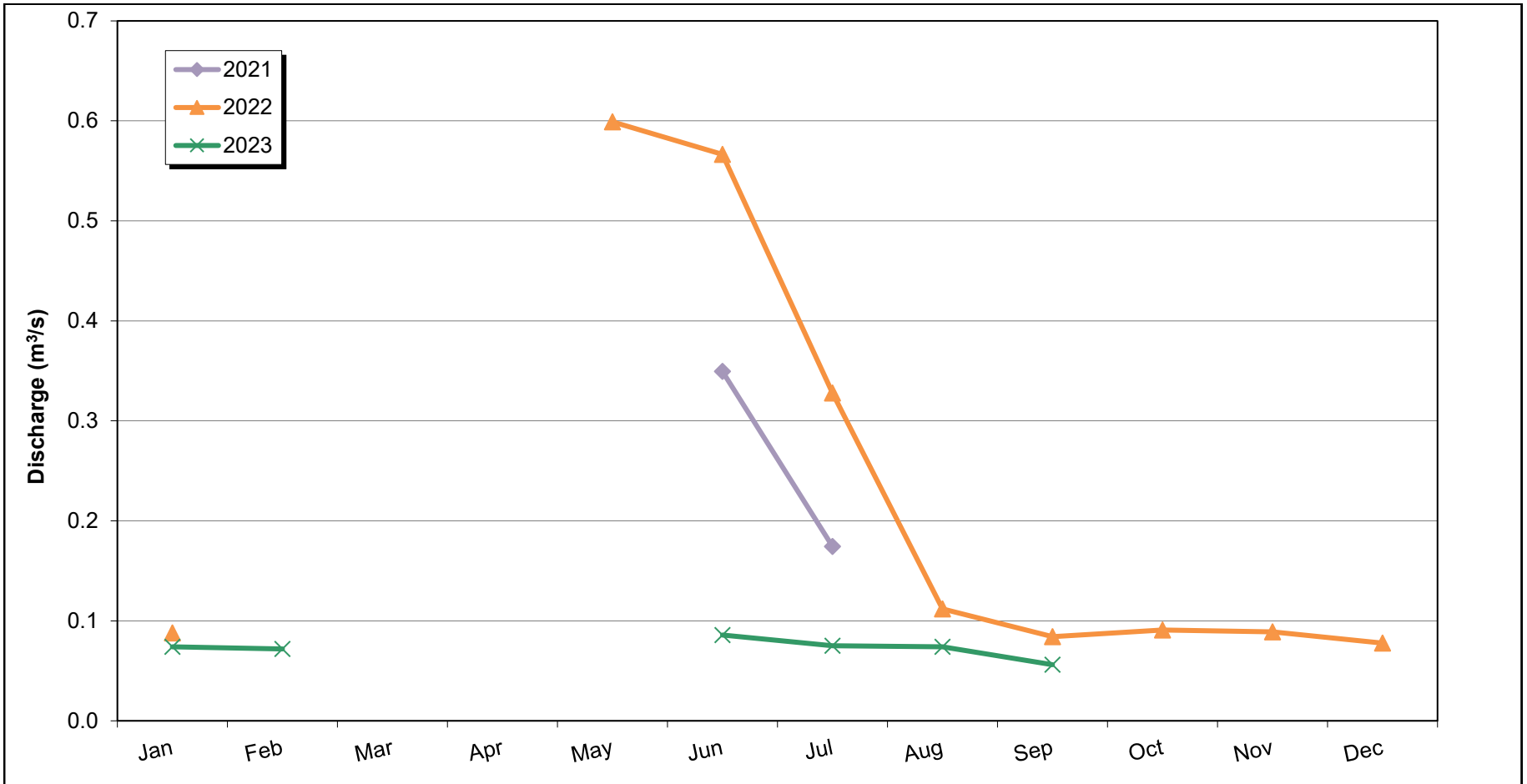
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 3.4

Rev 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD
2. THIS STATION WAS PREVIOUSLY NAMED "H6B".

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BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 3.5

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

4.0 TATELKUZ LAKE WATERSHED

4.1 GENERAL

There are four hydrology stations currently operated in the Tatelkuz Lake Watershed. The stations are located on Tatelkuz Lake (TL01H), at the outlet of Tatelkuz Lake (CC-10), on Creek 661 (66102), and on a tributary just upstream of its confluence with Creek 661 (66109). The station locations are shown on Figure 1.2 of the main report. The Tatelkuz Watershed has not been affected by the Project thus far.

4.2 TATELKUZ LAKE HYDROLOGY STATION TL-01H

The TL-01H station, previously known as the L1 station, was established in Tatelkuz Lake on May 10, 2012. The station is shown in Photo A 4.1 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the bank of the lake. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on June 1, 2023 and then removed for the winter on October 25, 2023.

Photo A 4.1 Tatelkuz Lake Hydrology Station TL-01H (October 25, 2023)

A total of 64 stage measurements were collected at TL-01H. The 2023 stage measurements are summarized in Table A 4.1.

Stage data from 2023 display unusually large fluctuations for a lake station. These data fluctuations could not be attributed to precipitation events and do not correlate to patterns observed at CC-12, the nearest logger downstream. Additionally, no construction activity occurred in this area. Consequently, the stage data are marked as uncertain for the entire period of 2023. Stage data were removed on July 6, 2023, during the period when the barologger was being relocated.

The stage hydrograph from the TL-01H station is presented on Figure A 4.1. Figure A 4.2 shows the monthly mean stages for each year of record. A unimodal stage hydrograph shape with the peak during the spring

freshet was observed in 2013 to 2015, 2017, 2018, and 2020, while a bimodal shape was observed in 2016 and 2019. Insufficient data are available to comment on the shape of the 2012 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 stage data for TL-01H were determined to generally be of variable quality (Grade E) due to less than three benchmarks being used in four out of the five benchmark surveys completed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

Knight Piésold CONSULTING

TABLE A 4.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE MEASUREMENTS
TATELKUZ LAKE HYDROLOGY STATION TL-01H

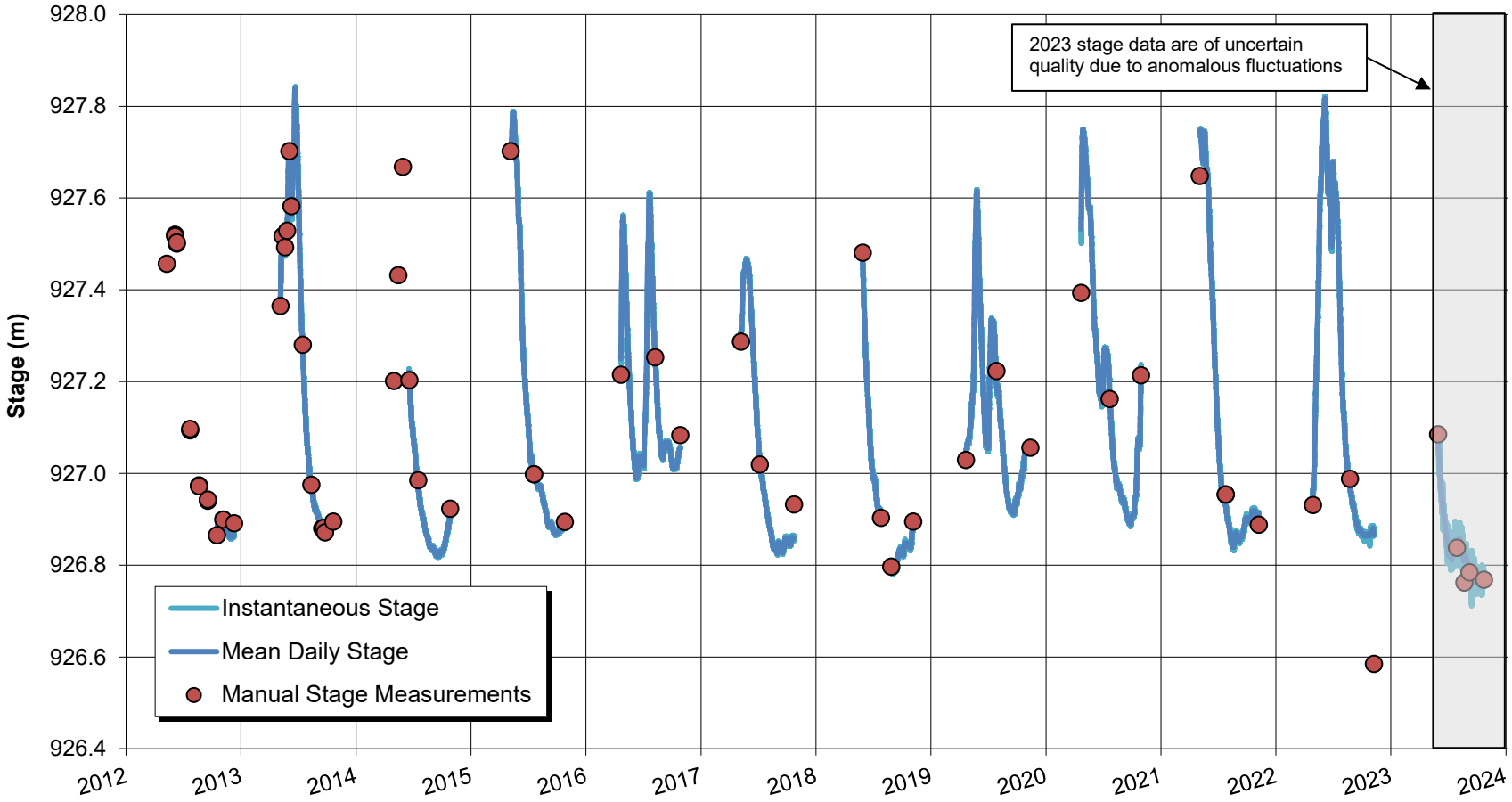
Date	Stage Measurement Method	Stage	Stage Measurement Uncertainty
		(m)	(m)
1-Jun-23	Benchmark Survey	927.085	0.005
31-Jul-23	Benchmark Survey	926.838	0.005
23-Aug-23	Benchmark Survey	926.762	0.005
8-Sep-23	Benchmark Survey	926.784	0.010
25-Oct-23	Benchmark Survey	926.768	0.005

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\TL-01H + CC-10 (L1 + L1-Outlet)\[TL-01H Workfile 2023.xlsm]Table A 4.1

NOTES:

1. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL AT THE TIME OF STAGE MEASUREMENT.
2. THIS STATION WAS PREVIOUSLY NAMED "L1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "L1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TATELKUZ LAKE HYDROLOGY STATION TL-01H STAGE HYDROGRAPH

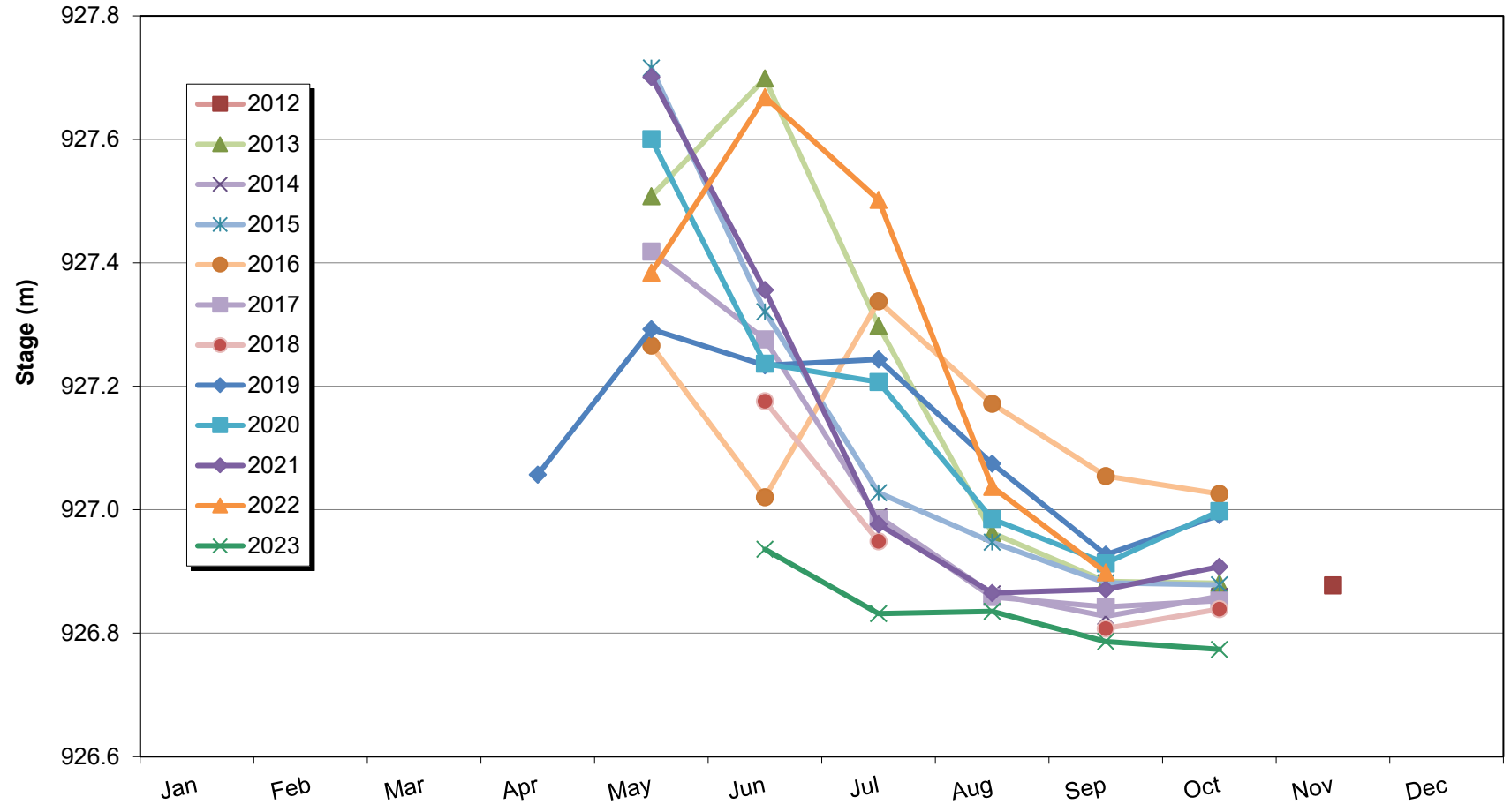
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.1

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "L1".

BW GOLD LTD.

BLACKWATER GOLD PROJECT

TATELKUZ LAKE HYDROLOGY STATION TL-01H
MEAN MONTHLY STAGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.2

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

4.3 TATELKUZ LAKE OUTLET HYDROLOGY STATION CC-10

The CC-10 station, previously known as the L1-Outlet station, was established at the outlet of the Tatelkuz Lake on October 16, 2012. The station is shown in Photo A.4.2. The outlet serves as a discharge measurement location for the lake. Continuous stage is measured at the TL-01H station, since there is no suitable location for a logger at the outlet and manual spot water level measurements at CC-10 and TL-01H indicate a strong correlation between water levels at these two sites. Given the correlation between water level measurements at the two sites, the water level at CC-10 is assumed to be the same as that recorded at TL-01H.

Photo A 4.2 Tatelkuz Lake Outlet Hydrology Station CC-10 (May 26, 2023)

A total of 56 discharge measurements with associated stage values have been collected at this site, 25 with associated stage values measured at the TL-01H station and 31 with associated stage values measured at CC-10. Additionally, seven winter discharge measurements without associated stage values have been recorded at CC-10. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 4.2.

The rating curves were developed using 50 of the 56 stage-discharge measurements. A total of 15 stage-discharge measurements were used to develop the 2013-2016 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2017-2022; therefore, the remaining 35 measurements were used to develop the 2017-2023 rating curve. Measurements from May 15, 2014, October 30, 2014, November 5, 2020, December 15, 2021, April 26, 2022, and November 1, 2023 were disregarded as anomalous; these measurements were generally recorded during periods of highly variable discharge (i.e., freshet and late fall rainstorm season). Both curves are shown on Figure A 4.3. Due to lake attenuation and the distance between the CC-10 and TL-01H stations, there may be a delay between stage levels measured at the TL-01H station and the levels at the CC-10 station that correspond to the discharges measured there. This may explain some of the scatter seen in the rating curve points for this site. The rating

curves are extrapolated to the maximum measured stage for their respective periods on Figure A 4.4. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2013-2016 rating curve: the maximum measured discharge was 7.25 m³/s and the maximum extrapolated discharge is 10.46 m³/s.
- 2017-2023 rating curve: the maximum measured discharge was 8.59 m³/s and the maximum extrapolated discharge is 11.15 m³/s.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 4.5. The hydrograph shown on Figure A 4.6 focuses on low flows and indicates the estimated flows interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 4.7 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2013 to 2015, 2017, 2018, and 2020 to 2022, while a bimodal shape was observed in 2016 and 2019. Insufficient data are available to comment on the shapes of the 2012 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for CC-10 were determined to generally be of variable quality (Grade E). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 4.2

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
TATELKUZ LAKE AND TATELKUZ LAKE OUTLET HYDROLOGY STATIONS TL-01H AND CC-10

Print Mar/07/24 8:57:19

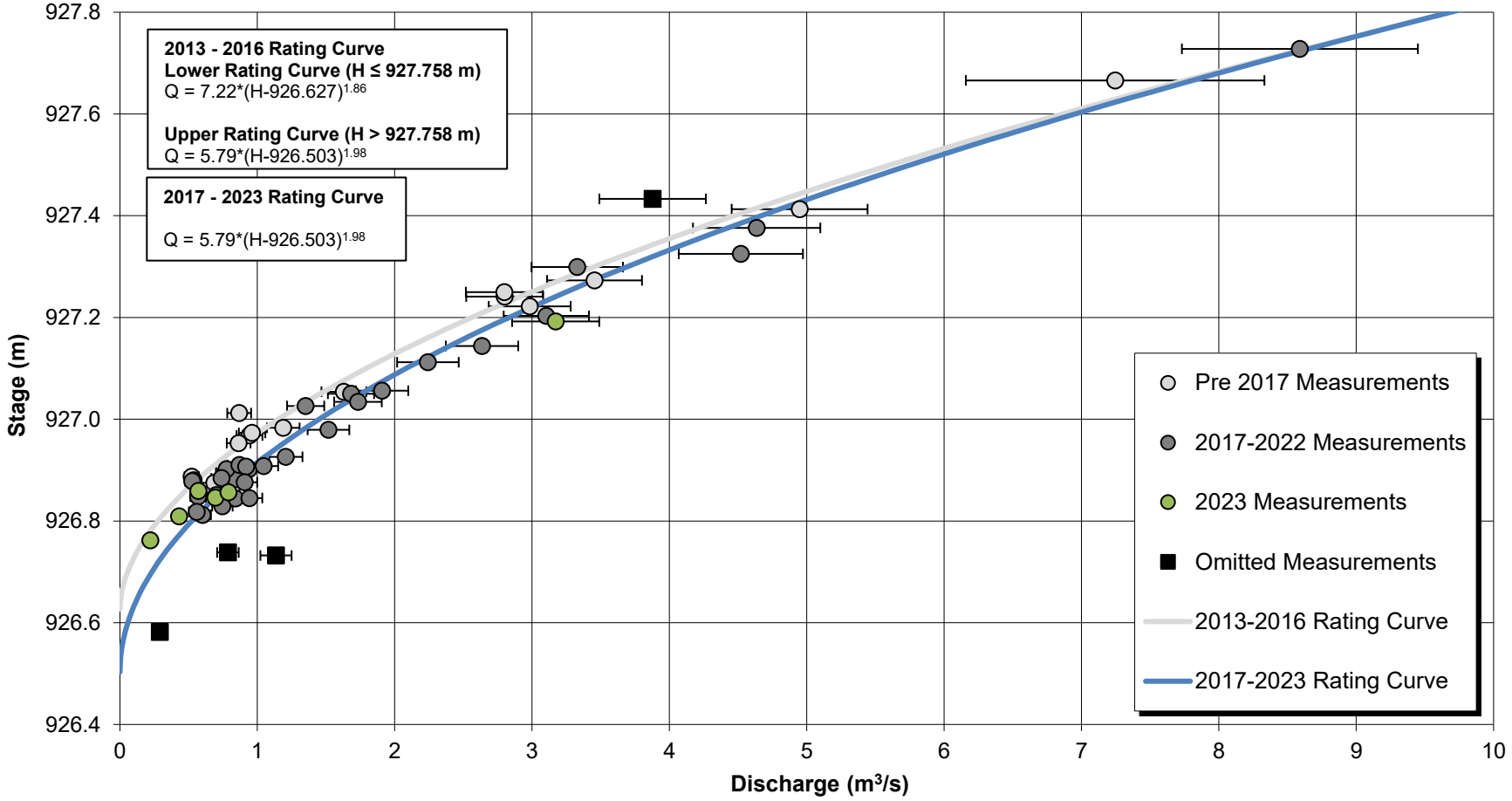
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage			Discharge	Measurement Uncertainty	
			Surveyed	Corrected Stage Record from TL-01H	Used in Rating Curve			
			(m)	(m)	(m)	(m³/s)	Discharge (%)	Stage (m)
16-Jan-23	2	Current Meter	926.846	-	926.846	0.695	10%	0.005
17-Feb-23	2	Current Meter	926.856	-	926.856	0.791	10%	0.005
26-May-23	2	Current Meter	927.192	-	927.192	3.172	10%	0.005
10-Aug-23	2	Current Meter	926.848	926.859	926.859	0.571	10%	0.005
1-Sep-23	2	Current Meter	926.813	926.809	926.809	0.430	10%	0.005
26-Sep-23	2	Current Meter	926.664	926.762	926.762	0.222	10%	0.030
1-Nov-23	2	Current Meter	926.582	-	-	0.290	10%	0.002

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\TL-01H + CC-10 (L1 + L1-Outlet)\[CC-10 Workfile 2023.xlsm]Table A 4.2

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THE CC-10 STATION WAS PREVIOUSLY NAMED "L1-OUTLET". THE TL-01H STATION WAS PREVIOUSLY NAMED "L1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOULSY NAMED "L1-OUTLET".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

TATELKUZ LAKE OUTLET HYDROLOGY STATION
CC-10 RATING CURVES

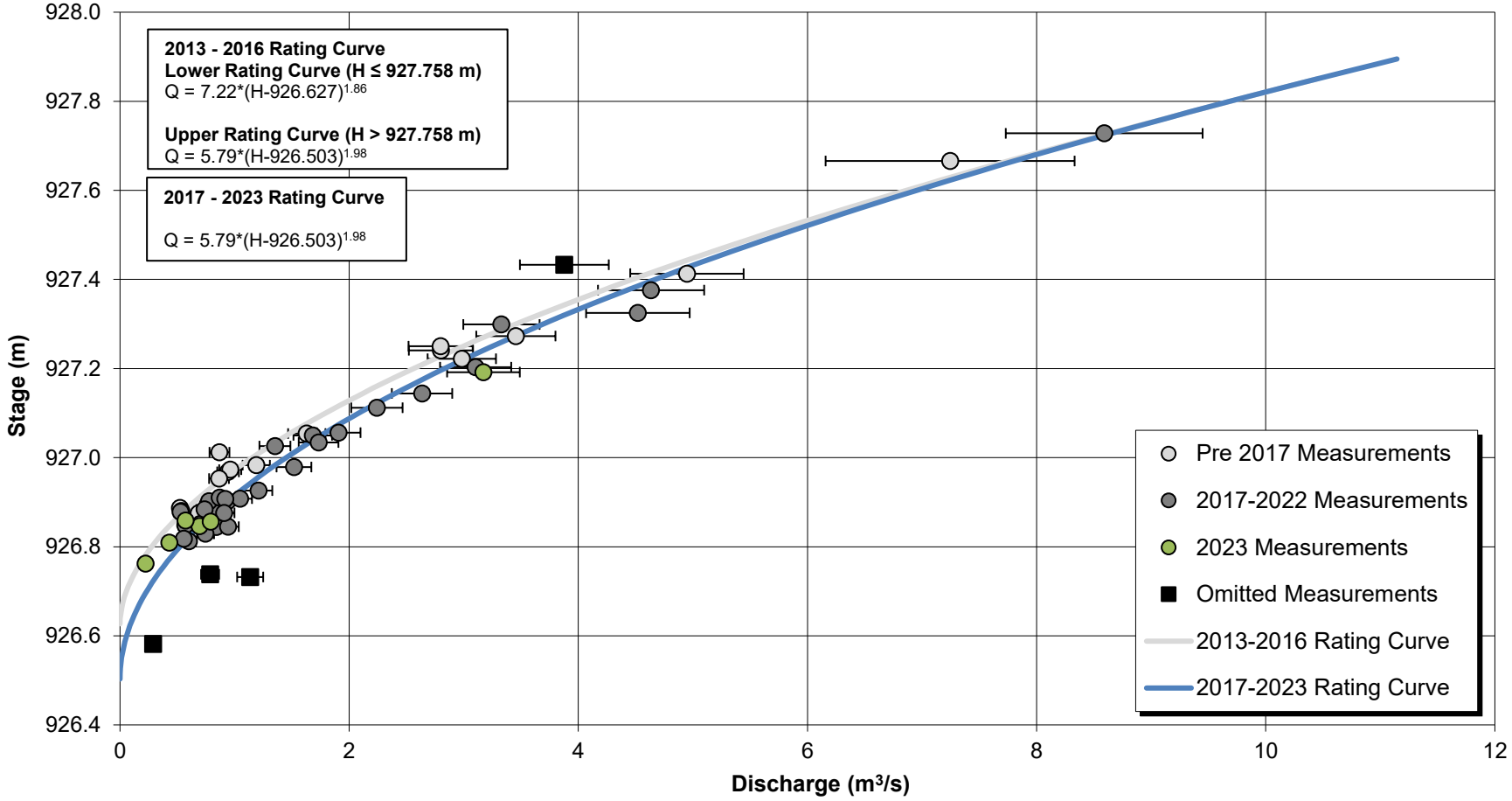
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.3

REV 0



NOTES:
1. THIS STATION WAS PREVIOULSY NAMED "L1-OUTLET".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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TATELKUZ LAKE OUTLET HYDROLOGY STATION CC-10 RATING CURVES - EXTRAPOLATED TO MAXIMUM STAGE

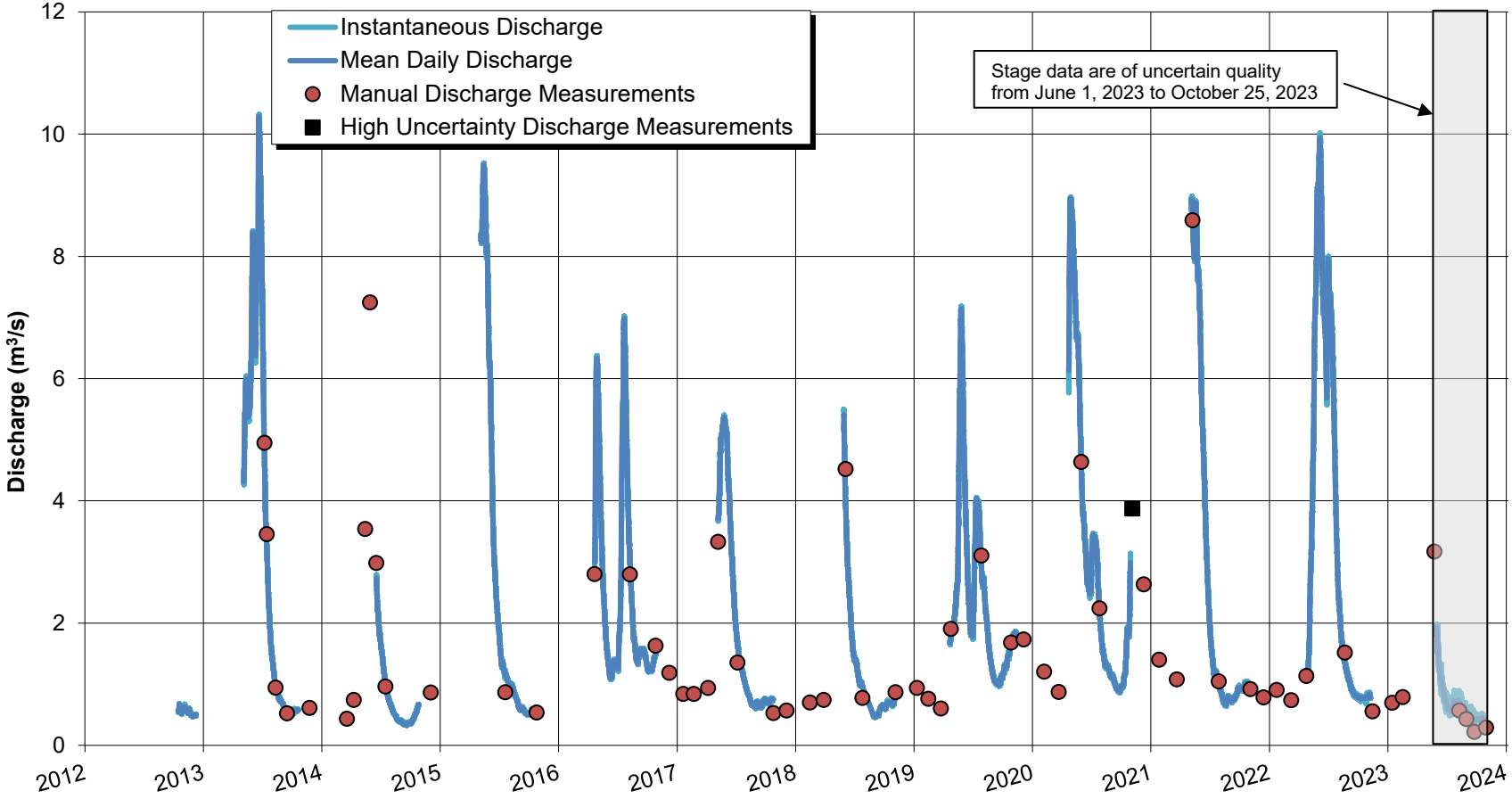
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.4

REV 0



NOTES:
1. THIS STATION WAS PREVIOULSY NAMED "L1-OUTLET".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TATELKUZ LAKE OUTLET HYDROLOGY STATION
CC-10 HYDROGRAPH

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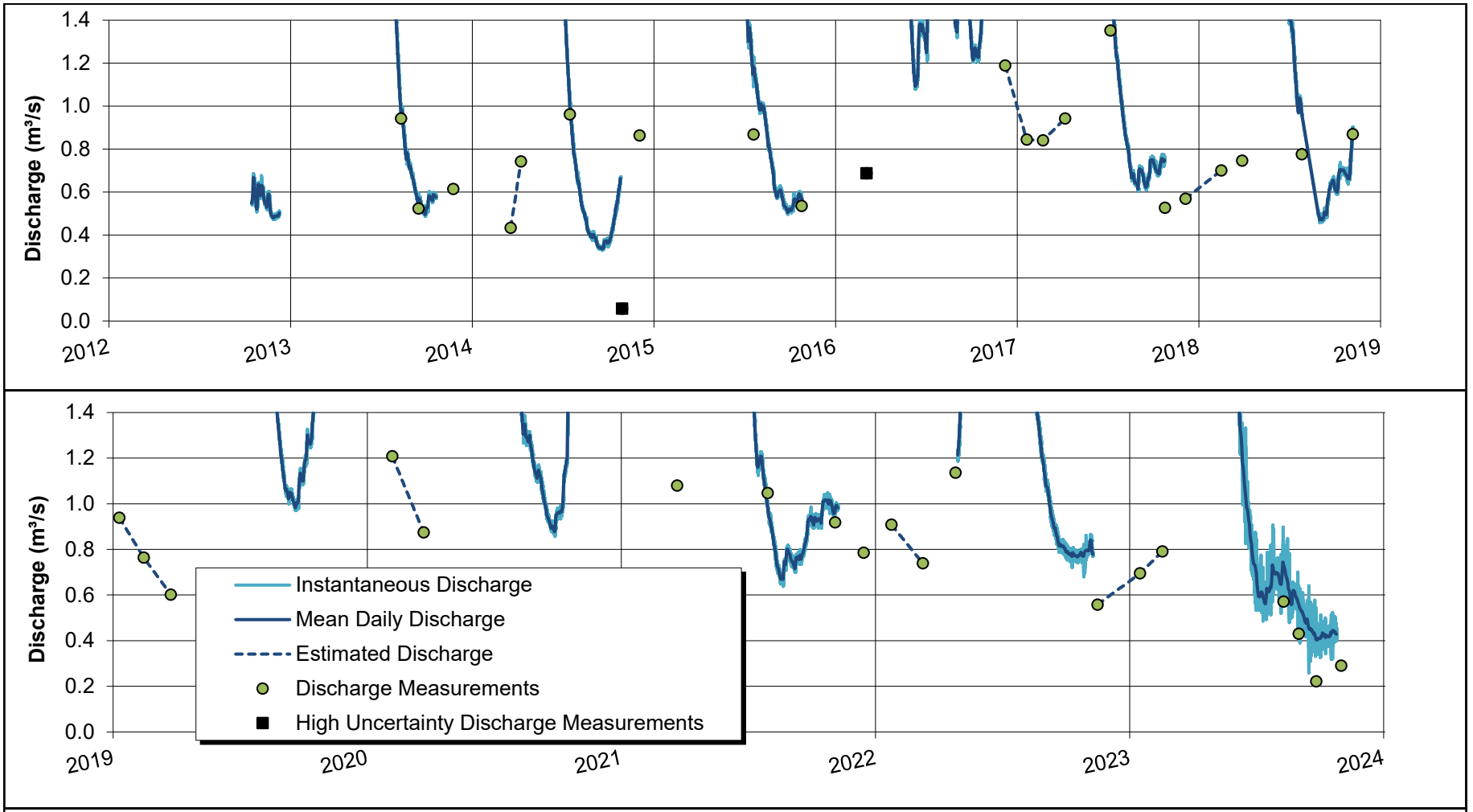
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.5

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOULSY NAMED "L1-OUTLET".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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TATELKUZ LAKE OUTLET HYDROLOGY STATION
CC-10 LOW FLOW HYDROGRAPH

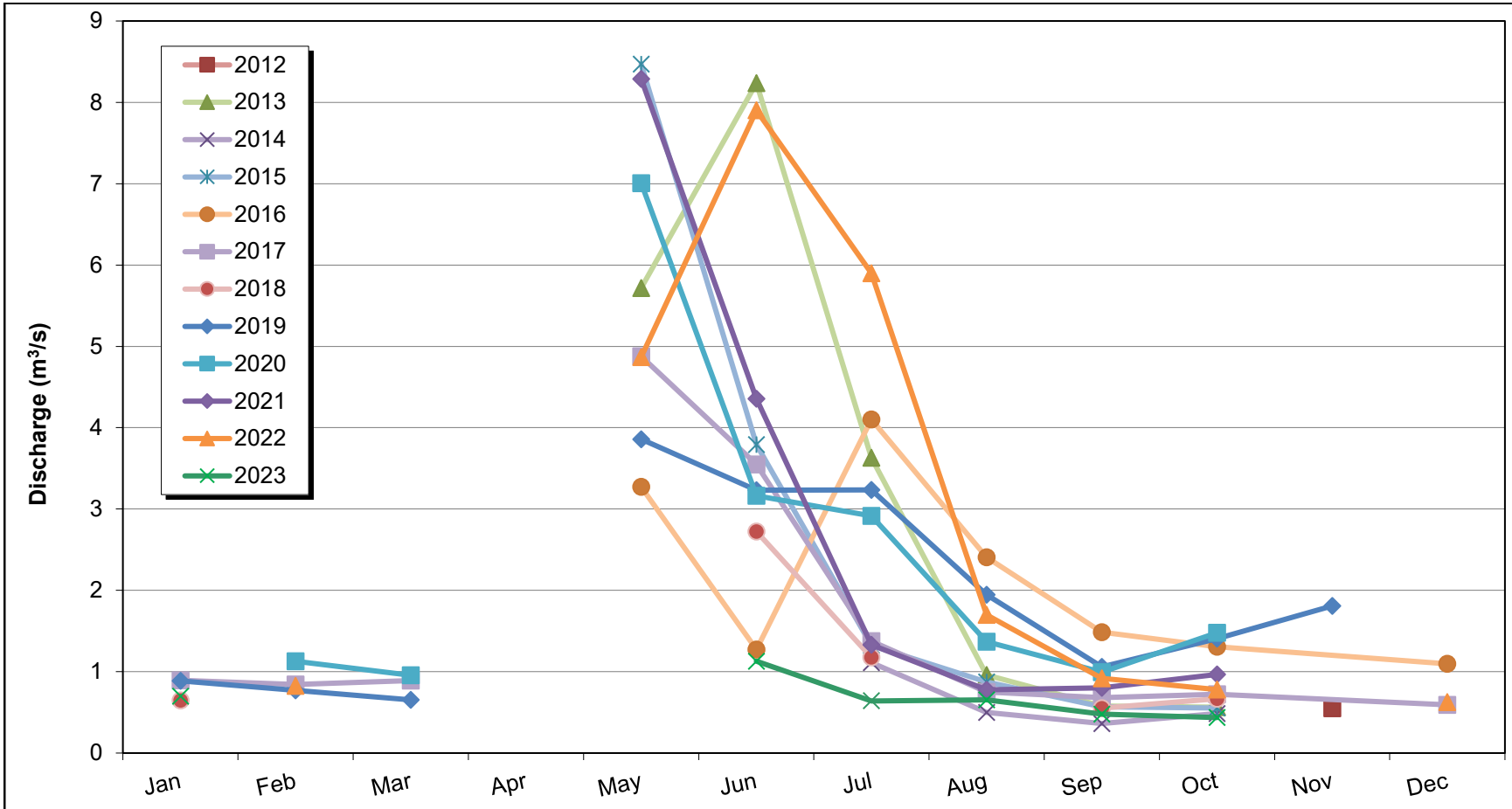
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.6

Rev 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "L1-OUTLET".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

TATELKUZ LAKE OUTLET HYDROLOGY STATION
CC-10 MEAN MONTHLY DISCHARGE

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P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.7

REV 0

4.4 CREEK 661 HYDROLOGY STATION 661-02

The 661-02 station, previously known as the H1 station, was installed on Creek 661 on May 19, 2011, at the outlet of a culvert below a forest service road. The station is shown in Photo A 4.3 and consists of a KPSI pressure transducer inside a protective aluminum pipe that is installed on the creek bank just downstream of a culvert. The transducer is wired to a NEON Micrologger in a protective case that is mounted on a nearby tree. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 24, 2023 and was then removed for the winter on October 25, 2023.

Photo A 4.3 Creek 661 Hydrology Station 661-02 (September 18, 2023)

A total of 61 discharge measurements with associated stage values have been collected at this site, as well as 41 winter discharge measurements without stage values. The 2023 stage-discharge and individual discharge measurements are summarized in Table A 4.3.

In 2023, stage data from October 24 and 25 were removed due to icing effects.

All 61 of the stage-discharge measurements were used to develop a set of rating curves. The hydraulic control at this station is believed to have changed several times over the period of record, resulting in three different rating curves. A total of three stage-discharge measurements were used to develop the 2016 rating curve, 40 measurements were used to develop the 2011-2015 and 2017 rating curve, and 18 measurements were used to develop the 2018-2023 rating curve. All the rating curves are shown on Figure A 4.8. The 2018-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was modified slightly to better incorporate the low-flow stage-discharge pairs measured in 2023. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 4.9. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2011-2015 & 2017 rating curve: the maximum measured discharge was 1.00 m³/s and the maximum extrapolated discharge is 1.23 m³/s.
- 2016 rating curve: the maximum measured discharge was 0.02 m³/s and the maximum extrapolated discharge is 0.05 m³/s.
- 2018-2023 rating curve: the maximum measured discharge was 0.37 m³/s and the maximum extrapolated discharge is 1.77 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2016 and 2018-2023 rating curves, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the corrected stage series produced the discharge hydrograph for this site, which is presented on Figure A 4.10. The hydrograph shown on Figure A 4.11 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph.

Figure A 4.12 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2011 to 2015, 2017, and 2020 to 2022, while a bimodal shape was observed in 2019. Insufficient data are available to comment on the shapes of the 2016, 2018, and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for 661-02 were determined to generally be of variable quality (Grade E) due to less than three benchmarks being used in two out of the three benchmark surveys completed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 4.3

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SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CREEK 661 HYDROLOGY STATION 661-02

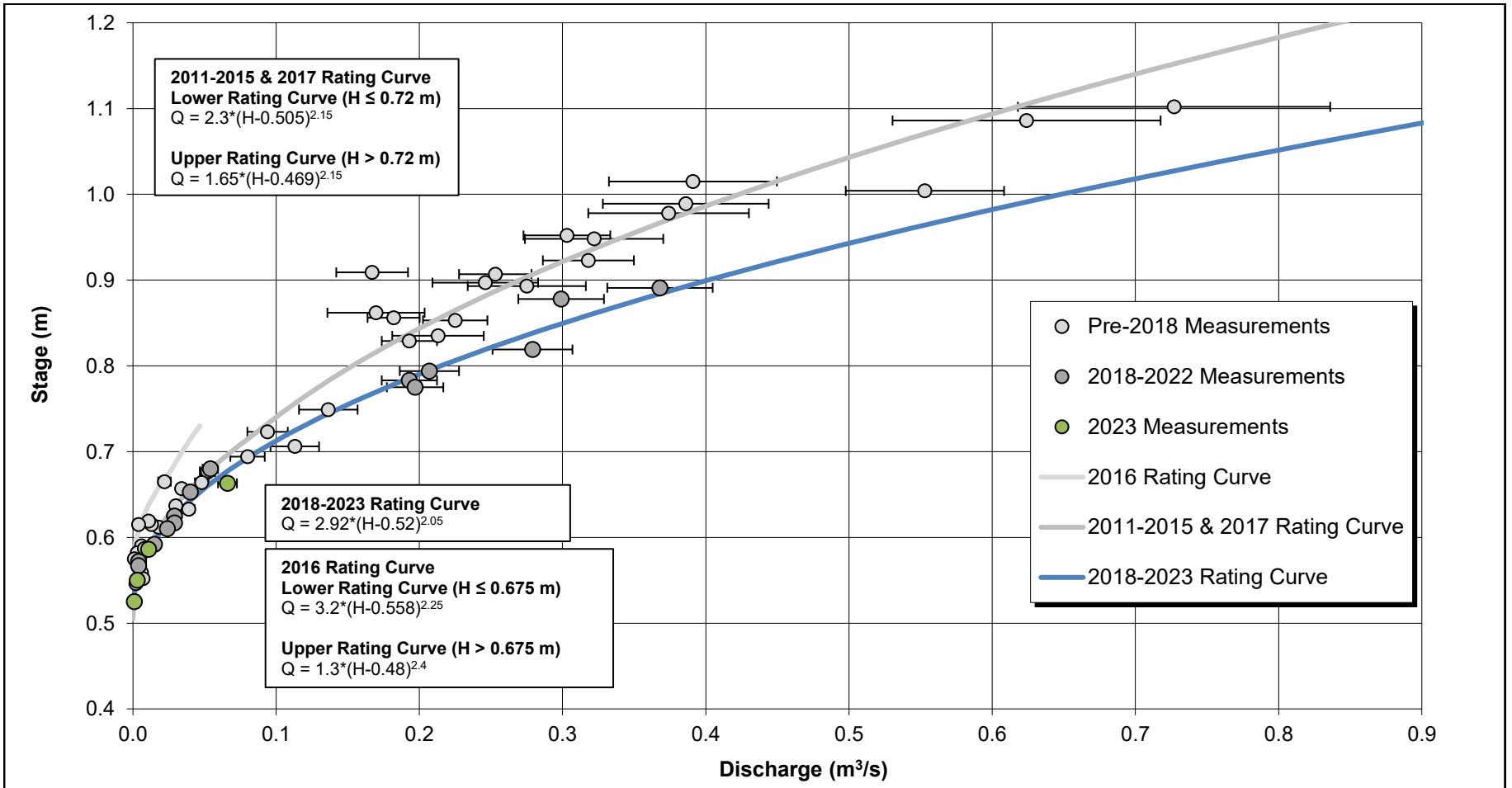
Print Mar/06/24 16:08:54

Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
24-May-23	2	Current Meter	0.663	0.066	10%	0.002
26-Jul-23	2	Current Meter	0.586	0.011	10%	0.005
17-Aug-23	2	Current Meter	0.550	0.003	10%	0.005
18-Sep-23	2	Current Meter	0.525	0.001	10%	0.002
31-Oct-23	4	Current Meter	-	0.001	10%	-
3-Nov-23	2	Current Meter	-	0.003	10%	-
9-Nov-23	2	Current Meter	-	0.009	10%	-
13-Nov-23	2	Current Meter	-	0.008	10%	-
16-Nov-23	2	Current Meter	-	0.005	10%	-
28-Nov-23	2	Current Meter	-	0.003	10%	-
8-Dec-23	2	Current Meter	-	0.000	20%	-
15-Dec-23	2	Current Meter	-	0.003	10%	-
21-Dec-23	2	Current Meter	-	0.003	10%	-

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 661 HYDROLOGY STATION 661-02 RATING CURVES

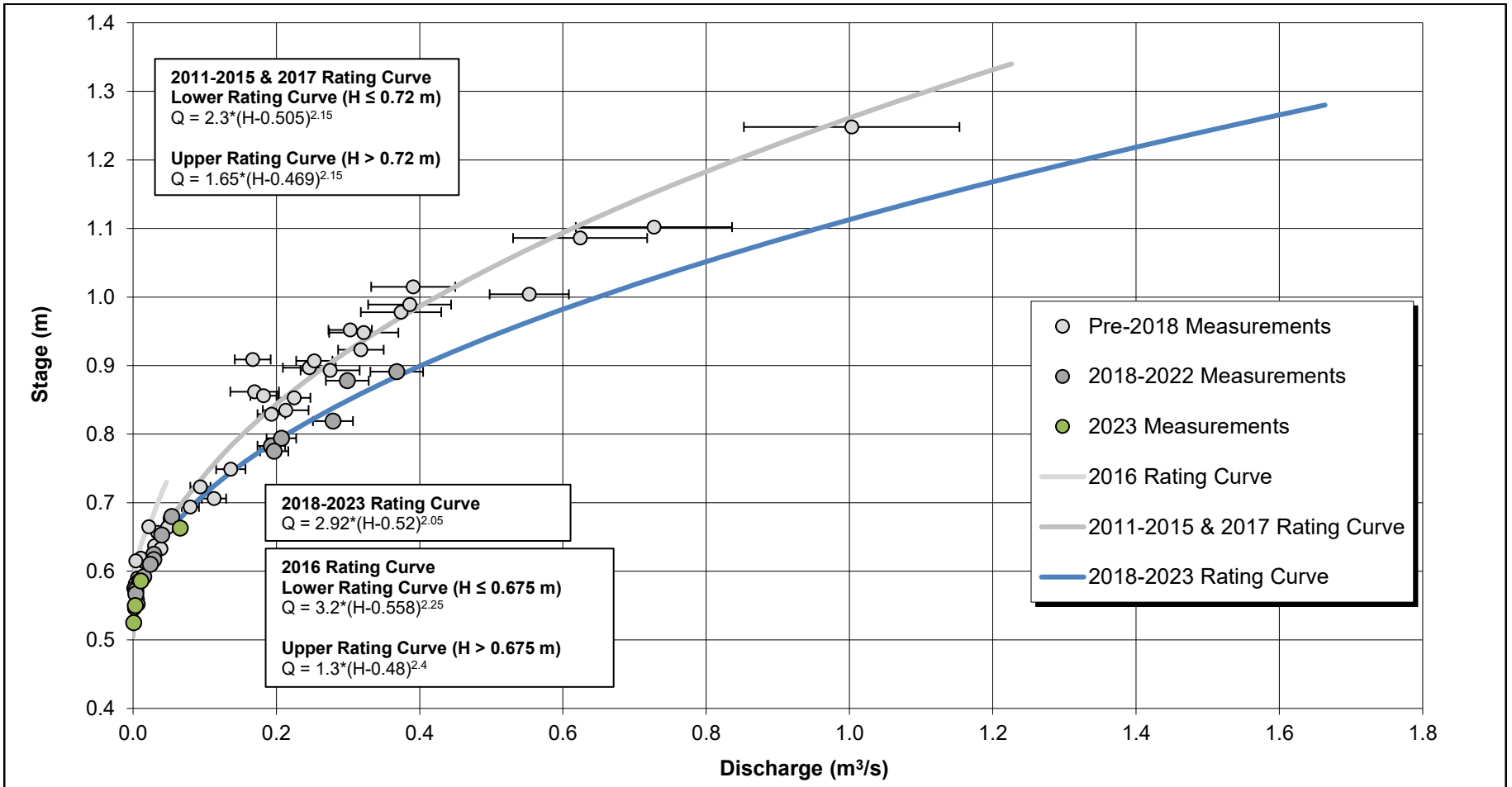
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.8

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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CREEK 661 HYDROLOGY STATION 661-02 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

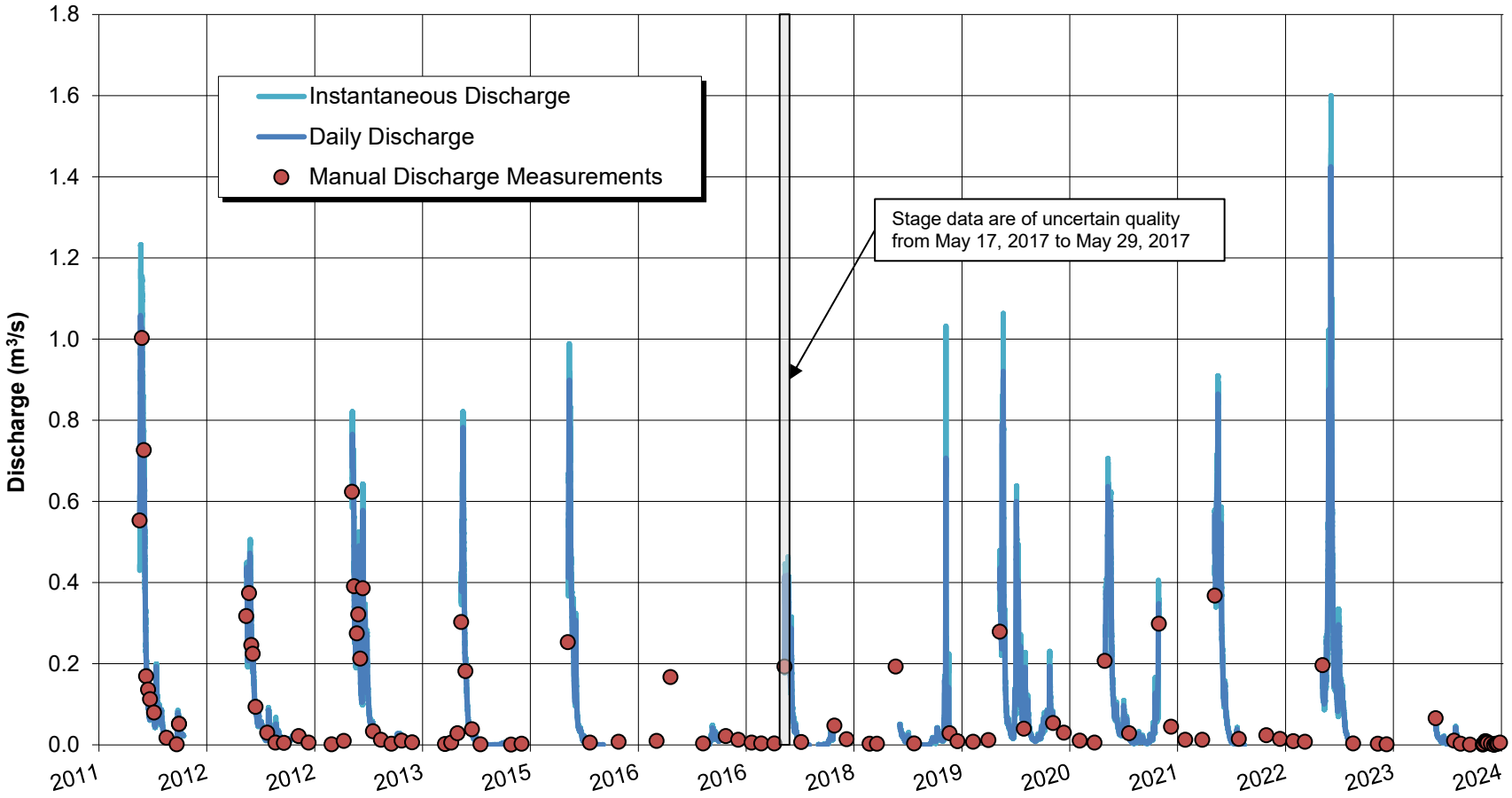
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.9

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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CREEK 661 HYDROLOGY STATION 661-02 HYDROGRAPH

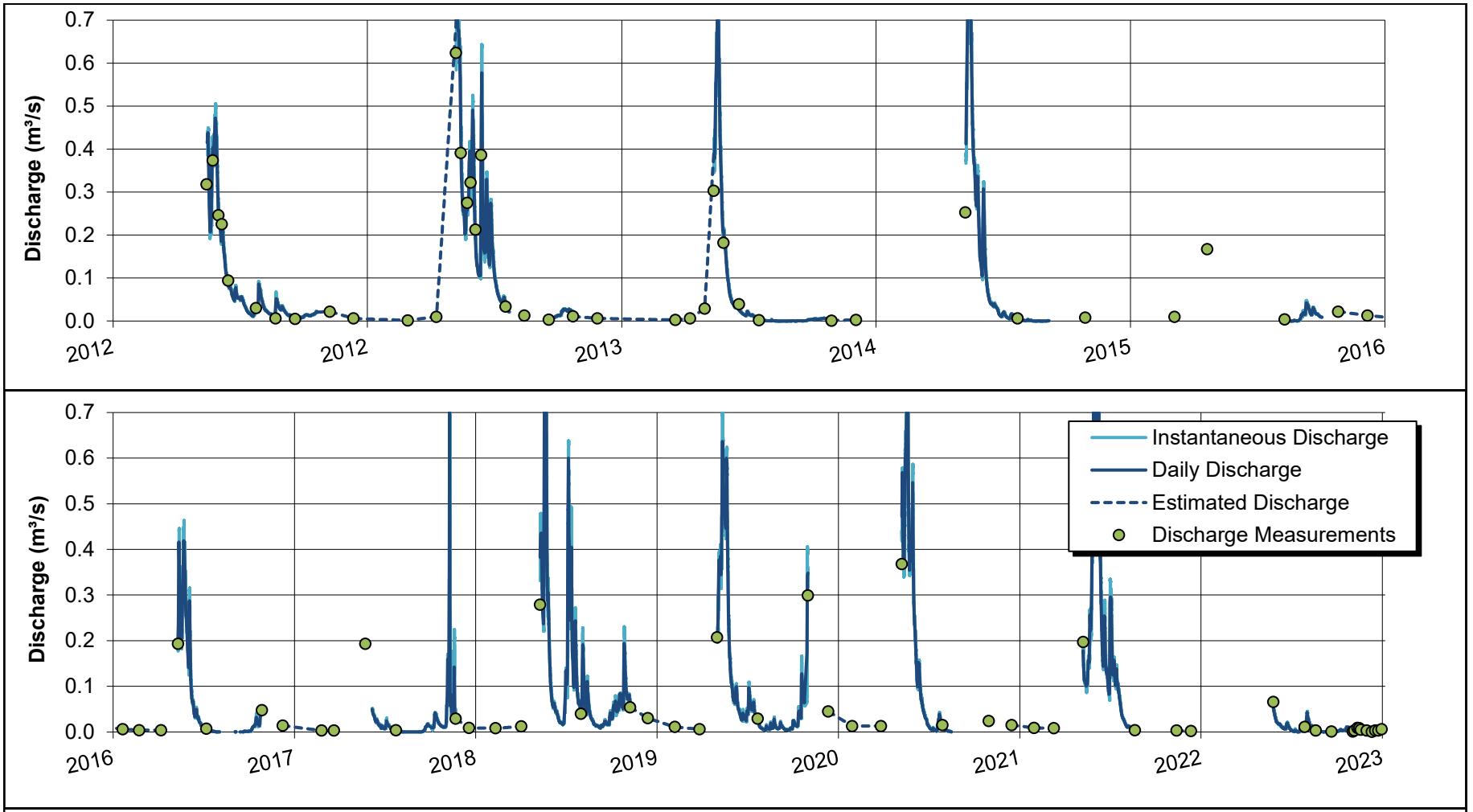
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.10

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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CREEK 661 HYDROLOGY STATION 661-02
LOW FLOW HYDROGRAPH

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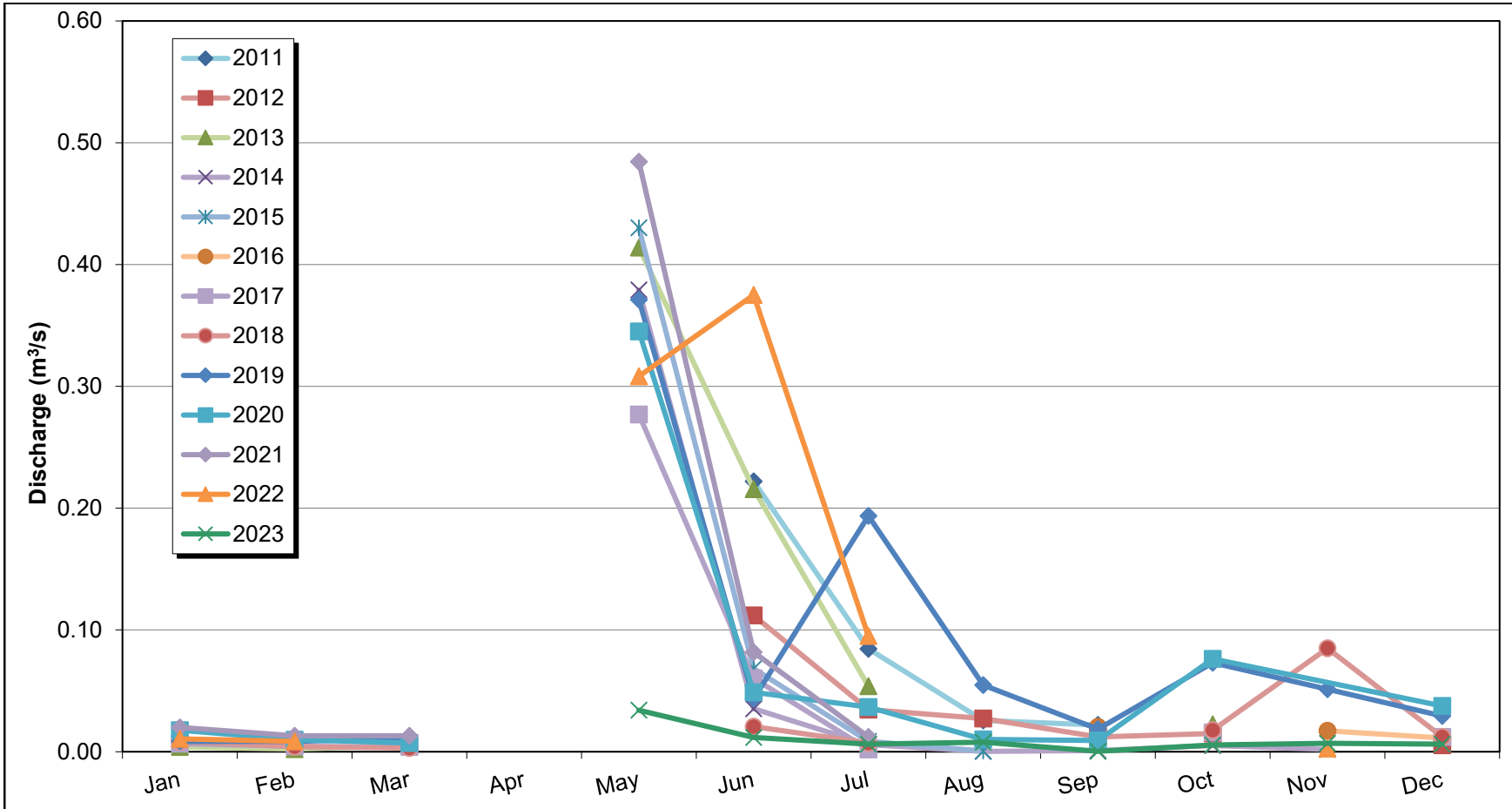
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.11

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

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CREEK 661 HYDROLOGY STATION 661-02
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.12

REV 0

4.5 CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09

The 661-09 station, previously known as the H11 station, was installed in a tributary to Creek 661 near station 661-02 on June 12, 2013. This tributary merges with Creek 661 downstream of stations 661-02 and 661-09. The 661-09 station is shown in Photo A 4.4 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to creek bank just downstream of a culvert. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 24, 2023 and then removed for the winter on October 25, 2023.

Photo A 4.4 Creek 661 Tributary Hydrology Station 661-09 (May 14, 2020)

A total of 38 discharge measurements with associated stage values have been collected at this site, along with one spring and 26 winter discharge measurements without stage values. The 2023 stage-discharge and individual discharge measurements are summarized in Table A 4.4.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset. Stage data were also removed from September 11 to 12 due to an anomalous jump in stage that was not associated with a precipitation event, and which does not correlate with the stage data collected at nearby stations. In addition, data from October 23 to 35 were removed from the stage record due to icing effects.

All 38 stage-discharge measurements were used to develop two rating curves. A total of 20 stage-discharge measurements were used to develop the 2013-2017 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2018 to 2022; therefore, 18 measurements were used to develop the 2018-2023 rating curve. Both rating curves are shown on Figure A 4.13. The 2018-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was slightly

modified to better incorporate the low-flow stage-discharge points measured in 2023. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 4.14. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2013-2017 rating curve: the maximum measured discharge was 0.68 m^3/s and the maximum extrapolated discharge is 1.32 m^3/s.
- 2018-2023 rating curve: the maximum measured discharge was 0.56 m^3/s and the maximum extrapolated discharge is 2.02 m^3/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2018-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 4.15. The hydrograph shown on Figure A 4.16 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 4.17 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal with a spring freshet peak in all years of record except 2019, which displays a bimodal shape with peaks during spring freshet and the fall. Insufficient data are available to comment on the shapes of the 2013, 2016 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for 661-09 were determined to generally be of good quality (Grade B). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 4.4

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09

Print Mar/06/24 16:40:33

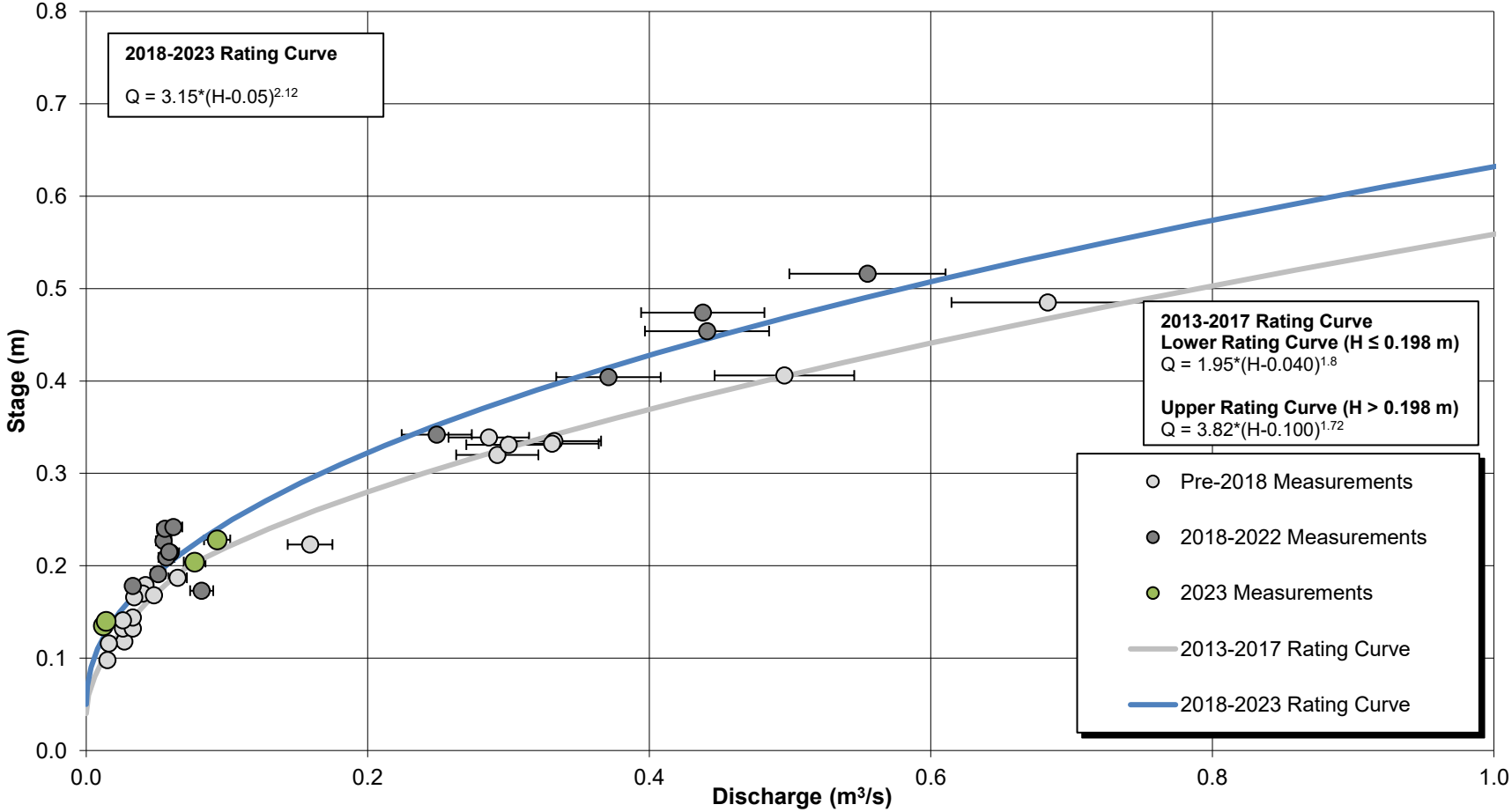
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
1-Mar-23	2	Current Meter	-	0.030	10%	-
24-May-23	2	Current Meter	0.219	0.093	10%	0.002
26-Jul-23	2	Current Meter	0.207	0.077	10%	0.005
17-Aug-23	2	Current Meter	0.138	0.012	10%	0.002
19-Sep-23	2	Current Meter	0.142	0.014	10%	0.002

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\661-09 (H11)\[H11 Workfile 2023.xlsm]Table A 4.4

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT ERROR ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL
4. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT VA101-00457/40-4	MN	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09 RATING CURVES

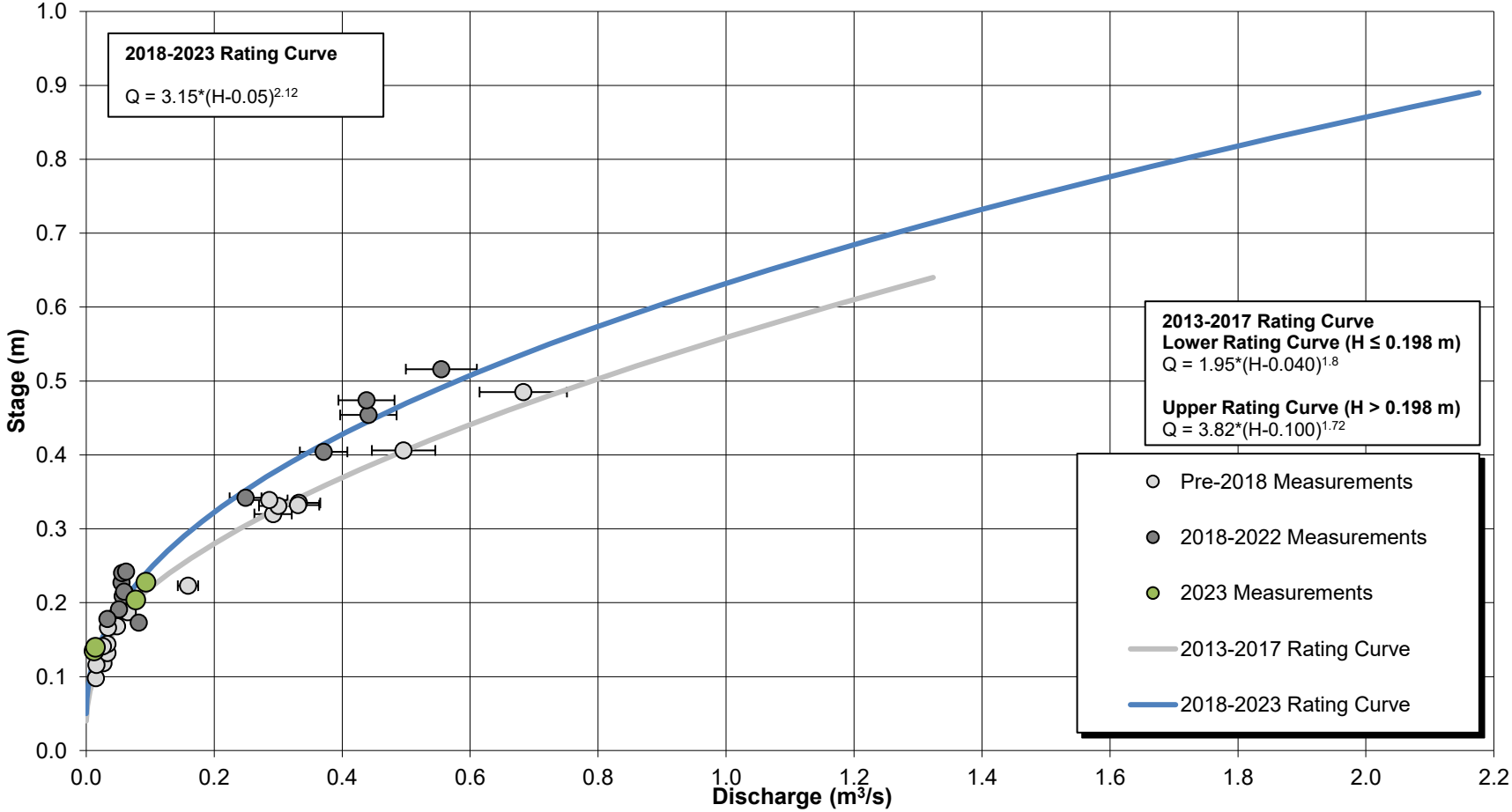
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 4.13

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H11".

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BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09 RATING CURVES

Knight Piésold CONSULTING

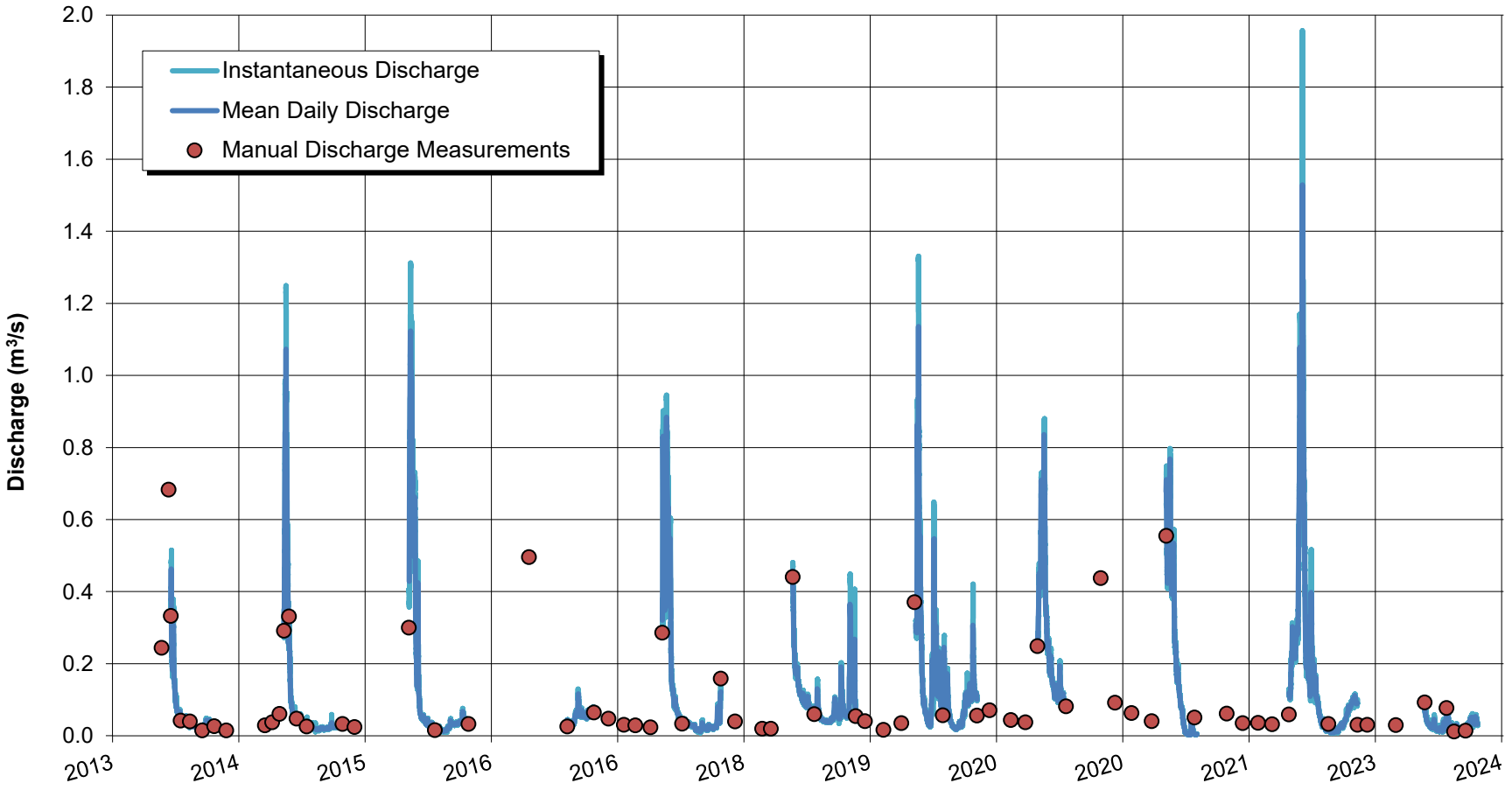
P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 4.14

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

BW GOLD LTD

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CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09 HYDROGRAPH

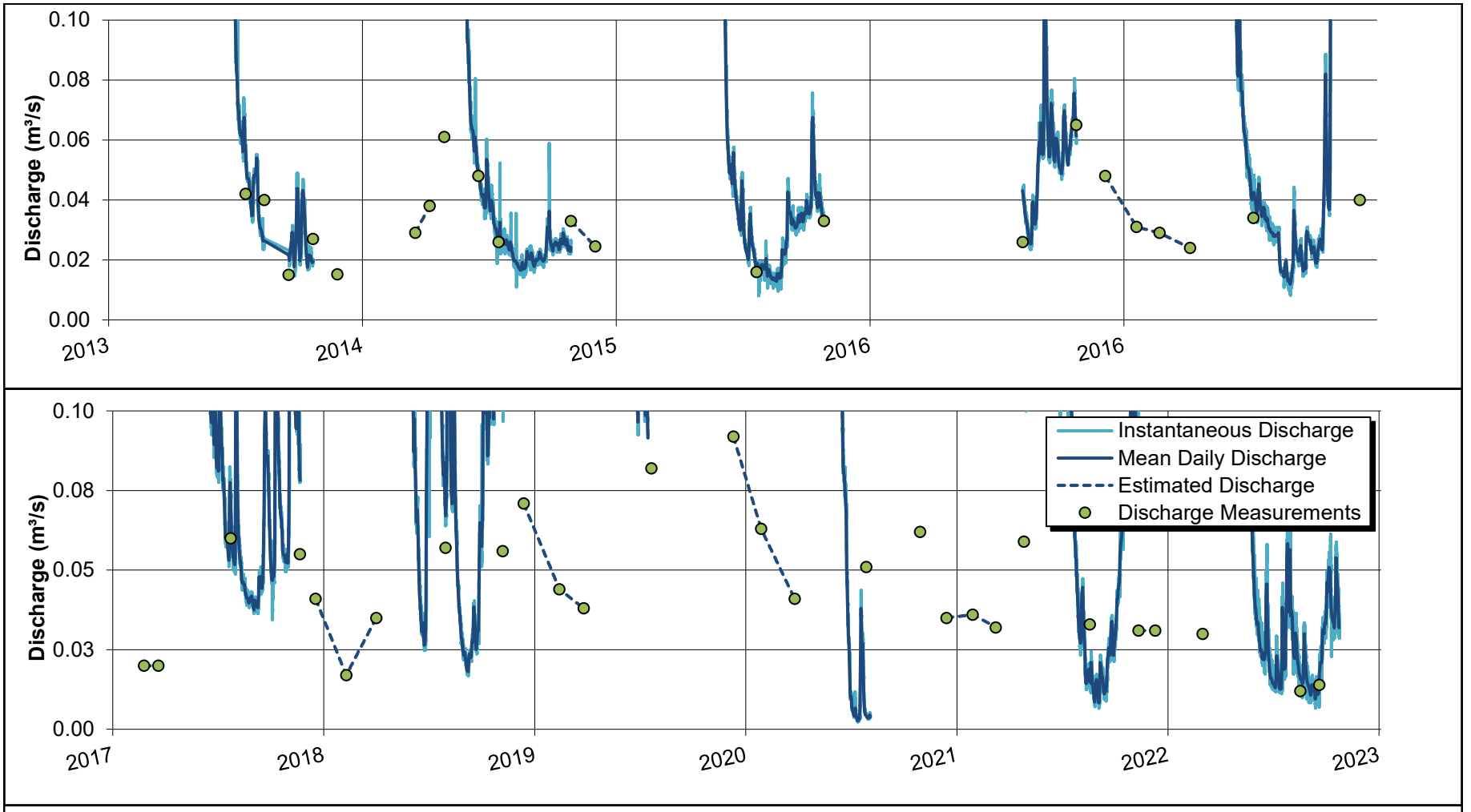
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 4.15

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION
661-09 LOW FLOW HYDROGRAPH

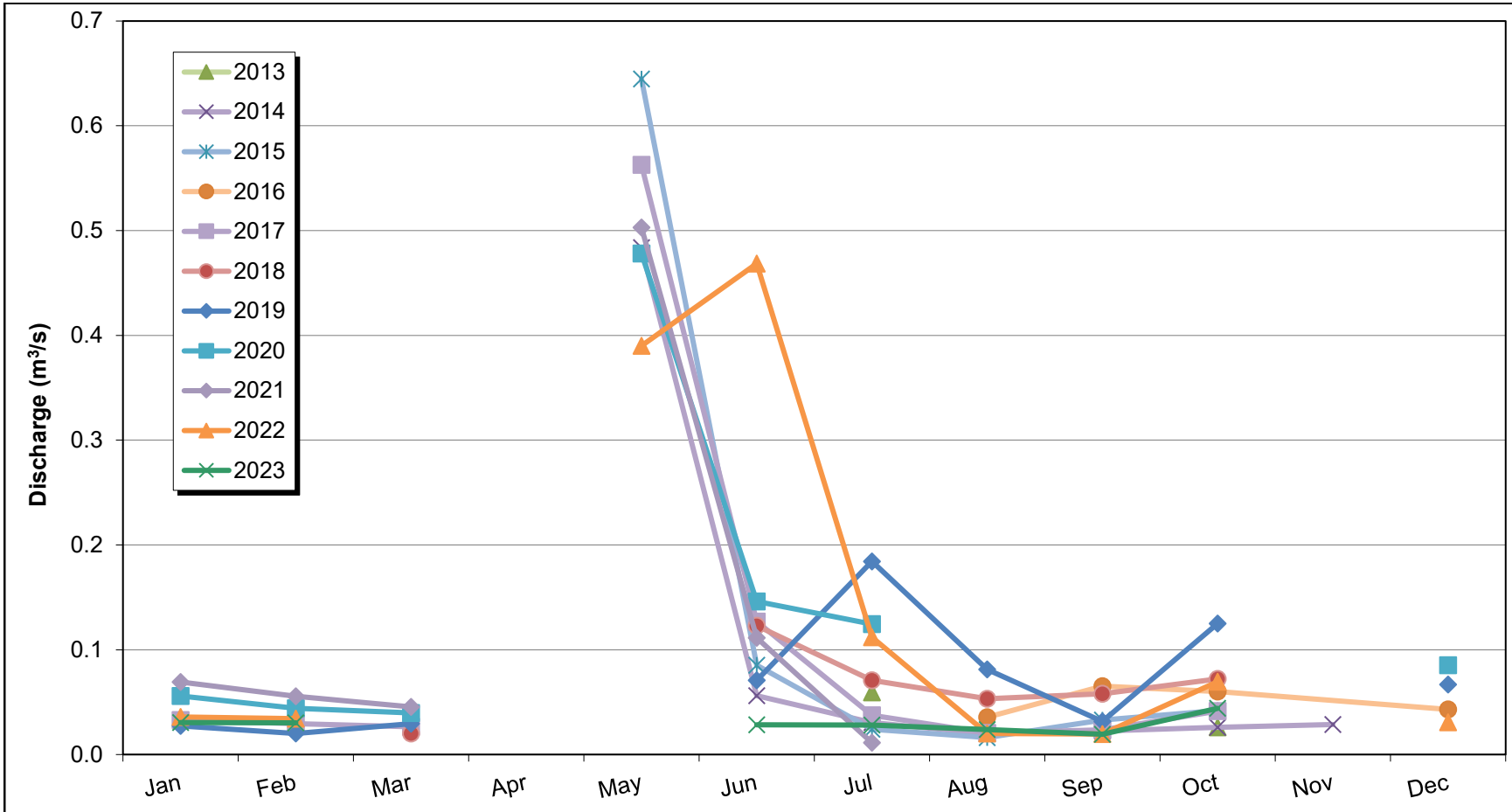
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.16

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H11".

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION
661-09 MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 4.17

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	MN	MJB

5.0 CHEDAKUZ CREEK

5.1 GENERAL

There are three hydrology stations currently operated on Chedakuz Creek and one water quality monitoring site where manual discharge measurements are taken. Hydrology stations CC-12 and CC-15 are installed approximately 0.6 km and 2.4 km downstream of Tatelkuz Lake, respectively. Hydrology station CC-30 and water quality monitoring site CC-40 are located approximately 14 km and 23 km downstream of CC15, respectively. The station and manual discharge measurement locations are shown on Figure 1.2 of the main report. Chedakuz Creek is located downstream of the Davidson Creek Watershed and therefore has been affected by Project related activities.

5.2 CHEDAKUZ CREEK HYDROLOGY STATION CC-12

The CC-12 station was installed on Chedakuz Creek on February 16, 2023. This station is shown in Photo A 5.1 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is attached to the creek bank downstream of the Tatelkuz Lake outlet. The CC-12 station remains operational all year as the sensor is winterized in the fall.

Photo A 5.1 Chedakuz Creek Hydrology Station CC-12 (August 10, 2023)

A total of four discharge measurements with associated stage values have been collected at this site, as well as one winter discharge measurement without an associated stage value. The stage-discharge and individual discharge measurements are summarized in Table A 5.1.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset.

The preliminary rating curve was developed using all four stage-discharge measurements. The curve is shown on Figure A 5.1. The preliminary rating curve extrapolated to the maximum measured stage is shown on Figure A 5.2. The maximum reliable measured discharge and maximum extrapolated discharge for the rating curve are summarized below:

- 2023 preliminary rating curve: the maximum measured discharge with an associated stage measurement was 0.56 m^3/s, and the maximum extrapolated discharge is 0.61 m^3/s.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 5.3. Figure A 5.4 shows the monthly mean flows for the four months of data collected in 2023. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for CC-12 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 5.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CHEDAKUZ CREEK HYDROLOGY STATION CC-12

Print Mar/07/24 9:04:18

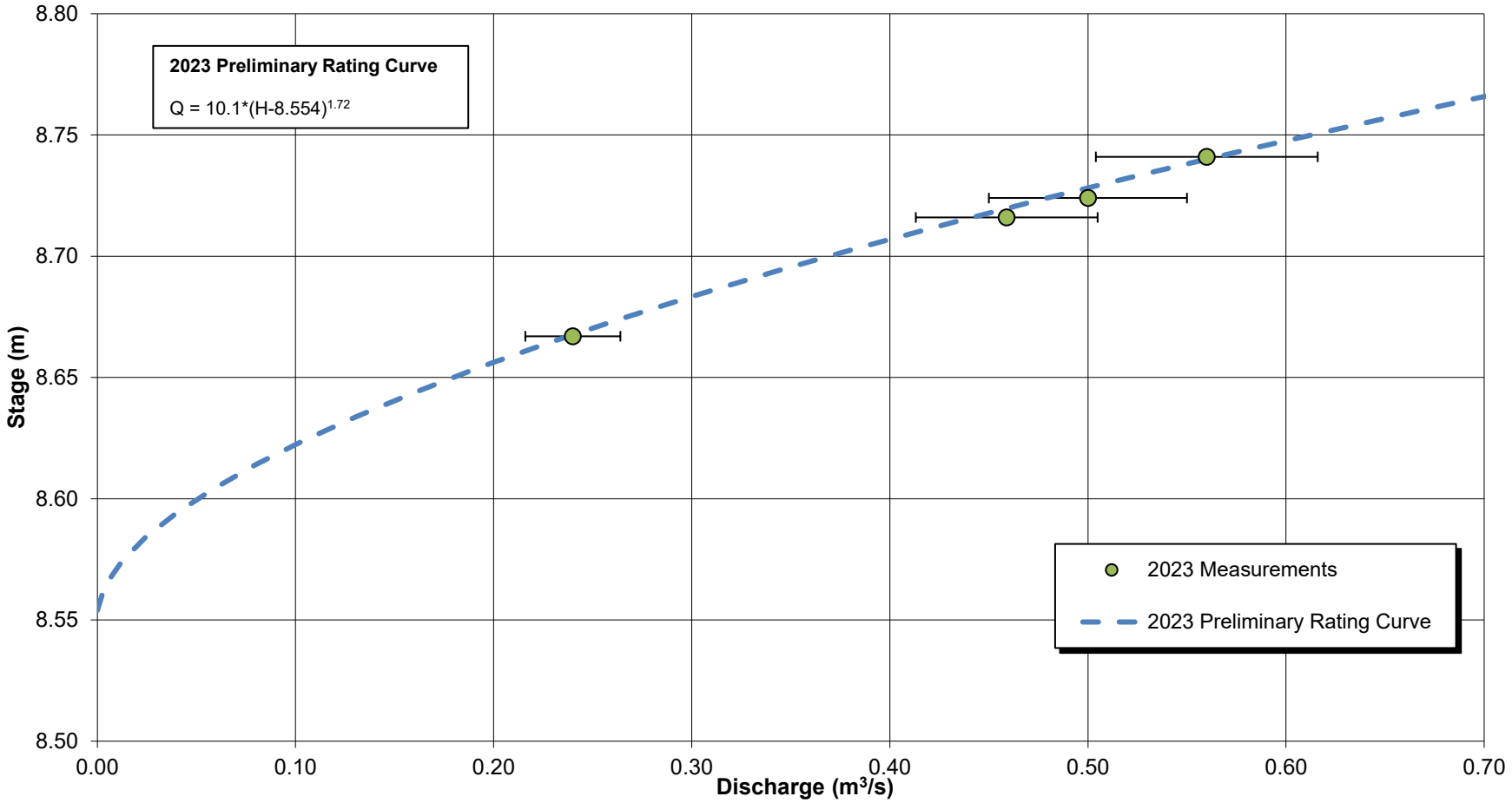
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
16-Feb-23	2	Current Meter	-	0.640	10%	-
5-Jul-23	2	Current Meter	8.724	0.500	10%	0.002
2-Aug-23	-	-	8.732	-	-	0.002
10-Aug-23	2	Current Meter	8.741	0.560	10%	0.005
23-Aug-23	2	Current Meter	8.716	0.459	10%	0.002
1-Nov-23	2	Current Meter	8.667	0.240	10%	0.002

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\CC-12\[CC-12 Workfile 2023.xlsm]Table A 5.1

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT ERROR ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-00457/40-4	BTN	MJB



NOTES:
1. THIS STATION WAS ESTABLISHED FEBRUARY 16, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION
CC-12 PRELIMINARY RATING CURVE

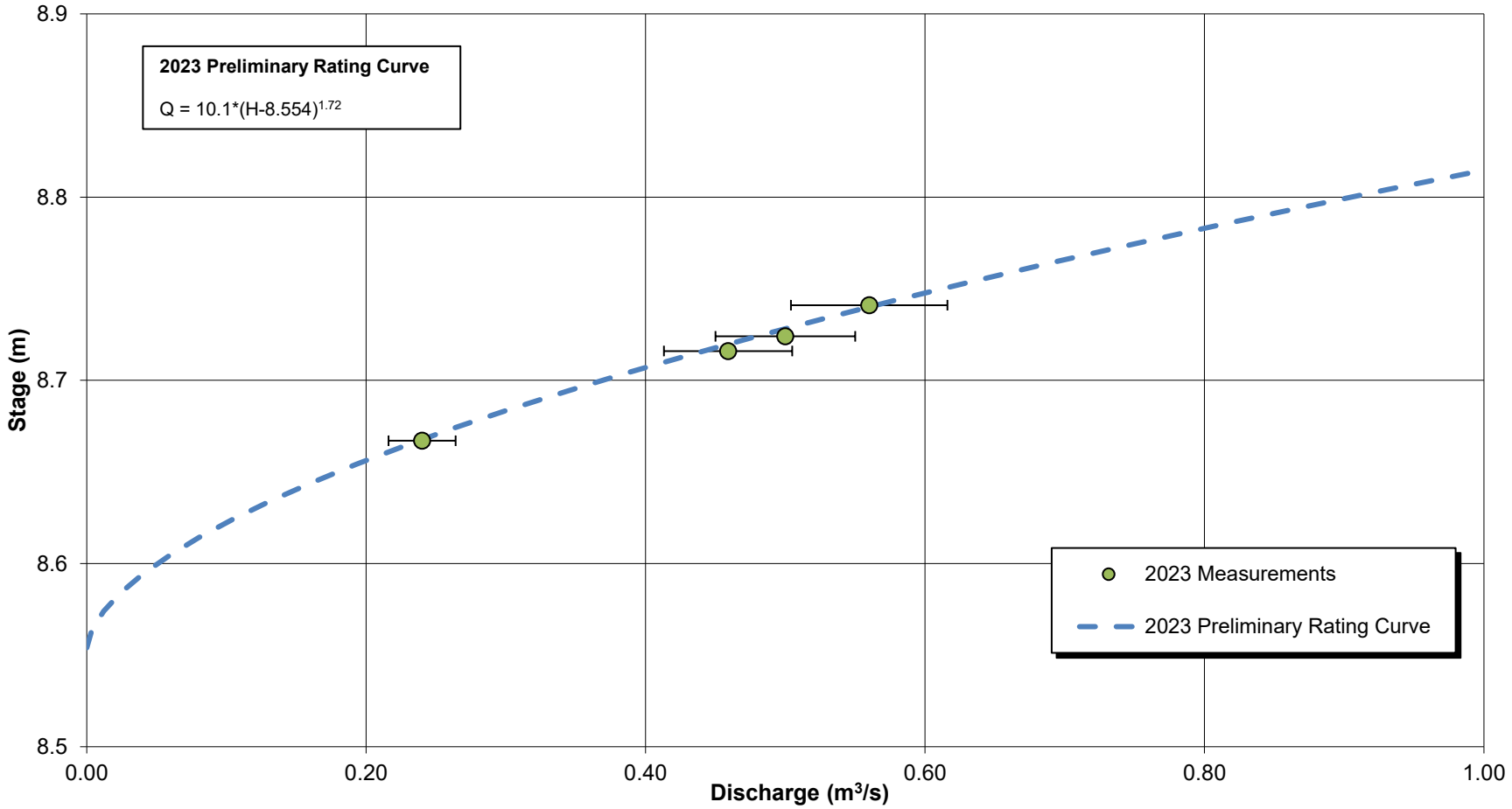
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 5.1

REV 0



NOTES:
1. THIS STATION WAS ESTABLISHED FEBRUARY 16, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

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BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION
CC-12 PRELIMINARY RATING CURVE -
EXTRAPOLATED TO MAXIMUM RECORDED STAGE

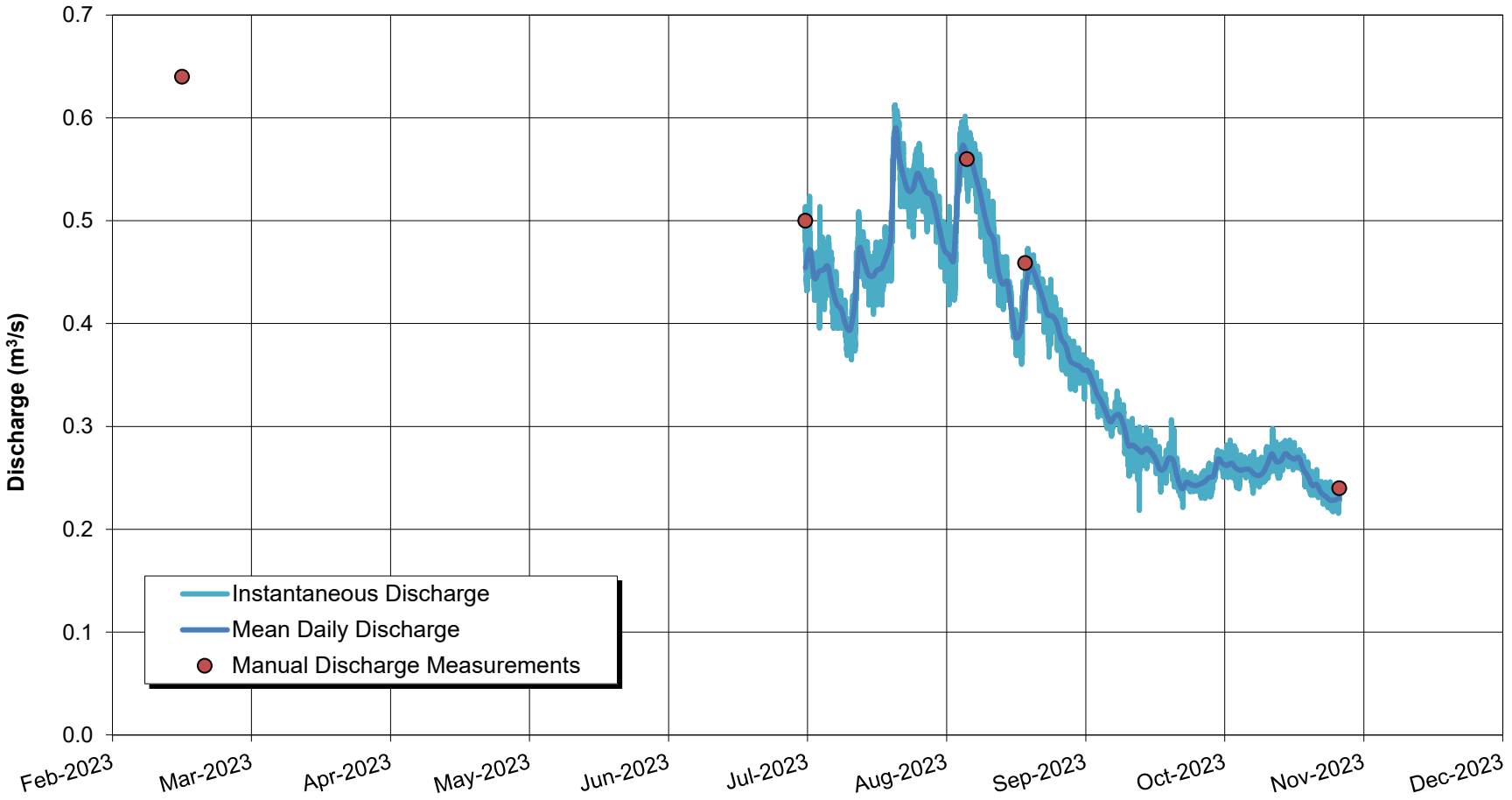
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 5.2

REV 0



NOTES:
1. THIS STATION WAS ESTABLISHED FEBRUARY 16, 2023.
2. HYDROGRAPH DATA IS DEVELOPED USING A PRELIMINARY RATING CURVE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

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BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION
CC-12 HYDROGRAPH

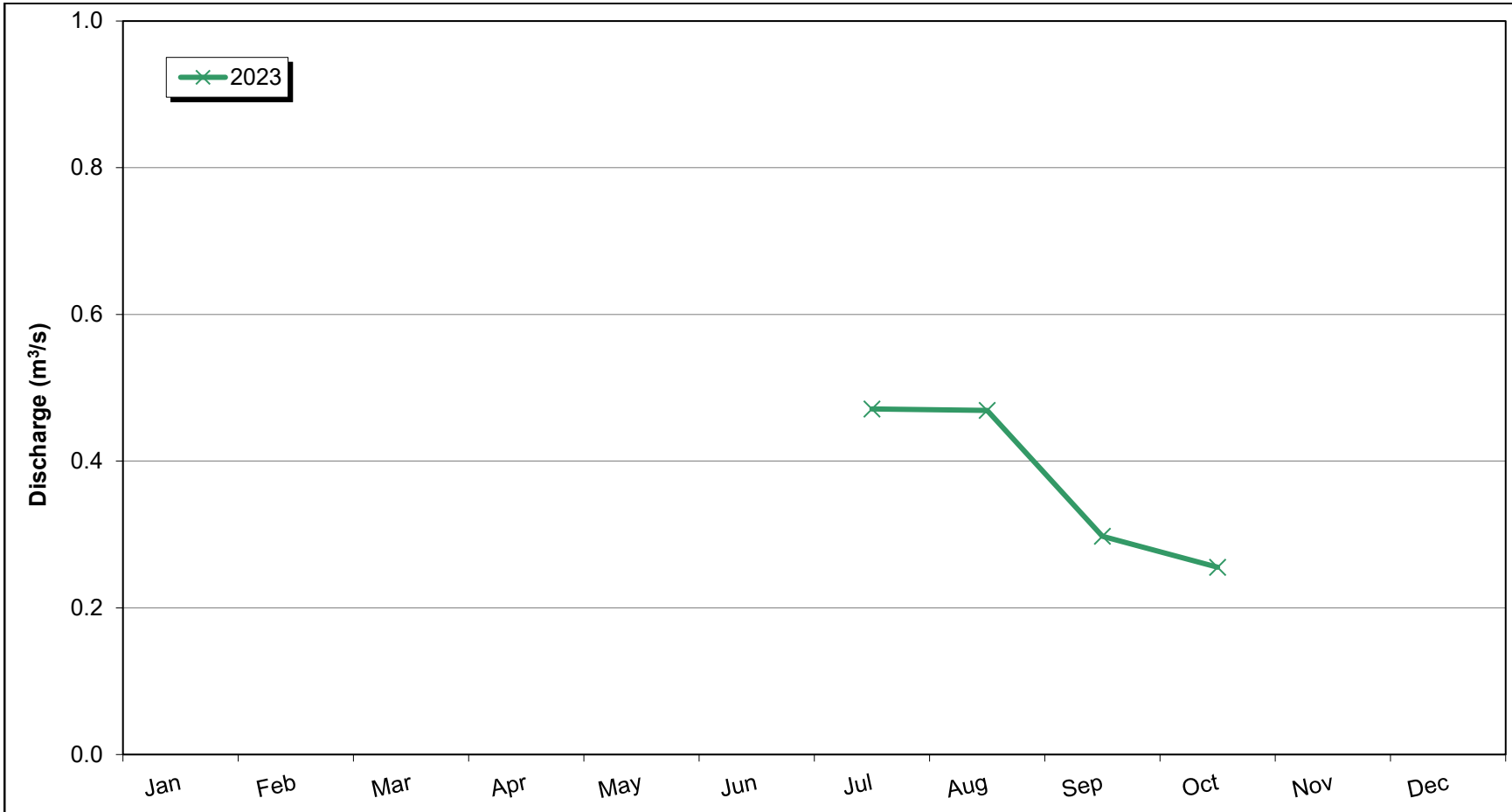
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. 4

FIGURE A 5.3

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

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BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-12
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.4

REV 0

5.3 CHEDAKUZ CREEK HYDROLOGY STATION CC-15

The CC-15 station, previously known as the H5 station, was installed on Chedakuz Creek on April 19, 2011. This station is shown in Photo A 5.2 and consists of a KPSI pressure transducer installed inside a protective aluminum pipe that is attached to the bank of the creek just upstream of a bridge. The transducer is wired to a NEON Micrologger in a protective case installed on a tree. The CC-15 station typically remains operational all year as the site often experiences open water conditions throughout the winter.

Photo A 5.2 Chedakuz Creek Hydrology Station CC-15 (February 16, 2023)

A total of 87 discharge measurements with associated stage values have been collected at this site, as well as seven discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 5.2.

In 2023, there was a data gap in the stage record from January 5 to January 12, due to a dead battery in the Micrologger, and stage data were removed in January, February, and March, due to suspected icing effects.

The rating curves were developed using 87 of the 88 stage-discharge measurements. A total of 71 stage-discharge measurements were used to develop a 2011-2020 rating curve. Measurements collected in 2023 fall in the same scatter as the points collected from 2021 to 2022; therefore, 16 measurements were used to develop the 2021-2023 rating curve. Both curves are shown on Figure A 5.5. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 5.6. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2011-2020 rating curve: the maximum measured discharge was 23.00 m³/s and the maximum extrapolated discharge is 43.52 m³/s.
- 2021-2023 rating curve: the maximum measured discharge was 14.30 m³/s and the maximum extrapolated discharge is 42.74 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for the 2021-2023 rating curve, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 5.7. Four discharge measurements recorded from May 20 to June 10 in 2011 are marked as uncertain. The hydrograph shown on Figure A 5.8 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 5.9 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2011 to 2015, 2017, 2018, and 2020 to 2023, while a bimodal shape was observed in 2016 and 2019. Insufficient data are available to comment on the shape of the 2012 hydrograph. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for CC-15 were determined to generally be of variable quality (Grade E) due to less than three benchmarks being used in all seven benchmark surveys completed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station’s data.

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TABLE A 5.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CHEDAKUZ CREEK STATION CC-15

Print Mar/07/24 9:12:45

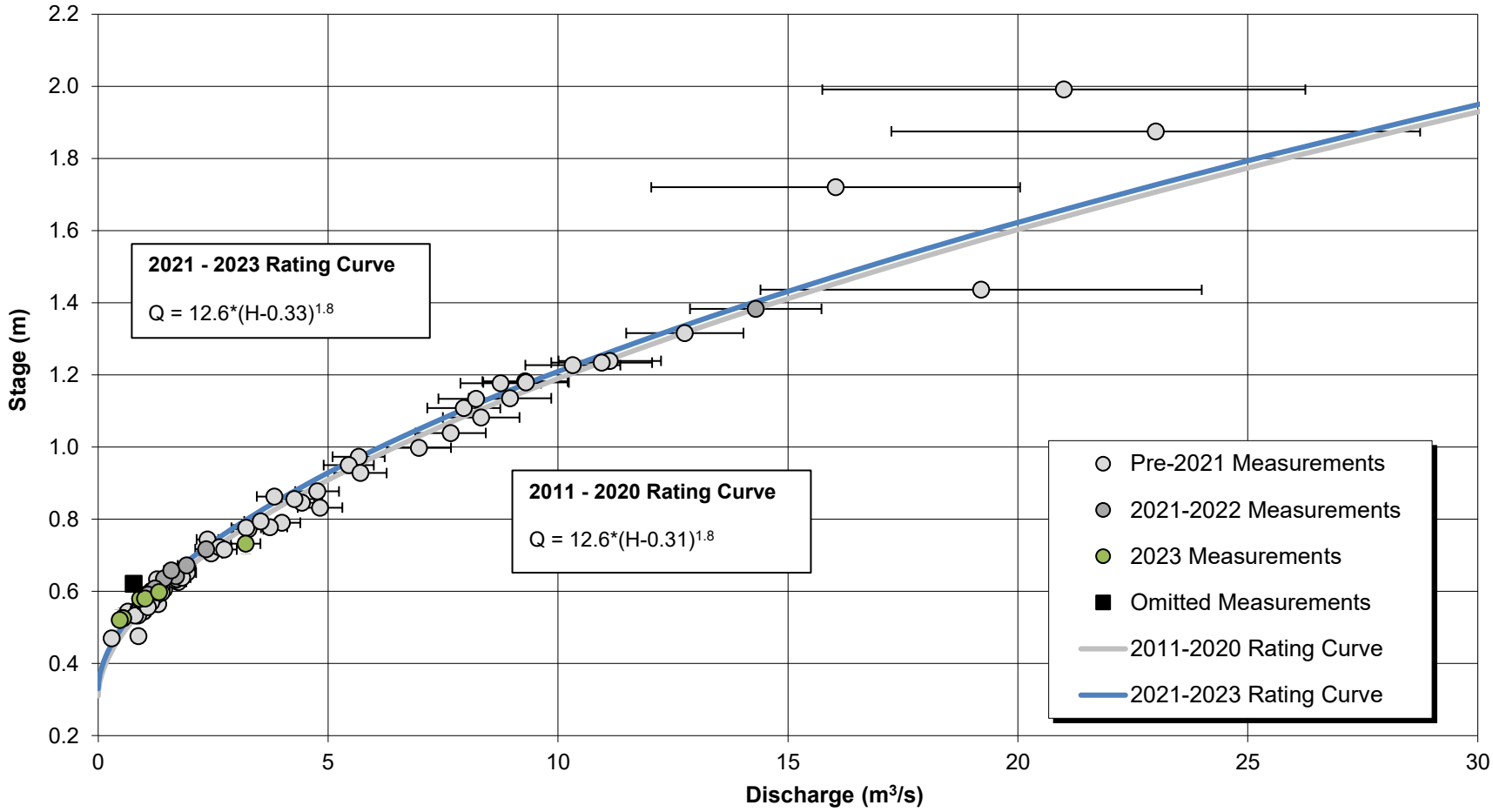
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
5-Jan-23	2	Current Meter	0.579	0.912	10%	0.005
16-Feb-23	2	Current Meter	0.580	1.019	10%	0.005
1-Jun-23	2	Current Meter	0.732	3.209	10%	0.005
9-Aug-23	2	Current Meter	0.598	1.322	10%	0.005
15-Sep-23	2	Current Meter	0.526	0.536	10%	0.005
13-Oct-23	2	Current Meter	0.525	0.540	10%	0.005
1-Nov-23	2	Current Meter	0.521	0.467	10%	0.005

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\CC-15 (H5)\[CC-15 Workfile 2023_2.xlsm]Table A 5.2

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15 RATING CURVES

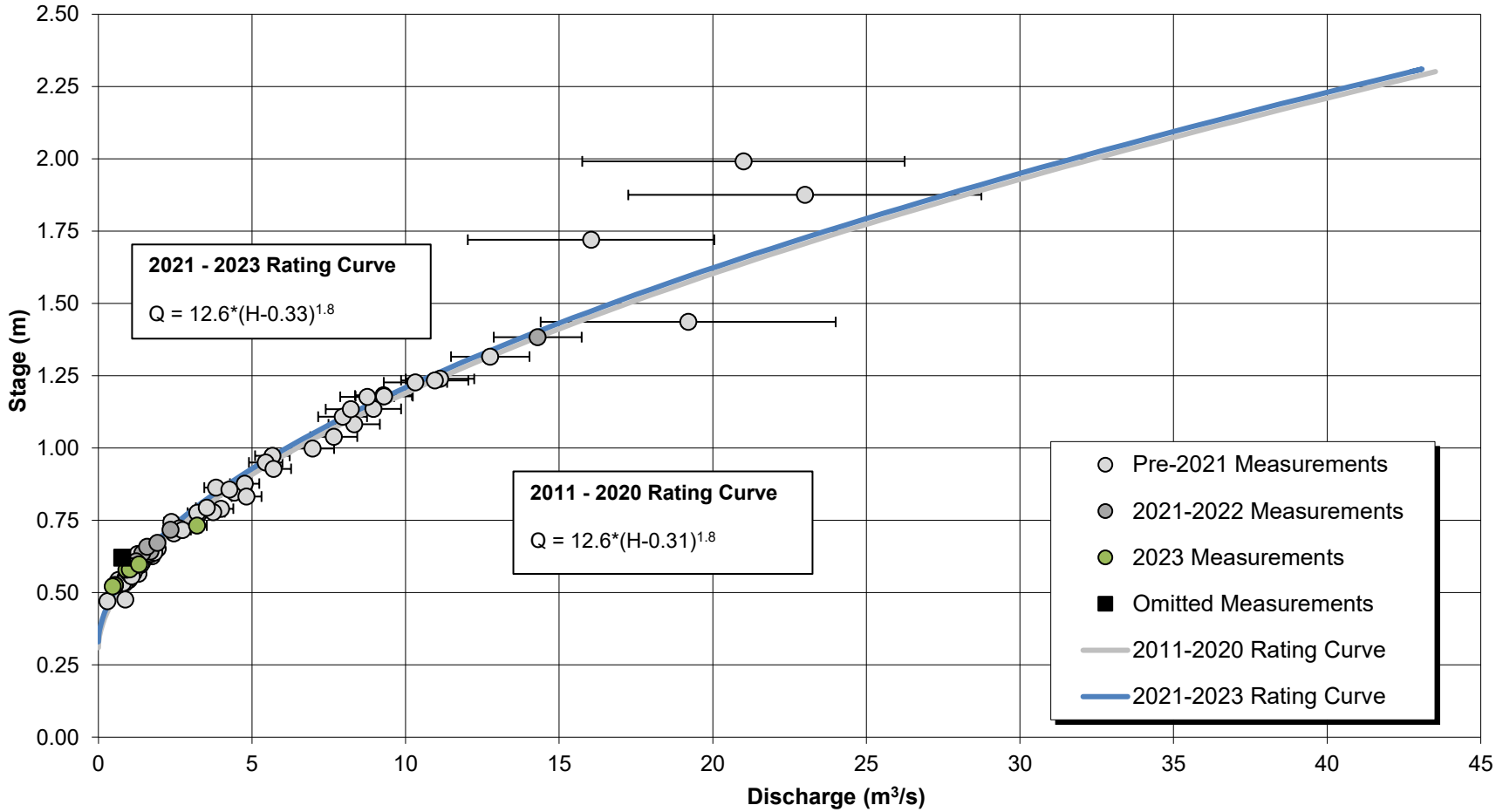
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.5

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

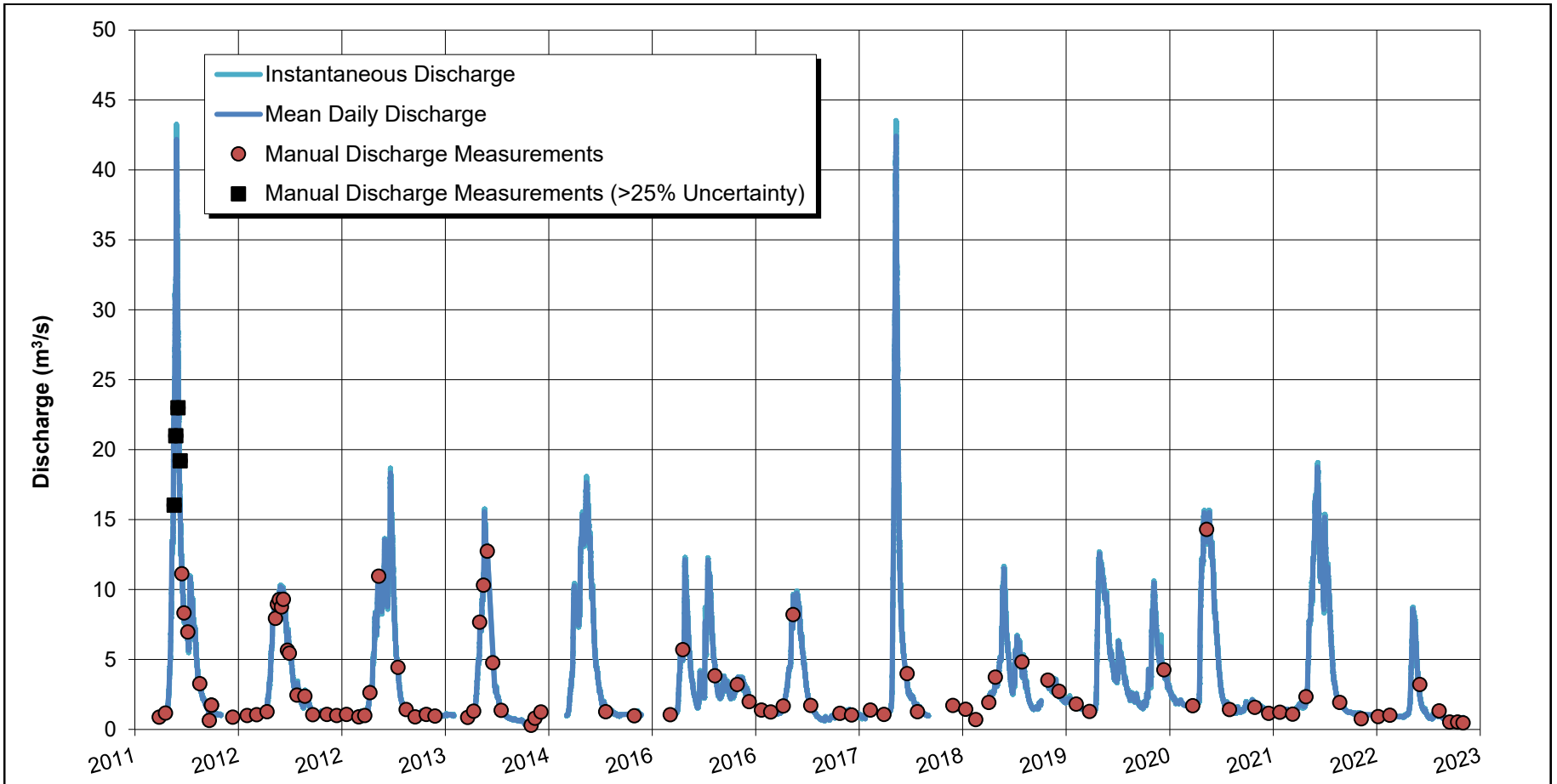
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.6

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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CHEDAKUZ CREEK HYDROLOGY STATION CC-15 DISCHARGE HYDROGRAPH

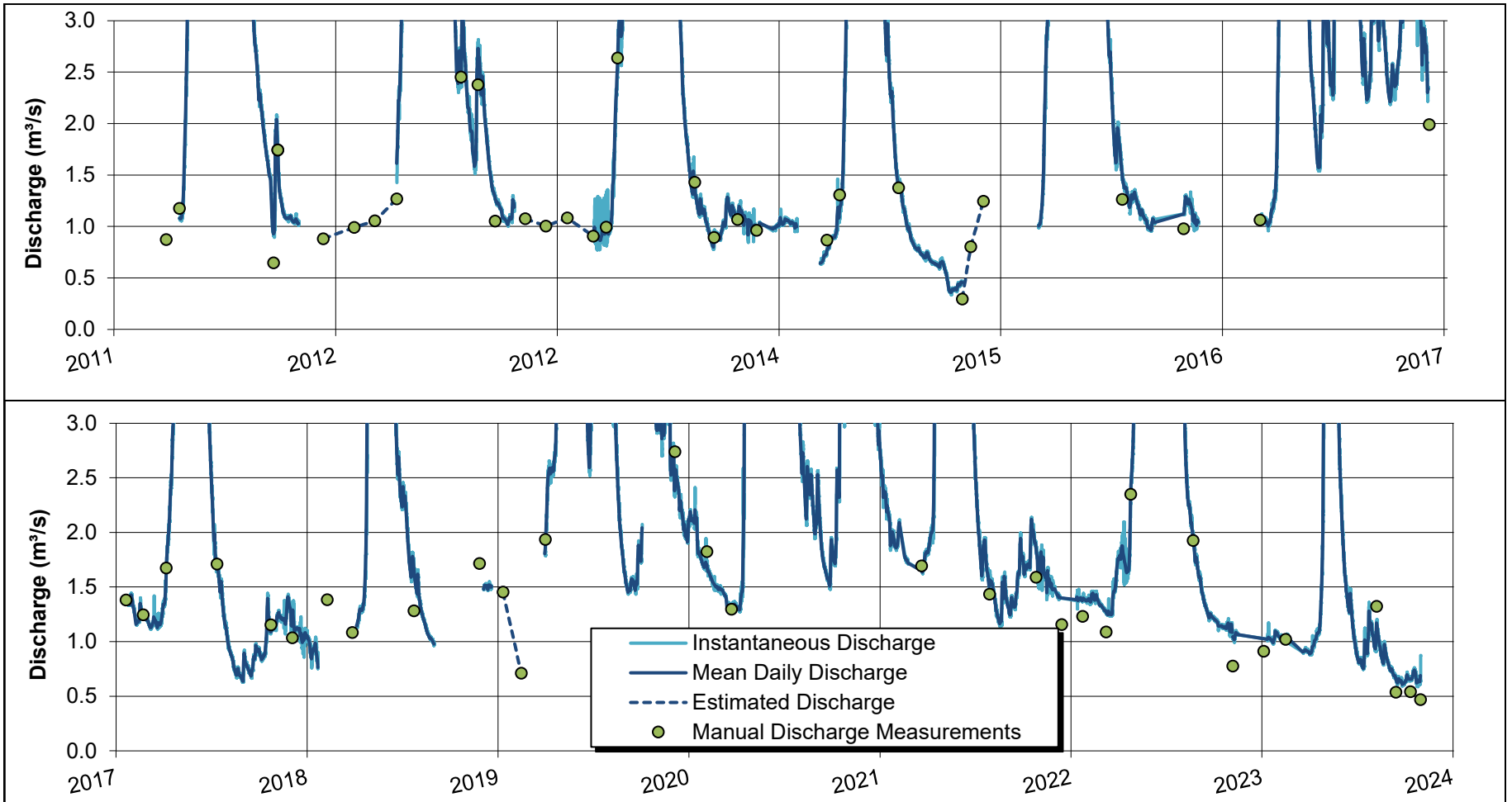
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.7

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15
LOW FLOW HYDROGRAPH

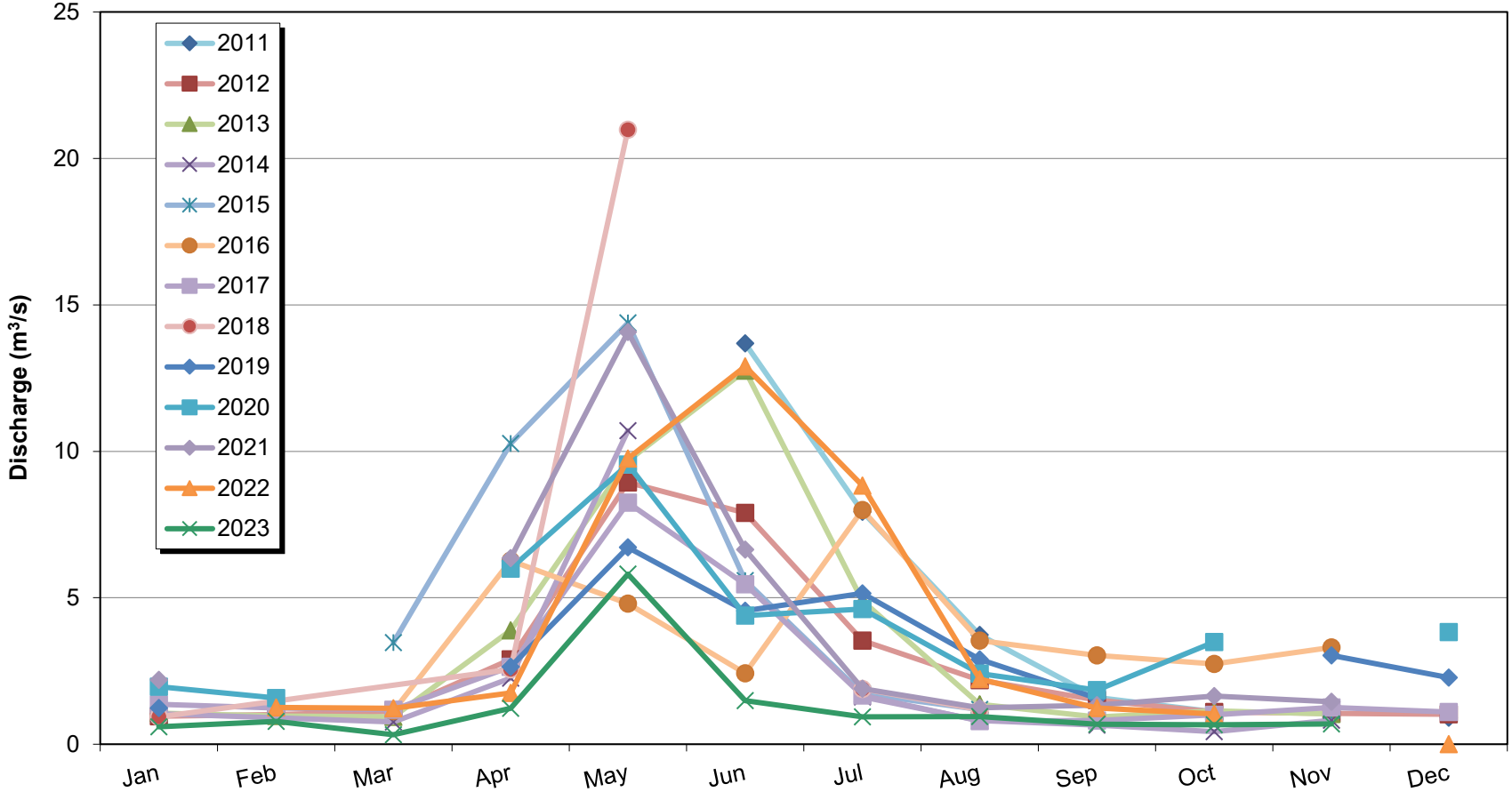
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.8

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.9

REV 0

5.4 CHEDAKUZ CREEK HYDROLOGY STATION CC-30

The CC-30 station is located on Chedakuz Creek approximately 14 km downstream of CC-15. The location was initially established solely for water quality monitoring but was repurposed as a hydrology station with the installation of instrumentation on July 27, 2023. The CC-30 station is shown in Photo A 5.3 and consists of a Solinst Levelogger installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on July 27, 2023 and then removed for the winter on November 2, 2023.

Photo A 5.3 Chedakuz Creek Hydrology Station CC-30 (August 24, 2023)

A total of four discharge measurements with associated stage values have been collected at this site, as well as six discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 5.3.

In 2023, a portion of the data from August 24 was removed from the stage record because the sensor was removed from the pipe and reinstalled during the corresponding site visit. Stage data were removed from the record from October 24 to November 2, 2024 due to icing effects.

A preliminary rating curve was developed for the CC-30 station using all four of the stage-discharge measurements. The curve is shown on Figure A 5.10. The maximum reliable measured discharge and maximum extrapolated discharge for the rating curve are summarized below:

- 2023 Rating Curve: The maximum measured discharge was 1.66 m³/s and the maximum extrapolated discharge is 1.66 m³/s.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 5.11. The hydrograph shown on Figure A 5.12 focuses on low flows and indicates the estimated flows interpolated between winter discharge measurements. Estimated winter flows were created

for late 2023. Figure A 5.13 shows the monthly mean flows for four months of data collected in 2023. When compared against the RISC hydrometric standards (2018) the 2023 hydrometric data for CC-30 were determined to generally be of variable quality (Grade E) due to less than three benchmarks being used in all six benchmark surveys completed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 5.3

BW GOLD LTD.
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CHEDAKUZ CREEK STATION CC-30

Print Mar/07/24 10:10:59

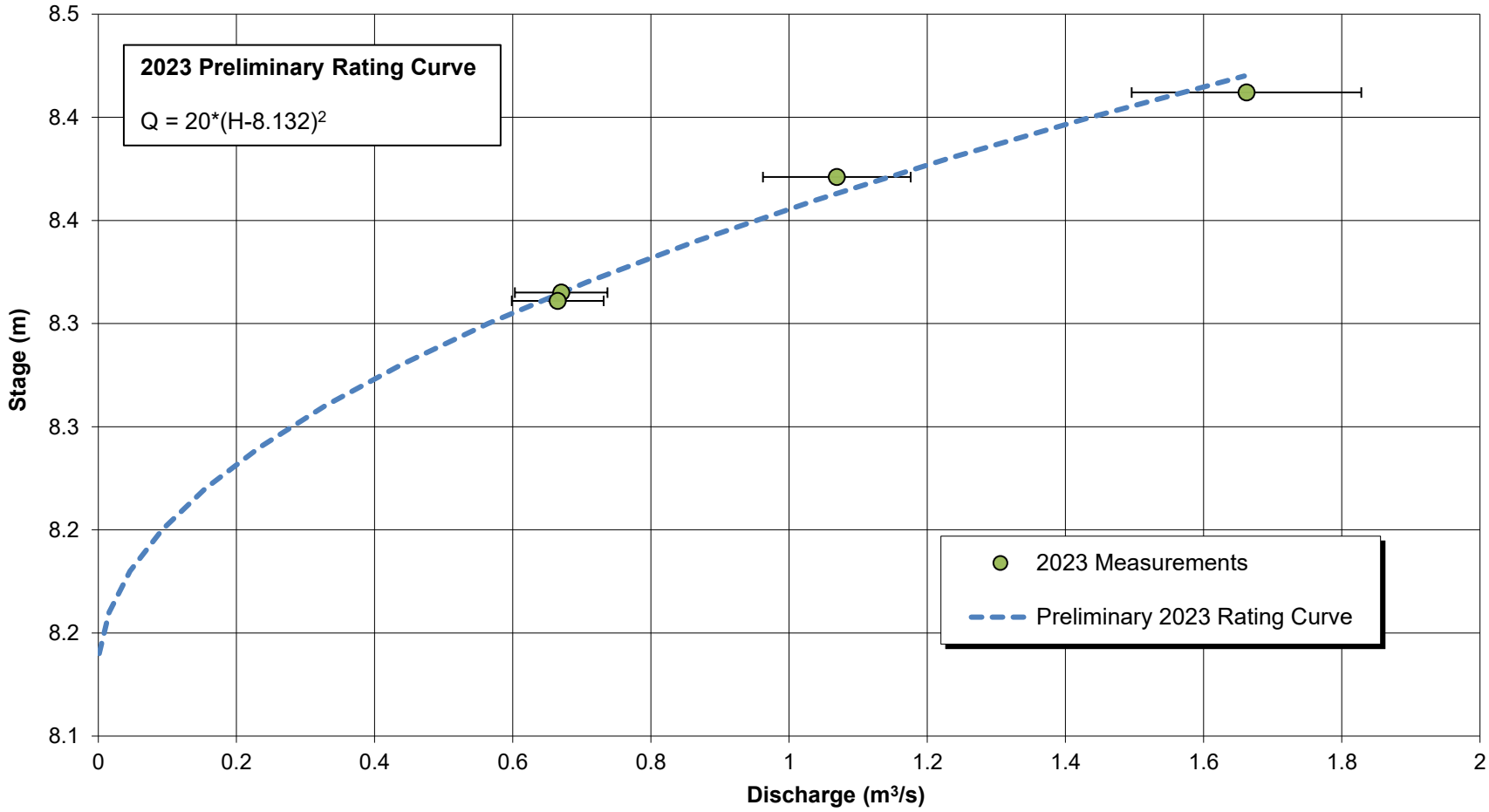
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
27-Jul-23	2	Current Meter	8.412	1.662	10%	0.005
24-Aug-23	2	Current Meter	8.371	1.069	10%	0.002
14-Sep-23	2	Current Meter	8.315	0.670	10%	0.002
12-Oct-23	2	Current Meter	8.311	0.665	10%	0.005
2-Nov-23	2	Current Meter	-	0.876	10%	-
16-Nov-23	2	Current Meter	-	1.125	10%	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\CC-30\[CC-30 Workfile 2023.xlsm]Table A 5.3

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30
PRELIMINARY RATING CURVE

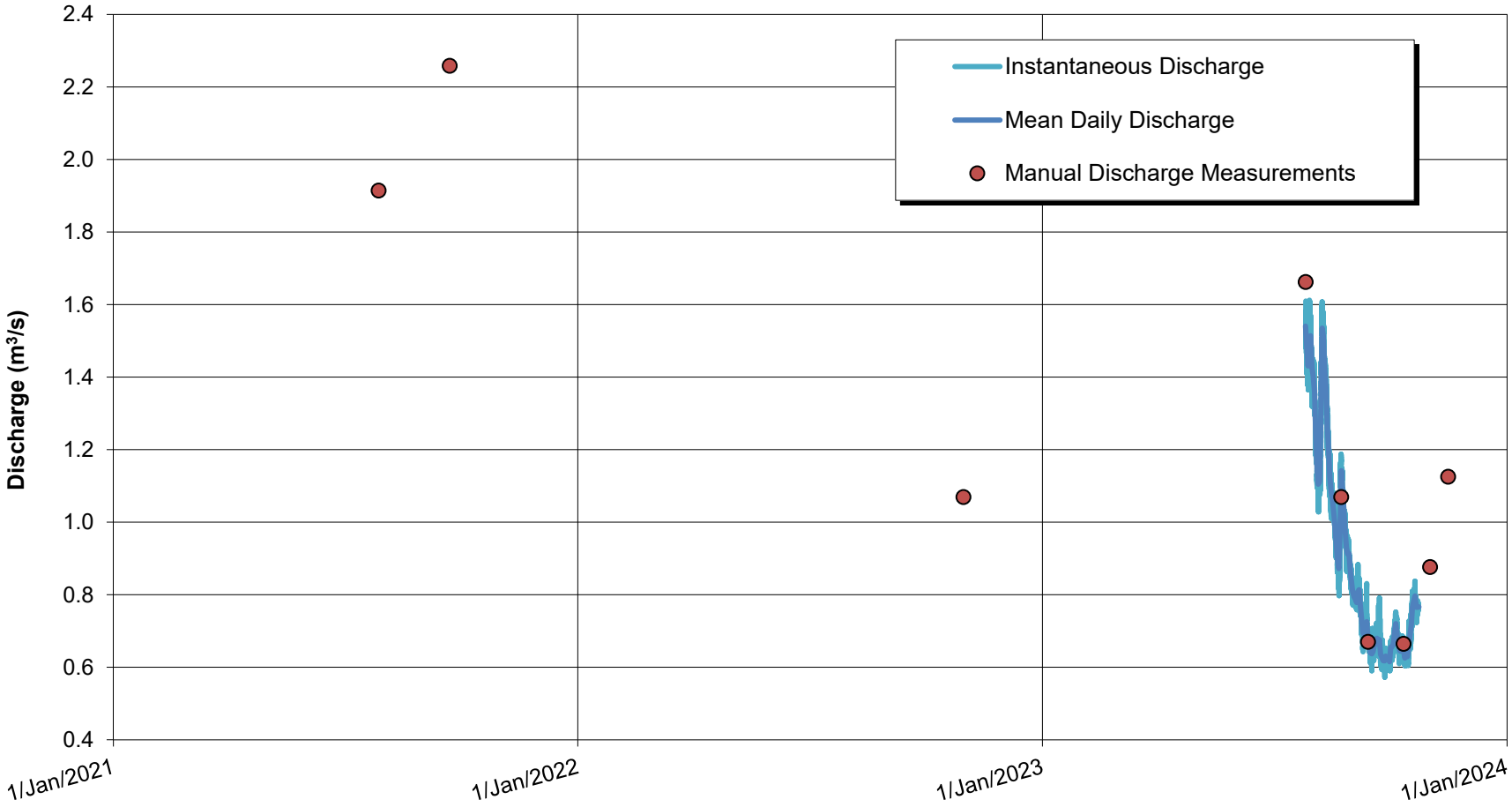
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.10

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H5".
2. HYDROGRAPH DATA DEVELOPED USING A PRELIMINARY RATING CURVE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30
DAILY DISCHARGE HYDROGRAPH

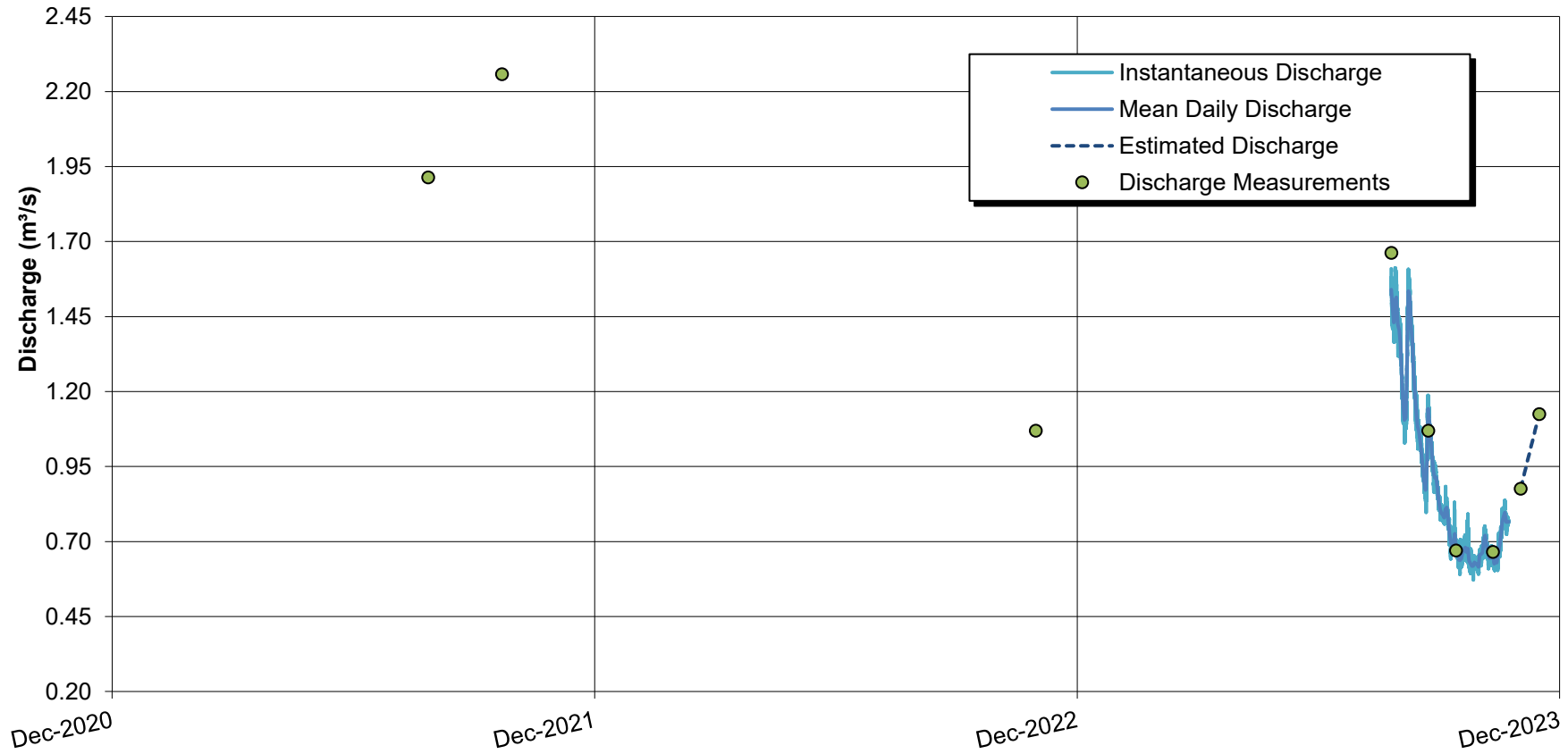
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.11

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H5".
3. HYDROGRAPH DATA DEVELOPED USING A PRELIMINARY RATING CURVE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30
LOW FLOW HYDROGRAPH

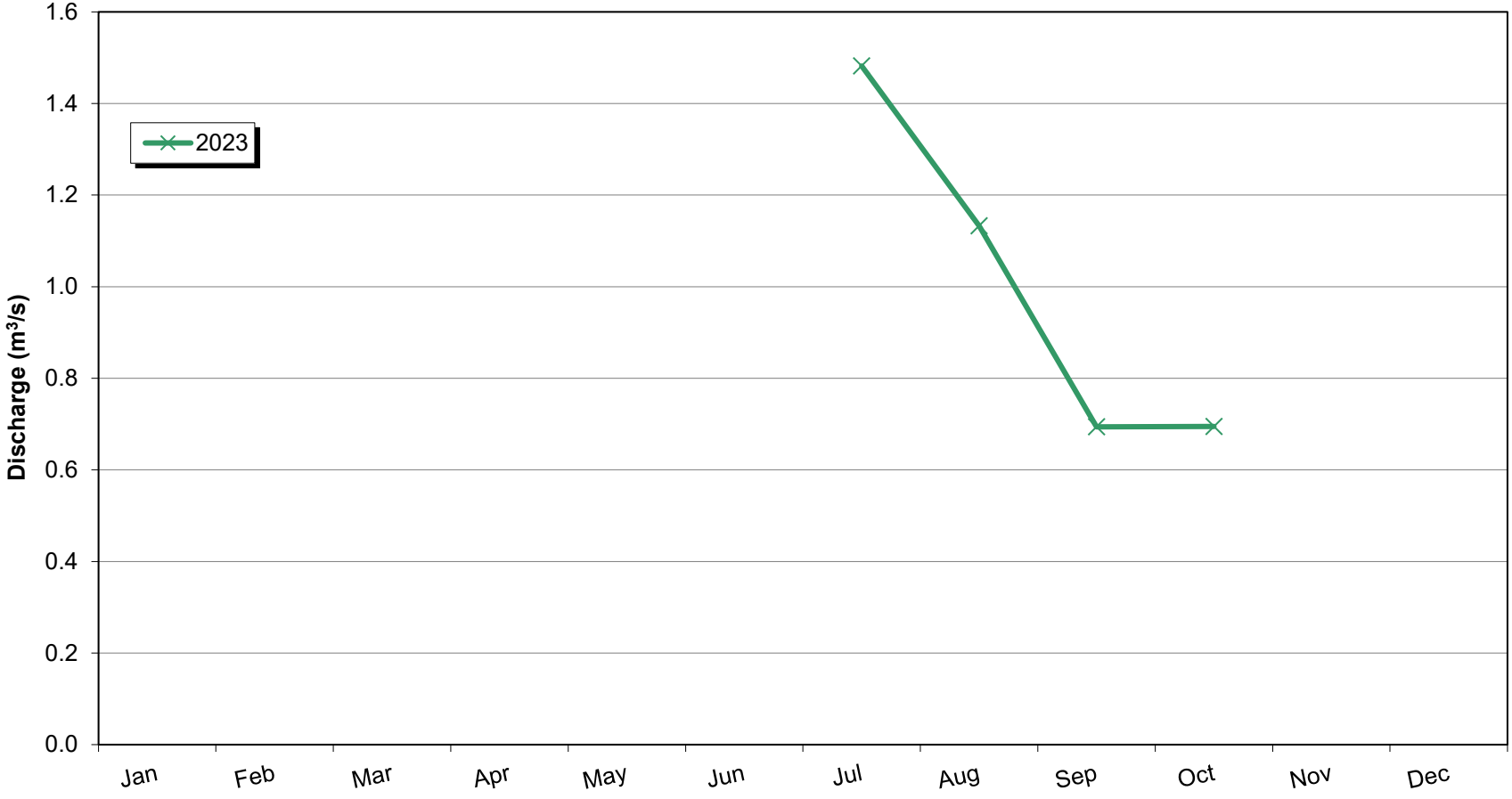
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.12

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 5.13

REV 0

5.5 CHEDAKUZ CREEK HYDROLOGY DISCHARGE MEASUREMENT LOCATION CC-40

The CC-40 station is located on Chedakuz Creek approximately 23 km downstream of the CC-15 station. This location was established for water quality monitoring and no hydrology instrumentation is installed here. A total of nine discharge measurements have been recorded at this location but no associated stage values were recorded. The 2023 discharge measurements are summarized in Table A 5.4. When compared against the RISC hydrometric standards (2018), the discharge data for CC-40 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

Table A 5.4 2023 Chedakuz Creek Water Quality Location CC-40 Summary of Discharge Measurements

Date	Discharge			
	Number of Measurements	Measurement Method	Measurement (m^3/s)	Uncertainty (%)
27-Jul-23	2	Current Meter	2.117	10
24-Aug-23	2	Current Meter	1.186	10
14-Sep-23	2	Current Meter	0.810	10
12-Oct-23	2	Current Meter	0.779	10
14-Nov-23	2	Current Meter	1.086	10

6.0 FAWNIE CREEK WATERSHED

6.1 GENERAL

There are three hydrology stations currently operated in the Fawnie Creek Watershed. The stations are installed on Creek 705, Mathews Creek, and at the outlet of Lake 01538NRS. The Fawnie Creek watershed is not currently affected by the Project.

6.2 LAKE 01538NRS OUTLET HYDROLOGY STATION L6-B

The L6-B station was installed at the outlet of Lake 01538NRS on May 24, 2013. The station was decommissioned on October 29, 2014 and then recommissioned on July 7, 2023. The L6-B station is shown in Photo A 6.1 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the bank of the lake near the lake outlet. This station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on July 7, 2023 and then removed for the winter on January 8, 2024.

Photo A 6.1 Outlet of Lake 01538NRS Hydrology Station L6B (July 7, 2023)

A total of 11 discharge measurements with associated stage values have been collected at this site, as well as two stage measurements without associated discharge values. The stage-discharge and individual stage measurements from 2023 are summarized in Table A 6.1.

The 2013-2023 rating curve for the L6-B station was developed using 10 of the 11 stage-discharge measurements. The rating curve is shown on Figure A 6.1. Insufficient rating curve points were collected in 2023 to determine if the previously established rating curve from 2014 is still applicable. The rating curve extrapolated to the maximum measured stage for the station is shown on Figure A 6.2. The maximum reliable measured discharge and maximum extrapolated discharge for the rating curve are summarized below:

- 2013-2023 rating curve: the maximum measured discharge with an associated stage measurement was 0.15 m³/s, and the maximum extrapolated discharge is 0.27 m³/s.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 6.3. Discharge data from 2023 were marked as uncertain as stage-discharge measurements taken in 2023 were not of sufficient quality or quantity to verify the existing rating curve. Figure A 6.4 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak during the spring freshet was observed in 2013. Insufficient data are available to comment on the shape of the 2014 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for L6-B were determined to generally be of variable quality (Grade E) due to the August 22 discharge measurement deviating from rating the curve by approximately 40%. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

Knight Piésold CONSULTING

TABLE A 6.1

BW GOLD LTD.
BLACKWATER GOLD PROJECT

SUMMARY OF STAGE-DISCHARGE MEASUREMENTS
OUTLET OF LAKE 01538LNRS HYDROLOGY STATION L6-B

Print Mar/07/24 11:12:16

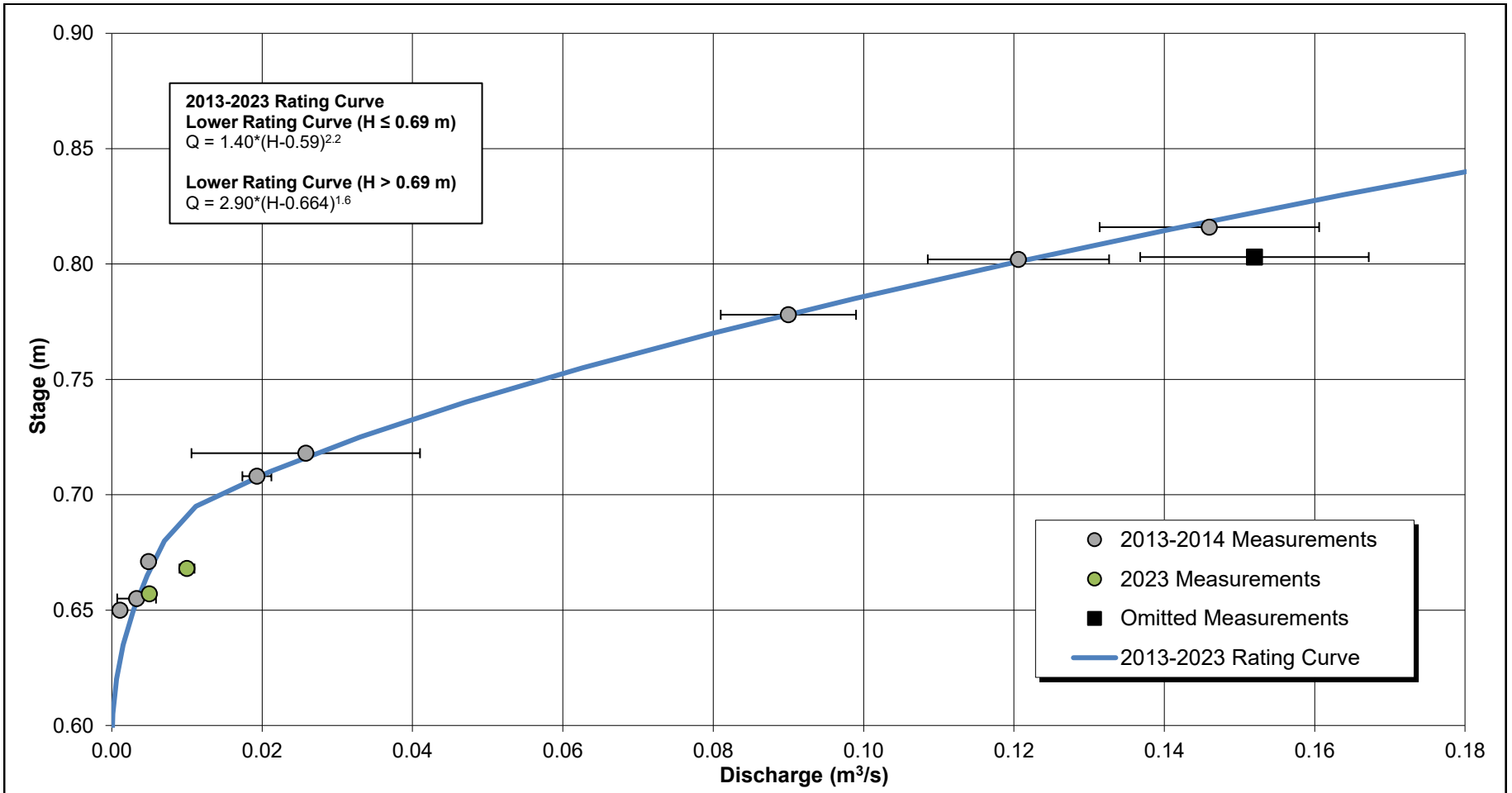
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
7-Jul-23	2	Current Meter	0.657	0.005	10%	0.005
22-Aug-23	2	Current Meter	0.668	0.010	10%	0.002
21-Sep-23	-	-	0.665	-	-	0.002

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\L6-B\[L6-B Workfile 2023.xlsm]Table A 6.1

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

OUTLET OF LAKE 01538LNRS HYDROLOGY STATION L6-B RATING CURVES

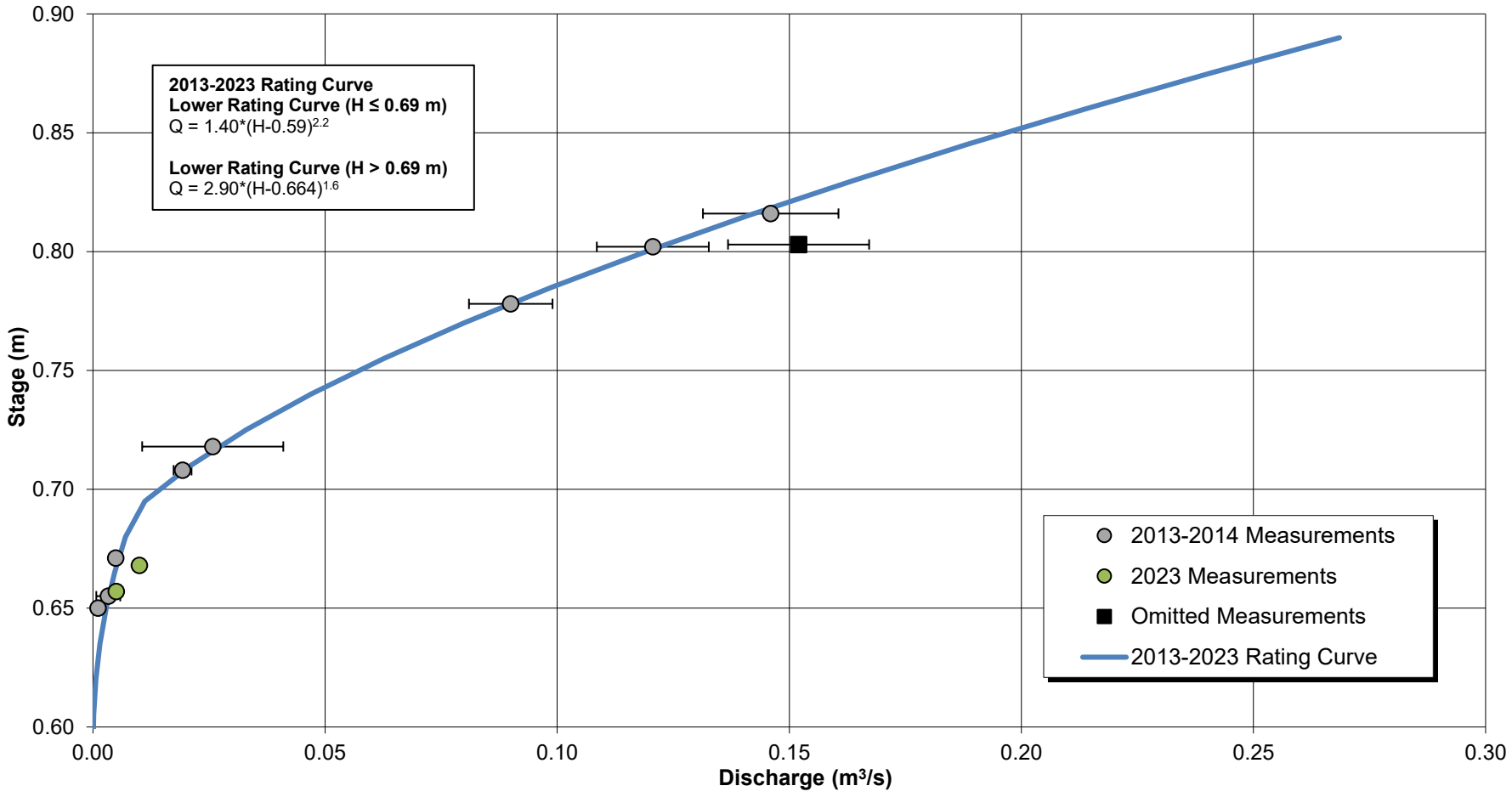
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.1

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

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OUTLET OF LAKE 01538LNRS HYDROLOGY STATION L6-B RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

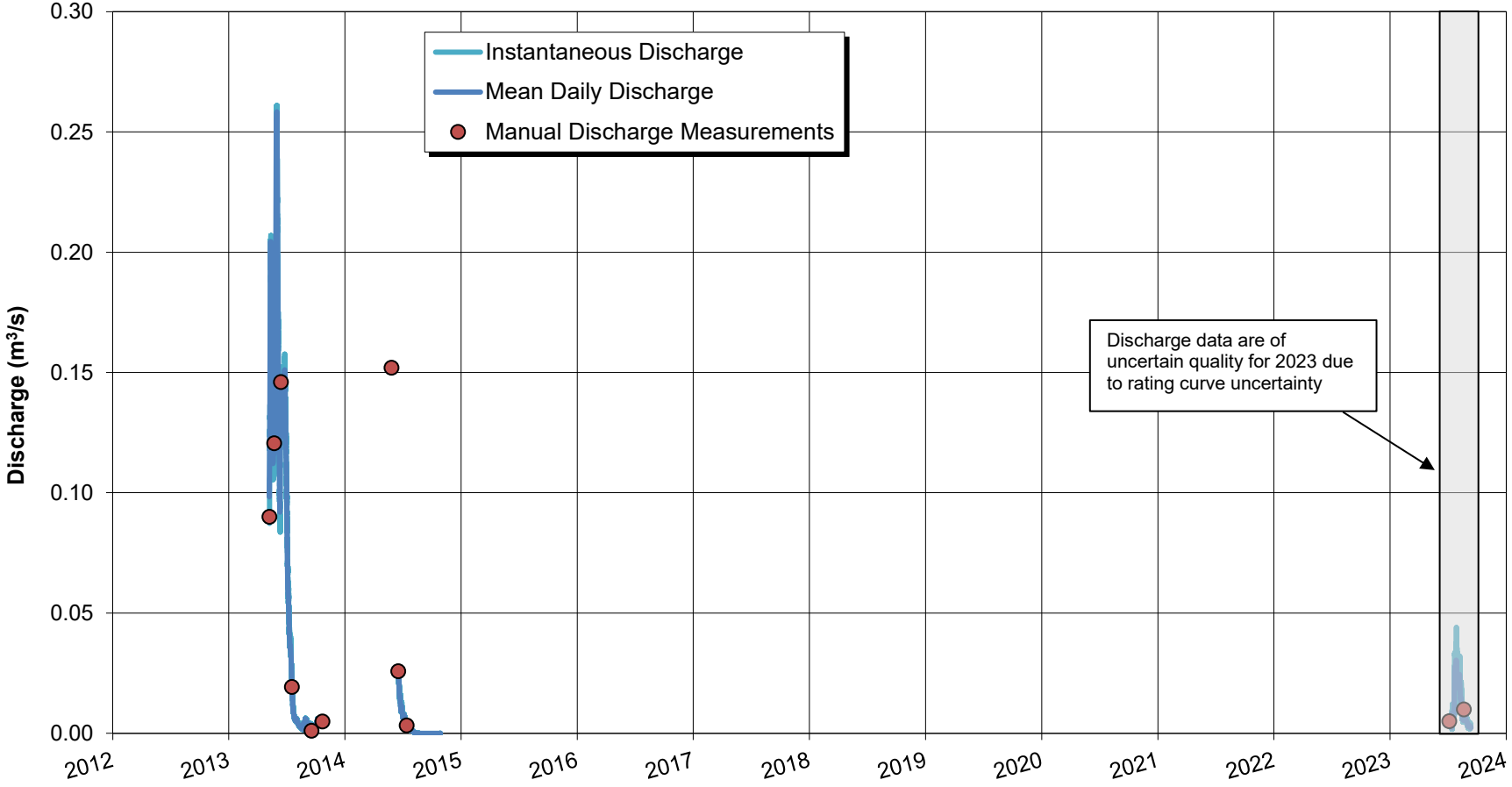
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.2

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

OUTLET OF LAKE 01538LNRS HYDROLOGY STATION L6-B HYDROGRAPH

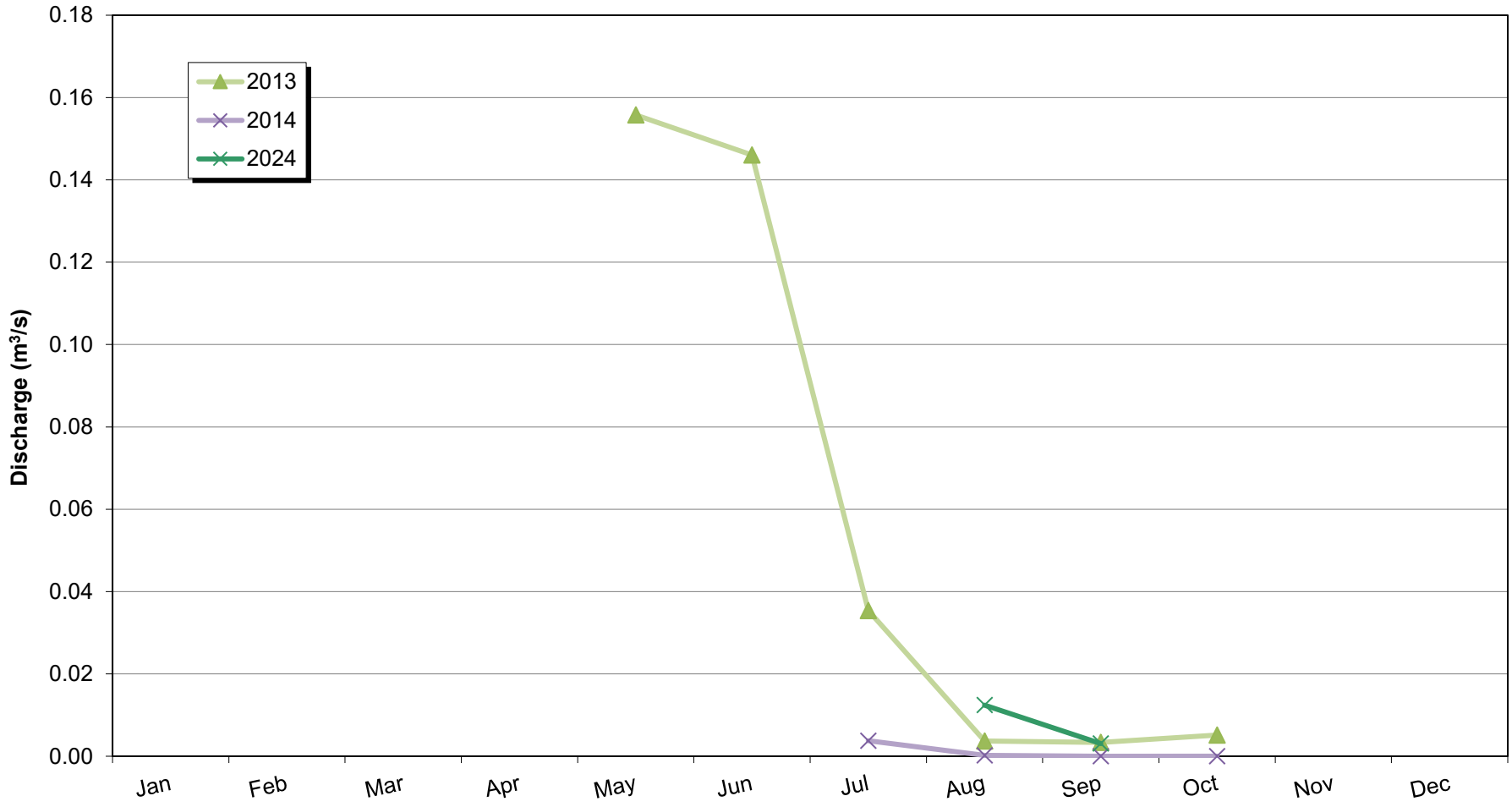
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.3

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

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OUTLET OF LAKE 01538LNRS HYDROLOGY
STATION L6B
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.4

REV 0

6.3 CREEK 705 HYDROLOGY STATION 705-10

The 705-10 station, previously know as the H7 station, was installed on Creek 705 on May 8, 2012. The station is shown in Photo A 6.2 and consists of a KPSI pressure transducer installed inside a protective aluminum pipe that is secured to the bank of the creek. The transducer is wired to a NEON Micrologger in a protective case.

The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on May 8, 2023 and then removed for the winter on October 24, 2023.

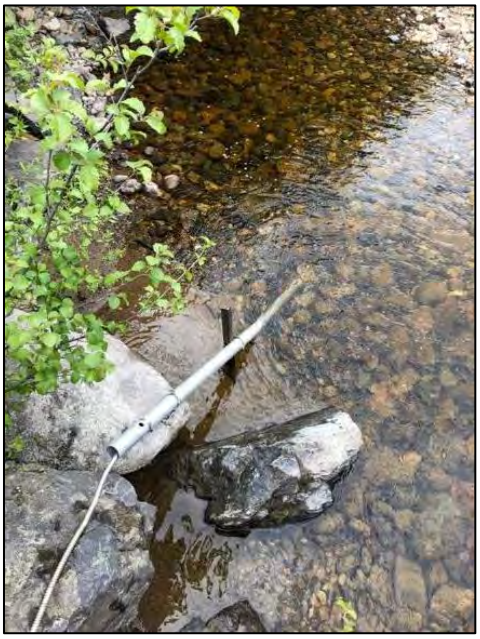

Photo A 6.2 Creek 705 Hydrology Station 705-10 (June 2, 2023)

A total of 56 discharge measurements with associated stage values have been collected at this site, as well as 32 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements collected in 2023 are summarized in Table A 6.2.

Stage data corresponding to lowering of the sensor pipe on June 2, 2023 were removed from the record.

All the stage-discharge measurements were used to develop a set of three rating curves. A total of 28 stage-discharge measurements were used to develop a 2012-2014 rating curve, eight measurements were used to develop a 2015-2017 rating curve, and 20 measurements were used to develop a 2018-2023 rating curve. All the rating curves are shown on Figure A 6.5. The 2018-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was modified slightly to better incorporate three low-flow stage-discharge pairs measured in 2023. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 6.6. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2012-2014 rating curve: the maximum measured discharge was 3.60 m³/s and the maximum extrapolated discharge is 7.45 m³/s.

- 2015-2017 rating curve: the maximum measured discharge was 1.53 m³/s and the maximum extrapolated discharge is 3.16 m³/s.
- 2018-2023 rating curve: the maximum measured discharge was 2.14 m³/s and the maximum extrapolated discharge is 8.80 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for all three rating curves, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 6.7. The hydrograph shown on Figure A 6.8 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 6.9 shows the monthly mean flows for each year of record. A unimodal hydrograph shape with the peak occurring during the spring freshet was observed in 2012 to 2015, 2017, 2018, 2020, 2021, and 2023, while a bimodal hydrograph shape was observed in 2016 and 2019. Insufficient data are available to comment on the shape of the 2022 hydrograph. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for the 705-10 station were determined to generally be of variable quality (Grade E) due to less than three benchmarks being used in five out of six benchmark surveys completed at the site. A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

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TABLE A 6.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
CREEK 705 HYDROLOGY STATION 705-10

Print Mar/07/24 8:48:59

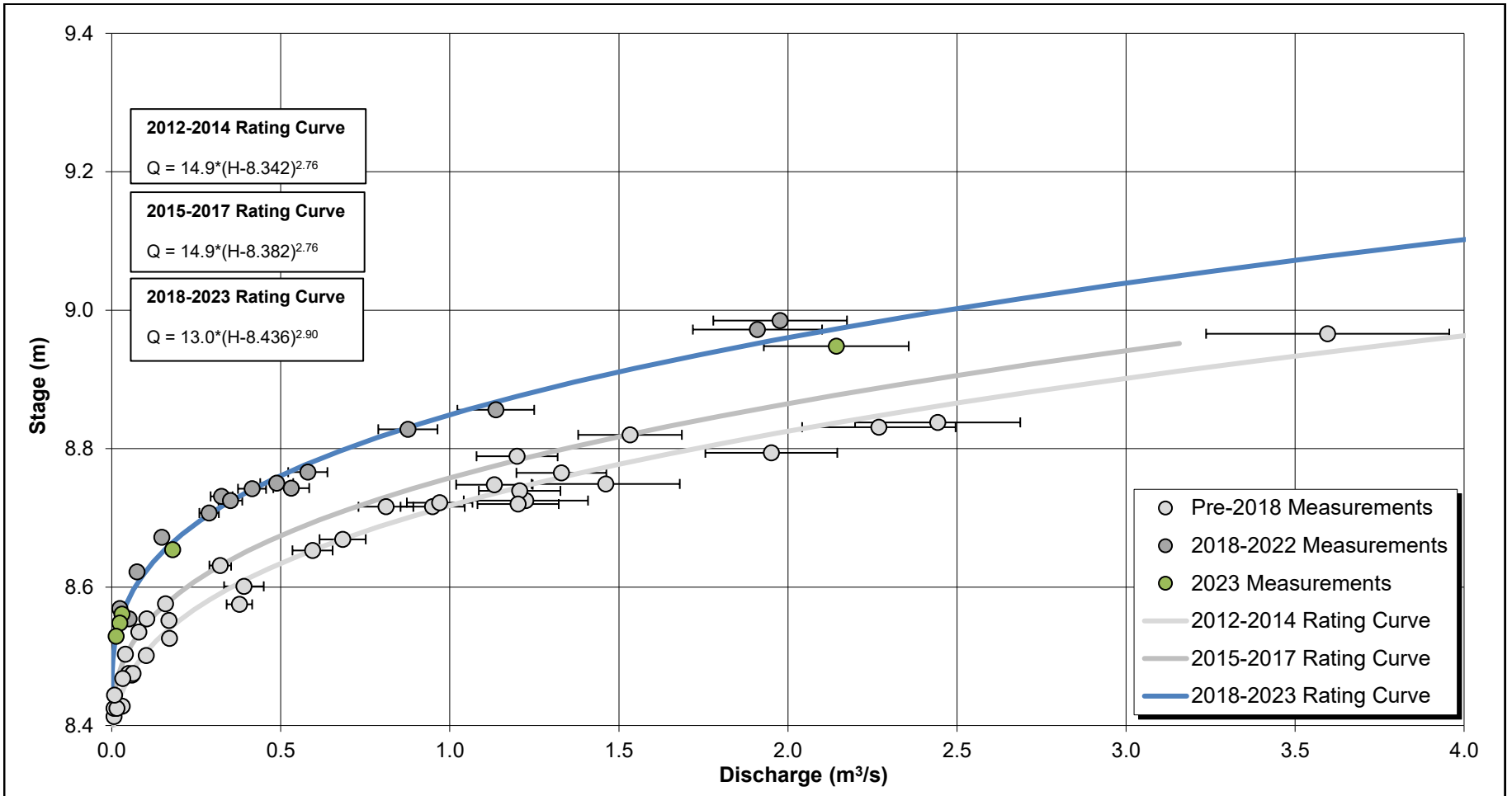
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
17-Feb-23	2	Current Meter	-	0.027	10%	-
8-May-23	2	Current Meter	8.948	2.143	10%	0.005
2-Jun-23	-	-	8.631	-	-	0.002
31-Jul-23	2	Current Meter	8.654	0.180	10%	0.002
6-Sep-23	2	Current Meter	8.561	0.030	10%	0.002
25-Sep-23	2	Current Meter	8.548	0.024	10%	0.005
24-Oct-23	2	Current Meter	8.529	0.013	10%	0.005

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\705-10 (H7)\[705-10 Workfile 2023.xlsm]Table A 6.2

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H7".
5. JUNE 2, 2023 STAGE VALUE IS THE AVERAGE OF THE GAUGE HEIGHT MEASUREMENTS PERFORMED BEFORE AND AFTER ADJUSTING THE POSITION OF THE SENSOR.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CREEK 705 HYDROLOGY STATION 705-10 RATING CURVES

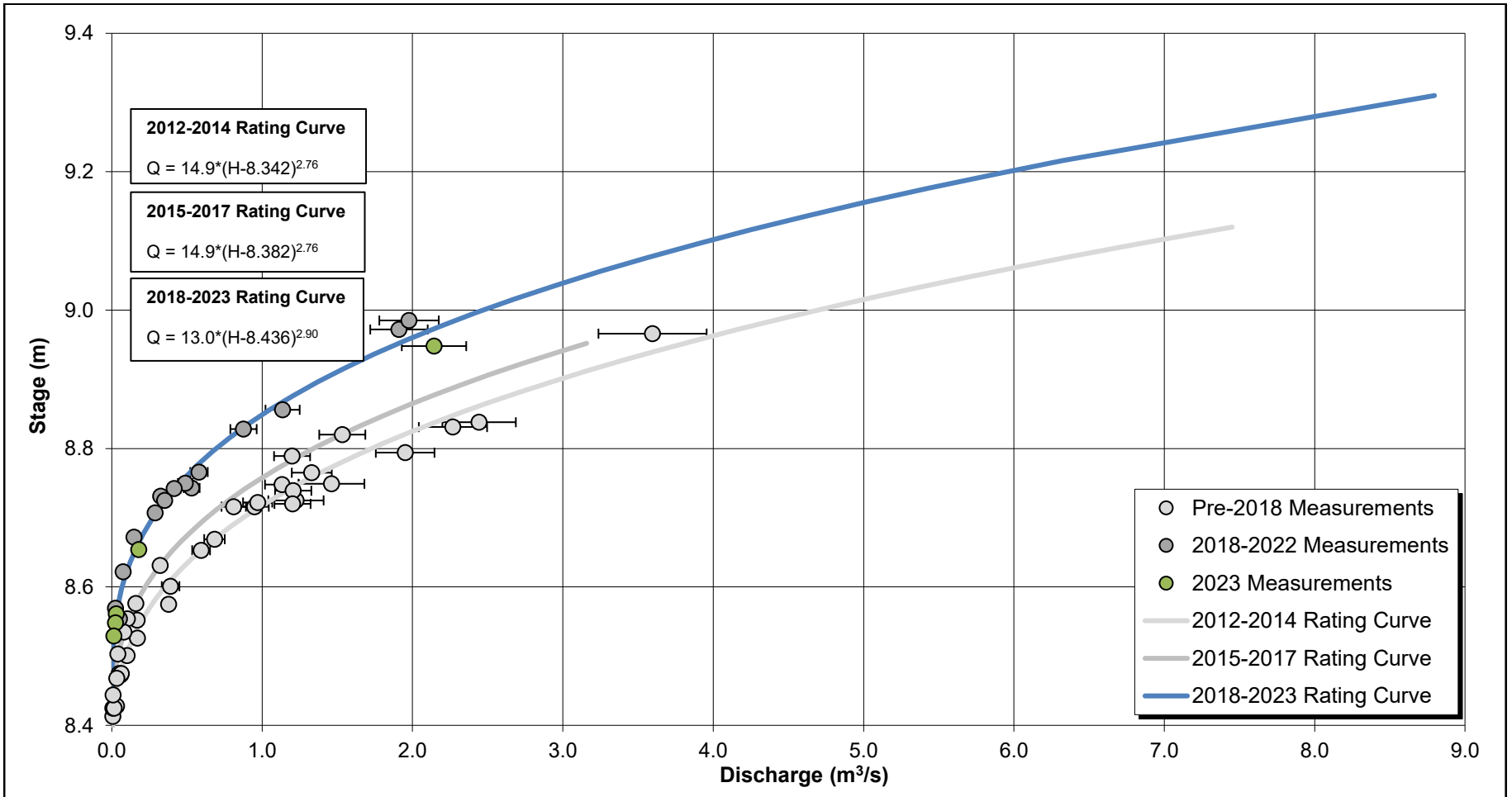
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.5

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

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CREEK 705 HYDROLOGY STATION 705-10 RATING CURVES

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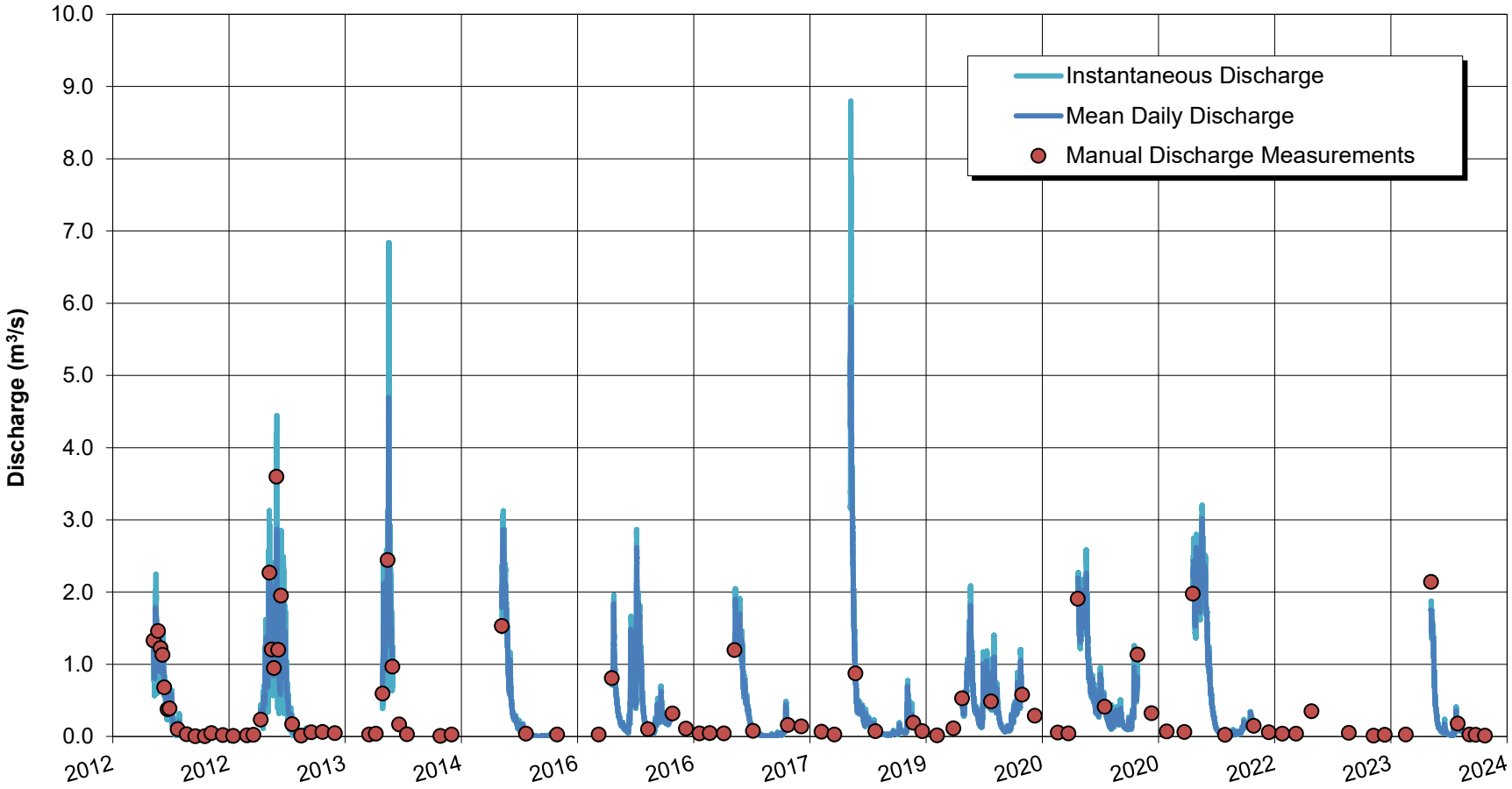
P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.6

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

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CREEK 705 HYDROLOGY STATION 705-10 HYDROGRAPH

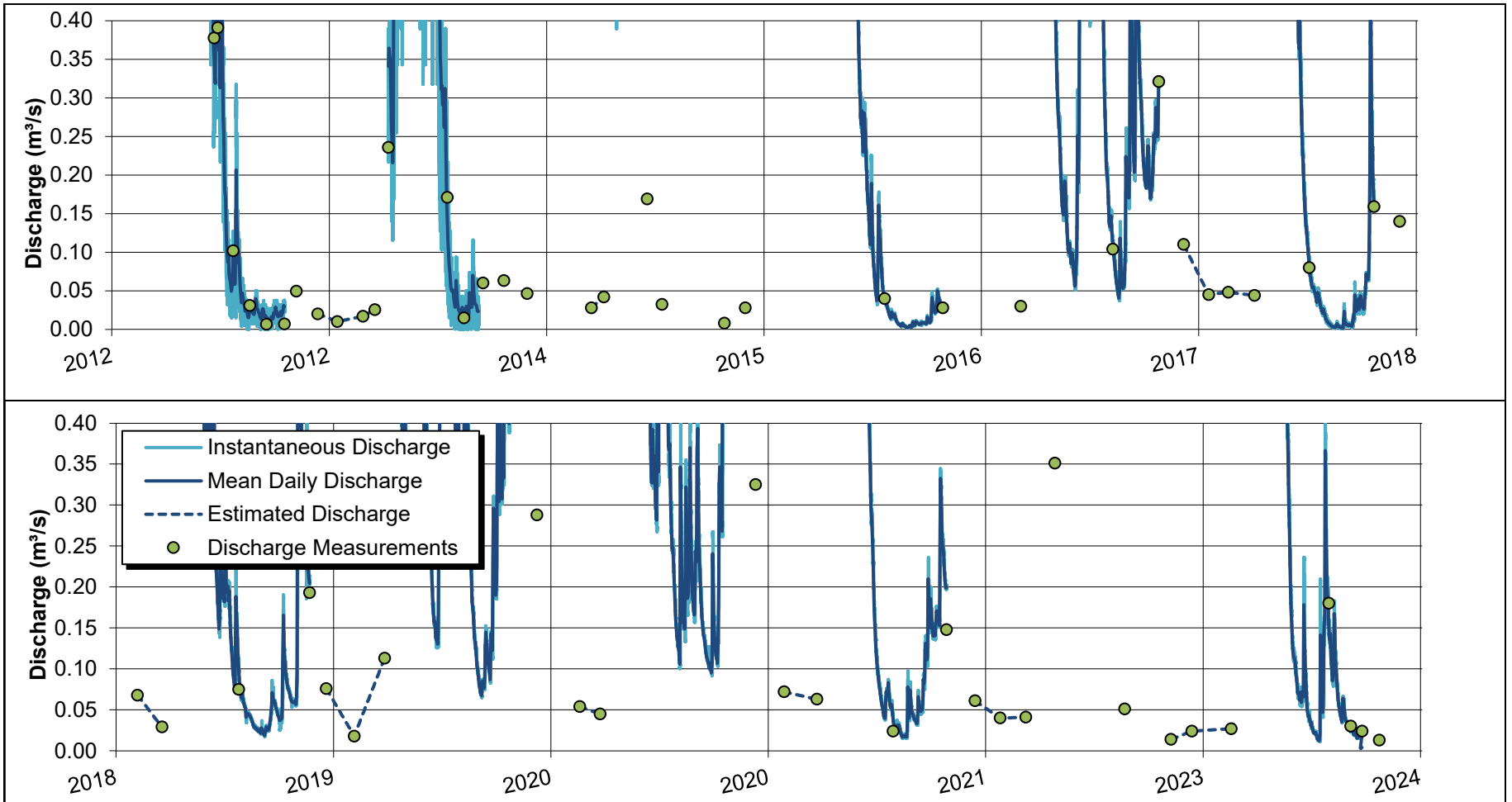
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.7

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CREEK 705 HYDROLOGY STATION 705-10
LOW FLOW HYDROGRAPH

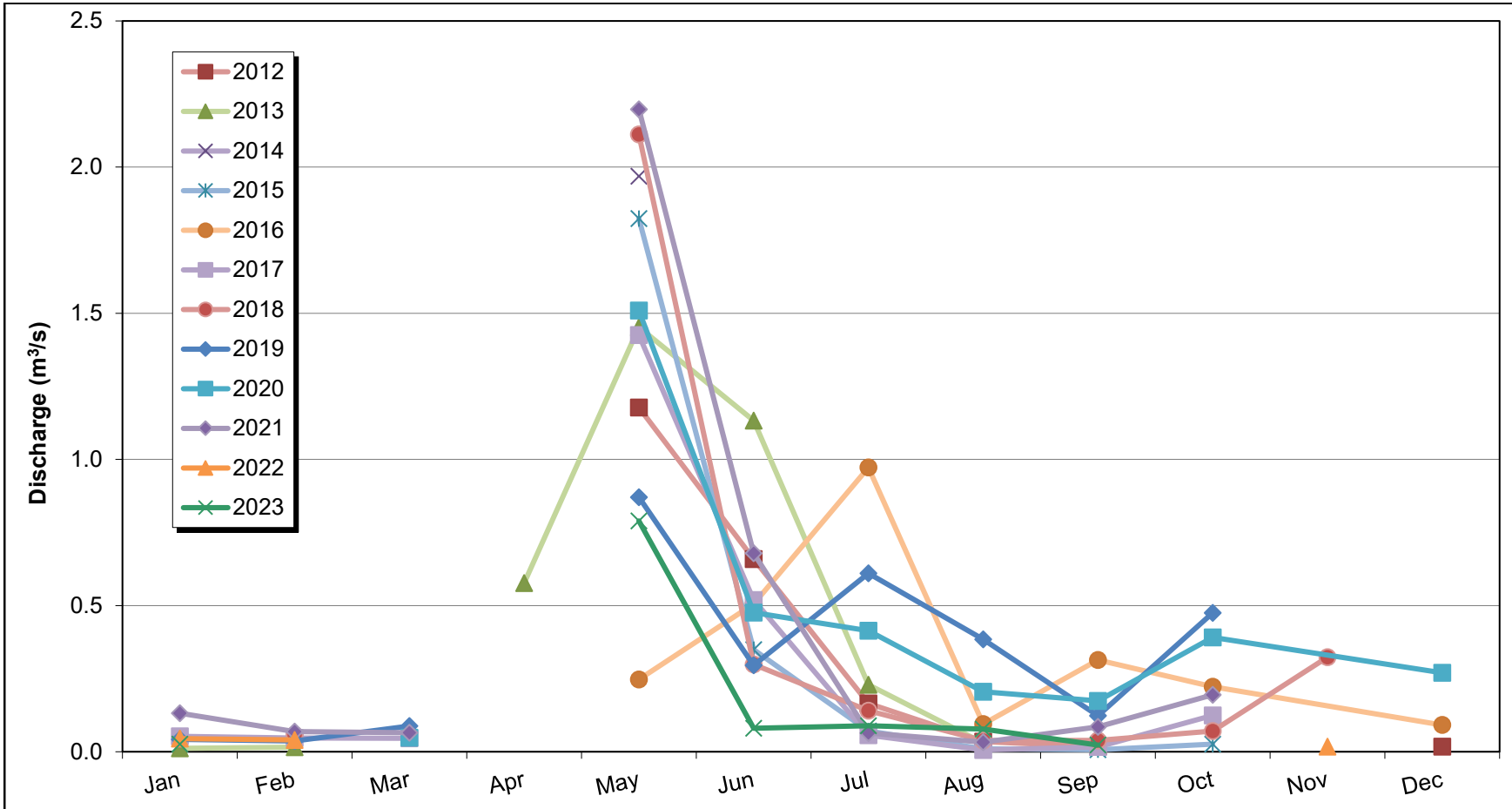
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.8

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	BTN	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

CREEK 705 HYDROLOGY STATION 705-10
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.9

REV 0

6.4 MATHEWS CREEK HYDROLOGY STATION MC-05

The MC-05 station, previously know as the H12 station, was installed on Mathews Creek on May 1, 2014. The station was decommissioned on October 30, 2014 and then recommissioned on May 24, 2018. The station is shown in Photo A 6.3 and consists of a Solinst Levelogger 5 installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice and then re-installed during the start of the open water season, when it is safe to do so. The station was most recently re-installed on June 2, 2023 and then removed for the winter on October 24, 2023.

Photo A 6.3 Mathews Creek Hydrology Station MC-05 (July 31, 2023)

A total of 23 discharge measurements with associated stage values have been collected at this site, as well as 27 winter discharge measurements without stage values. The stage-discharge and individual discharge measurements from 2023 are summarized in Table A 6.3.

In 2023, anomalous fluctuations were observed in the stage data from May 25 to July 6 due to barometric pressure fluctuations in the Solinst barologger dataset, which is used to convert the unvented water level data to atmospheric pressure compensated data. It was determined that these fluctuations did not materially impact the data quality and consequently the data during this period were not removed. After the barologger was moved to a more accessible location on July 6, the anomalous fluctuations were no longer observed in the barologger dataset. Stage data for July 6, during the period when the barologger was in transit to the new location, were removed from the dataset. Stage data from October 24, 2023 were removed from the stage record due to icing effects.

Two rating curves were developed using 21 of the 23 stage-discharge measurements. A total of 11 stage-discharge discharge measurements were used to develop the 2014 & 2018-2020 rating curve. The measurements collected in 2023 fall in the same scatter as the points collected from 2021-2022; therefore, 11 stage-discharge discharge measurements were used to develop the 2021-2023 rating curve. The

October 24, 2023 site visit measurement was omitted due to its anomalously high stage levels; the measurement is likely ice-affected. Both rating curves are shown on Figure A 6.10. The 2021-2022 rating curve presented in the *2022 Hydrology and Water Temperature Baseline Report* (KP, 2023) was modified to better suit the scatter of points collected in this period. The rating curves extrapolated to the maximum measured stage for their respective periods are shown on Figure A 6.11. The maximum reliable measured discharge and maximum extrapolated discharge for the individual rating curves are summarized below:

- 2014 & 2018-2020 rating curve: the maximum measured discharge was 2.21 m³/s and the maximum extrapolated discharge is 29.07 m³/s.
- 2021-2023 rating curve: the maximum measured discharge was 5.79 m³/s and the maximum extrapolated discharge is 30.16 m³/s.

When the extrapolated discharges are over two times the magnitude of the maximum reliable measurement, such as for both rating curves, there is particular uncertainty in the high flow portions of both the rating curves and the associated discharge hydrographs.

Applying the rating curves to the stage record produced the discharge hydrograph for this site, which is shown on Figure A 6.12. The hydrograph shown on Figure A 6.13 focuses on low flows and indicates the estimated flows that were interpolated between winter discharge measurements. Estimated winter flows were created for periods when the discharge measurements were close enough in time to justify interpolating the hydrograph. Figure A 6.14 shows the monthly mean flows for each year of record. The hydrograph shape appears to be unimodal with a spring freshet peak in all years of record except 2019, which displays a bimodal shape with peaks during both spring freshet and the summer. Insufficient data are available to comment on the shape of the 2018 and 2023 hydrographs. When compared against the RISC hydrometric standards (2018), the 2023 hydrometric data for MC-05 were determined to generally be of very good quality (Grade A). A summary of the data quality is presented in Table 2.3 of the main report, which includes the RISC grading score for each component of the station's data.

Knight Piésold CONSULTING

TABLE A 6.3

BW GOLD LTD
BLACKWATER GOLD PROJECT

SUMMARY OF 2023 STAGE-DISCHARGE MEASUREMENTS
MATHEWS CREEK HYDROLOGY STATION MC-05

Print Mar/07/24 11:18:22

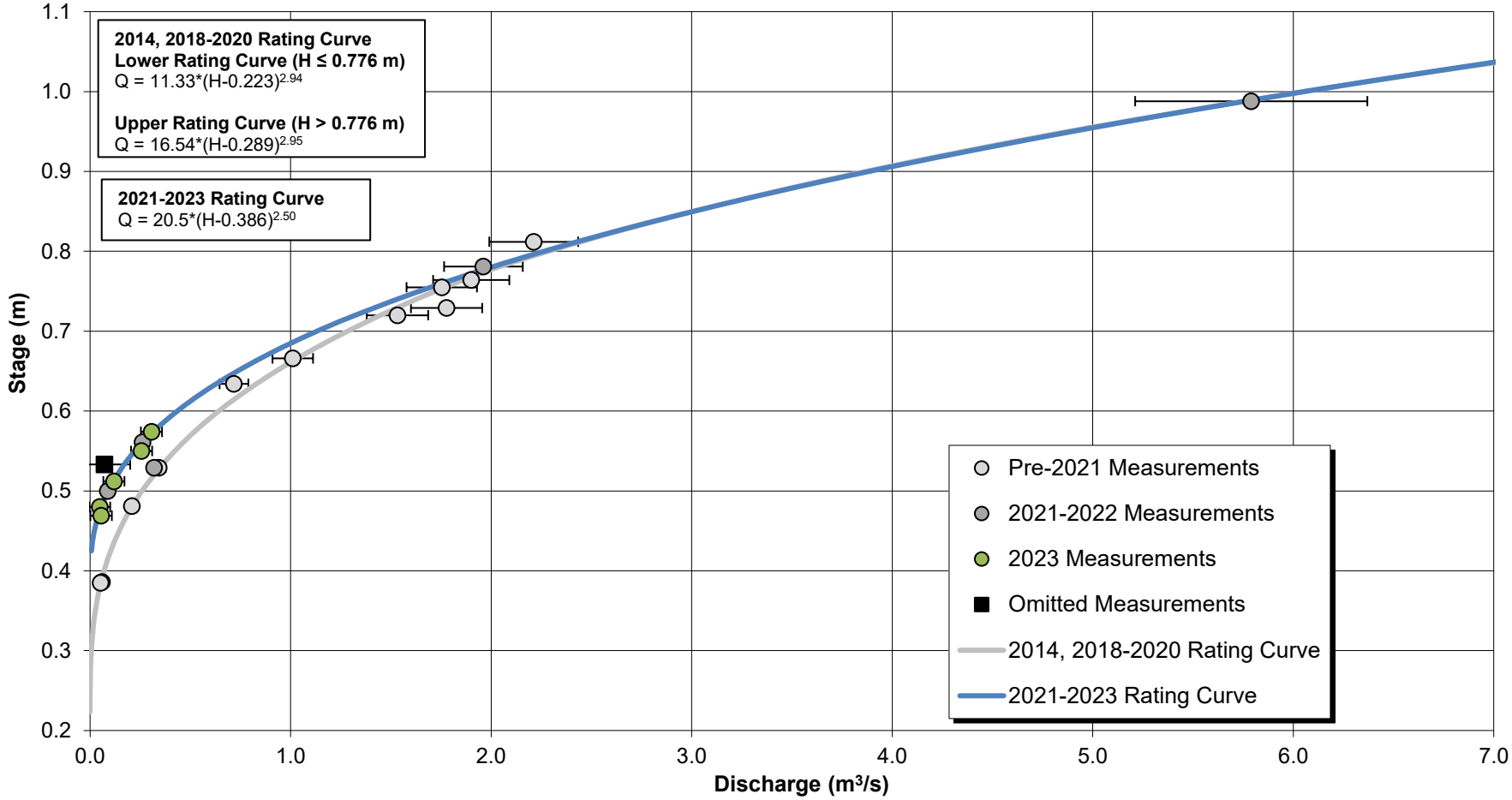
Date	Number of Discharge Measurements	Discharge Measurement Method	Stage	Discharge	Measurement Uncertainty	
			(m)	(m^3/s)	Discharge (%)	Stage (m)
10-Jan-23	2	Current Meter	-	0.073	10%	0.005
1-Mar-23	2	Current Meter	-	0.075	10%	-
2-Jun-23	2	Current Meter	0.550	0.257	10%	0.005
15-Jul-23	2	Current Meter	0.512	0.119	10%	0.005
31-Jul-23	2	Current Meter	0.574	0.306	10%	0.005
31-Aug-23	2	Current Meter	0.480	0.048	10%	0.002
25-Sep-23	2	Current Meter	0.469	0.055	10%	0.005
24-Oct-23	2	Current Meter	0.533	0.071	10%	0.005
31-Oct-23	2	Current Meter	-	0.052	10%	-
3-Nov-23	2	Current Meter	-	0.062	10%	-
9-Nov-23	2	Current Meter	-	0.134	10%	-
13-Nov-23	2	Current Meter	-	0.109	10%	-
17-Nov-23	2	Current Meter	-	0.096	10%	-
21-Nov-23	2	Current Meter	-	0.088	10%	-
1-Dec-23	2	Current Meter	-	0.082	10%	-
5-Dec-23	2	Current Meter	-	0.082	10%	-
11-Dec-23	2	Current Meter	-	0.047	10%	-
18-Dec-23	2	Current Meter	-	0.088	10%	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Hydrology QAQC\MC-05 (H12)\[MC-05 Workfile 2023.xlsm]Table A 6.3

NOTES:

1. NUMBER OF GAUGINGS REFERS TO THE NUMBER OF GAUGINGS AVERAGED TO PRODUCE ONE RATING POINT.
2. DISCHARGE UNCERTAINTY REFERS TO THE IN SITU MEASUREMENT UNCERTAINTY ESTMATED BY THE FIELD ENGINEER.
3. STAGE UNCERTAINTY IS BASED ON A VISUAL ASSESSMENT OF THE WAVE AMPLITUDE IN THE GAUGE POOL.
4. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	OTM	MJB



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05 RATING CURVES

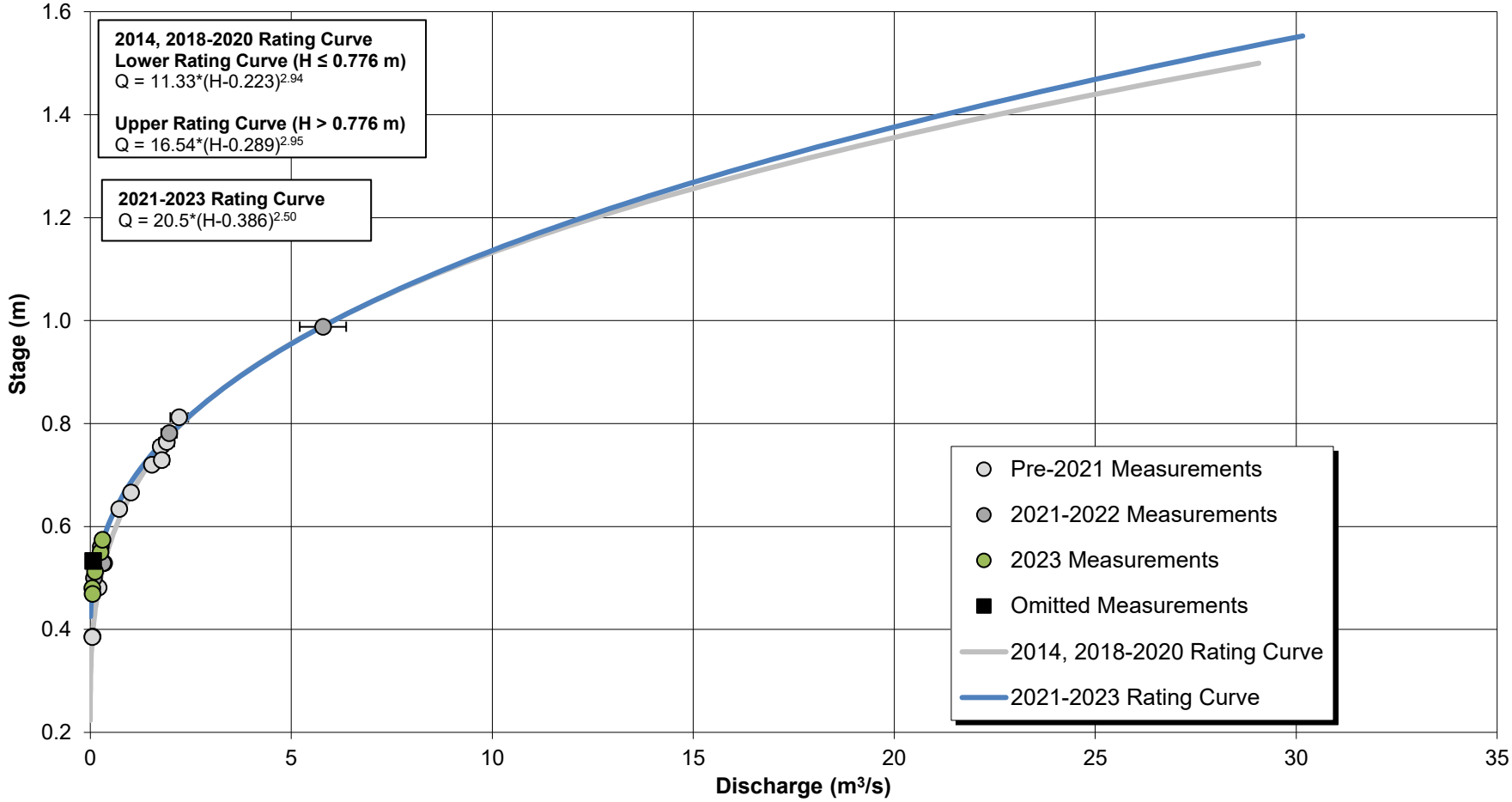
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.10

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05 RATING CURVES - EXTRAPOLATED TO MAXIMUM RECORDED STAGE

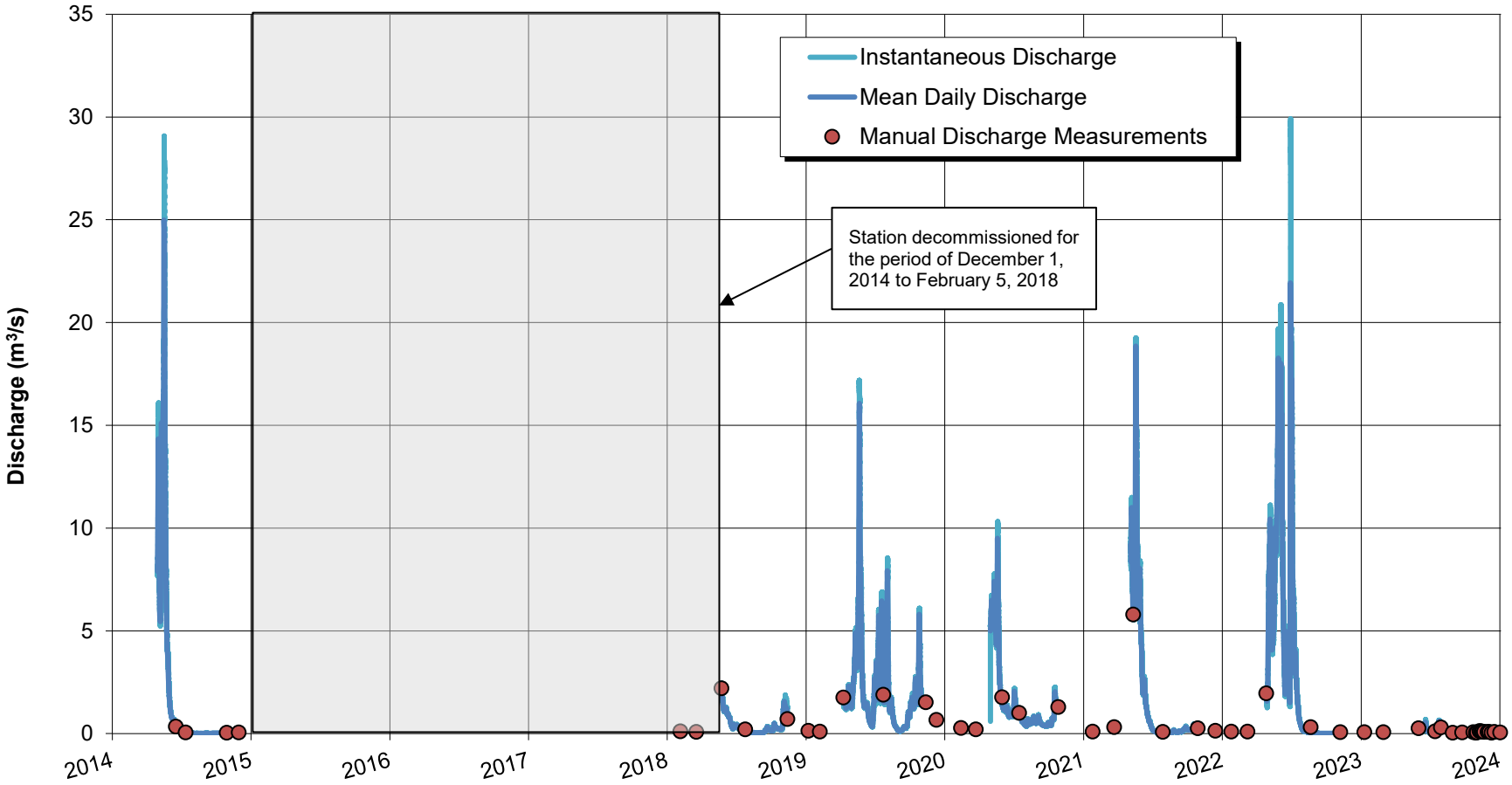
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.11

REV 0



NOTES:
1. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

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BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05 HYDROGRAPH

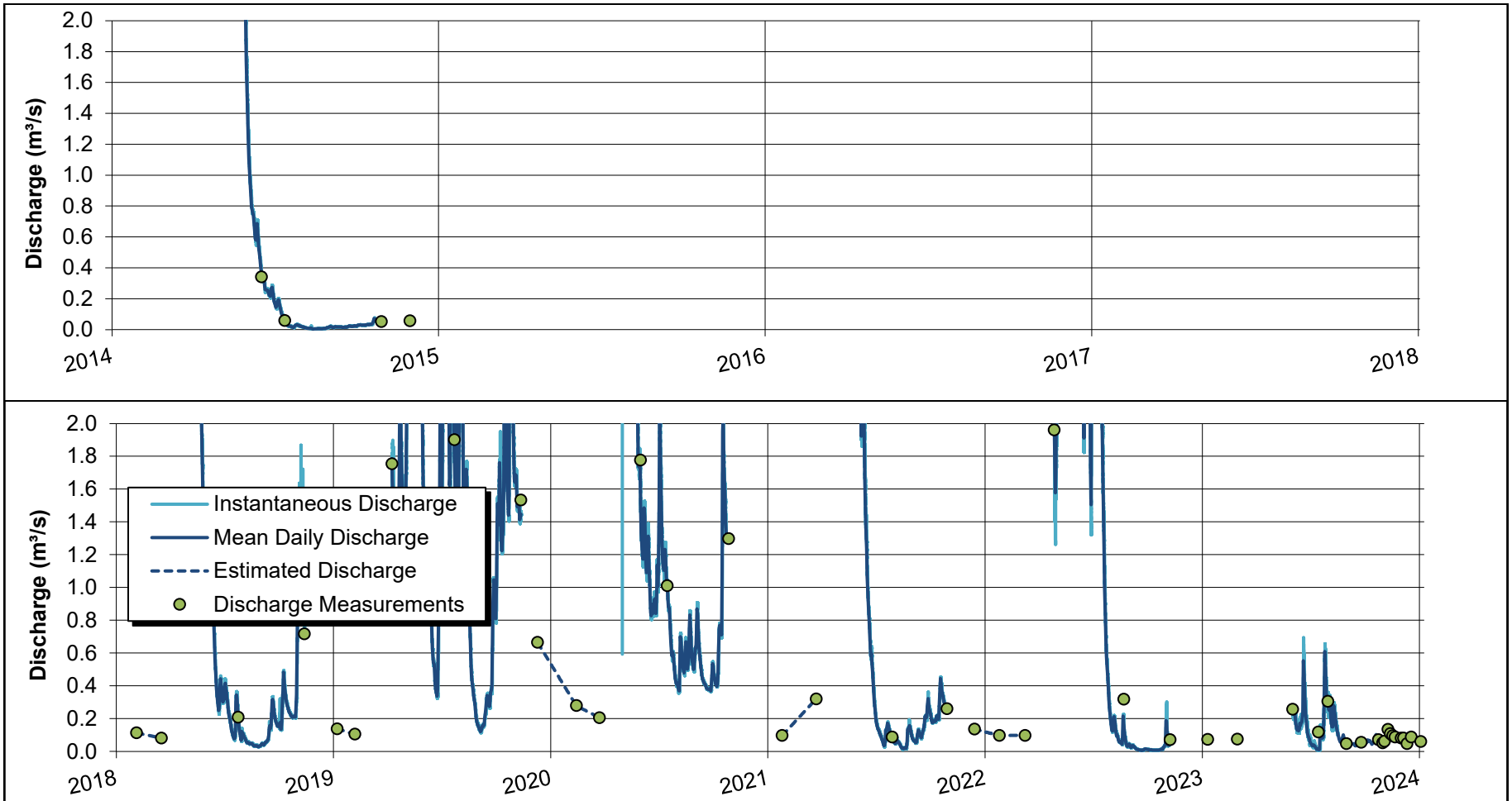
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.12

REV 0



NOTES:
1. WINTER FLOW VALUES HAVE BEEN ESTIMATED ON THE BASIS OF INDIVIDUAL DISCHARGE MEASUREMENTS.
2. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05 LOW FLOW HYDROGRAPH

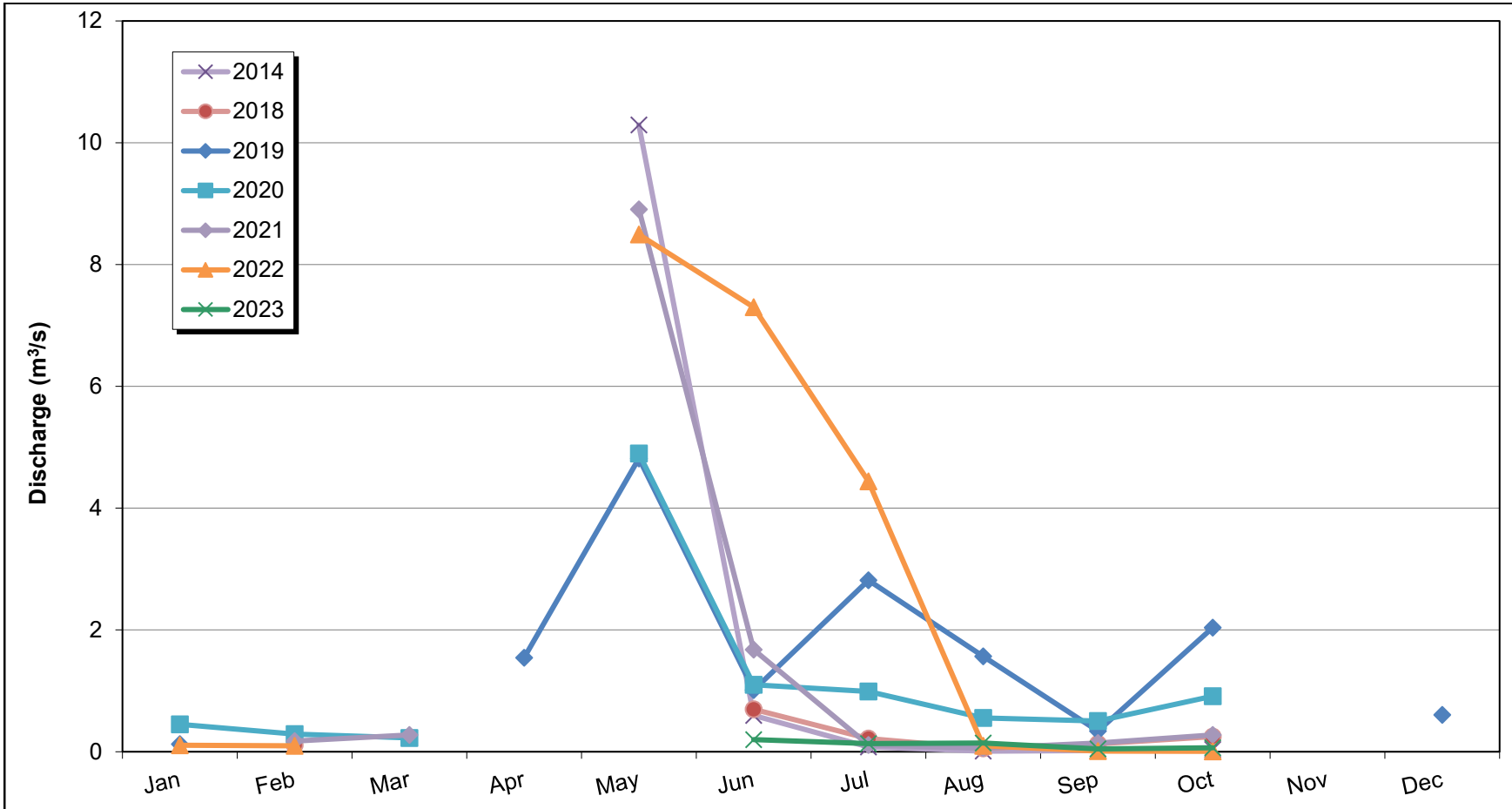
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.13

REV 0



NOTE:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 20 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06MAR'24	ISSUED WITH REPORT	OTM	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

MATTHEWS CREEK HYDROLOGY STATION MC-05
MEAN MONTHLY DISCHARGE

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE A 6.14

REV 0

7.0 REFERENCES

Knight Piésold Ltd (KP), 2018. 2016 Hydrology and Water Temperature Baseline Report. Prepared for New Gold Inc. Ref. No. VA101-457/22-1 Rev. 1, dated August 29, 2018.

Knight Piésold Ltd. (KP, 2021). Blackwater Gold Project – 2020 Hydrology and Water Temperature Baseline Report. KP Ref. No. VA101-457/33-3 Rev. 1, dated May 17, 2021.

Knight Piésold Ltd. (KP, 2023). Blackwater Gold Project – 2022 Hydrology and Water Temperature Baseline Report. KP Ref. No. VA101-457/37-3 Rev. 0, dated March 1, 2023.

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Site Water Temperature Stations Data

(Pages B-1 to B-125)

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1.0 SITE WATER TEMPERATURE STATIONS AND DATA

The locations of the Blackwater Gold Project temperature monitoring stations are shown on Figure 1.2 of the main report. A total of 28 temperature monitoring stations: 12 dedicated temperature monitoring stations and 16 hydrology stations for monitoring streamflows or water levels that also record water temperatures, are installed in the Davidson Creek, Turtle Creek, Tatelkuz Lake, Chedakuz Creek, and Fawnie Creek watersheds. Recording periods for these stations vary and are summarized in Table 3.1 of the main report. Water temperature data collected at both types of stations are reviewed and discussed by watershed in the following sections of this appendix.

Beginning in October 2015, recorded water temperatures were verified with manual measurements. Prior to this date, manual measurements were not collected. Manual measurements were collected using a YSI Pro Plus multiparameter probe and temperature readings were verified on a regular basis with a second instrument. Manual and concurrent logged water temperature data collected from October 2015 onwards are compared for each station. The average differences between the manual measurements and the logged data were typically within ± 0.5 °C, and therefore the recorded data were not corrected by the difference between manual and recorded measurements.

The monthly mean temperatures for the periods of record were calculated at each station where a temperature gauge was installed. The monthly mean temperature values are only presented for months with at least 16 days of available temperature data.

2.0 DAVIDSON CREEK WATERSHED

2.1 GENERAL

There are seventeen (17) temperature monitoring stations currently operated in the Davidson Creek Watershed. The stations are installed on Lake 01682LNRS (L5), the upper reaches of Davidson Creek (H10, ST-10 DEEP, H2, and DC-05) including Davidson Creek tributary Creek 668 (668-20), the middle reaches of Davidson Creek (ST-18 DEEP, ST-17 DEEP, and DC-15), and the lower reaches of Davidson Creek (ST-16 KO, ST-16 DEEP, ST-15 KO, ST-15 DEEP, ST-14 KO, ST-14 DEEP, ST-08 KO, and ST-08 DEEP). The Blackwater deposit lies within the upper reaches of the Davidson Creek watershed.

2.2 LAKE 01682LNRS HYDROLOGY STATION L5

The L5 station was installed on Lake 01682 LNRS, in the upper headwaters reaches of Davidson Creek, on July 26, 2012. The station was decommissioned on October 29, 2014 and then recommissioned on July 7, 2023. The station is shown on Photo B 2.1 and consists of two Levelogger water level data loggers installed in a protective aluminum pipe that is secured to the bank of the lake. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2012 through 2014, and 2023. Recorded temperatures were verified with manual measurements from July 2023 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.1. The manual water temperature measurements are also summarized in Table B 2.3. Maximum and minimum daily and monthly mean temperatures are summarized in Table B 2.4.

Photo B 2.1 Lake 01682LNRS Hydrology Station L5 (September 21, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.1 L5

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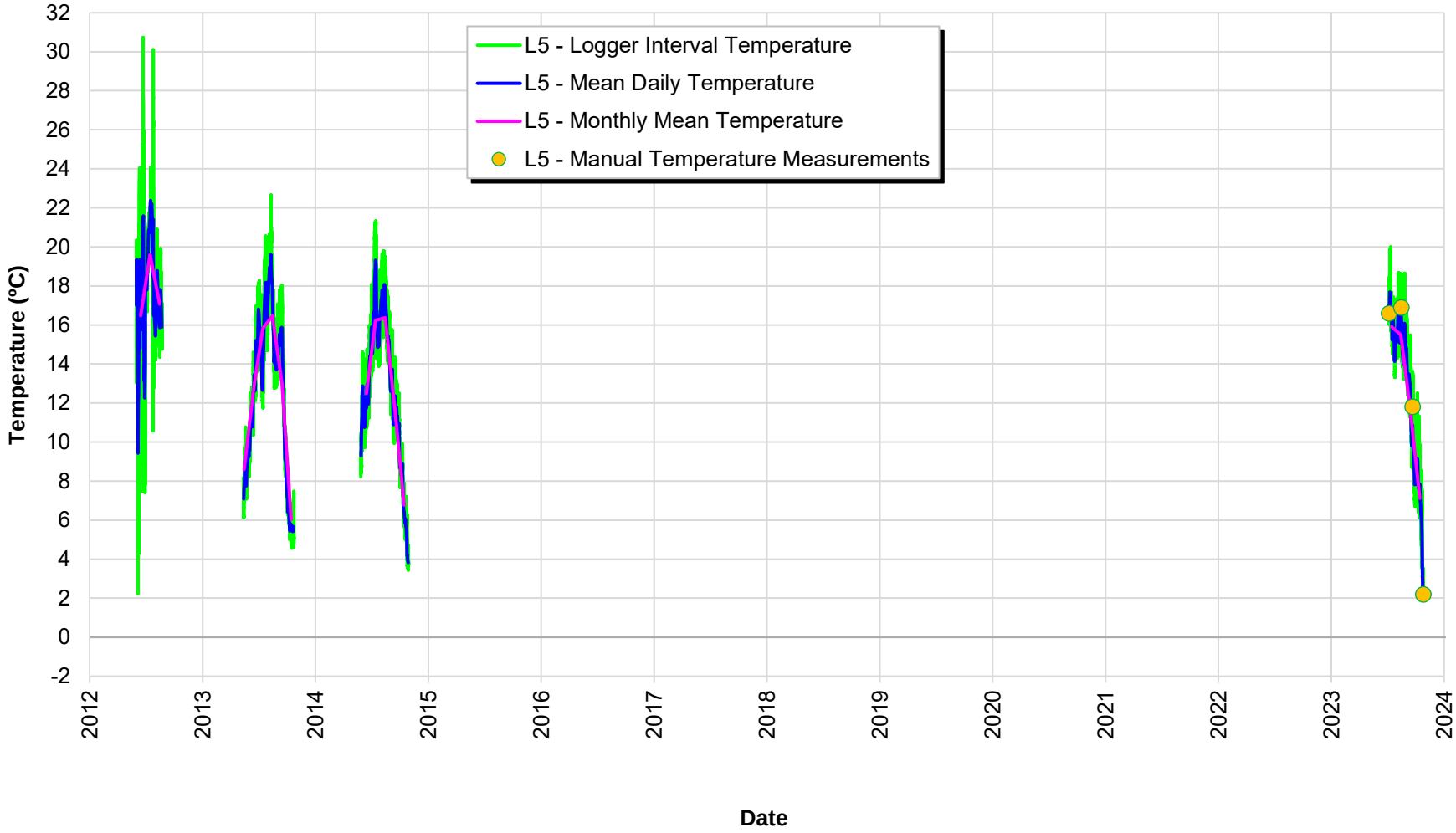

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THE STATION WAS DECOMMISSIONED FOR THE PERIOD OF OCTOBER 2014 TO JULY 2023. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

LAKE 01682LNRS
HYDROLOGY STATION L5
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.1

REV 0

Knight Piésold CONSULTING

TABLE B 2.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

LAKE 01682LNRS
STATION L5 MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
7-Jul-23	9:12	16.60	16.66	-0.06	
16-Aug-23	11:42	16.90	16.99	-0.09	
21-Sep-23	13:35	11.81	12.15	-0.34	
26-Oct-23	8:16	2.20	2.23	-0.02	
			Average Difference	*-0.13*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]L5

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LAKE 01682LNRS HYDROLOGY STATION L5
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:08:45

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	Min Daily	-	-	-	-	-	9.4	16.0	15.4	-	-	-	-
	Monthly Mean	-	-	-	-	-	16.5	19.6	17.1	-	-	-	-
	Max Daily	-	-	-	-	-	21.6	22.4	18.8	-	-	-	-
2013	Min Daily	-	-	-	-	7.1	9.6	12.7	13.7	7.5	5.4	-	-
	Monthly Mean	-	-	-	-	8.6	12.7	15.8	16.5	13.0	6.0	-	-
	Max Daily	-	-	-	-	9.8	16.5	18.2	19.6	15.9	7.4	-	-
2014	Min Daily	-	-	-	-	-	10.8	14.5	13.3	9.8	3.8	-	-
	Monthly Mean	-	-	-	-	-	12.5	16.2	16.4	11.7	6.8	-	-
	Max Daily	-	-	-	-	-	14.8	19.3	18.1	13.7	9.0	-	-
2023	Min Daily	-	-	-	-	-	-	14.1	14.0	7.8	2.5	-	-
	Monthly Mean	-	-	-	-	-	-	15.9	15.5	11.6	7.1	-	-
	Max Daily	-	-	-	-	-	-	17.7	17.0	14.9	9.2	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.2 L5

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.3 UPPER DAVIDSON CREEK HYDROLOGY STATION H10

The H10 station was installed in the upper reaches of Davidson Creek on May 8, 2012 and decommissioned on October 29, 2014, and then recommissioned on March 28, 2019. The station is shown in Photo B 2.2, and consists of two Levelogger water level data loggers installed in a protective aluminum pipe secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were recorded only during the open water seasons of 2012 through 2014 and 2019 through 2023. Recorded temperatures were verified with manual measurements from May 2019 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.2. The manual water temperature measurements are also summarized in Table B 2.3. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 2.4.

Photo B 2.2 Upper Davidson Creek Hydrology Station H10 (September 27, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.2 H10

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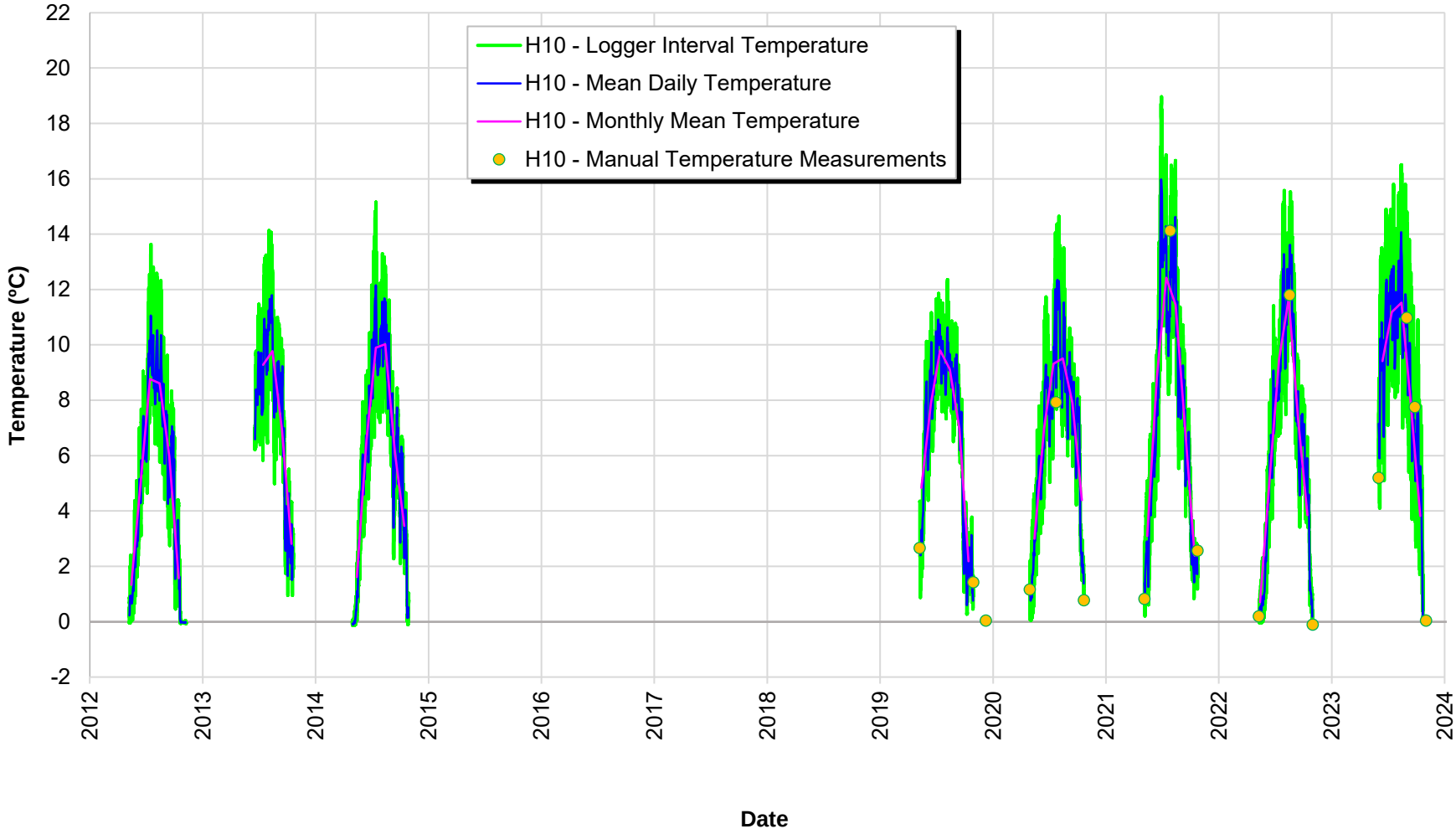

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THE STATION WAS DECOMMISSIONED FOR THE PERIOD OF NOVEMBER 2014 TO MARCH 2019. NO DATA ARE AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION H10 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.2

REV 0

Knight Piésold CONSULTING

TABLE B 2.3

BW GOLD LTD
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK
STATION H10 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 12:20:53

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
10-May-19	11:30	2.67	2.72	-0.05	
30-Oct-19	12:20	1.43	1.43	0.00	
10-Dec-19	13:45	0.04	-	-	No logger data available
30-Apr-20	12:12	1.17	1.28	-0.11	
24-Jul-20	10:40	7.93	8.03	-0.10	
22-Oct-20	11:16	0.78	0.89	-0.11	
6-May-21	8:12	0.83	0.92	-0.09	
28-Jul-21	15:19	14.13	14.23	-0.10	
25-Oct-21	15:13	2.57	2.62	-0.05	
11-May-22	11:47	0.20	0.21	-0.01	
19-Aug-22	7:52	11.80	11.83	-0.03	
1-Nov-22	12:30	-0.10	0.03	-0.13	
2-Jun-23	8:56	5.20	5.29	-0.09	
1-Sep-23	11:34	10.98	10.90	0.08	
27-Sep-23	12:49	7.76	7.52	0.24	
2-Nov-23	14:25	0.04	0.10	-0.06	
			Average Difference	*-0.07*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]H10

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.4

BW GOLD LTD.
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION H10
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:08:45

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	Min Daily	-	-	-	-	0.2	2.7	5.8	5.7	4.3	0.0	-	-
	Monthly Mean	-	-	-	-	1.3	5.1	8.8	8.6	6.0	1.6	-	-
	Max Daily	-	-	-	-	3.3	7.4	11.1	10.5	7.6	5.9	-	-
2013	Min Daily	-	-	-	-	-	-	7.5	7.4	2.6	1.5	-	-
	Monthly Mean	-	-	-	-	-	-	9.3	9.8	6.9	2.8	-	-
	Max Daily	-	-	-	-	-	-	10.9	11.8	9.4	4.6	-	-
2014	Min Daily	-	-	-	-	-0.1	4.6	8.1	7.7	3.4	0.1	-	-
	Monthly Mean	-	-	-	-	1.6	6.5	9.9	10.0	6.1	3.5	-	-
	Max Daily	-	-	-	-	5.0	8.5	12.2	11.7	8.3	6.3	-	-
2019	Min Daily	-	-	-	-	2.4	5.5	8.6	7.7	1.7	0.6	-	-
	Monthly Mean	-	-	-	-	4.8	7.9	9.8	9.1	7.0	2.2	-	-
	Max Daily	-	-	-	-	8.5	10.1	10.9	10.6	9.7	3.7	-	-
2020	Min Daily	-	-	-	-	0.8	4.4	6.3	6.6	5.2	1.4	-	-
	Monthly Mean	-	-	-	-	3.0	7.0	9.3	9.5	7.9	4.4	-	-
	Max Daily	-	-	-	-	6.0	9.3	12.3	12.3	9.7	8.1	-	-
2021	Min Daily	-	-	-	-	1.1	5.2	9.6	7.3	4.8	1.4	-	-
	Monthly Mean	-	-	-	-	3.1	8.8	12.4	11.4	6.9	2.4	-	-
	Max Daily	-	-	-	-	5.4	16.0	15.4	14.6	9.3	4.2	-	-
2022	Min Daily	-	-	-	-	0.2	2.1	7.3	9.1	4.6	0.2	-	-
	Monthly Mean	-	-	-	-	0.7	5.2	9.5	11.7	7.3	3.9	-	-
	Max Daily	-	-	-	-	1.7	9.1	13.3	13.6	11.0	7.1	-	-
2023	Min Daily	-	-	-	-	-	5.9	9.1	9.5	5.1	0.0	-	-
	Monthly Mean	-	-	-	-	-	9.4	11.2	11.5	7.9	3.8	-	-
	Max Daily	-	-	-	-	-	12.4	12.8	14.1	11.0	7.8	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.4 H10

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.4 UPPER DAVIDSON CREEK WATER TEMPERATURE STATION ST-10 DEEP

The ST-10 DEEP station was installed in an upper reach of Davidson Creek on November 5, 2015. The station is shown in Photo B 2.3. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured temperatures are shown on Figure B 2.3 and a summary of manual measurements is provided in Table B 2.5. The maximum and minimum daily and monthly mean temperatures are presented in Table B 2.6.

Photo B 2.3 Upper Davidson Creek Water Temperature Station ST-10 DEEP (July 6, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.3 ST-10 DEEP

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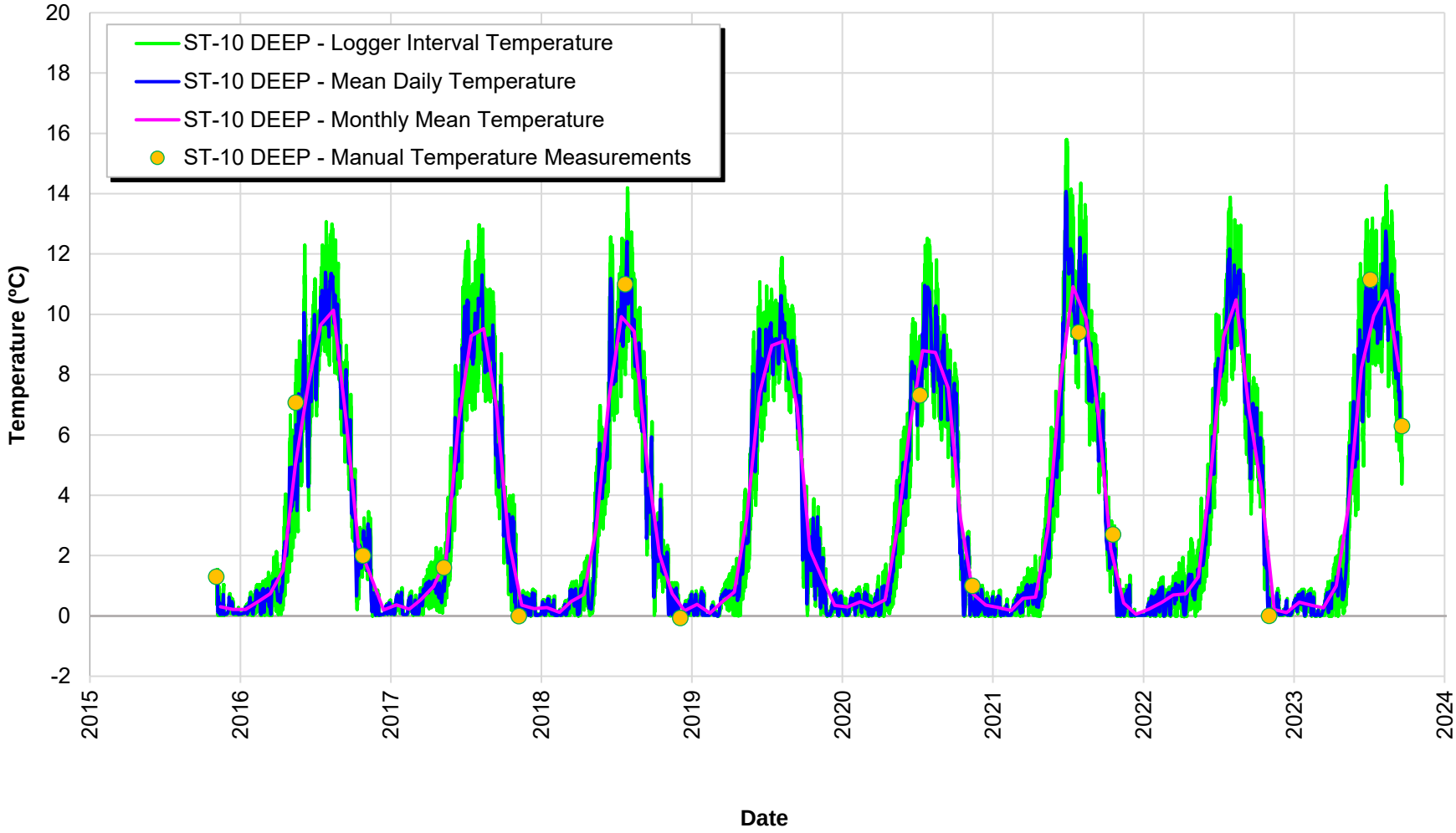

NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK TEMPERATURE STATION
ST-10 DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.3

REV 0

Knight Piésold CONSULTING

TABLE B 2.5

BW GOLD LTD
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK
STATION ST-10 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:13:32

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	1.30	1.32	-0.02	
16-May-16	12:01	7.08	7.07	0.01	
26-Oct-16	12:00	2.00	2.05	-0.05	
10-May-17	10:10	1.60	1.13	0.47	
8-Nov-17	11:20	0.00	0.02	-0.02	
24-Jul-18	14:20	11.00	10.39	0.61	
5-Dec-18	11:40	-0.06	0.02	-0.08	
14-Nov-19	12:45	6.50	4.56	1.94	Omitted - Erroneous manual temp.
9-Jul-20	10:10	7.32	7.44	-0.12	
13-Nov-20	13:55	1.00	0.61	0.40	
29-Jul-21	7:55	9.40	9.34	0.06	
20-Oct-21	13:33	2.70	2.64	0.06	
3-Nov-22	10:32	0.01	0.08	-0.07	
6-Jul-23	11:30	11.15	11.30	-0.15	
21-Sep-23	11:35	6.30	5.26	1.04	
			Average Difference	*0.15*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-10 Deep

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.6

BW GOLD LTD.
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK TEMPERATURE STATION ST-10 DEEP
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:08:45

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.2
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.4	0.6
2016	Min Daily	0.1	0.1	0.0	0.4	3.5	4.3	7.2	8.4	3.4	0.7	0.0	0.0
	Monthly Mean	0.2	0.5	0.7	1.5	5.0	7.7	9.6	10.1	6.5	2.3	1.3	0.2
	Max Daily	0.6	0.9	1.2	4.1	7.4	10.1	11.4	11.4	8.2	4.5	3.1	0.5
2017	Min Daily	0.1	0.1	0.1	0.6	0.4	4.0	8.1	8.1	4.3	0.4	0.0	0.0
	Monthly Mean	0.4	0.2	0.5	1.0	1.9	6.4	9.3	9.5	6.9	2.5	0.4	0.2
	Max Daily	0.8	0.7	1.1	1.2	4.1	10.3	10.5	11.3	9.6	3.8	0.7	0.8
2018	Min Daily	0.0	0.0	0.0	0.0	0.2	4.4	7.8	7.1	2.0	0.6	0.0	0.0
	Monthly Mean	0.3	0.1	0.5	0.7	2.9	7.2	9.9	9.4	5.1	2.0	0.7	0.2
	Max Daily	0.6	0.5	0.9	1.2	5.7	11.2	12.4	11.2	7.8	3.9	2.1	0.6
2019	Min Daily	0.0	0.0	0.0	0.5	1.4	4.8	8.0	7.8	1.8	0.4	0.0	0.0
	Monthly Mean	0.4	0.1	0.4	0.8	3.2	7.4	9.0	9.1	6.9	2.2	1.2	0.4
	Max Daily	0.8	0.3	0.9	1.6	8.0	9.5	9.7	10.6	9.1	3.9	3.3	0.8
2020	Min Daily	0.0	0.0	0.0	0.0	1.1	3.9	6.3	6.5	5.3	0.0	0.0	0.0
	Monthly Mean	0.3	0.5	0.3	0.5	2.9	6.4	8.8	8.7	7.6	3.2	0.7	0.4
	Max Daily	0.6	0.8	0.9	1.3	5.1	8.4	11.0	10.7	9.3	7.4	2.6	0.9
2021	Min Daily	0.0	0.0	0.1	0.3	1.2	4.6	8.7	7.1	4.4	0.0	0.0	0.0
	Monthly Mean	0.3	0.2	0.6	0.6	2.9	7.9	10.9	9.9	6.6	2.2	0.4	0.1
	Max Daily	0.7	0.5	1.0	1.1	5.2	14.1	12.4	12.5	8.3	4.4	1.0	0.1
2022	Min Daily	0.0	0.0	0.0	0.0	0.5	2.4	7.9	8.9	4.5	0.1	0.0	0.0
	Monthly Mean	0.2	0.4	0.7	0.7	1.3	4.7	9.2	10.5	6.9	4.2	0.2	0.1
	Max Daily	0.7	1.0	1.1	1.4	2.4	8.2	12.2	11.6	9.5	6.9	0.8	0.5
2023	Min Daily	0.0	0.0	0.0	0.2	0.5	5.2	8.4	9.1	6.2	-	-	-
	Monthly Mean	0.5	0.3	0.3	1.0	3.7	8.2	9.9	10.8	8.1	-	-	-
	Max Daily	0.8	0.8	0.8	1.6	7.1	11.2	11.0	12.8	10.3	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.6 ST-10 Deep

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.5 CREEK 668 HYDROLOGY STATION 668-20

The 668-20 station was installed in Creek 668, a tributary to the upper reaches of Davidson Creek, on August 4, 2023. The station is shown in Photo B 2.5 and consists of two Levelogger water level data loggers installed in a protective aluminum pipe secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were recorded only during the open water season of 2023. Recorded temperatures were verified with manual measurements from August 2023 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.5. The manual water temperature measurements are also summarized in Table B 2.7. Maximum and minimum daily and monthly mean temperatures are summarized in Table B 2.8.

Photo B 2.4 Davidson Creek Tributary Hydrology Station 668-20 (October 13, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.4 668-20

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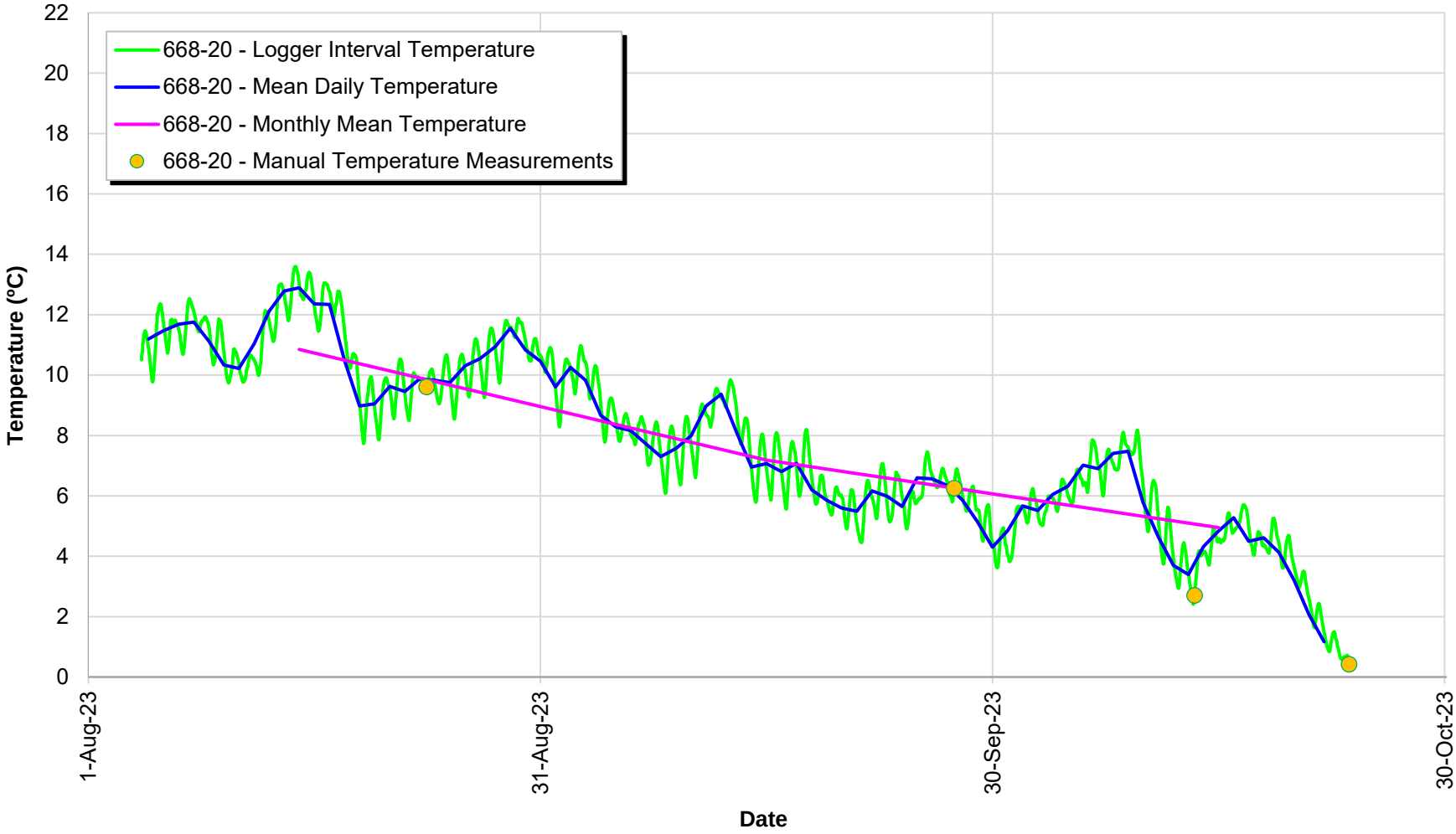

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

DAVIDSON CREEK TRIBUTARY HYDROLOGY STATION 668-20 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.4

REV 0

Knight Piésold CONSULTING

TABLE B 2.7

BW GOLD LTD
BLACKWATER GOLD PROJECT

DAVIDSON CREEK TRIBUTARY
STATION 668-20 MANUAL WATER TEMPERATURE MEASUREMENTS

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Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Aug-23	13:45	10.59	10.72	-0.13	
23-Aug-23	10:42	9.61	9.72	-0.11	
27-Sep-23	11:04	6.26	6.34	-0.08	
13-Oct-23	10:09	2.71	2.84	-0.13	
23-Oct-23	16:03	0.43	0.55	-0.12	
			Average Difference	*-0.11*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]668-20

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

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TABLE B 2.8

BW GOLD LTD.
BLACKWATER GOLD PROJECT

DAVIDSON CREEK TRIBUTARY HYDROLOGY STATION 668-20
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:08:45

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	Min Daily	-	-	-	-	-	-	-	9.0	4.3	1.2	-	-
	Monthly Mean	-	-	-	-	-	-	-	10.9	7.2	4.9	-	-
	Max Daily	-	-	-	-	-	-	-	12.9	10.3	7.5	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.8 668-20

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.6 UPPER DAVIDSON CREEK HYDROLOGY STATION H2

The H2 station was installed in the upper reaches of Davidson Creek on May 19, 2011. The station is shown in Photo B 2.5 and consists of a Levelogger water level data logger installed in a protective aluminum pipe attached to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2011 through 2023. Recorded temperatures were verified with manual measurements from October 2015 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.5. The manual water temperature measurements are also summarized in Table B 2.9. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 2.10.

Photo B 2.5 Upper Davidson Creek Hydrology Station H2 (August 1, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.5 H2

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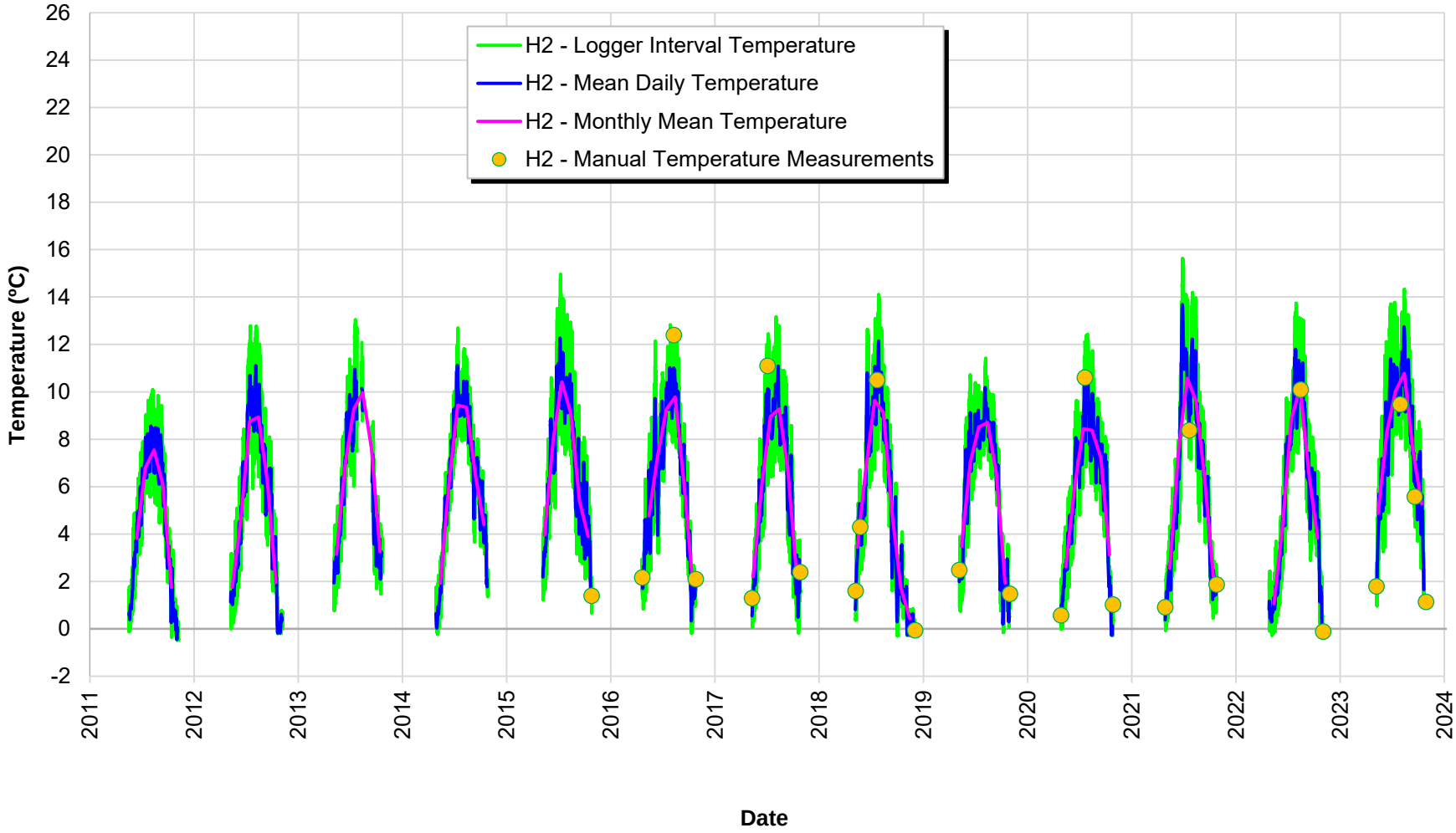

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION H2 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.5

REV 0

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TABLE B 2.9

BW GOLD LTD
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK
STATION H2 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:16:37

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
27-Oct-15	13:19	1.40	1.20	0.20	
21-Apr-16	10:50	2.17	1.98	0.19	
10-Aug-16	13:12	12.40	12.21	0.19	
26-Oct-16	13:02	2.10	1.93	0.17	
11-May-17	11:30	1.30	1.09	0.21	
5-Jul-17	14:15	11.10	10.68	0.42	
27-Oct-17	12:30	2.40	2.04	0.36	
9-May-18	14:14	1.60	1.33	0.27	
25-May-18	11:07	4.30	4.00	0.30	
24-Jul-18	12:25	10.50	9.88	0.63	
4-Dec-18	15:04	-0.06	-0.26	0.20	
8-May-19	12:16	2.49	2.42	0.06	
1-Nov-19	9:35	1.48	1.40	0.08	
13-Dec-19	11:30	0.69	-	-	No logger data available
28-Apr-20	12:09	0.58	0.39	0.19	
21-Jul-20	10:05	10.60	10.22	0.38	
28-Oct-20	11:00	1.03	0.86	0.17	
8-Dec-20	10:36	0.66	-	-	No logger data available
29-Apr-21	11:47	0.92	0.69	0.23	
22-Jul-21	10:26	8.38	8.08	0.30	
26-Oct-21	9:07	1.87	1.63	0.24	
28-Apr-22	10:45	0.20	1.91	-1.71	Omitted - Erroneous logger temp.
17-Aug-22	10:10	10.10	9.68	0.42	
3-Nov-22	12:00	-0.11	-0.24	0.13	
9-May-23	11:13	1.80	1.78	0.02	
1-Aug-23	10:50	9.47	9.55	-0.08	
20-Sep-23	11:38	5.58	5.64	-0.06	
30-Oct-23	13:10	1.14	1.26	-0.12	
			Average Difference	*0.20*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]H2

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.10

BW GOLD LTD.
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION H2
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:08:45

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Min Daily	-	-	-	-	-	1.7	5.0	6.3	2.7	0.0	-	-
	Monthly Mean	-	-	-	-	-	3.8	6.8	7.6	6.1	1.7	-	-
	Max Daily	-	-	-	-	-	6.0	8.2	8.6	8.2	3.5	-	-
2012	Min Daily	-	-	-	-	1.0	2.6	5.8	6.1	4.8	-0.2	-	-
	Monthly Mean	-	-	-	-	1.8	4.7	8.8	8.9	6.2	1.9	-	-
	Max Daily	-	-	-	-	3.3	7.1	10.7	11.1	7.8	3.9	-	-
2013	Min Daily	-	-	-	-	1.9	4.7	7.5	9.2	3.6	2.1	-	-
	Monthly Mean	-	-	-	-	3.1	7.0	9.3	10.0	7.6	3.3	-	-
	Max Daily	-	-	-	-	4.6	9.9	10.9	10.2	7.4	4.8	-	-
2014	Min Daily	-	-	-	-	0.0	4.4	8.1	7.3	4.6	1.8	-	-
	Monthly Mean	-	-	-	-	1.9	6.2	9.4	9.3	6.5	4.4	-	-
	Max Daily	-	-	-	-	5.0	8.4	11.1	10.5	7.9	6.2	-	-
2015	Min Daily	-	-	-	-	2.2	6.3	8.7	6.1	3.6	1.6	-	-
	Monthly Mean	-	-	-	-	4.0	8.0	10.4	9.1	5.4	3.9	-	-
	Max Daily	-	-	-	-	6.4	11.1	12.3	10.7	8.0	6.2	-	-
2016	Min Daily	-	-	-	-	3.2	4.0	6.8	8.0	3.0	0.3	-	-
	Monthly Mean	-	-	-	-	4.8	7.3	9.3	9.8	6.1	2.0	-	-
	Max Daily	-	-	-	-	7.0	9.7	11.0	11.0	7.8	4.2	-	-
2017	Min Daily	-	-	-	-	0.5	3.7	7.8	7.8	4.0	0.5	-	-
	Monthly Mean	-	-	-	-	2.2	6.1	9.0	9.3	6.6	2.3	-	-
	Max Daily	-	-	-	-	3.8	9.9	10.1	11.1	9.4	3.4	-	-
2018	Min Daily	-	-	-	-	0.8	4.1	7.5	6.7	1.7	0.3	-0.3	-
	Monthly Mean	-	-	-	-	3.4	6.8	9.6	9.1	4.8	1.7	0.4	-
	Max Daily	-	-	-	-	5.3	10.8	12.1	10.8	7.5	3.5	1.8	-
2019	Min Daily	-	-	-	-	2.0	4.4	7.6	7.5	1.6	0.2	-	-
	Monthly Mean	-	-	-	-	3.5	7.0	8.5	8.7	6.5	1.9	-	-
	Max Daily	-	-	-	-	7.6	9.1	9.2	10.2	8.7	3.6	-	-

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	Min Daily	-	-	-	-	0.9	3.6	6.0	6.2	5.0	-0.3	-	-
	Monthly Mean	-	-	-	-	2.6	6.0	8.4	8.4	7.2	3.1	-	-
	Max Daily	-	-	-	-	4.8	8.1	10.6	10.3	8.9	7.0	-	-
2021	Min Daily	-	-	-	-	1.0	4.2	8.4	6.8	4.0	1.2	-	-
	Monthly Mean	-	-	-	-	2.6	7.5	10.6	9.6	6.3	2.2	-	-
	Max Daily	-	-	-	-	4.8	13.7	12.0	12.2	7.9	4.0	-	-
2022	Min Daily	-	-	-	-	0.3	2.1	7.6	8.5	4.2	-0.3	-	-
	Monthly Mean	-	-	-	-	1.1	4.4	8.9	10.2	6.5	3.8	-	-
	Max Daily	-	-	-	-	2.1	7.8	11.8	11.3	9.3	6.6	-	-
2023	Min Daily	-	-	-	-	1.8	5.0	8.5	9.2	4.6	1.7	-	-
	Monthly Mean	-	-	-	-	4.9	8.3	10.0	10.8	7.5	5.3	-	-
	Max Daily	-	-	-	-	7.2	11.4	11.2	12.7	10.3	7.5	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.10 H2

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.7 UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05

The DC-05 station, previously known as the H2B station, was installed in the upper reaches of Davidson Creek on May 23, 2018. The station is shown in Photo B 2.6 and consists of two Levelogger water level data loggers installed inside a protective aluminum pipe that is attached to a boulder on the bank of the creek. Starting in 2023, the DC-05 station remained operational all year. Therefore, temperature data were recorded only during the open water seasons of 2018 through 2022 and but continuously in 2023. Recorded temperatures were verified with manual measurements from May 2018 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.6. The manual water temperature measurements are also summarized in Table B 2.11. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 2.12.

Photo B 2.6 Upper Davidson Creek Hydrology Station DC-05 (September 20, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.6 DC-05

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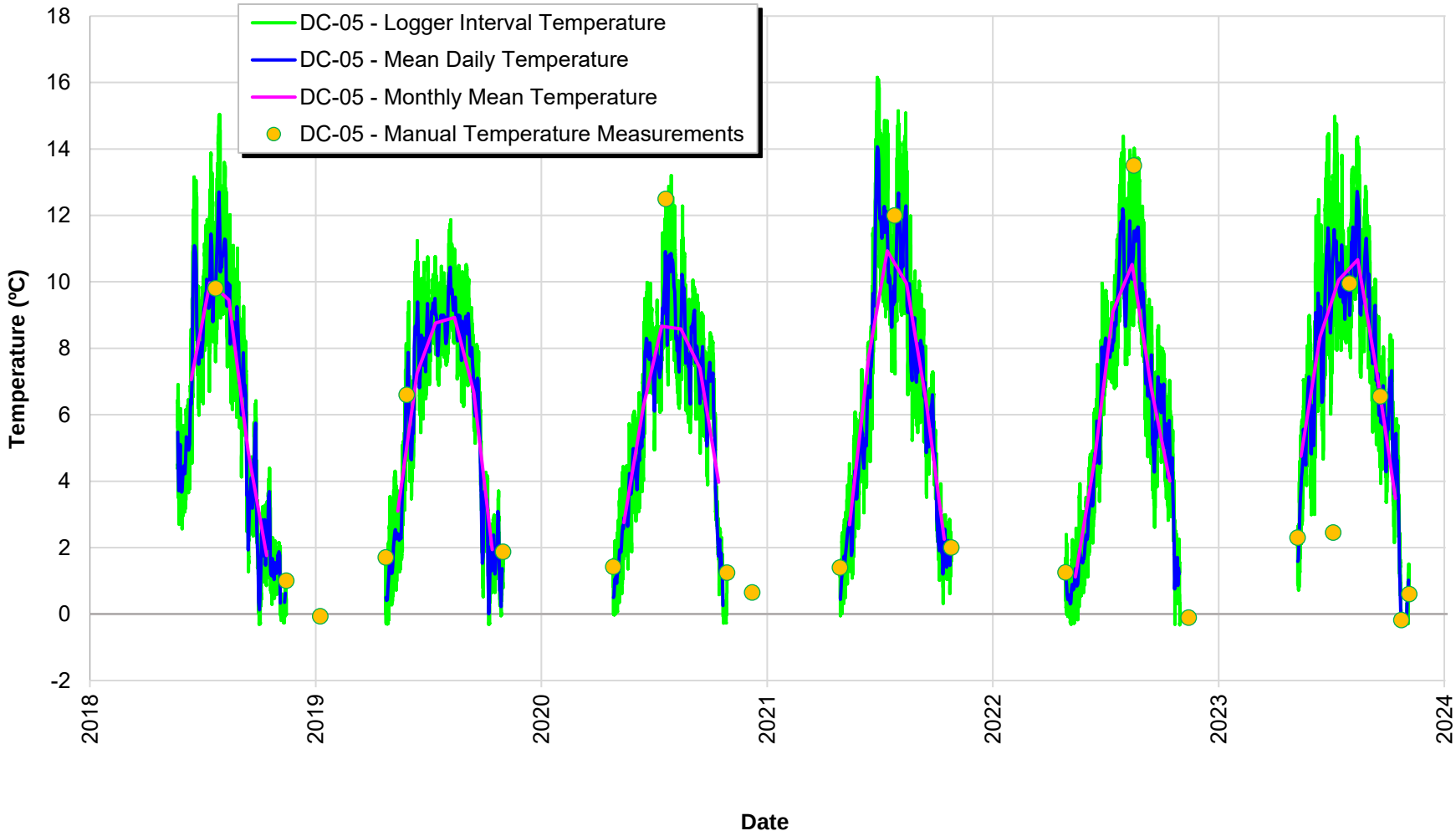

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY
STATION DC-05
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.6

REV 0

Knight Piésold CONSULTING

TABLE B 2.11

BW GOLD LTD
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK
STATION DC-05 MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
24-Jul-18	10:45	9.80	9.26	0.55	
15-Nov-18	13:36	1.00	0.75	0.25	
9-Jan-19	15:11	-0.07	-	-	No logger data available
25-Apr-19	13:10	1.70	1.51	0.20	
29-May-19	10:58	6.60	6.29	0.31	
1-Nov-19	11:35	1.87	1.86	0.01	
27-Apr-20	12:55	1.42	1.25	0.17	
21-Jul-20	13:16	12.49	12.24	0.25	
28-Oct-20	13:48	1.24	1.09	0.15	
8-Dec-20	12:45	0.65	-	-	No logger data available
29-Apr-21	14:55	1.40	1.21	0.19	
26-Jul-21	14:43	11.99	11.69	0.30	
26-Oct-21	10:54	2.00	1.81	0.20	
29-Apr-22	11:02	1.25	0.79	0.46	
17-Aug-22	14:13	13.50	13.09	0.41	
14-Nov-22	12:30	-0.11	-0.27	0.16	
9-May-23	14:15	2.30	2.60	-0.30	
6-Jul-23	13:15	2.45	2.50	-0.05	
1-Aug-23	12:48	9.95	9.90	0.05	
20-Sep-23	13:28	6.55	6.60	-0.05	
24-Oct-23	15:11	-0.18	-0.31	0.13	
6-Nov-23	10:30	0.60	0.80	-0.20	
			Average Difference	*0.26*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]DC-05

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.12

BW GOLD LTD.
BLACKWATER GOLD PROJECT

UPPER DAVIDSON CREEK HYDROLOGY STATION DC-05
WATER TEMPERATURES (^{o}C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	Min Daily	-	-	-	-	-	4.0	7.7	7.9	1.9	0.1	-	-
	Monthly Mean	-	-	-	-	-	7.1	10.0	9.5	4.9	1.8	-	-
	Max Daily	-	-	-	-	-	11.1	12.7	11.3	7.9	3.7	-	-
2019	Min Daily	-	-	-	-	1.2	4.6	7.8	7.6	1.5	0.0	-	-
	Monthly Mean	-	-	-	-	3.1	7.2	8.8	8.9	6.7	1.9	-	-
	Max Daily	-	-	-	-	7.4	9.4	9.5	10.4	9.0	3.7	-	-
2020	Min Daily	-	-	-	-	0.9	3.7	6.1	6.3	5.1	0.3	-	-
	Monthly Mean	-	-	-	-	2.8	6.2	8.7	8.6	7.4	4.0	-	-
	Max Daily	-	-	-	-	5.0	8.3	10.9	10.7	9.1	7.6	-	-
2021	Min Daily	-	-	-	-	0.7	4.4	8.6	7.0	4.6	1.2	-	-
	Monthly Mean	-	-	-	-	2.7	7.8	10.9	9.9	6.5	2.3	-	-
	Max Daily	-	-	-	-	4.8	14.1	13.6	12.7	8.2	4.1	-	-
2022	Min Daily	-	-	-	-	0.3	2.2	7.5	8.7	4.3	0.8	-	-
	Monthly Mean	-	-	-	-	1.1	4.6	9.1	10.5	6.8	4.0	-	-
	Max Daily	-	-	-	-	2.1	8.0	12.2	12.0	9.7	6.9	-	-
2023	Min Daily	-	-	-	-	1.6	4.8	8.5	9.0	4.3	-0.3	-	-
	Monthly Mean	-	-	-	-	4.8	8.3	10.1	10.7	7.2	3.5	-	-
	Max Daily	-	-	-	-	7.1	11.6	11.6	12.7	10.2	7.3	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.12 DC-05

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H2B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.8 MIDDLE DAVIDSON CREEK WATER TEMPERATURE STATION ST-18 DEEP

The ST-18 DEEP station was installed in a middle reach of Davidson Creek on November 5, 2015. The station is shown in Photo B 2.7. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured temperatures are shown on Figure B 2.7. A summary of manual water temperature measurements is provided in Table B 2.13. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.14.

Photo B 2.7 Middle Davidson Creek Water Temperature Station ST-18 DEEP (July 7, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7]B2.7 ST-18 DEEP

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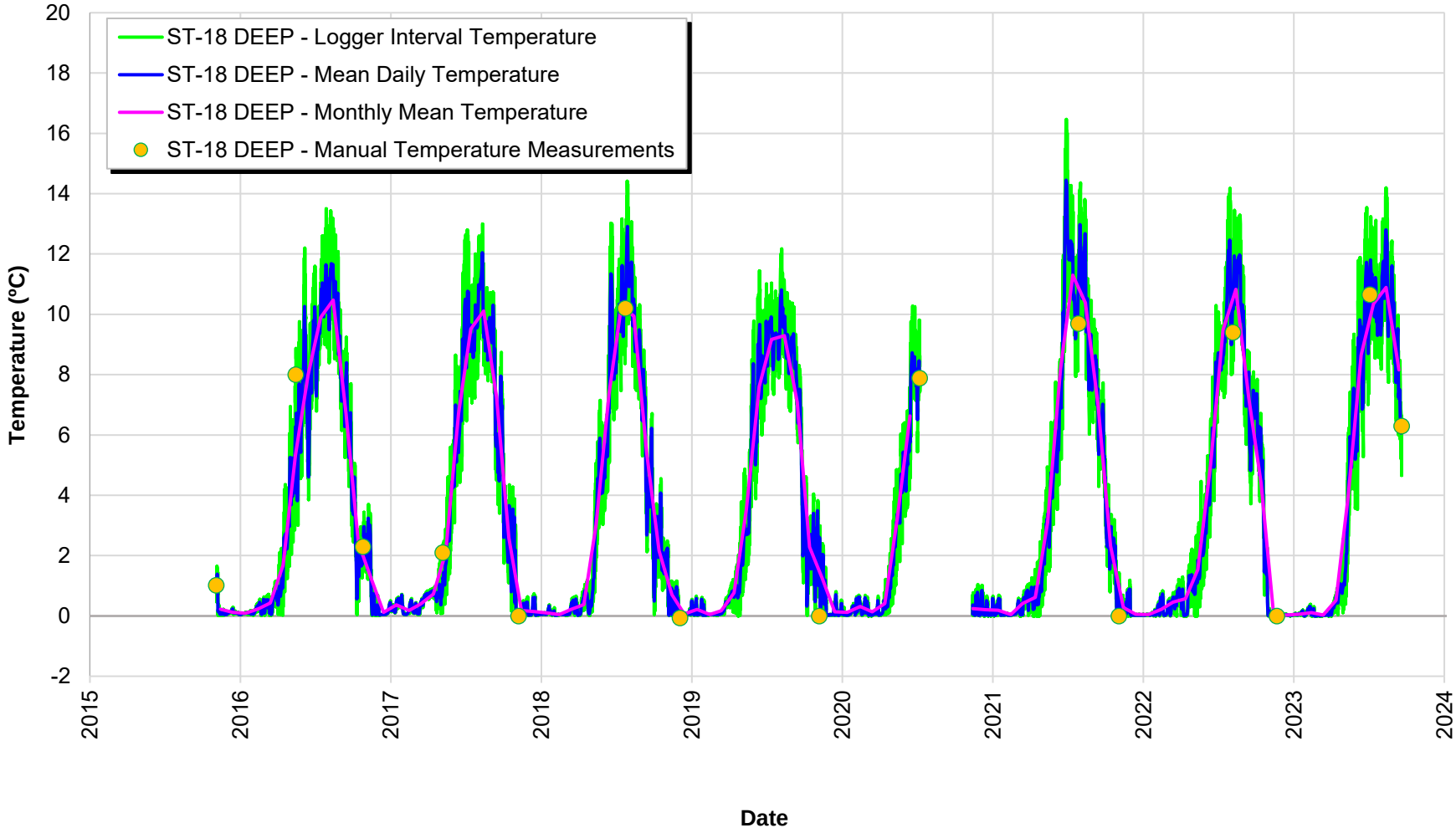

NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
3. DATA LOGGER MALFUNCTION JULY 2020 TO NOVEMBER 2020. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD.

BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK TEMPERATURE STATION
ST-18 DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.7

REV 0

Knight Piésold CONSULTING

TABLE B 2.13

BW GOLD LTD
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK
STATION ST-18 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	1.02	1.15	-0.13	
16-May-16	12:57	8.00	8.00	0.00	
26-Oct-16	13:45	2.30	2.29	0.01	
8-May-17	13:35	2.10	2.24	-0.14	
8-Nov-17	13:45	0.00	0.05	-0.05	
25-Jul-18	12:15	10.20	10.17	0.03	
5-Dec-18	13:05	-0.06	0.02	-0.08	
8-Nov-19	14:00	4.70	2.82	1.88	Omitted - Erroneous manual temp.
9-Jul-20	12:10	7.89	7.77	0.12	
29-Jul-21	8:55	9.70	9.71	-0.01	
8-Aug-22	10:45	9.40	8.99	0.41	
23-Nov-22	11:40	0.00	-	-	No logger data available
6-Jul-23	10:55	10.65	10.69	-0.04	
21-Sep-23	12:26	6.30	5.36	0.94	
			Average Difference	*0.09*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST18-DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.14

BW GOLD LTD.
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK TEMPERATURE STATION ST-18 DEEP
WATER TEMPERATURES (^{o}C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.2	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.4	0.2
2016	Min Daily	0.1	0.1	0.1	0.4	3.7	4.6	7.3	8.7	3.5	0.6	0.0	0.0
	Monthly Mean	0.1	0.2	0.4	1.7	5.3	8.0	9.9	10.5	6.7	2.4	1.2	0.1
	Max Daily	0.1	0.6	0.8	3.1	7.7	10.3	11.6	11.7	8.6	4.6	3.2	0.4
2017	Min Daily	0.1	0.1	0.1	0.5	0.4	4.2	8.2	8.5	4.5	0.4	0.0	0.0
	Monthly Mean	0.4	0.2	0.4	0.7	2.1	6.7	9.5	10.1	7.3	2.6	0.2	0.1
	Max Daily	0.7	0.5	0.7	1.1	4.4	10.2	10.8	12.0	10.3	5.1	1.3	0.6
2018	Min Daily	0.0	0.0	0.0	0.0	0.3	4.3	8.1	8.4	2.4	0.5	0.0	0.0
	Monthly Mean	0.1	0.1	0.2	0.4	3.0	7.4	10.3	9.9	5.4	2.2	0.7	0.1
	Max Daily	0.3	0.2	0.6	0.8	5.9	11.3	12.9	11.7	8.2	4.1	2.2	0.2
2019	Min Daily	0.0	0.0	0.0	0.4	1.7	5.0	8.2	8.0	2.0	0.3	0.0	0.0
	Monthly Mean	0.2	0.1	0.2	0.8	3.5	7.6	9.2	9.3	7.1	2.3	1.3	0.1
	Max Daily	0.6	0.2	0.5	1.3	7.8	9.7	9.9	10.8	9.4	4.1	3.5	0.7
2020	Min Daily	0.0	0.0	0.0	0.0	1.3	4.1	-	-	-	-	0.0	0.0
	Monthly Mean	0.1	0.3	0.1	0.4	3.2	6.6	-	-	-	-	0.2	0.2
	Max Daily	0.4	0.6	0.5	1.5	5.4	8.7	-	-	-	-	0.8	0.8
2021	Min Daily	0.0	0.0	0.0	0.2	1.1	4.8	9.2	7.5	5.0	0.0	0.0	0.0
	Monthly Mean	0.2	0.0	0.4	0.6	3.1	8.2	11.3	10.4	6.9	2.3	0.3	0.1
	Max Daily	0.6	0.1	0.9	1.0	5.3	14.4	14.0	13.0	8.6	4.6	1.0	0.9
2022	Min Daily	0.0	0.0	0.0	0.0	0.7	2.7	8.0	9.0	4.8	0.5	0.0	0.0
	Monthly Mean	0.0	0.2	0.5	0.6	1.5	5.0	9.5	10.8	7.2	4.4	0.1	0.0
	Max Daily	0.2	0.7	0.9	1.4	2.5	8.4	12.5	12.2	10.1	7.4	0.2	0.1
2023	Min Daily	0.0	0.0	0.0	0.0	0.9	5.2	8.7	9.3	6.1	-	-	-
	Monthly Mean	0.1	0.1	0.0	0.5	4.0	8.7	10.3	10.9	8.2	-	-	-
	Max Daily	0.2	0.3	0.1	1.1	7.6	11.7	11.8	12.8	10.4	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 1-7.xlsx]Table B2.14 ST-18 Deep

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.9 MIDDLE DAVIDSON CREEK WATER TEMPERATURE STATION ST-17 DEEP

The ST-17 DEEP station was installed in a middle reach of Davidson Creek on November 5, 2015. The station is shown in Photo B 2.8. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured temperatures are shown on Figure B 2.8. A summary of manual water temperature measurements is provided in Table B 2.15. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.16.

Photo B 2.8 Middle Davidson Creek Water Temperature Station ST-17 DEEP (September 21, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.8 ST-17 DEEP

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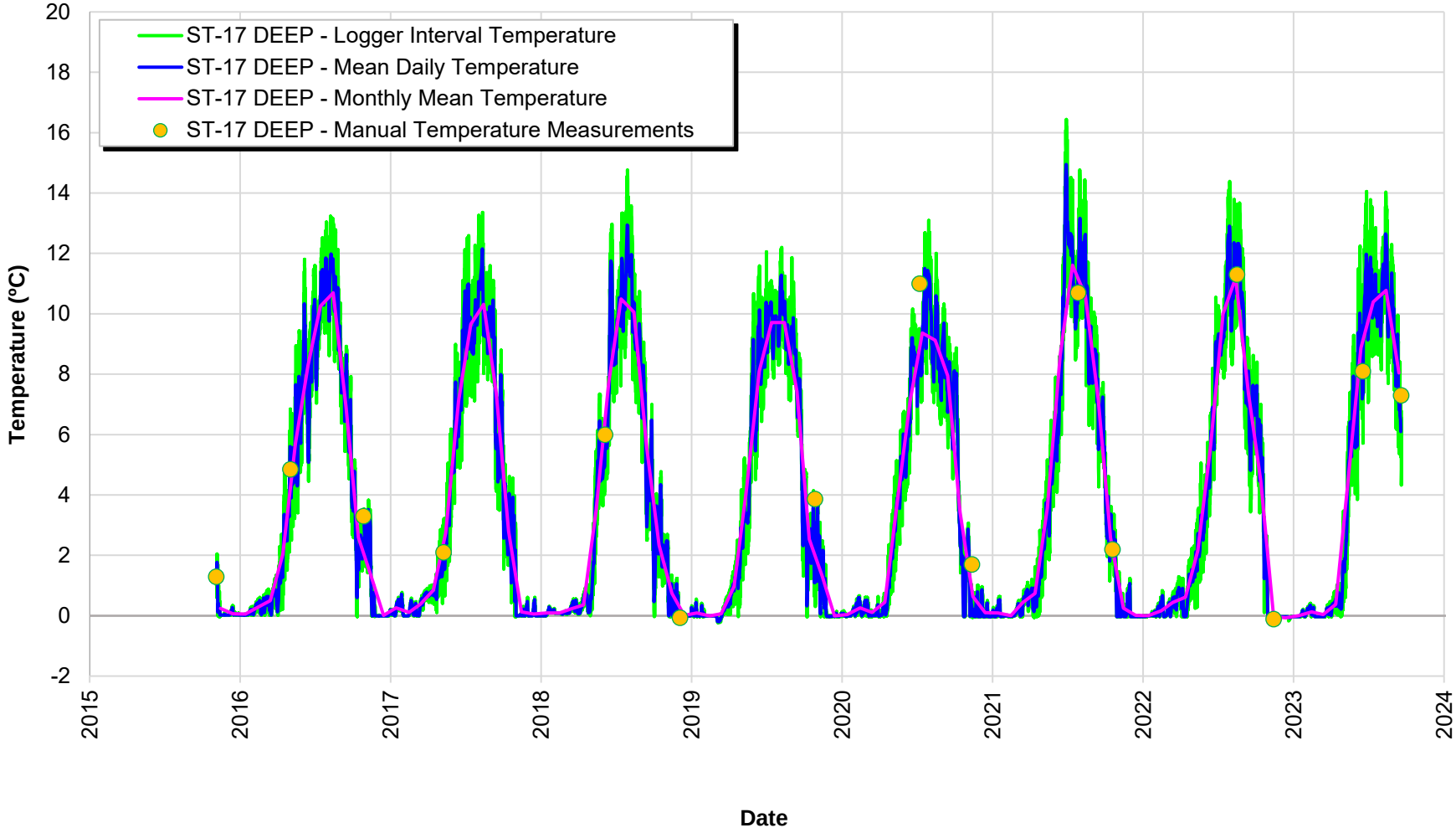

NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK TEMPERATURE STATION
ST-17-DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.8

REV 0

Knight Piésold CONSULTING

TABLE B 2.15

BW GOLD LTD
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK
STATION ST-17 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	1.29	1.40	-0.11	
3-May-16	8:05	4.85	4.90	-0.04	
28-Oct-16	15:00	3.30	3.38	-0.08	
10-May-17	12:05	2.10	2.21	-0.11	
25-Oct-17	14:25	3.80	3.78	0.02	
6-Jun-18	14:20	6.00	6.03	-0.03	
5-Dec-18	15:25	-0.06	0.00	-0.06	
29-Oct-19	12:20	3.87	0.47	3.40	Omitted - Erroneous manual temp.
9-Jul-20	14:55	11.00	9.29	1.71	
13-Nov-20	10:15	1.70	-0.03	1.73	
29-Jul-21	9:55	10.70	9.77	0.93	
20-Oct-21	10:45	2.20	1.59	0.61	
18-Aug-22	10:17	11.30	11.22	0.08	
15-Nov-22	14:00	-0.11	-0.03	-0.08	
20-Jun-23	13:05	8.10	7.67	0.43	
21-Sep-23	14:16	7.30	6.54	0.77	
			Average Difference	*0.39*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-17 DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.16

BW GOLD LTD.
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK TEMPERATURE STATION ST-17 DEEP
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:22:27

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.0	0.0
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.2	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.8	0.3
2016	Min Daily	0.0	0.0	0.0	0.1	3.9	5.1	7.5	8.8	3.6	0.6	0.0	0.0
	Monthly Mean	0.1	0.3	0.5	2.0	5.7	8.3	10.2	10.7	6.9	2.6	1.3	0.0
	Max Daily	0.2	0.6	0.9	3.5	7.9	10.3	11.8	12.0	8.8	4.8	3.5	0.1
2017	Min Daily	0.0	0.0	0.0	0.5	1.3	4.7	8.5	8.7	4.4	0.5	0.0	0.0
	Monthly Mean	0.3	0.1	0.4	0.8	2.7	7.1	9.7	10.3	7.4	2.8	0.1	0.1
	Max Daily	0.7	0.5	0.8	1.7	4.9	10.5	11.0	12.2	10.5	5.2	1.7	0.5
2018	Min Daily	0.0	0.1	0.1	0.1	0.2	4.7	8.3	8.3	2.6	0.5	0.0	0.0
	Monthly Mean	0.1	0.1	0.2	0.4	3.5	7.7	10.5	10.1	5.6	2.3	0.7	0.0
	Max Daily	0.3	0.2	0.5	0.8	6.5	11.7	12.9	12.0	8.3	4.3	2.5	0.3
2019	Min Daily	0.0	0.0	-0.2	0.3	2.2	5.5	8.5	8.3	2.3	0.3	0.0	0.0
	Monthly Mean	0.1	0.0	0.1	1.0	4.2	8.1	9.7	9.7	7.4	2.5	1.3	0.0
	Max Daily	0.4	0.1	0.4	1.7	8.5	10.1	10.4	11.3	9.9	4.5	3.7	0.1
2020	Min Daily	0.0	0.0	0.0	0.0	1.9	4.6	6.9	7.1	5.5	0.0	0.0	0.0
	Monthly Mean	0.0	0.3	0.1	0.4	3.7	7.1	9.4	9.1	7.9	3.4	0.6	0.1
	Max Daily	0.3	0.6	0.5	1.9	6.0	9.2	11.5	11.3	9.7	8.1	2.9	0.9
2021	Min Daily	0.0	0.0	0.0	0.1	1.4	5.1	9.5	7.7	5.3	0.0	0.0	0.0
	Monthly Mean	0.1	0.0	0.4	0.7	3.6	8.6	11.6	10.6	7.2	2.6	0.2	0.0
	Max Daily	0.5	0.2	0.9	1.5	5.8	14.9	14.4	13.2	8.8	4.9	1.1	1.1
2022	Min Daily	0.0	0.0	0.0	0.0	1.1	3.2	8.5	9.4	4.8	0.7	0.0	-0.1
	Monthly Mean	0.0	0.2	0.4	0.6	2.2	5.6	10.0	11.2	7.4	4.5	0.0	-0.1
	Max Daily	0.1	0.7	0.9	1.5	3.3	9.1	12.9	12.7	10.4	7.6	0.0	0.0
2023	Min Daily	0.0	0.0	0.0	0.0	0.9	5.6	9.1	9.2	6.1	-	-	-
	Monthly Mean	0.0	0.1	0.0	0.4	4.5	8.9	10.4	10.8	8.0	-	-	-
	Max Daily	0.2	0.3	0.3	0.8	7.9	12.0	11.9	12.6	10.2	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.16 ST-17 DEEP

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.10 MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15

The DC-15 station, previously known as the H4B station, was installed on Davidson Creek on May 9, 2012 and replaced the H4 station, which was decommissioned at the end of 2011. The H4 station recorded temperature data during the open water season of 2011. The H4 temperature data are included in the 2016 Water Temperature Baseline Report (KP, 2018). The DC-15 station is shown in Photo B 2.9. The station initially consisted of an ultrasonic sensor installed on the bridge over the creek and connected to a NEON Micrologger and solar panel installed on a nearby tree. The water level data from this sensor exhibited extensive scatter, and as a result, the sensor was replaced with a KPSI pressure transducer, installed on the bank just downstream of the bridge, in July of 2013. The ultrasonic sensor did not record water temperatures. Consequently, water temperature has only been recorded at this station since the installation of the KPSI pressure transducer in 2013. A secondary Levelogger water level data logger was installed alongside the KPSI pressure transducer in May of 2023. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2014 through 2023. Recorded temperatures were verified with manual measurements from October 2015 onwards. The recorded temperatures and manual measurements are shown on Figure B 2.9. The manual water temperature measurements are also summarized in Table B 2.17. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 2.18.

Photo B 2.9 Middle Davidson Creek Hydrology Station DC-15 (July 28, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.9 DC-15

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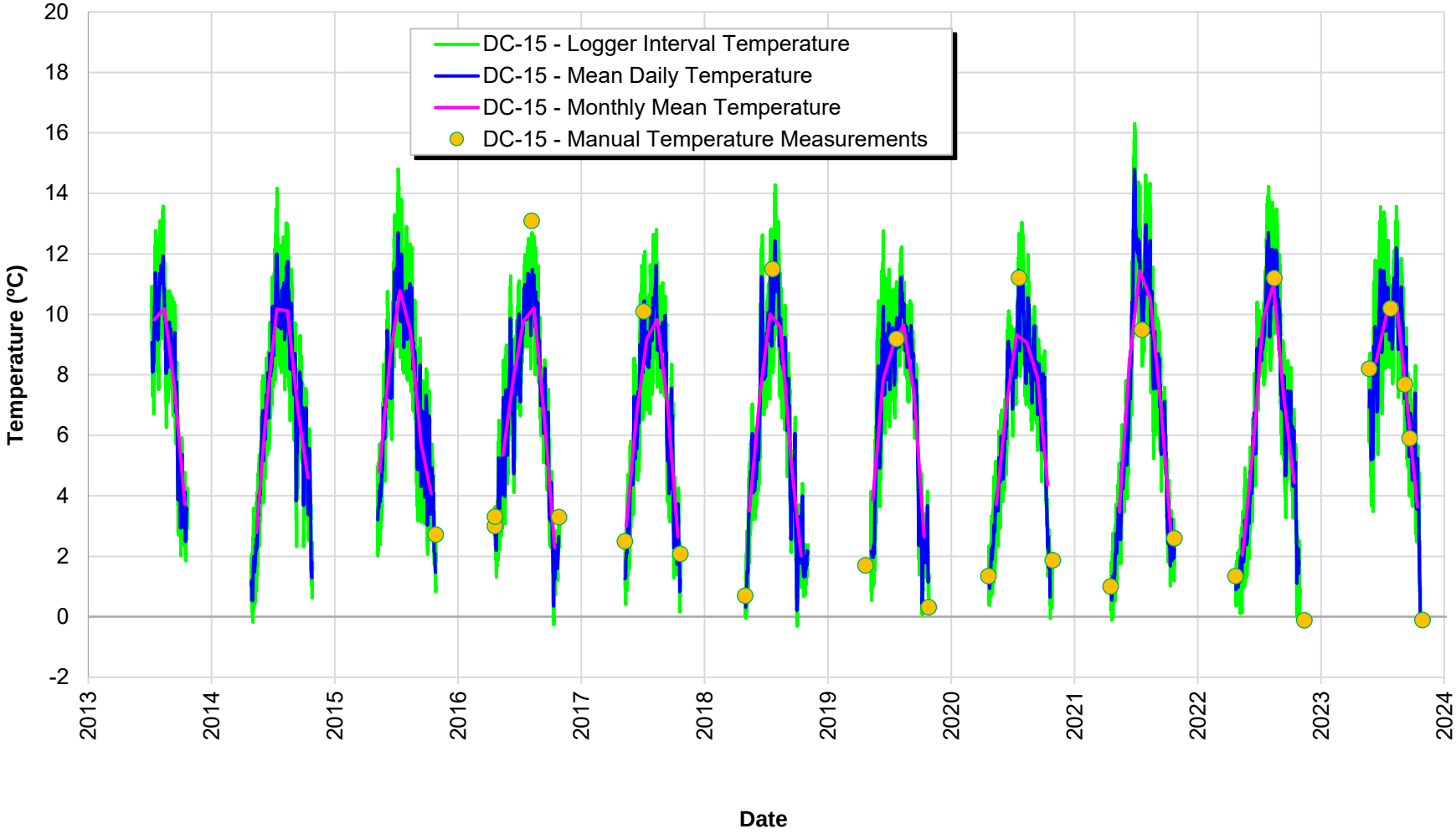

NOTES:
1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H4B".

BW GOLD LTD

BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY
STATION DC-15
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.9

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

Knight Piésold CONSULTING

TABLE B 2.17

BW GOLD LTD
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK
STATION DC-15 MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
29-Oct-15	13:17	2.72	2.60	0.12	
7-Mar-16	13:10	0.65	-	-	No logger data available
21-Apr-16	12:47	3.01	3.05	-0.04	
21-Apr-16	13:37	3.32	3.22	0.10	
8-Aug-16	14:37	13.10	12.59	0.51	
28-Oct-16	14:00	3.30	3.09	0.22	
11-May-17	14:24	2.50	2.22	0.28	
6-Jul-17	11:12	10.10	9.69	0.41	
23-Oct-17	14:30	2.08	1.99	0.10	
3-May-18	10:53	0.70	0.42	0.28	
23-Jul-18	13:30	11.50	10.50	1.00	
18-Dec-18	10:40	0.10	-	-	No logger data available
24-Apr-19	11:40	1.70	1.70	0.00	
25-Jul-19	7:16	9.19	9.29	-0.10	
29-Oct-19	11:36	0.32	0.44	-0.12	
23-Apr-20	12:48	1.35	1.45	-0.10	
22-Jul-20	14:33	11.21	11.16	0.05	
30-Oct-20	10:05	1.87	1.89	-0.02	
9-Dec-20	13:03	-0.11	-	-	No logger data available
20-Apr-21	11:40	1.00	0.85	0.15	
22-Jul-21	12:46	9.49	9.46	0.03	
26-Oct-21	13:20	2.60	2.53	0.07	
25-Apr-22	14:20	1.35	1.45	-0.10	
18-Aug-22	10:08	11.20	10.96	0.24	
15-Nov-22	13:26	-0.11	-0.15	0.04	
25-May-23	17:00	8.21	8.37	-0.16	
28-Jul-23	9:50	10.20	9.83	0.37	
8-Sep-23	12:18	7.68	7.30	0.39	
22-Sep-23	11:42	5.90	5.50	0.40	
30-Oct-23	15:19	-0.10	0.03	-0.13	
			Average Difference	*0.14*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]DC-15

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.18

BW GOLD LTD.
BLACKWATER GOLD PROJECT

MIDDLE DAVIDSON CREEK HYDROLOGY STATION DC-15
WATER TEMPERATURES (^{o}C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Min Daily	-	-	-	-	-	-	8.1	8.0	3.9	2.5	-	-
	Monthly Mean	-	-	-	-	-	-	9.8	10.2	7.5	3.7	-	-
	Max Daily	-	-	-	-	-	-	11.4	11.9	9.5	5.4	-	-
2014	Min Daily	-	-	-	-	0.5	5.2	8.6	8.2	3.8	1.3	-	-
	Monthly Mean	-	-	-	-	2.8	7.1	10.2	10.1	6.8	4.6	-	-
	Max Daily	-	-	-	-	5.7	8.7	12.0	11.7	8.7	6.9	-	-
2015	Min Daily	-	-	-	-	3.2	6.9	8.9	7.5	4.0	1.5	-	-
	Monthly Mean	-	-	-	-	4.8	8.6	10.8	9.4	5.7	4.1	-	-
	Max Daily	-	-	-	-	6.9	11.4	12.7	11.0	8.3	7.2	-	-
2016	Min Daily	-	-	-	-	3.6	4.7	7.1	8.4	3.3	0.4	-	-
	Monthly Mean	-	-	-	-	5.3	7.9	9.8	10.2	6.5	2.3	-	-
	Max Daily	-	-	-	-	7.5	9.9	11.3	11.5	8.4	4.4	-	-
2017	Min Daily	-	-	-	-	1.3	4.4	8.1	8.2	4.1	0.8	-	-
	Monthly Mean	-	-	-	-	3.0	6.7	9.2	9.8	6.9	2.6	-	-
	Max Daily	-	-	-	-	4.6	10.0	10.4	11.6	10.0	4.8	-	-
2018	Min Daily	-	-	-	-	0.3	4.4	7.9	7.9	2.3	0.2	-	-
	Monthly Mean	-	-	-	-	3.5	7.3	10.0	9.6	5.2	2.0	-	-
	Max Daily	-	-	-	-	6.1	11.2	12.4	11.4	7.9	4.0	-	-
2019	Min Daily	-	-	-	-	2.0	4.9	7.5	8.2	2.4	0.4	-	-
	Monthly Mean	-	-	-	-	3.9	7.8	8.9	9.6	7.3	2.6	-	-
	Max Daily	-	-	-	-	8.0	10.3	9.9	11.2	9.6	4.5	-	-
2020	Min Daily	-	-	-	-	1.9	4.6	6.9	7.1	5.5	0.6	-	-
	Monthly Mean	-	-	-	-	3.7	7.0	9.3	9.1	7.9	4.4	-	-
	Max Daily	-	-	-	-	6.0	9.1	11.5	11.2	9.6	8.0	-	-
2021	Min Daily	-	-	-	-	1.3	5.0	9.3	7.5	5.2	1.7	-	-
	Monthly Mean	-	-	-	-	3.5	8.5	11.4	10.5	7.0	2.8	-	-
	Max Daily	-	-	-	-	5.7	14.8	14.2	13.0	8.7	4.8	-	-

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	Min Daily	-	-	-	-	1.0	3.1	8.3	9.2	4.7	1.1	-	-
	Monthly Mean	-	-	-	-	2.0	5.5	9.8	11.0	7.2	4.4	-	-
	Max Daily	-	-	-	-	3.2	8.9	12.7	12.4	10.2	7.5	-	-
2023	Min Daily	-	-	-	-	-	5.2	8.7	8.8	4.5	-0.3	-	-
	Monthly Mean	-	-	-	-	-	8.4	10.0	10.3	7.0	3.6	-	-
	Max Daily	-	-	-	-	-	11.5	11.4	12.2	9.8	7.4	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.18 DC-15

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H4B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.11 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-16 KO

The ST-16 KO station was installed in a lower reach of Davidson Creek on November 5, 2015. The station is shown in Photo B 2.10. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a riffle. The recorded and measured temperatures are shown on Figure B 2.10. A summary of manual water temperature measurements is provided in Table B 2.19. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.20.

Photo B 2.10 Lower Davidson Creek Water Temperatures Station ST-16 KO (September 21, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.10 ST-16 KO

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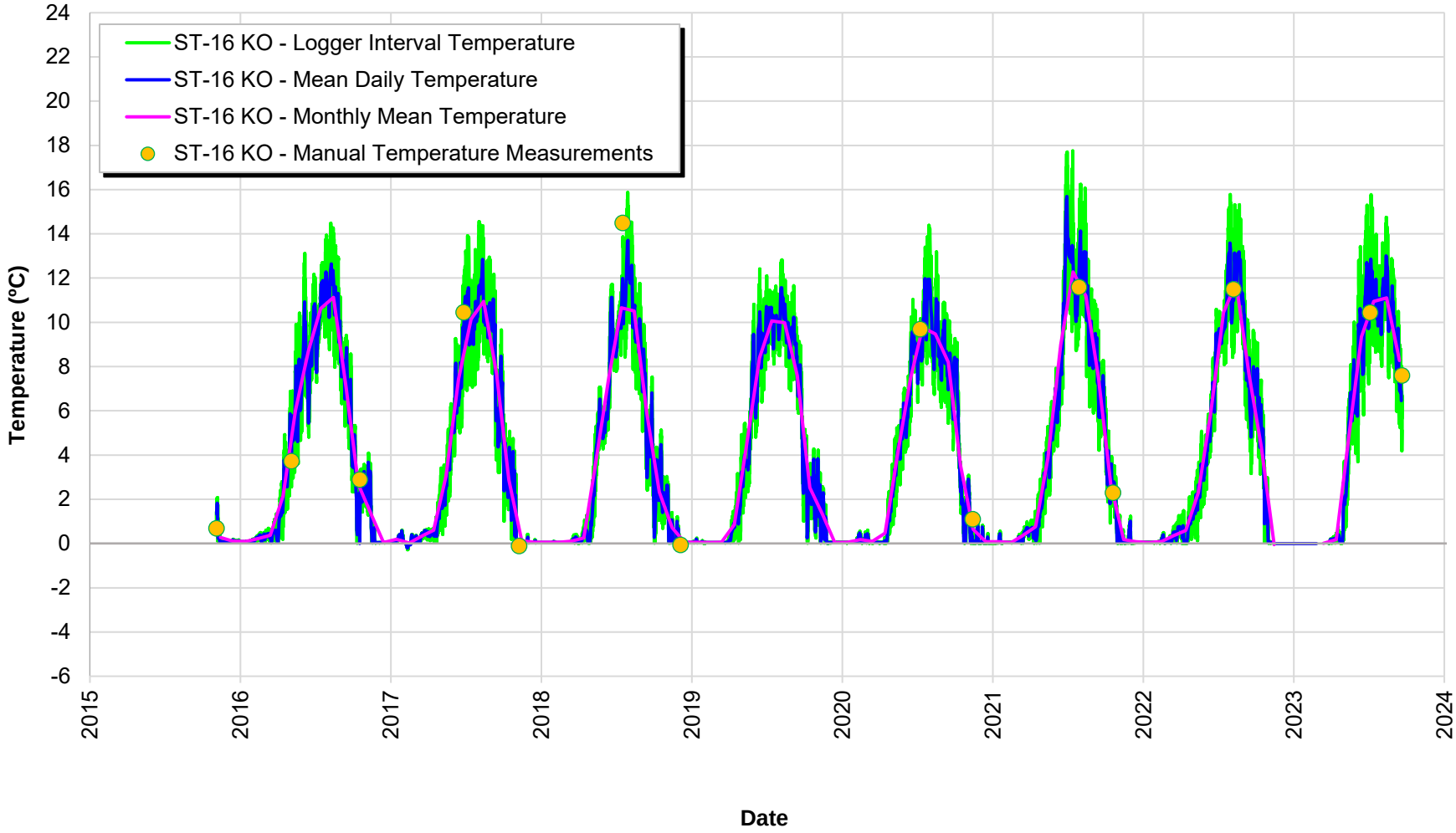

NOTES:
1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-16 KO
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.10

REV 0

Knight Piésold CONSULTING

TABLE B 2.19

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-16 KO MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	0.69	0.93	-0.24	
5-May-16	11:18	3.73	3.80	-0.07	
18-Oct-16	12:30	2.90	3.30	-0.40	
27-Jun-17	12:40	10.46	9.88	0.58	
8-Nov-17	15:15	-0.10	0.05	-0.15	
18-Jul-18	13:20	14.50	12.15	2.35	
5-Dec-18	14:30	-0.06	0.02	-0.08	
8-Nov-19	12:10	7.67	2.74	4.93	Omitted - Erroneous manual temp.
9-Jul-20	13:55	9.69	9.44	0.25	
13-Nov-20	12:30	1.10	0.05	1.05	
29-Jul-21	10:31	11.60	10.61	0.99	
20-Oct-21	11:30	2.30	1.56	0.74	
8-Aug-22	12:02	11.50	10.64	0.86	
6-Jul-23	9:05	10.15	10.35	-0.20	
21-Sep-23	13:35	7.60	6.69	0.91	
			Average Difference	*0.47*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-16 KO

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.20

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-16 KO
WATER TEMPERATURES (°C)

Print Mar/07/24 13:22:27

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.8	0.2
2016	Min Daily	0.1	0.1	0.1	0.1	4.1	5.4	7.7	9.1	3.5	0.4	0.0	0.0
	Monthly Mean	0.1	0.2	0.4	2.2	6.0	8.7	10.6	11.1	7.1	2.7	1.3	0.1
	Max Daily	0.2	0.4	0.6	3.8	8.3	10.9	12.3	12.6	9.1	4.9	3.7	0.1
2017	Min Daily	0.1	-0.2	0.1	0.3	1.6	5.0	9.0	9.3	4.4	0.3	0.0	0.0
	Monthly Mean	0.2	0.0	0.3	0.6	3.0	7.4	10.1	11.0	7.7	2.9	0.1	0.1
	Max Daily	0.6	0.4	0.6	1.7	5.3	10.8	11.6	12.8	11.1	5.4	1.8	0.1
2018	Min Daily	0.1	0.1	0.0	0.0	0.3	4.8	8.4	8.6	2.7	0.3	0.0	0.0
	Monthly Mean	0.1	0.1	0.1	0.2	3.8	7.6	10.7	10.5	5.8	2.3	0.7	0.1
	Max Daily	0.1	0.1	0.3	0.7	6.5	11.1	13.7	12.6	8.8	4.5	2.6	0.3
2019	Min Daily	0.0	0.0	0.0	0.1	2.5	5.7	8.8	8.4	2.3	0.3	0.0	0.0
	Monthly Mean	0.1	0.0	0.1	0.9	4.5	8.4	10.1	10.0	7.6	2.5	1.3	0.1
	Max Daily	0.2	0.1	0.1	1.8	8.8	10.5	10.7	11.6	10.2	4.8	3.8	0.1
2020	Min Daily	0.0	0.0	0.0	0.0	2.1	4.8	7.2	7.4	5.6	0.0	0.0	0.0
	Monthly Mean	0.1	0.2	0.1	0.5	4.0	7.4	9.8	9.5	8.2	3.5	0.6	0.1
	Max Daily	0.1	0.5	0.4	2.1	6.4	9.6	12.0	11.9	10.1	8.4	2.9	0.7
2021	Min Daily	0.0	0.0	0.0	0.1	1.7	5.5	10.0	8.0	5.6	0.0	0.0	0.0
	Monthly Mean	0.1	0.1	0.4	0.8	3.9	9.0	12.3	11.2	7.5	2.7	0.2	0.1
	Max Daily	0.4	0.1	0.7	1.9	6.2	15.7	15.0	14.1	9.5	5.1	1.0	1.0
2022	Min Daily	0.0	0.0	0.0	0.0	1.1	3.5	8.9	10.0	4.8	0.4	0.0	-
	Monthly Mean	0.1	0.1	0.4	0.6	2.3	6.0	10.5	11.8	7.7	4.4	-0.1	-
	Max Daily	0.1	0.4	0.8	1.4	3.6	9.5	13.6	13.3	11.0	7.9	0.1	-
2023	Min Daily	-	-	0.0	0.0	0.3	5.8	9.7	9.4	6.5	-	-	-
	Monthly Mean	-	-	0.0	0.2	4.7	9.4	10.9	11.1	8.3	-	-	-
	Max Daily	-	-	0.2	0.4	8.3	12.7	12.9	13.0	10.3	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.20 ST-16 KO

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.12 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-16 DEEP

The ST-16 DEEP station was installed in a lower reach of Davidson Creek on November 5, 2015. The station is shown in Photo B 2.11. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured temperatures are shown on Figure B 2.11. A summary of manual water temperature measurements is provided in Table B 2.21. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.22.

Photo B 2.11 Lower Davidson Creek Temperature Station ST-16 DEEP (September 21, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.11 ST-16 DEEP

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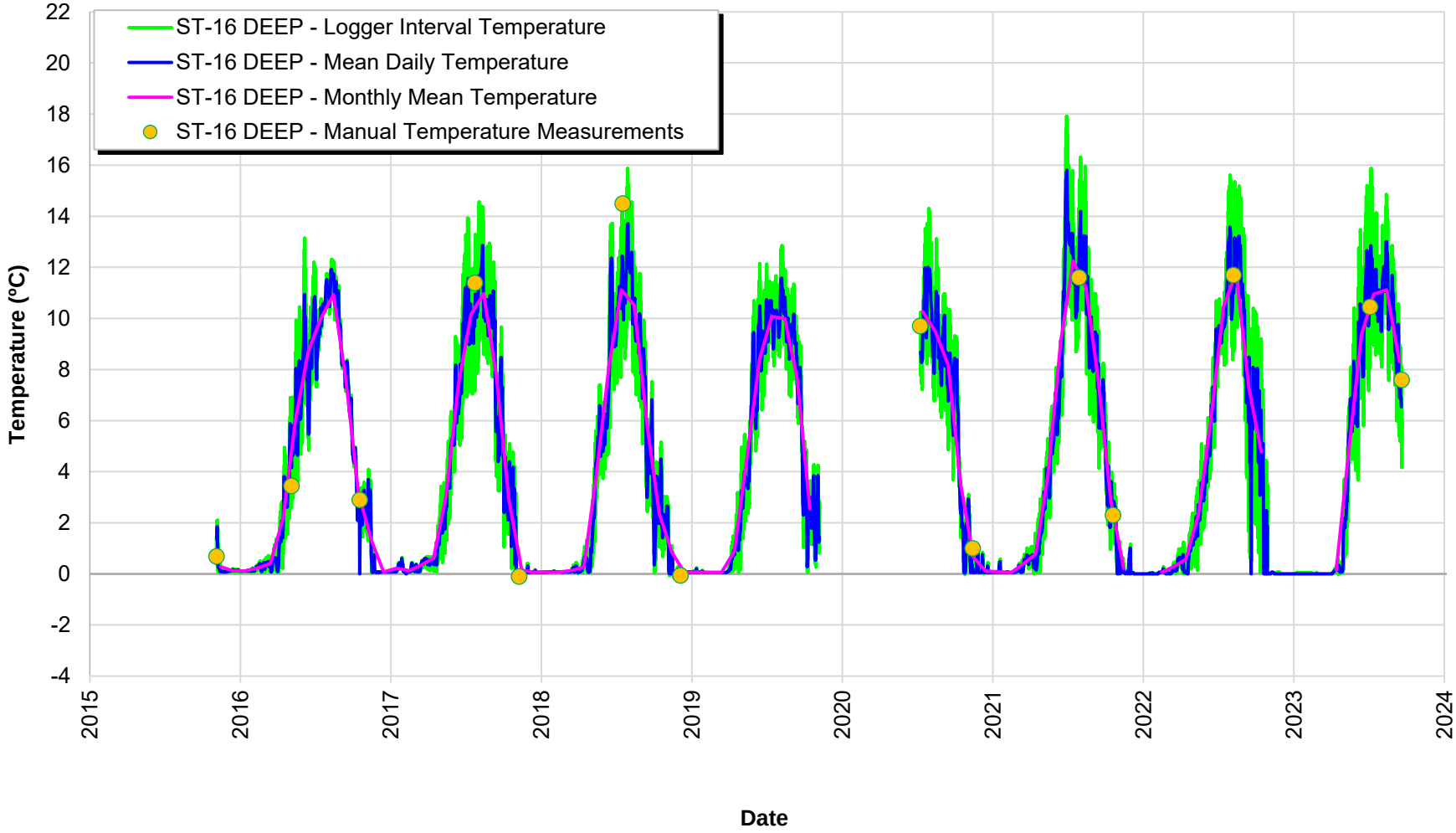

NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
3. DATA LOGGER MALFUNCTION OCTOBER 2019 TO JULY 2020. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-16 DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.11

REV 0

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TABLE B 2.21

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-16 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	0.69	0.77	-0.08	
5-May-16	10:51	3.45	3.54	-0.09	
18-Oct-16	12:30	2.90	3.22	-0.32	
24-Jul-17	13:20	11.40	11.15	0.25	
8-Nov-17	15:30	-0.10	0.08	-0.18	
18-Jul-18	13:40	14.50	13.43	1.08	
5-Dec-18	14:30	-0.06	0.05	-0.11	
8-Nov-19	12:15	10.30	2.77	7.53	Omitted - Erroneous manual temp.
9-Jul-20	14:10	9.71	10.25	-0.54	
13-Nov-20	12:40	1.00	0.05	0.95	
29-Jul-21	10:44	11.60	11.18	0.42	
20-Oct-21	11:38	2.30	2.26	0.04	
8-Aug-22	12:14	11.70	11.59	0.11	
6-Jul-23	9:12	10.45	10.71	-0.26	
21-Sep-23	13:47	7.60	6.05	1.55	
			Average Difference	*0.20*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-16 DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.22

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-16 DEEP
WATER TEMPERATURES (^{o}C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.8	0.2
2016	Min Daily	0.1	0.1	0.1	0.1	4.2	5.5	7.6	9.6	5.0	1.9	0.1	0.1
	Monthly Mean	0.1	0.2	0.4	2.2	6.0	8.7	10.0	10.9	7.5	3.2	1.3	0.1
	Max Daily	0.2	0.4	0.6	3.8	8.3	10.9	11.5	11.9	9.7	4.9	3.7	0.1
2017	Min Daily	0.1	0.1	0.1	0.3	1.6	5.0	9.0	9.3	4.4	0.4	0.1	0.1
	Monthly Mean	0.2	0.1	0.3	0.6	3.1	7.5	10.2	11.0	7.7	2.9	0.1	0.1
	Max Daily	0.6	0.4	0.6	1.7	5.3	10.8	11.6	12.9	11.1	5.4	1.9	0.1
2018	Min Daily	0.1	0.1	0.1	0.1	0.3	5.0	8.9	8.6	2.7	0.3	0.0	0.1
	Monthly Mean	0.1	0.1	0.1	0.3	3.8	8.1	11.1	10.5	5.8	2.3	0.8	0.1
	Max Daily	0.1	0.1	0.3	0.7	6.6	12.4	13.7	12.6	8.8	4.5	2.7	0.1
2019	Min Daily	0.1	0.1	0.1	0.1	2.5	5.7	8.8	8.4	2.3	0.3	-	-
	Monthly Mean	0.1	0.1	0.1	0.9	4.5	8.4	10.1	10.0	7.6	2.5	-	-
	Max Daily	0.2	0.1	0.1	1.8	8.8	10.5	10.7	11.6	10.2	4.8	-	-
2020	Min Daily	-	-	-	-	-	-	8.3	7.4	5.4	0.0	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	10.3	9.5	8.2	3.5	0.7	0.1
	Max Daily	-	-	-	-	-	-	12.0	11.9	10.1	8.4	2.9	0.8
2021	Min Daily	0.1	0.1	0.1	0.1	1.7	5.4	10.0	8.1	5.6	0.8	0.0	-
	Monthly Mean	0.1	0.1	0.4	0.8	3.9	9.1	12.3	11.2	7.5	2.9	0.2	-
	Max Daily	0.5	0.1	0.7	1.9	6.3	15.8	15.1	14.2	9.5	5.2	1.0	-
2022	Min Daily	-	0.0	0.0	0.1	1.1	3.6	8.9	10.0	4.2	1.5	-	-
	Monthly Mean	-	0.1	0.3	0.6	2.3	6.1	10.5	11.8	7.3	4.8	-	-
	Max Daily	-	0.2	0.7	1.5	3.6	9.6	13.6	13.3	10.9	8.0	-	-
2023	Min Daily	0.0	-	-	0.0	0.3	5.8	9.7	9.5	6.5	-	-	-
	Monthly Mean	0.0	-	-	0.1	4.8	9.4	10.9	11.1	8.3	-	-	-
	Max Daily	0.0	-	-	0.3	8.3	12.7	12.8	13.0	10.3	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.22 ST-16 DEEP

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. DATA LOGGER MALFUNCTION OCTOBER 2019 TO JULY 2020. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.13 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-15 KO

The ST-15 KO station was installed in a lower reach of Davidson Creek on November 4, 2015. The station is shown in Photo B 2.12. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a riffle. Data beyond June 2023 are unavailable due to a beaver dam having been built on top of the instrumentation site. The recorded and measured temperatures are shown on Figure B 2.12. A summary of manual water temperature measurements is provided in Table B 2.23. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.24.

Photo B 2.12 Lower Davidson Creek Water Temperature Station ST-15 KO (September 22, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.12 ST-15 KO

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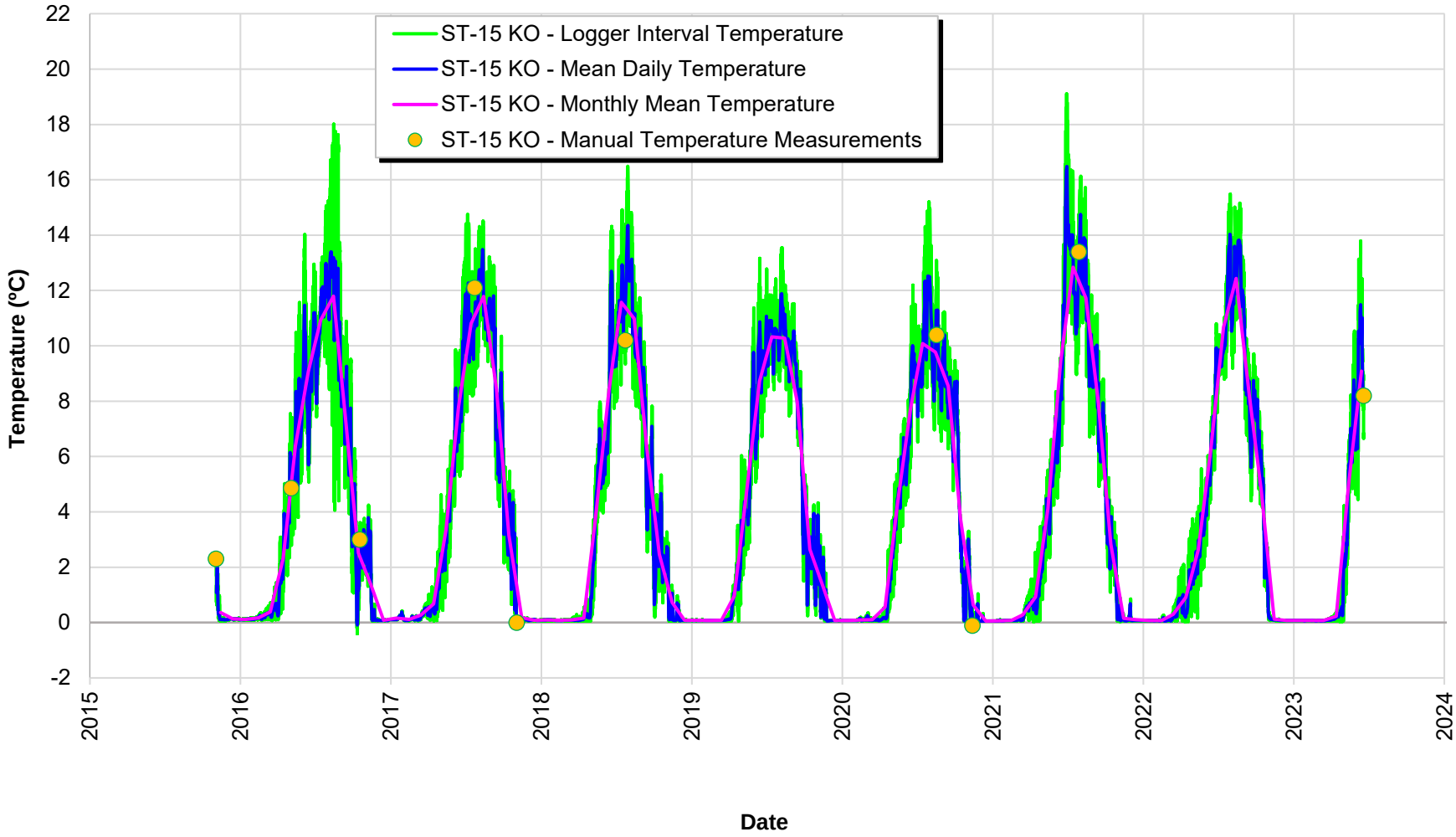

NOTES:
1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-15 KO
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.12

REV 0

Knight Piésold CONSULTING

TABLE B 2.23

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-15 KO MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:29	2.31	1.34	0.97	
5-May-16	12:56	4.86	4.64	0.22	
18-Oct-16	10:45	3.00	3.62	-0.62	
24-Jul-17	15:25	12.10	12.00	0.10	
3-Nov-17	13:15	0.00	0.16	-0.16	
25-Jul-18	10:20	10.20	9.93	0.27	
13-Nov-19	13:45	8.84	1.48	7.36	Omitted - Erroneous manual temp.
18-Aug-20	10:29	10.40	10.30	0.10	
13-Nov-20	11:05	-0.10	0.08	-0.18	
29-Jul-21	12:23	13.40	11.95	1.45	
20-Jun-23	11:40	8.10	6.84	1.26	
			Average Difference	0.34	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-15 KO

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.24

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-15 KO
WATER TEMPERATURES (^{o}C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.4	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	2.0	0.1
2016	Min Daily	0.1	0.1	0.2	0.2	4.9	5.7	7.9	8.7	2.7	-0.1	0.1	0.1
	Monthly Mean	0.1	0.2	0.4	2.3	6.4	9.1	10.9	11.8	7.2	2.5	1.3	0.1
	Max Daily	0.1	0.3	0.7	3.9	8.8	11.5	13.0	13.4	9.5	5.0	3.8	0.1
2017	Min Daily	0.1	0.1	0.1	0.2	1.8	5.3	9.4	10.2	5.1	0.4	0.1	0.1
	Monthly Mean	0.2	0.1	0.3	0.7	3.3	7.8	10.8	11.8	8.4	3.2	0.2	0.1
	Max Daily	0.4	0.2	0.5	1.9	5.6	11.2	12.3	13.5	11.8	5.8	2.1	0.1
2018	Min Daily	0.1	0.1	0.1	0.1	0.4	5.2	9.3	9.2	3.0	0.7	0.1	0.1
	Monthly Mean	0.1	0.1	0.1	0.2	4.0	8.4	11.6	11.0	6.2	2.5	0.7	0.1
	Max Daily	0.1	0.1	0.1	0.3	7.0	12.7	14.4	13.1	9.2	4.7	2.7	0.3
2019	Min Daily	0.1	0.1	0.1	0.1	2.8	5.9	9.0	8.7	2.5	0.6	0.1	0.1
	Monthly Mean	0.1	0.1	0.1	1.0	4.8	8.7	10.3	10.3	8.0	2.7	1.4	0.1
	Max Daily	0.1	0.1	0.1	2.1	9.1	10.9	11.1	11.9	10.5	4.9	3.9	0.1
2020	Min Daily	0.1	0.1	0.1	0.1	2.3	5.0	7.4	7.7	5.8	0.1	0.1	0.1
	Monthly Mean	0.1	0.1	0.1	0.6	4.3	7.7	10.1	9.8	8.5	3.7	0.6	0.1
	Max Daily	0.1	0.2	0.2	2.3	6.7	10.0	12.5	12.5	10.4	8.7	3.0	0.2
2021	Min Daily	0.1	0.1	0.1	0.3	1.9	5.8	10.4	8.5	5.8	0.1	0.1	0.1
	Monthly Mean	0.1	0.1	0.3	0.9	4.1	9.5	12.8	11.7	7.9	2.8	0.1	0.1
	Max Daily	0.1	0.1	0.7	2.1	6.5	16.5	15.8	14.8	10.0	5.5	0.6	0.7
2022	Min Daily	0.1	0.1	0.1	0.2	1.4	3.9	9.0	10.5	5.6	0.9	0.1	0.1
	Monthly Mean	0.1	0.1	0.3	0.9	2.6	6.3	10.7	12.4	8.3	4.8	0.1	0.1
	Max Daily	0.1	0.2	0.9	2.1	3.9	9.9	14.0	13.8	11.8	8.1	0.4	0.1

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.24 ST-15 KO

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.14 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-15 DEEP

The ST-15 DEEP station was installed in a lower reach of Davidson Creek on November 4, 2015. The station is shown in Photo B 2.13. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. Data beyond June 2023 are unavailable due to a beaver dam having been built on top of the instrumentation site. The recorded and measured temperatures are shown on Figure B 2.13. A summary of manual water temperature measurements is provided in Table B 2.25. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.26.

Photo B 2.13 Lower Davidson Creek Water Temperature Station ST-15 DEEP (September 22, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13]B2.13 ST-15 DEEP

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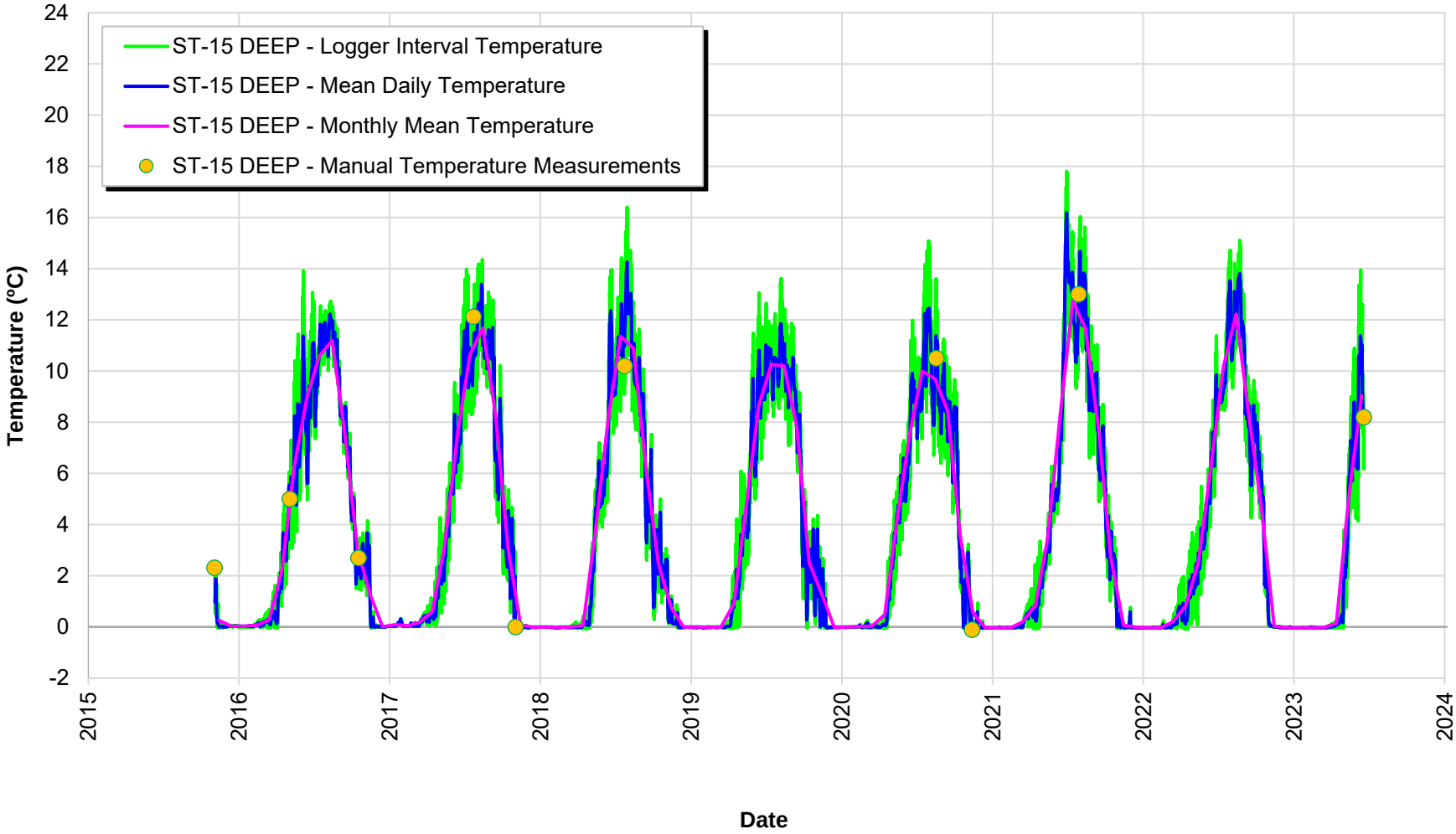

NOTES:
1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-15 DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.13

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

Knight Piésold CONSULTING

TABLE B 2.25

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-15 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:29	2.31	2.29	0.02	
5-May-16	12:40	5.01	5.28	-0.27	
18-Oct-16	10:45	2.70	2.77	-0.07	
24-Jul-17	15:35	12.13	12.34	-0.21	
3-Nov-17	13:20	0.00	0.08	-0.08	
25-Jul-18	10:12	10.20	9.81	0.40	
13-Nov-19	14:00	6.00	1.72	4.28	Omitted - Erroneous manual temp.
18-Aug-20	10:40	10.50	10.57	-0.06	
13-Nov-20	10:50	-0.10	0.00	-0.10	
29-Jul-21	12:30	13.00	11.30	1.70	
20-Jun-23	11:40	8.20	7.65	0.56	
			Average Difference	*0.19*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-15 DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.26

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-15 DEEP
WATER TEMPERATURES (°C)

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Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.0	0.0
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.0
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.9	0.0
2016	Min Daily	0.0	0.0	0.1	0.1	4.3	5.6	7.8	9.7	4.4	1.7	0.0	0.0
	Monthly Mean	0.0	0.1	0.3	2.2	6.2	9.0	10.6	11.2	7.5	3.1	1.3	0.0
	Max Daily	0.0	0.2	0.6	3.7	8.7	11.4	11.9	12.2	9.8	5.1	3.7	0.0
2017	Min Daily	0.0	0.0	0.0	0.2	1.7	5.2	9.3	10.1	5.0	0.3	0.0	0.0
	Monthly Mean	0.1	0.0	0.2	0.6	3.2	7.6	10.6	11.7	8.3	3.1	0.1	0.0
	Max Daily	0.3	0.2	0.4	1.8	5.5	11.0	12.0	13.4	11.7	5.7	2.0	0.0
2018	Min Daily	0.0	0.0	0.0	0.0	0.3	5.0	9.1	9.1	3.1	0.8	0.1	0.0
	Monthly Mean	0.0	0.0	0.0	0.1	3.8	8.2	11.4	10.9	6.2	2.5	0.8	0.0
	Max Daily	0.0	0.0	0.0	0.2	6.5	12.4	14.3	13.0	9.1	4.5	2.6	0.2
2019	Min Daily	0.0	0.0	0.0	0.0	2.8	5.9	8.9	8.6	2.4	0.3	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.9	4.7	8.6	10.3	10.2	7.8	2.5	1.3	0.0
	Max Daily	0.0	0.0	0.0	2.3	9.1	10.8	11.0	11.8	10.5	4.9	3.8	0.0
2020	Min Daily	0.0	0.0	0.0	0.0	2.2	4.9	7.4	7.6	5.6	0.0	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.5	4.2	7.6	10.0	9.7	8.4	3.5	0.5	0.0
	Max Daily	0.0	0.1	0.2	2.2	6.6	9.9	12.4	12.5	10.3	8.6	2.9	0.1
2021	Min Daily	0.0	0.0	0.0	0.2	1.5	4.9	10.3	8.4	5.7	0.0	0.0	0.0
	Monthly Mean	0.0	0.0	0.2	0.8	3.5	8.4	12.8	11.6	7.8	2.7	0.1	0.0
	Max Daily	0.0	0.0	0.6	2.0	5.6	16.2	15.7	14.7	9.9	5.4	0.5	0.6
2022	Min Daily	0.0	0.0	0.0	0.1	1.3	3.8	8.4	10.4	5.5	0.9	0.0	0.0
	Monthly Mean	0.0	0.0	0.2	0.8	2.5	6.3	10.1	12.2	8.2	4.7	0.0	0.0
	Max Daily	0.0	0.1	0.8	2.1	3.9	9.8	13.5	13.8	11.8	8.0	0.4	0.0
2023	Min Daily	0.0	0.0	0.0	0.0	0.5	6.2	-	-	-	-	-	-
	Monthly Mean	0.0	0.0	0.0	0.1	5.1	9.0	-	-	-	-	-	-
	Max Daily	0.0	0.0	0.0	0.5	8.8	11.4	-	-	-	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 8-13.xlsx]Table B2.26 ST-15 DEEP

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.15 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-14 KO

The ST-14 KO station was installed in a lower reach of Davidson Creek on November 4, 2015. The station is shown in Photo B 2.14. On September 22, 2023, the previously installed Onset Tidbit v2 temperature data logger was found missing with its cables detached; the instrument was replaced on September 26, 2023. The station currently consists of a new Onset TidbiT v2 temperature data logger held in the center of a short section of aluminum pipe that is attached to a double concrete cinder block, which is placed in a riffle, approximately 5 m upstream from its original location. The recorded and measured temperatures are shown on Figure B 2.14. A summary of manual water temperature measurements is provided in Table B 2.27. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.28.

Photo B 2.14 Lower Davidson Creek Water Temperature Station ST-14 KO (September 26, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 14-17]B2.14 ST-14 KO

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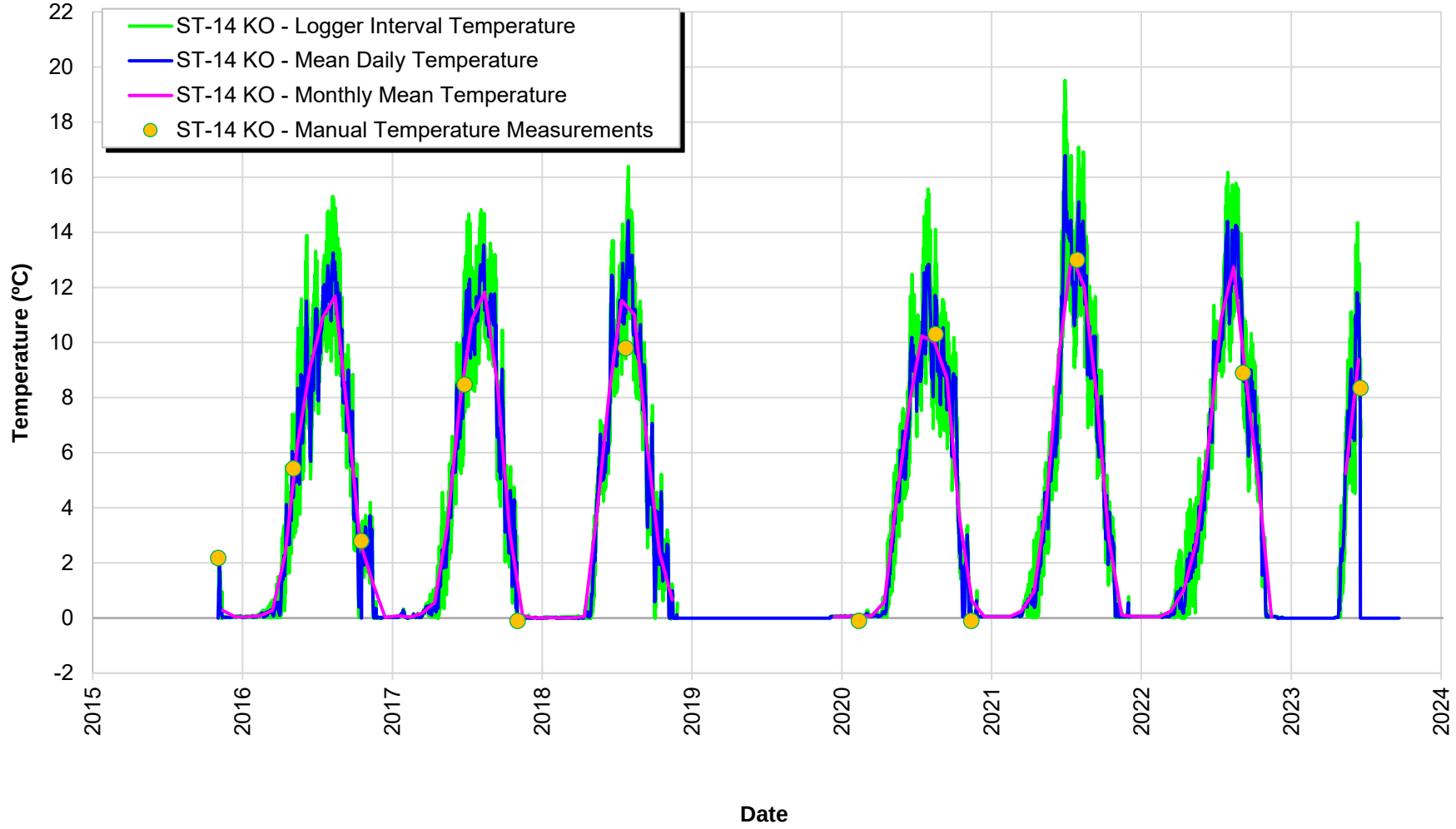


NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
3. TID-BIT SENSOR AND DATA LOGGER DISCOVERED LOST NOVEMBER 2019, SENSOR PREVIOUSLY DOWNLOADED NOVEMBER 2018. NEW SENSOR INSTALLED DECEMBER 2019. NO DATA RECORD AVAILABLE FOR THE PERIOD OF NOVEMBER 2018 TO DECEMBER 2019.
4. DATA LOGGER CABLE DISCOVERED BROKEN SEPTEMBER 22, 2023; DATA AFTER JUNE 20, 2023 ARE UNAVAILABLE. NEW DATA LOGGER INSTALLED SEPTEMBER 26, 2023, DATA WERE NOT DOWNLOADED.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-14 KO WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.14

REV 0

Knight Piésold CONSULTING

TABLE B 2.27

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-14 KO MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:29	2.19	2.24	-0.05	
5-May-16	13:33	5.43	4.97	0.46	
18-Oct-16	11:30	2.80	2.77	0.03	
27-Jun-17	10:10	8.48	8.44	0.04	
3-Nov-17	12:30	-0.10	0.00	-0.10	
25-Jul-18	9:30	9.80	10.10	-0.30	
13-Feb-20	11:44	-0.10	0.11	-0.21	
18-Aug-20	9:58	10.30	10.25	0.05	
13-Nov-20	11:44	-0.10	0.05	-0.15	
29-Jul-21	11:49	13.00	12.94	0.06	
7-Sep-22	13:50	8.90	8.87	0.03	
20-Jun-23	10:55	8.35	7.22	1.13	
			Average Difference	*0.08*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-14 KO

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.28

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-14 KO
WATER TEMPERATURES (°C)

Print Mar/07/24 13:33:15

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.0	0.0
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.0
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.9	0.1
2016	Min Daily	0.0	0.0	0.1	0.1	4.4	5.7	7.9	9.6	3.6	0.4	0.0	0.0
	Monthly Mean	0.0	0.1	0.3	2.3	6.3	9.1	10.9	11.7	7.3	2.8	1.3	0.0
	Max Daily	0.1	0.2	0.6	4.1	8.8	11.5	12.8	13.2	9.6	5.1	3.7	0.0
2017	Min Daily	0.0	0.0	0.0	0.1	1.8	5.3	9.4	10.2	5.0	0.4	0.0	0.0
	Monthly Mean	0.1	0.0	0.2	0.6	3.3	7.8	10.8	11.8	8.4	3.1	0.1	0.0
	Max Daily	0.3	0.1	0.4	1.9	5.6	11.3	12.3	13.5	11.8	5.7	2.0	0.0
2018	Min Daily	0.0	0.0	0.0	0.0	0.3	5.1	9.1	9.3	2.9	0.6	0.0	-
	Monthly Mean	0.0	0.0	0.0	0.1	3.8	8.3	11.5	11.0	6.2	2.4	0.7	-
	Max Daily	0.0	0.0	0.0	0.2	6.7	12.4	14.4	13.2	9.2	4.6	2.7	-
2019	Min Daily	-	-	-	-	-	-	-	-	-	-	-	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	-	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	-	0.1
2020	Min Daily	0.1	0.1	0.1	0.1	2.4	5.0	7.5	7.7	5.9	0.1	0.1	0.0
	Monthly Mean	0.1	0.1	0.1	0.6	4.3	7.8	10.2	10.0	8.7	3.6	0.6	0.1
	Max Daily	0.1	0.1	0.2	2.4	6.8	10.2	12.8	12.8	10.5	8.9	3.0	0.1
2021	Min Daily	0.1	0.1	0.1	0.4	1.9	5.9	10.6	8.7	5.8	0.1	0.0	0.0
	Monthly Mean	0.1	0.1	0.2	1.0	4.2	9.6	13.1	12.0	8.0	2.8	0.1	0.1
	Max Daily	0.1	0.1	0.7	2.1	6.6	16.8	16.1	15.1	10.2	5.6	0.5	0.6
2022	Min Daily	0.1	0.0	0.0	0.2	1.4	3.9	9.2	10.7	5.9	0.8	0.0	-
	Monthly Mean	0.1	0.1	0.3	1.0	2.7	6.4	10.9	12.7	8.6	4.8	0.1	-
	Max Daily	0.1	0.1	1.0	2.4	4.0	10.1	14.4	14.3	12.2	8.2	0.1	-
2023	Min Daily	-	-	-	-	0.8	6.4	-	-	-	-	-	-
	Monthly Mean	-	-	-	-	5.2	9.4	-	-	-	-	-	-
	Max Daily	-	-	-	-	9.0	11.8	-	-	-	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 14-17.xlsx]Table B2.28 ST-14 KO

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.

2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

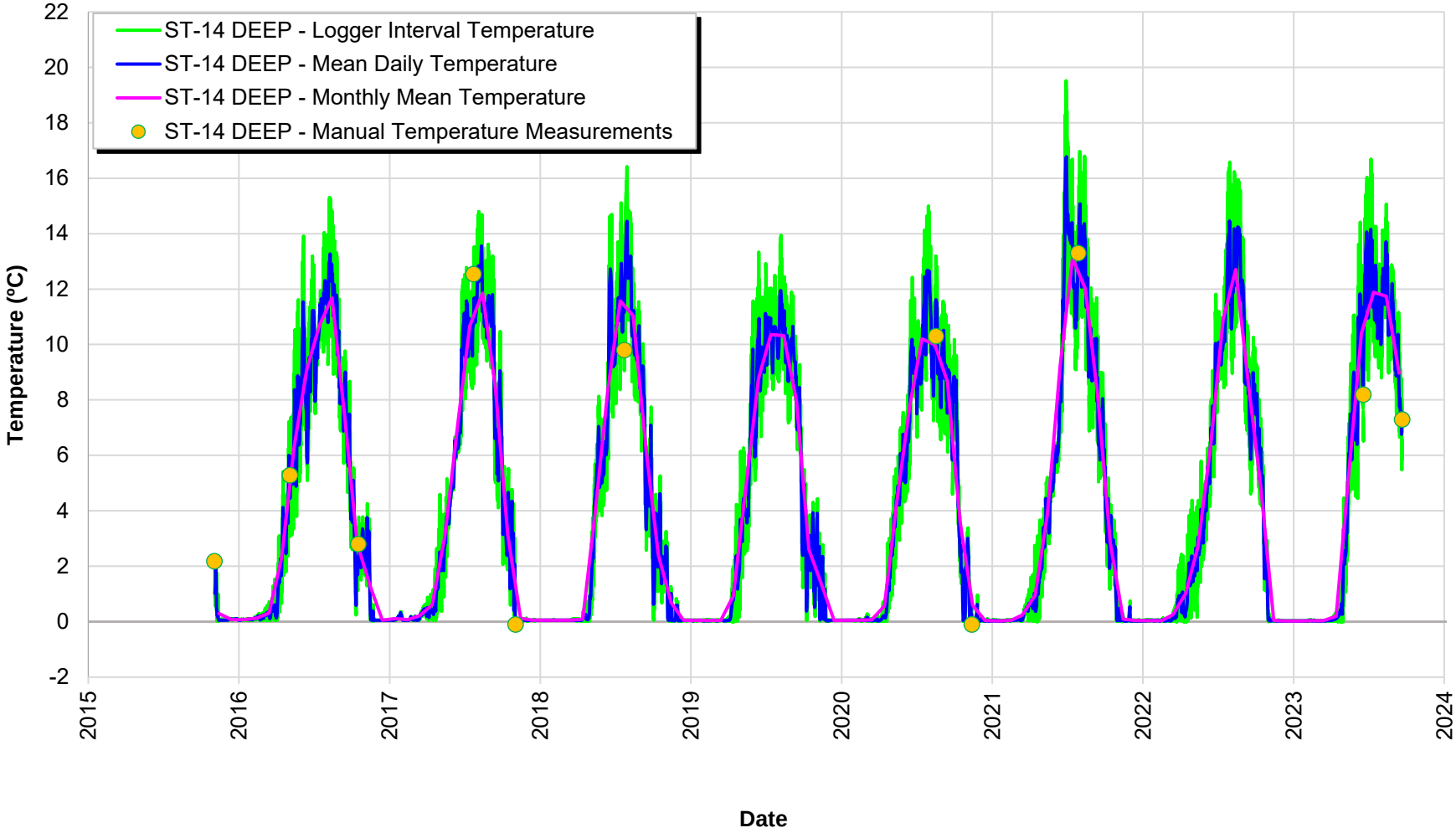
3. TID-BIT SENSOR AND DATA LOGGER DISCOVERED LOST NOVEMBER 2019, SENSOR PREVIOUSLY DOWNLOADED NOVEMBER 2018. NEW SENSOR INSTALLED DECEMBER 2019. NO DATA RECORD AVAILABLE FOR THE PERIOD OF NOVEMBER 2018 TO DECEMBER 2019.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.16 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-14 DEEP

The ST-14 DEEP station was installed in a lower reach of Davidson Creek on November 4, 2015. The station is shown in Photo B 2.15. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured temperatures are shown on Figure B 2.15. A summary of manual water temperature measurements is provided in Table B 2.29. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.30.

Photo B 2.15 Lower Davidson Creek Water Temperature Station ST-14 DEEP (September 22, 2023)



NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-14-DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.15

REV 0

Knight Piésold CONSULTING

TABLE B 2.29

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-14 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:29	2.19	2.21	-0.02	
5-May-16	13:20	5.29	5.10	0.19	
18-Oct-16	11:15	2.80	2.69	0.11	
24-Jul-17	15:05	12.55	12.39	0.16	
3-Nov-17	11:45	-0.10	0.05	-0.15	
25-Jul-18	9:35	9.80	9.87	-0.07	
8-Nov-19	11:00	6.59	-	-	No logger data available
18-Aug-20	10:10	10.30	10.47	-0.17	
13-Nov-20	11:32	-0.10	0.02	-0.12	
29-Jul-21	12:00	13.30	12.06	1.24	
20-Jun-23	11:05	8.20	7.34	0.86	
22-Sep-23	10:14	7.30	6.26	1.05	
			Average Difference	*0.28*	

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NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.30

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-14 DEEP
WATER TEMPERATURES (°C)

Print Mar/07/24 13:33:15

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.1	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.9	0.1
2016	Min Daily	0.1	0.1	0.1	0.1	4.5	5.7	7.9	9.6	3.7	0.6	0.1	0.1
	Monthly Mean	0.1	0.1	0.3	2.3	6.3	9.1	10.7	11.7	7.3	2.8	1.3	0.1
	Max Daily	0.1	0.2	0.6	4.1	8.9	11.5	12.3	13.3	9.6	5.1	3.8	0.1
2017	Min Daily	0.1	0.1	0.1	0.2	1.8	4.8	9.6	10.2	5.1	0.4	0.0	0.0
	Monthly Mean	0.1	0.1	0.2	0.6	3.1	7.0	10.7	11.9	8.4	3.1	0.1	0.1
	Max Daily	0.3	0.2	0.5	1.9	4.7	10.7	11.7	13.6	11.8	5.8	2.1	0.1
2018	Min Daily	0.1	0.1	0.0	0.0	0.3	5.2	9.3	9.3	3.0	0.6	0.0	0.0
	Monthly Mean	0.1	0.1	0.1	0.1	4.0	8.4	11.6	11.0	6.2	2.4	0.7	0.1
	Max Daily	0.1	0.1	0.1	0.3	7.0	12.7	14.4	13.2	9.2	4.6	2.7	0.3
2019	Min Daily	0.0	0.0	0.0	0.0	2.8	5.9	9.0	8.7	2.4	0.4	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.9	4.8	8.8	10.4	10.3	7.9	2.6	1.3	0.0
	Max Daily	0.1	0.1	0.1	2.4	9.2	10.9	11.1	12.0	10.7	5.0	3.9	0.1
2020	Min Daily	0.1	0.0	0.0	0.0	2.4	5.0	7.5	7.7	5.8	0.0	0.0	0.0
	Monthly Mean	0.1	0.1	0.1	0.6	4.3	7.8	10.2	10.0	8.7	3.6	0.6	0.0
	Max Daily	0.1	0.1	0.2	2.3	6.8	10.2	12.7	12.7	10.5	8.8	3.0	0.1
2021	Min Daily	0.0	0.0	0.0	0.4	1.9	5.7	10.6	8.7	5.8	0.0	0.0	0.0
	Monthly Mean	0.0	0.0	0.2	0.9	3.9	9.2	13.1	12.0	8.0	2.8	0.1	0.0
	Max Daily	0.1	0.1	0.7	2.1	5.5	16.8	16.1	15.1	10.2	5.6	0.5	0.5
2022	Min Daily	0.0	0.0	0.0	0.2	1.4	4.0	9.2	10.6	5.9	0.8	0.0	0.0
	Monthly Mean	0.0	0.0	0.2	1.0	2.7	6.4	10.9	12.7	8.5	4.8	0.0	0.0
	Max Daily	0.1	0.1	0.9	2.4	4.0	10.0	14.5	14.2	12.2	8.2	0.1	0.0
2023	Min Daily	0.0	0.0	0.0	0.0	0.8	6.4	10.2	10.0	6.8	-	-	-
	Monthly Mean	0.0	0.0	0.0	0.2	5.2	10.4	11.9	11.7	9.0	-	-	-
	Max Daily	0.0	0.1	0.1	0.7	9.0	14.1	14.2	13.7	10.9	-	-	-

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NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.17 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-08 KO

The ST-08 KO station was installed in a lower reach of Davidson Creek on November 4, 2015. The station is shown in Photo B 2.16. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a riffle. The recorded and measured temperatures are shown on Figure B 2.16. A summary of manual water temperature measurements is provided in Table B 2.31. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.32.

Photo B 2.16 Lower Davidson Creek Water Temperature Station ST-08 KO (September 22, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 14-17]B2.16 ST-08 KO

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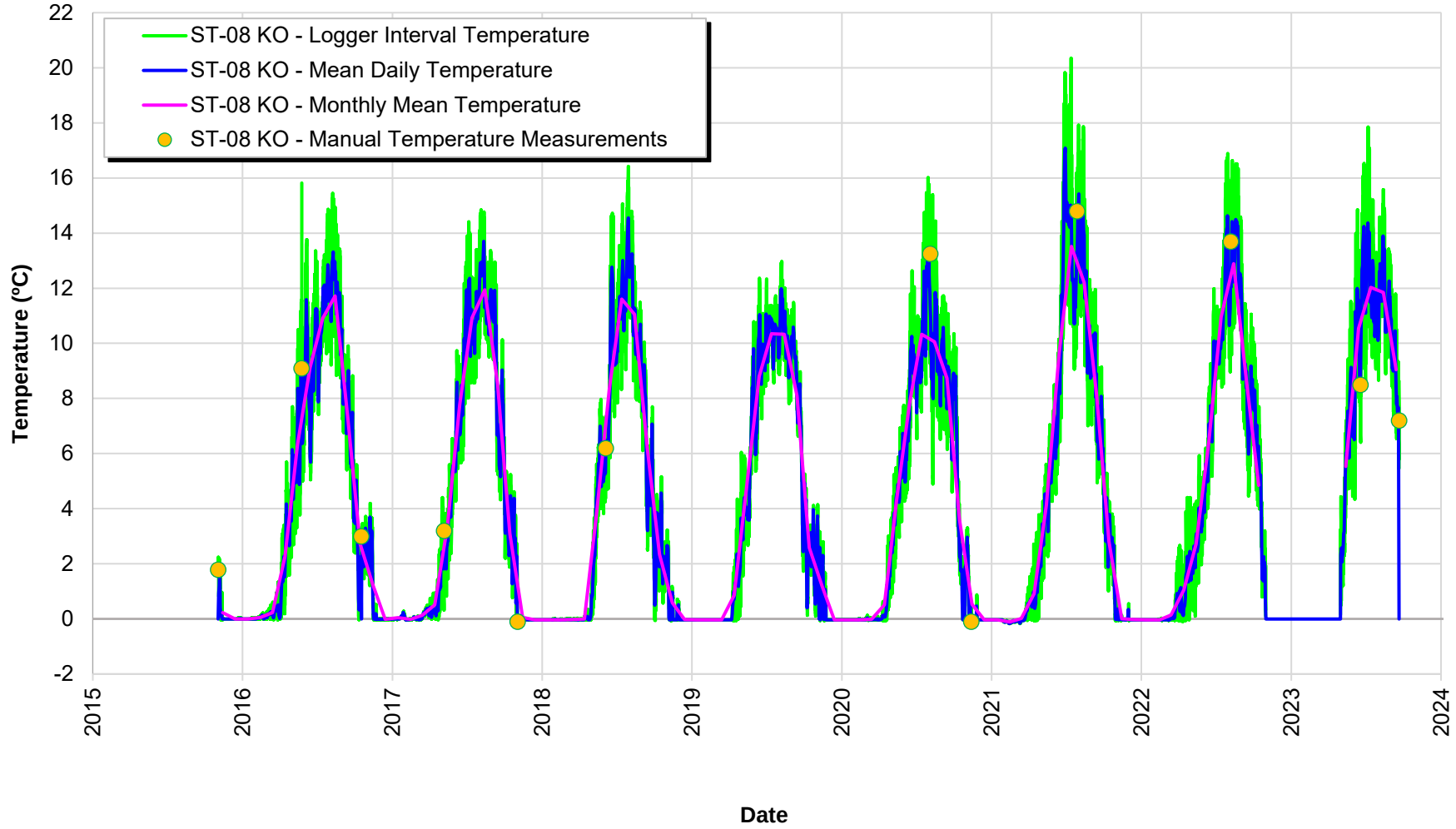


NOTES:
1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION
ST-08 KO
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.16

REV 0

Knight Piésold CONSULTING

TABLE B 2.31

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-08 KO MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:00	1.79	1.86	-0.07	
25-May-16	11:56	9.10	9.04	0.06	
18-Oct-16	13:15	3.00	3.01	-0.01	
8-May-17	13:25	3.20	2.48	0.72	
3-Nov-17	14:40	-0.10	0.02	-0.12	
6-Jun-18	13:10	6.20	5.92	0.28	
5-Aug-20	13:15	13.25	12.87	0.38	
13-Nov-20	12:13	-0.10	-0.03	-0.07	
29-Jul-21	13:15	14.80	18.41	-3.61	
8-Aug-22	13:40	13.70	12.73	0.97	
20-Jun-23	10:45	8.50	8.30	0.21	
22-Sep-23	9:56	7.20	5.80	1.40	
			Average Difference	*0.01*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-08 KO

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 2.32

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-08 KO
WATER TEMPERATURES (°C)

Print Mar/07/24 13:33:15

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.0	0.0
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.2	0.0
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.9	0.0
2016	Min Daily	0.0	0.0	0.0	0.0	4.3	5.7	7.9	9.6	3.5	0.3	0.0	0.0
	Monthly Mean	0.0	0.1	0.2	2.3	6.3	9.1	10.9	11.7	7.3	2.7	1.2	0.0
	Max Daily	0.0	0.2	0.5	4.2	8.9	11.6	12.8	13.3	9.6	5.0	3.7	0.0
2017	Min Daily	0.0	0.0	0.0	0.1	1.8	5.3	9.5	10.3	5.2	0.6	0.0	0.0
	Monthly Mean	0.0	0.0	0.1	0.5	3.3	7.8	10.9	11.9	8.5	3.1	0.1	0.0
	Max Daily	0.2	0.1	0.4	1.8	5.6	11.3	12.4	13.7	11.9	5.8	2.3	0.0
2018	Min Daily	0.0	0.0	0.0	0.0	0.3	5.1	9.3	9.3	2.9	0.5	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.0	4.0	8.4	11.6	11.1	6.2	2.3	0.6	0.0
	Max Daily	0.0	0.0	0.0	0.1	7.0	12.8	14.6	13.2	9.2	4.6	2.7	0.2
2019	Min Daily	0.0	0.0	0.0	0.0	2.8	6.0	9.1	8.7	2.4	0.4	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.9	4.7	8.8	10.3	10.3	8.1	2.6	1.2	0.0
	Max Daily	0.0	0.0	0.0	2.4	8.9	11.0	11.1	12.0	10.6	4.9	3.7	0.0
2020	Min Daily	0.0	0.0	0.0	0.0	2.4	5.0	7.5	7.7	5.8	0.0	0.0	0.0
	Monthly Mean	0.0	0.0	0.0	0.5	4.3	7.8	10.3	10.1	8.7	3.6	0.5	0.0
	Max Daily	0.0	0.0	0.0	2.3	6.7	10.3	13.0	13.1	10.6	8.9	3.0	0.0
2021	Min Daily	-0.1	-0.2	-0.2	0.4	1.9	5.8	10.7	8.7	5.8	0.0	0.0	0.0
	Monthly Mean	0.0	-0.1	0.0	0.9	4.1	9.6	13.5	12.2	8.1	2.8	0.0	0.0
	Max Daily	0.0	-0.1	0.6	2.1	6.6	17.1	16.4	15.4	10.4	5.6	0.4	0.3
2022	Min Daily	0.0	0.0	0.0	0.1	1.4	3.9	9.2	10.6	6.0	0.7	-	-
	Monthly Mean	0.0	0.0	0.1	1.0	2.7	6.4	11.0	12.9	8.7	4.8	-	-
	Max Daily	0.0	0.0	0.9	2.5	4.0	10.1	14.6	14.5	12.4	8.3	-	-
2023	Min Daily	-	-	-	-	2.1	6.5	10.2	10.1	6.9	-	-	-
	Monthly Mean	-	-	-	-	5.5	10.5	12.0	11.8	9.0	-	-	-
	Max Daily	-	-	-	-	9.1	14.2	14.4	13.9	10.9	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 14-17.xlsx]Table B2.32 ST-08 KO

NOTES:

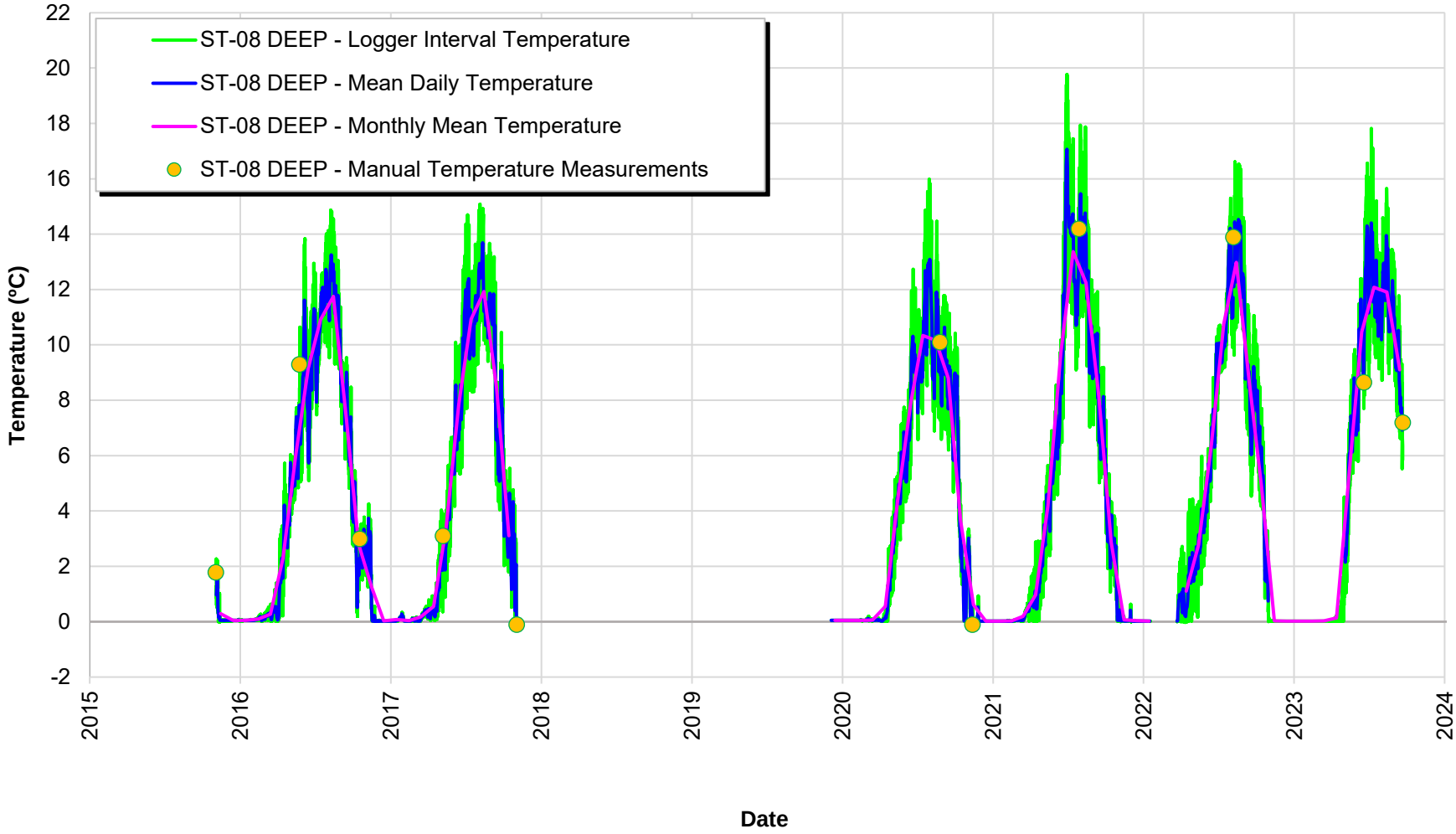
1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

2.18 LOWER DAVIDSON CREEK WATER TEMPERATURE STATION ST-08 DEEP

The ST-08 DEEP station was installed in a lower reach of Davidson Creek on November 4, 2015. The station was damaged by a collapsing bank on November 3, 2017 and reinstalled on December 5, 2019. The station is shown in Photo B 2.17. The station consists of an Onset TidbiT v2 temperature data logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured water temperatures are shown on Figure B 2.17. A summary of manual water temperature measurements is provided in Table B 2.33. Daily maximum and minimum and monthly mean temperatures are presented in Table B 2.34.

Photo B 2.17 Lower Davidson Creek Water Temperature Station ST-08 DEEP (September 22, 2023)



NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
3. TID-BIT SENSOR AND DATA LOGGER DISCOVERED LOST JUNE 2018, SENSOR PREVIOUSLY DOWNLOADED NOVEMBER 2017. NEW SENSOR INSTALLED DECEMBER 2019. NO DATA RECORD AVAILABLE FOR THE PERIOD OF NOVEMBER 2017 TO DECEMBER 2019.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-08 DEEP WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 2.17

REV 0

Knight Piésold CONSULTING

TABLE B 2.33

BW GOLD LTD
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK
STATION ST-08 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
4-Nov-15	11:00	1.79	1.94	-0.15	
25-May-16	12:25	9.30	9.29	0.01	
18-Oct-16	13:15	3.00	2.82	0.18	
8-May-17	13:10	3.10	2.50	0.60	
3-Nov-17	15:35	-0.10	0.05	-0.15	
26-Aug-20	13:45	10.10	9.11	0.99	
13-Nov-20	12:20	-0.10	0.05	-0.15	
29-Jul-21	13:00	14.20	18.00	-3.80	
8-Aug-22	14:40	13.90	11.03	2.87	
20-Jun-23	10:30	8.65	7.70	0.96	
22-Sep-23	9:40	7.20	5.85	1.35	
			Average Difference	*0.25*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-08 DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 2.34

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LOWER DAVIDSON CREEK TEMPERATURE STATION ST-08 DEEP
WATER TEMPERATURES (°C)

Print Mar/07/24 13:33:15

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.0	0.0
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	0.3	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	1.9	0.1
2016	Min Daily	0.0	0.0	0.1	0.1	4.0	5.7	7.9	9.8	3.7	0.5	0.0	0.0
	Monthly Mean	0.0	0.1	0.3	2.3	6.0	9.2	10.9	11.8	7.4	2.8	1.3	0.0
	Max Daily	0.1	0.2	0.6	4.2	7.8	11.6	12.7	13.3	9.8	5.1	3.7	0.0
2017	Min Daily	0.0	0.0	0.0	0.1	1.9	5.3	9.5	10.3	5.1	0.4	-	-
	Monthly Mean	0.1	0.0	0.2	0.5	3.4	7.9	10.9	11.9	8.5	3.1	-	-
	Max Daily	0.3	0.1	0.4	1.8	5.6	11.3	12.4	13.7	11.8	5.7	-	-
2019	Min Daily	-	-	-	-	-	-	-	-	-	-	-	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	-	0.1
	Max Daily	-	-	-	-	-	-	-	-	-	-	-	0.1
2020	Min Daily	0.1	0.0	0.0	0.0	2.4	5.0	7.5	7.8	5.8	0.0	0.0	0.0
	Monthly Mean	0.1	0.1	0.1	0.6	4.4	7.8	10.3	10.2	8.8	3.7	0.6	0.0
	Max Daily	0.1	0.1	0.1	2.3	6.9	10.3	13.0	13.1	10.6	9.0	3.0	0.0
2021	Min Daily	0.0	0.0	0.0	0.5	2.0	5.9	10.7	10.2	0.0	0.0	0.0	0.0
	Monthly Mean	0.0	0.0	0.2	1.0	4.2	9.7	13.4	12.2	8.1	2.9	0.1	0.0
	Max Daily	0.0	0.1	0.6	2.1	6.6	17.1	16.4	15.5	0.0	0.0	0.0	0.0
2022	Min Daily	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Monthly Mean	0.0	-	-	1.1	2.8	6.4	10.7	13.0	8.7	4.9	0.0	0.0
	Max Daily	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2023	Min Daily	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-
	Monthly Mean	0.0	0.0	0.0	0.1	5.2	10.5	12.1	11.9	9.1	-	-	-
	Max Daily	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B2 14-17.xlsx]Table B2.34 ST-08 DEEP

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. TID-BIT SENSOR AND DATA LOGGER DISCOVERED LOST JUNE 2018, SENSOR PREVIOUSLY DOWNLOADED NOVEMBER 2017. NEW SENSOR INSTALLED DECEMBER 2019. NO DATA RECORD AVAILABLE FOR THE PERIOD OF NOVEMBER 2017 TO DECEMBER 2019.

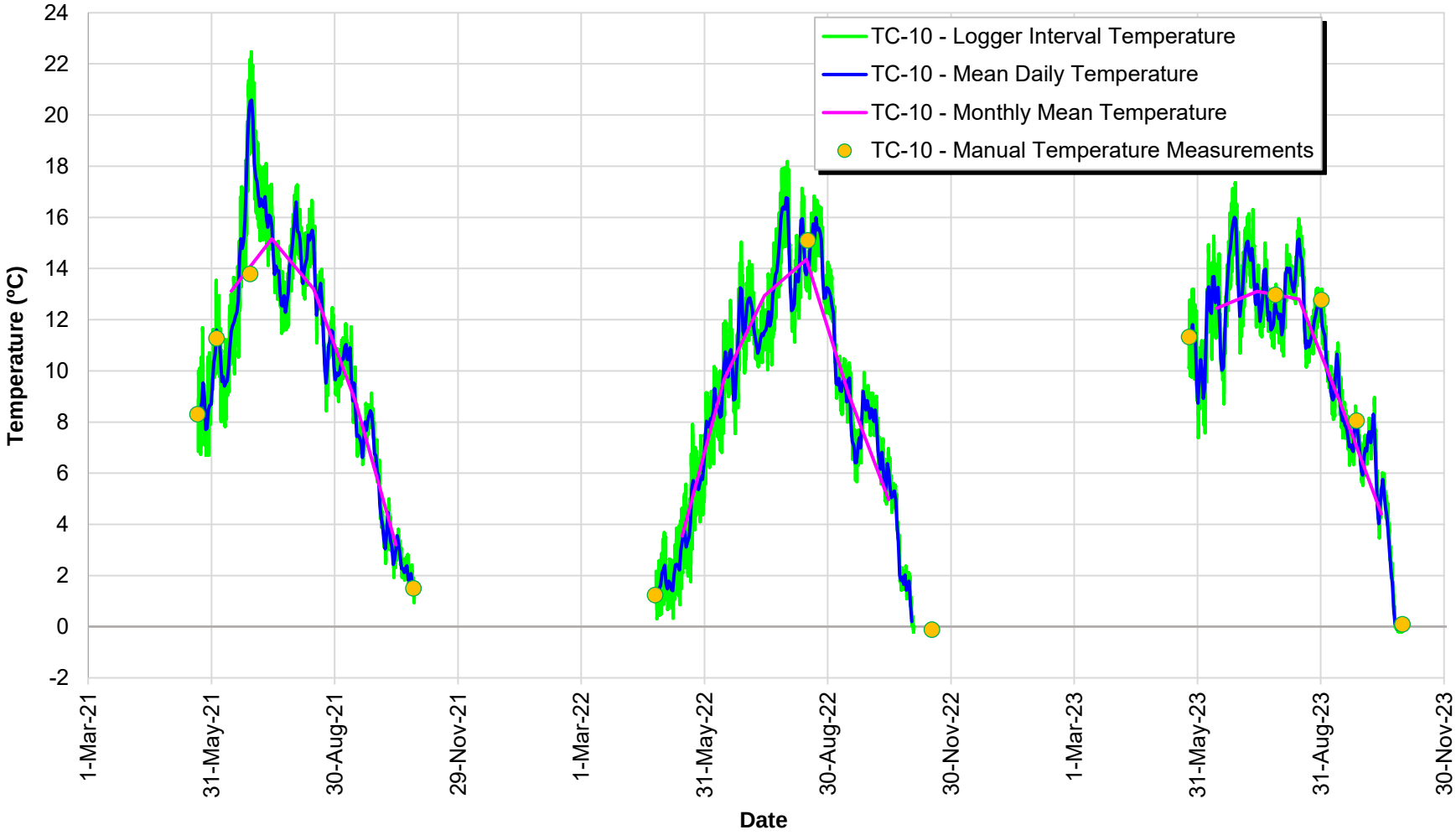
REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

3.0 TURTLE CREEK WATERSHED

3.1 TURTLE CREEK HYDROLOGY STATION TC-10

The TC-10 station was installed on Turtle Creek on May 21, 2021, and is the only station located in the Turtle Creek watershed. The station location is shown on Figure 2.1 of the main report. The Turtle Creek Watershed has not been affected by the Project thus far. The TC10 station replaced the H6 station, which was decommissioned at the end of 2019. The H6 station recorded temperature data during the open water seasons of 2018 and 2019. The H6 temperature data are included in the 2020 Water Temperature Baseline Report (KP, 2021). The TC10 station is shown in Photo B 3.1 and consists of a Levelogger water level data logger installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2021, 2022 and 2023. Recorded temperatures were verified with manual measurements from May 2021 onwards. The recorded temperatures and manual measurements are shown on Figure B 3.1. The manual water temperature measurements are also summarized in Table B 3.1. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 3.2.

Photo B 3.1 Turtle Creek Hydrology Station TC-10 (August 31, 2023)



NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 3.1

REV 0

Knight Piésold CONSULTING

TABLE B 3.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

TURTLE CREEK
STATION TC-10 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:29:28

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
21-May-21	12:00	8.31	7.92	0.39	
4-Jun-21	9:51	11.28	10.85	0.43	
29-Jun-21	9:14	13.79	13.25	0.54	
28-Oct-21	10:30	1.50	1.18	0.32	
25-Apr-22	11:40	1.24	1.26	-0.02	
16-Aug-22	15:33	15.10	14.37	0.73	
16-Nov-22	11:48	-0.11	-0.31	0.20	
25-May-23	13:45	11.33	11.21	0.12	
28-Jul-23	12:50	12.98	12.89	0.09	
31-Aug-23	14:27	12.78	12.75	0.03	
26-Sep-23	11:11	8.06	7.92	0.14	
30-Oct-23	12:07	0.10	-0.11	0.21	
			Average Difference	*0.27*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]TC-10

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 3.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

TURTLE CREEK HYDROLOGY STATION TC-10
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Min Daily	-	-	-	-	-	9.4	12.3	9.5	6.6	1.7	-	-
	Monthly Mean	-	-	-	-	-	13.1	15.2	13.2	8.8	3.2	-	-
	Max Daily	-	-	-	-	-	20.6	19.8	16.6	11.0	6.1	-	-
2022	Min Daily	-	-	-	-	1.4	7.4	10.7	12.4	6.4	0.9	-	-
	Monthly Mean	-	-	-	-	3.5	9.7	12.9	14.4	9.1	5.0	-	-
	Max Daily	-	-	-	-	6.3	13.2	16.8	16.7	13.1	8.5	-	-
2023	Min Daily	-	-	-	-	-	8.7	11.6	10.9	6.1	-0.1	-	-
	Monthly Mean	-	-	-	-	-	12.4	13.1	12.8	8.7	4.4	-	-
	Max Daily	-	-	-	-	-	16.0	15.1	15.2	11.8	8.3	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B3.2 TC-10

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H6B".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

4.0 TATELKUZ LAKE WATERSHED

4.1 GENERAL

There are four (4) temperature monitoring stations currently operated in the Tatelkuz Lake Watershed. The stations are installed on Tatelkuz Lake (TL01H), Creek 661 (66102), a tributary stream upstream of its confluence with Creek 661 (66109), and Chedakuz Creek (CC-12). The station locations are shown on Figure 2.1 of the main report. The Tatelkuz Watershed has not been affected by the Project thus far.

4.2 CREEK 661 HYDROLOGY STATION 661-02

The 661-02 station, previously known as the H1 station, was installed on Creek 661 at the outlet of a culvert below the forest service road, on May 19, 2011. The station is shown in Photo B 4.1 and consists of a KPSI pressure transducer installed inside a protective aluminum pipe secured to the bank of the creek just downstream of the culvert, and wired to a NEON Micrologger in a protective case attached to a tree. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2011 through 2023. Recorded temperatures were verified with manual measurements from August 2016 onwards. The recorded temperatures and manual measurements are shown in Figure B 4.1. The manual water temperature measurements are also summarized in Table B 4.1. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 4.2.

Photo B 4.1 Creek 661 Hydrology Station 661-02 (September 18, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1]B4.1 661-02

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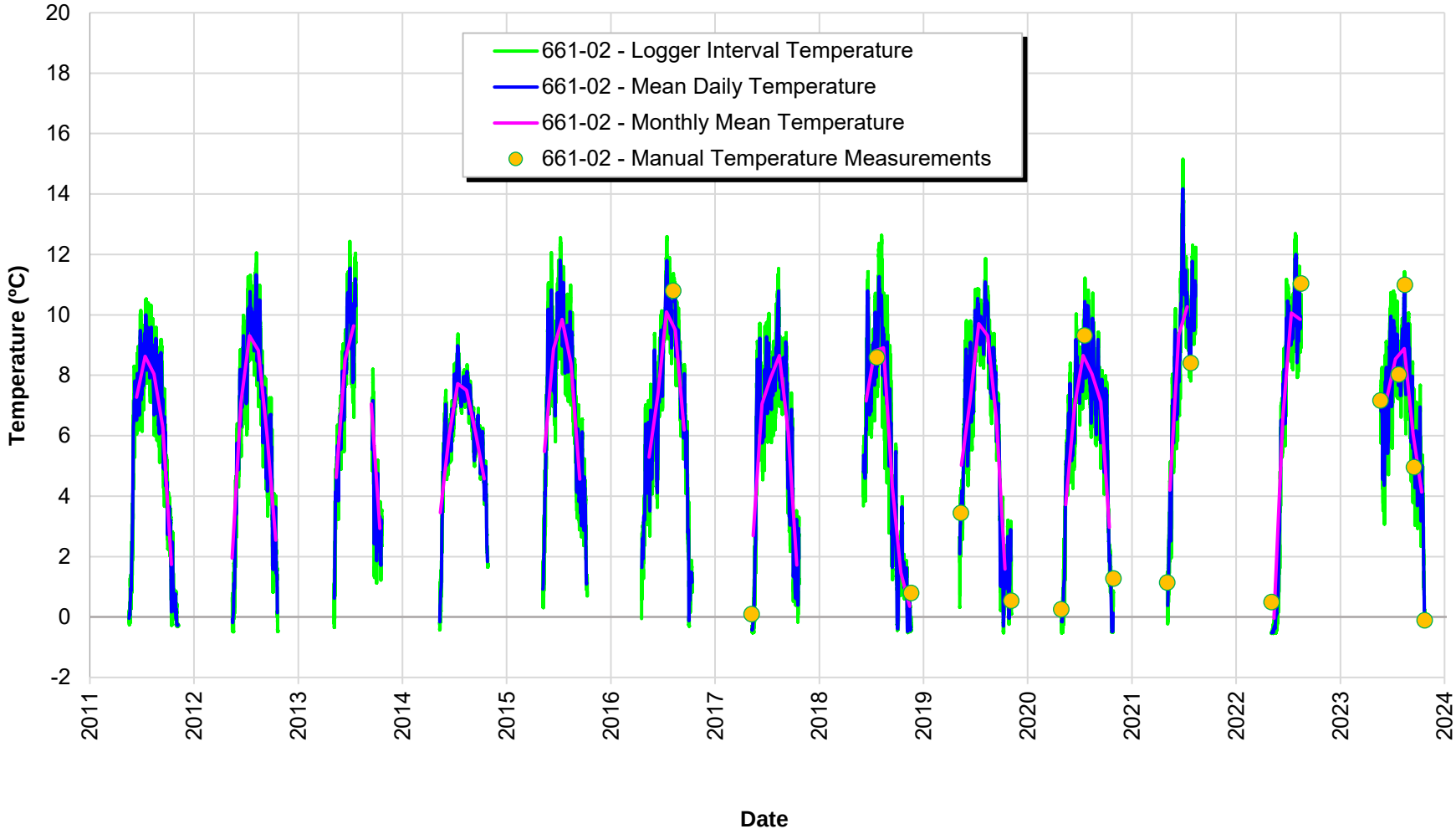

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H1".

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 661 HYDROLOGY STATION 661-02 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 4.1

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

Knight Piésold CONSULTING

TABLE B 4.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

CREEK 661
STATION 661-02 MANUAL WATER TEMPERATURE MEASUREMENTS

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Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
8-Aug-16	9:58	10.80	10.07	0.74	
10-May-17	12:46	0.10	-0.39	0.49	
26-Oct-17	13:00	1.80	-	-	No logger data available
23-Jul-18	10:20	8.60	8.47	0.13	
20-Nov-18	12:06	0.80	-0.08	0.88	
17-Dec-18	12:46	0.10	-	-	No logger data available
13-May-19	11:32	3.45	3.02	0.43	
6-Nov-19	12:30	0.54	0.15	0.40	
29-Apr-20	11:10	0.26	-0.17	0.43	
20-Jul-20	11:01	9.32	8.98	0.34	
29-Oct-20	9:44	1.28	0.87	0.41	
9-Dec-20	9:12	-0.02	-	-	No logger data available
6-May-21	11:20	1.15	0.70	0.45	
27-Jul-21	10:37	8.41	8.00	0.42	
28-Oct-21	10:36	0.74	11.54	-10.80	Omitted - Erroneous logger temp.
6-May-22	12:30	0.50	0.53	-0.03	
18-Aug-22	12:15	11.04	10.76	0.28	
10-Nov-22	11:55	-0.10	-	-	No logger data available
24-May-23	2:30	7.17	6.98	0.19	
26-Jul-23	11:02	8.03	7.80	0.23	
17-Aug-23	10:41	11.00	10.69	0.31	
18-Sep-23	10:41	4.96	5.24	-0.28	
25-Oct-23	9:00	-0.10	-0.16	0.06	
			Average Difference	*0.33*	

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NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 4.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CREEK 661 HYDROLOGY STATION 661-02
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Min Daily	-	-	-	-	-	3.2	7.2	6.3	4.2	0.0	-	-
	Monthly Mean	-	-	-	-	-	7.3	8.6	8.0	6.3	1.7	-	-
	Max Daily	-	-	-	-	-	9.5	10.0	9.6	8.8	3.7	-	-
2012	Min Daily	-	-	-	-	-0.2	4.9	7.1	5.8	4.2	0.1	-	-
	Monthly Mean	-	-	-	-	2.0	7.1	9.3	8.8	6.0	2.5	-	-
	Max Daily	-	-	-	-	5.3	9.3	10.8	11.3	7.6	5.6	-	-
2013	Min Daily	-	-	-	-	0.6	6.1	7.8	-	2.4	1.7	-	-
	Monthly Mean	-	-	-	-	4.6	8.5	9.6	-	7.1	2.9	-	-
	Max Daily	-	-	-	-	6.7	11.1	11.6	-	7.2	4.8	-	-
2014	Min Daily	-	-	-	-	-0.2	5.0	6.9	6.7	5.2	1.8	-	-
	Monthly Mean	-	-	-	-	3.5	6.0	7.7	7.5	6.1	4.6	-	-
	Max Daily	-	-	-	-	6.5	7.0	9.0	8.1	6.8	6.1	-	-
2015	Min Daily	-	-	-	-	0.9	6.7	8.1	6.6	2.9	-	-	-
	Monthly Mean	-	-	-	-	5.5	8.9	9.9	8.4	4.6	-	-	-
	Max Daily	-	-	-	-	10.2	10.8	11.8	10.1	6.3	-	-	-
2016	Min Daily	-	-	-	-	3.5	4.1	7.3	8.0	2.8	-	-	-
	Monthly Mean	-	-	-	-	5.3	7.4	10.1	9.5	6.2	-	-	-
	Max Daily	-	-	-	-	6.8	9.5	11.8	10.9	8.1	-	-	-
2017	Min Daily	-	-	-	-	-0.4	5.8	6.7	7.2	3.0	0.4	-	-
	Monthly Mean	-	-	-	-	2.7	7.0	7.9	8.7	6.1	1.7	-	-
	Max Daily	-	-	-	-	8.5	9.2	9.3	10.8	9.1	4.1	-	-
2018	Min Daily	-	-	-	-	-	4.6	6.8	7.0	1.4	-0.4	-0.5	-
	Monthly Mean	-	-	-	-	-	7.1	8.8	8.9	4.3	1.5	0.4	-
	Max Daily	-	-	-	-	-	10.8	11.3	10.8	7.6	3.6	1.6	-
2019	Min Daily	-	-	-	-	2.1	5.0	8.9	7.2	1.0	-0.3	-	-
	Monthly Mean	-	-	-	-	5.0	7.2	9.7	9.3	6.5	1.6	-	-
	Max Daily	-	-	-	-	8.7	9.1	10.5	11.1	8.9	3.4	-	-

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	Min Daily	-	-	-	-	-0.2	5.2	7.1	6.0	4.8	-0.5	-	-
	Monthly Mean	-	-	-	-	3.7	7.0	8.7	8.0	7.1	3.0	-	-
	Max Daily	-	-	-	-	7.7	9.2	10.4	10.3	9.2	7.6	-	-
2021	Min Daily	-	-	-	-	0.4	6.5	8.6	-	-	-	-	-
	Monthly Mean	-	-	-	-	4.2	9.3	10.3	-	-	-	-	-
	Max Daily	-	-	-	-	8.2	14.2	13.5	-	-	-	-	-
2022	Min Daily	-	-	-	-	-0.5	1.9	9.0	8.4	-	-	-	-
	Monthly Mean	-	-	-	-	0.0	6.6	10.1	9.9	-	-	-	-
	Max Daily	-	-	-	-	1.3	9.9	12.0	11.8	-	-	-	-
2023	Min Daily	-	-	-	-	-	4.4	7.0	7.3	3.7	0.2	-	-
	Monthly Mean	-	-	-	-	-	7.3	8.5	8.9	6.0	4.1	-	-
	Max Daily	-	-	-	-	-	10.0	9.8	10.9	8.9	7.0	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B4.2 661-02

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

4.3 CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09

The 661-09 station, previously known as the H11 station, was installed on a tributary to Creek 661 on June 12, 2013. This tributary merges with Creek 661 downstream of the 661-02 and 661-09 stations. The 661-09 station is shown in Photo B 4.2 and consists of two Levelogger water level data loggers installed inside a protective aluminum pipe that is secured to the creek bank. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2013 to 2023. Recorded temperatures were verified with manual measurements from July 2014 onwards. The recorded temperatures and manual measurements are shown on Figure B 4.2. The manual water temperature measurements are also summarized in Table B 4.3. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 4.4.

Photo B 4.2 Creek 661 Tributary Hydrology Station 661-09 (September 19, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1]B4.2 661-09

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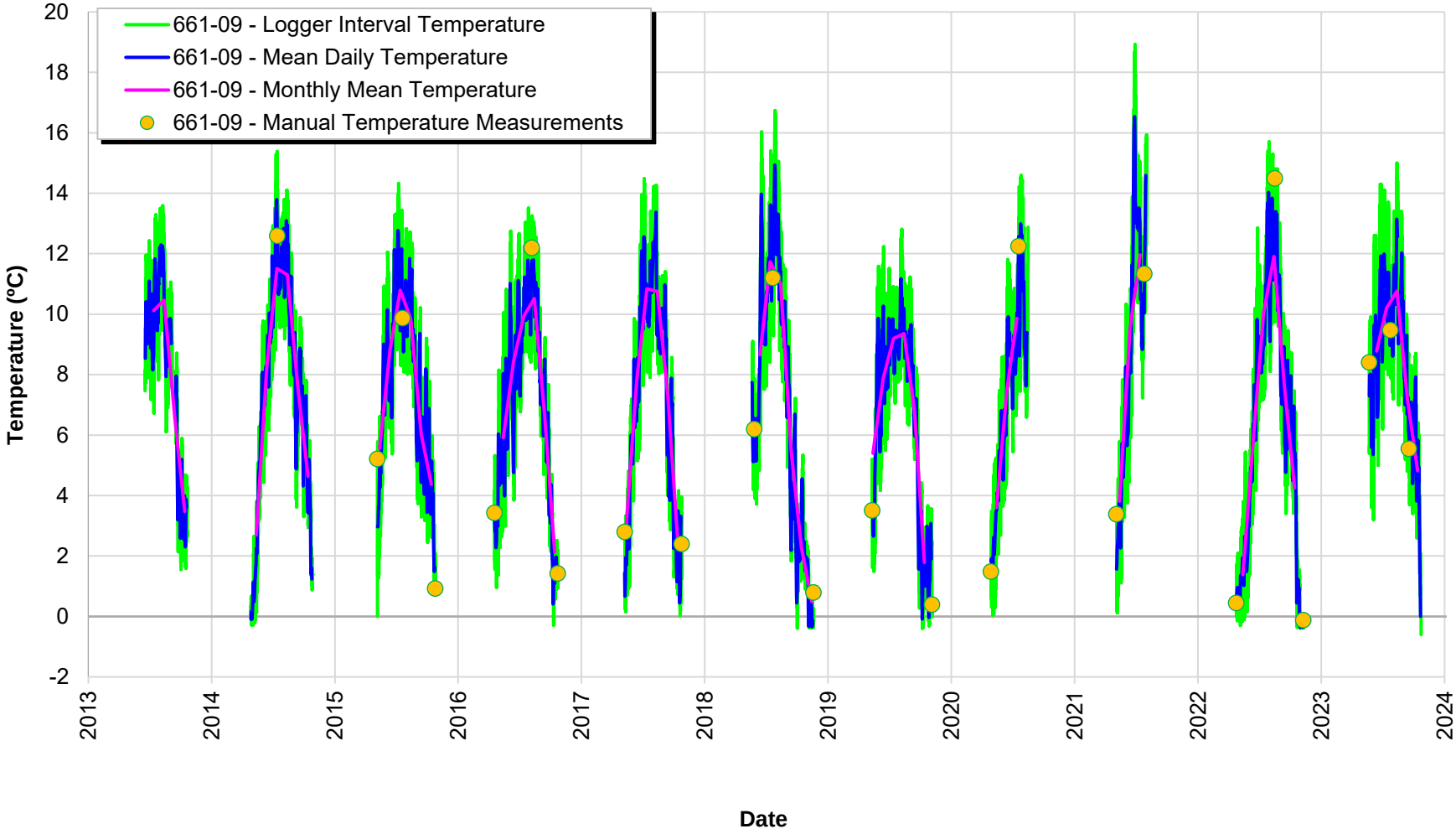

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 4.2

REV 0

Knight Piésold CONSULTING

TABLE B 4.3

BW GOLD LTD
BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY
STATION 661-09 MANUAL WATER TEMPERATURE MEASUREMENTS

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Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
16-Jul-14	10:12	12.60	12.43	0.17	
8-May-15	13:29	5.22	4.84	0.38	
22-Jul-15	9:35	9.88	10.64	-0.76	
27-Oct-15	9:23	0.93	0.90	0.04	
3-Mar-16	12:55	0.06	-	-	No logger data available
19-Apr-16	12:00	3.43	2.77	0.66	
8-Aug-16	12:24	12.20	11.55	0.65	
24-Oct-16	12:50	1.42	1.86	-0.44	
10-May-17	15:16	2.80	2.60	0.20	
26-Oct-17	14:40	2.40	2.00	0.40	
29-May-18	13:25	6.20	5.70	0.50	
23-Jul-18	11:35	11.20	11.07	0.13	
20-Nov-18	15:00	0.80	-0.12	0.92	
17-Dec-18	11:55	0.01	-	-	No logger data available
13-May-19	11:45	3.51	3.18	0.33	
6-Nov-19	11:35	0.40	0.15	0.25	
12-Dec-19	12:45	0.17	-	-	No logger data available
29-Apr-20	13:12	1.49	1.20	0.29	
20-Jul-20	13:45	12.25	11.63	0.62	
6-May-21	13:31	3.39	3.05	0.34	
27-Jul-21	13:40	11.34	10.04	1.31	
28-Oct-21	12:15	1.05	-	-	No logger data available
26-Apr-22	9:50	0.45	0.16	0.30	
18-Aug-22	14:05	14.50	13.74	0.76	
10-Nov-22	13:10	-0.12	-0.38	0.26	
24-May-23	16:38	8.41	8.50	-0.09	
26-Jul-23	12:42	9.47	9.60	-0.13	
19-Sep-23	10:43	5.55	5.60	-0.05	
			Average Difference	*0.29*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]661-09

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 4.4

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CREEK 661 TRIBUTARY HYDROLOGY STATION 661-09
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Min Daily	-	-	-	-	-	-	8.2	7.9	3.2	2.3	-	-
	Monthly Mean	-	-	-	-	-	-	10.1	10.5	6.6	3.5	-	-
	Max Daily	-	-	-	-	-	-	11.8	12.3	9.9	5.2	-	-
2014	Min Daily	-	-	-	-	-0.1	6.3	9.6	8.7	4.9	1.2	-	-
	Monthly Mean	-	-	-	-	2.7	8.2	11.5	11.3	7.6	4.6	-	-
	Max Daily	-	-	-	-	7.1	10.5	13.8	13.1	9.4	7.3	-	-
2015	Min Daily	-	-	-	-	3.0	6.6	8.7	7.1	4.0	1.5	-	-
	Monthly Mean	-	-	-	-	5.6	8.8	10.8	9.9	6.0	4.4	-	-
	Max Daily	-	-	-	-	9.0	12.1	12.8	11.8	9.4	7.5	-	-
2016	Min Daily	-	-	-	-	4.0	4.8	7.3	8.8	3.3	0.4	-	-
	Monthly Mean	-	-	-	-	5.9	8.5	9.9	10.5	6.6	2.1	-	-
	Max Daily	-	-	-	-	8.5	11.1	11.8	11.8	8.5	4.4	-	-
2017	Min Daily	-	-	-	-	0.7	5.0	9.5	8.7	3.8	0.5	-	-
	Monthly Mean	-	-	-	-	3.0	7.8	10.8	10.8	7.3	2.4	-	-
	Max Daily	-	-	-	-	6.0	12.1	12.6	13.4	11.0	3.6	-	-
2018	Min Daily	-	-	-	-	-	5.1	9.0	7.8	1.8	0.4	-0.3	-
	Monthly Mean	-	-	-	-	-	8.7	11.7	11.0	5.5	2.3	0.5	-
	Max Daily	-	-	-	-	-	14.0	14.9	13.3	8.9	4.6	1.9	-
2019	Min Daily	-	-	-	-	2.7	5.4	8.0	7.8	1.6	-0.1	-	-
	Monthly Mean	-	-	-	-	5.4	7.9	9.2	9.4	6.8	1.8	-	-
	Max Daily	-	-	-	-	9.9	10.3	9.9	11.2	9.7	3.8	-	-
2020	Min Daily	-	-	-	-	1.4	4.5	6.9	-	-	-	-	-
	Monthly Mean	-	-	-	-	3.6	7.5	9.9	-	-	-	-	-
	Max Daily	-	-	-	-	6.8	9.9	13.0	-	-	-	-	-
2021	Min Daily	-	-	-	-	1.6	5.6	8.8	-	-	-	-	-
	Monthly Mean	-	-	-	-	3.8	9.5	12.0	-	-	-	-	-
	Max Daily	-	-	-	-	6.9	16.5	14.3	-	-	-	-	-

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	Min Daily	-	-	-	-	0.4	3.0	8.1	9.1	4.8	-0.4	-	-
	Monthly Mean	-	-	-	-	1.4	5.9	10.0	11.9	7.6	4.2	-	-
	Max Daily	-	-	-	-	2.9	9.8	14.0	13.8	11.2	8.0	-	-
2023	Min Daily	-	-	-	-	-	5.4	8.4	8.6	4.4	0.0	-	-
	Monthly Mean	-	-	-	-	-	8.8	10.2	10.8	7.2	4.8	-	-
	Max Daily	-	-	-	-	-	11.9	12.0	13.1	10.4	7.9	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B4.4 661-09

NOTES:

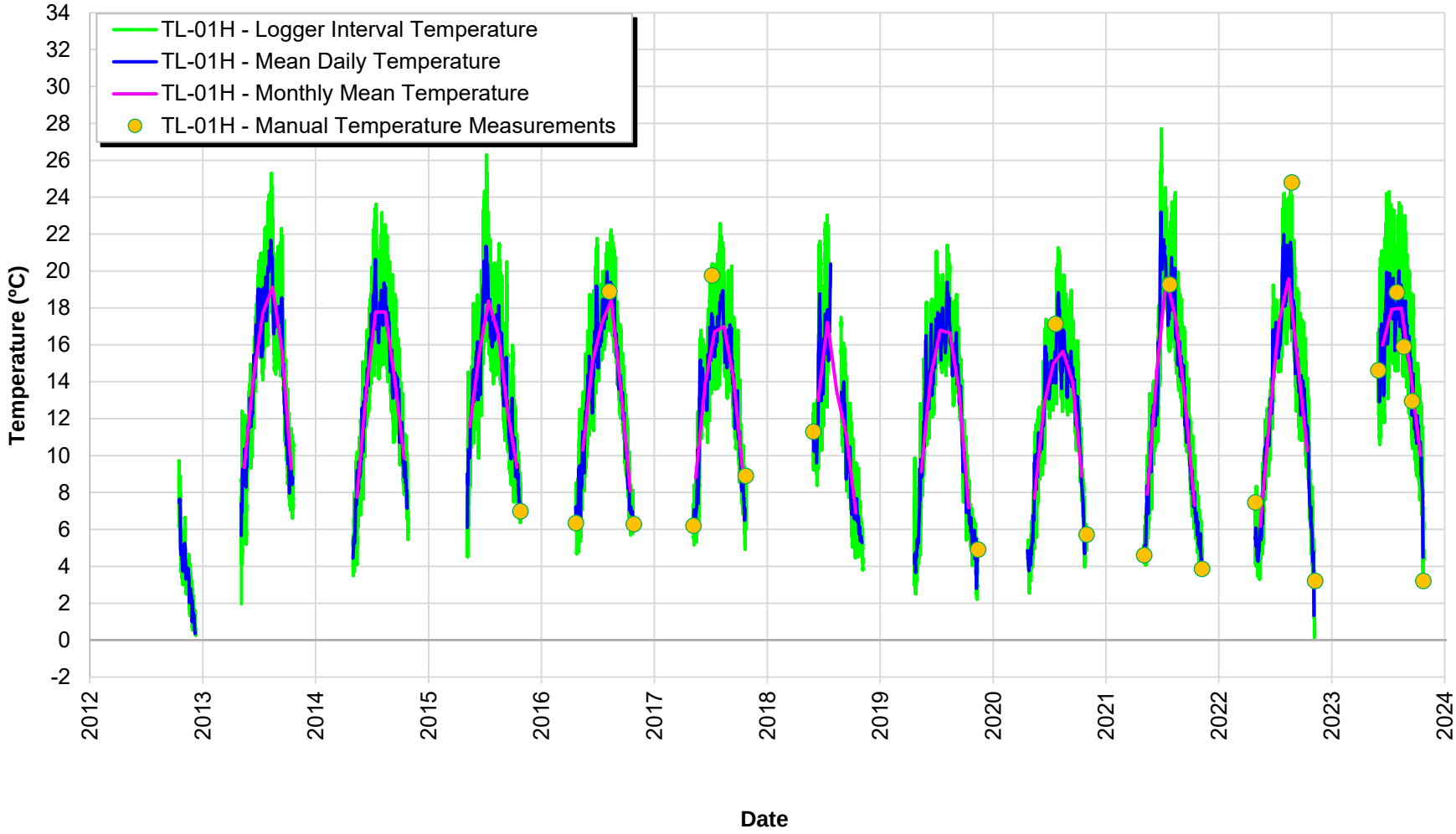
1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H11".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

4.4 TATELKUZ LAKE HYDROLOGY STATION TL-01H

The TL-01H temperature station, previously known as the L1 station, was established on Tatelkuz Lake on May 10, 2012. The station is shown in Photo B 4.3 and consists of a Levelogger water level data logger installed inside a protective aluminum pipe that is secured to the shore of the lake. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2012 through 2023. Recorded temperatures were verified with manual measurements from October 2015 onwards at the TL-01H station. The recorded temperatures and manual measurements are shown on Figure B 4.3. The manual water temperature measurements are also summarized in Table B 4.5. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 4.6.

Photo B 4.3 Tatelkuz Lake Hydrology Station TL-01H (September 18, 2023)



NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

TATELKUZ LAKE HYDROLOGY STATIONS
TL-01H AND CC-10
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 4.3

REV 0

Knight Piésold CONSULTING

TABLE B 4.5

BW GOLD LTD
BLACKWATER GOLD PROJECT

TATELKUZ LAKE
STATION TL-01H MANUAL WATER TEMPERATURE MEASUREMENTS

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Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
26-Oct-15	12:15	6.99	6.88	0.11	
22-Apr-16	8:56	6.35	6.03	0.32	
9-Aug-16	8:09	18.90	18.49	0.41	
27-Oct-16	8:41	6.30	6.09	0.21	
8-May-17	10:07	6.20	5.96	0.24	
7-Jul-17	11:00	19.77	19.28	0.49	
24-Oct-17	13:00	8.90	8.58	0.32	
30-May-18	13:15	11.30	11.02	0.28	
27-Jul-18	12:55	24.00	28.01	-4.01	Omitted - Erroneous logger temp.
14-Nov-19	10:25	4.92	4.65	0.27	
23-Apr-20	14:32	2.01	4.45	-2.44	Omitted - Erroneous manual temp.
22-Jul-20	12:01	17.14	16.74	0.41	
30-Oct-20	12:35	5.72	5.44	0.28	
5-May-21	10:35	4.61	4.21	0.40	
26-Jul-21	11:06	19.27	18.58	0.69	
8-Nov-21	11:33	3.86	3.83	0.04	
29-Apr-22	13:30	7.47	7.47	0.00	
25-Aug-22	14:43	24.80	24.00	0.80	
9-Nov-22	11:25	3.21	3.01	0.20	
1-Jun-23	13:12	14.62	14.10	0.52	
31-Jul-23	11:40	18.85	18.40	0.45	
23-Aug-23	11:37	15.90	15.70	0.20	
18-Sep-23	12:58	12.96	13.10	-0.14	
25-Oct-23	11:25	3.21	3.01	0.20	
			Average Difference	*0.30*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]TL-01H

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "L1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 4.6

BW GOLD LTD.
BLACKWATER GOLD PROJECT

TATELKUZ LAKE HYDROLOGY STATION TL-01H
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	Min Daily	-	-	-	-	-	-	-	-	-	-	1.0	-
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	3.3	-
	Max Daily	-	-	-	-	-	-	-	-	-	-	5.3	-
2013	Min Daily	-	-	-	-	5.7	11.6	15.3	16.6	10.6	8.0	-	-
	Monthly Mean	-	-	-	-	9.4	14.3	17.7	19.1	15.6	9.3	-	-
	Max Daily	-	-	-	-	11.7	19.0	20.1	21.7	18.5	11.0	-	-
2014	Min Daily	-	-	-	-	4.4	10.2	16.1	14.5	10.7	7.1	-	-
	Monthly Mean	-	-	-	-	7.7	13.7	17.8	17.8	14.0	9.8	-	-
	Max Daily	-	-	-	-	11.1	17.4	20.6	19.3	15.7	11.8	-	-
2015	Min Daily	-	-	-	-	6.1	13.0	15.9	13.3	9.8	7.3	-	-
	Monthly Mean	-	-	-	-	11.6	15.6	18.4	16.6	12.3	9.4	-	-
	Max Daily	-	-	-	-	14.7	20.3	21.3	18.1	15.3	11.0	-	-
2016	Min Daily	-	-	-	-	6.5	12.3	14.7	16.5	9.9	6.1	-	-
	Monthly Mean	-	-	-	-	10.3	15.1	17.2	18.4	13.6	8.1	-	-
	Max Daily	-	-	-	-	14.1	19.2	19.4	20.0	15.9	10.6	-	-
2017	Min Daily	-	-	-	-	6.3	12.4	15.1	14.7	11.0	6.5	-	-
	Monthly Mean	-	-	-	-	8.8	13.9	16.7	17.0	14.1	8.9	-	-
	Max Daily	-	-	-	-	15.2	17.0	17.7	19.0	17.1	11.3	-	-
2018	Min Daily	-	-	-	-	-	9.6	13.3	12.4	7.2	5.4	-	-
	Monthly Mean	-	-	-	-	-	13.0	17.2	13.4	11.1	6.9	-	-
	Max Daily	-	-	-	-	-	18.8	20.4	13.4	14.0	8.2	-	-
2019	Min Daily	-	-	-	-	5.0	12.5	15.2	14.3	9.1	4.9	-	-
	Monthly Mean	-	-	-	-	9.1	14.3	16.8	16.6	13.4	7.2	-	-
	Max Daily	-	-	-	-	16.5	17.1	18.0	19.4	16.7	9.9	-	-
2020	Min Daily	-	-	-	-	4.0	10.2	13.1	13.1	11.6	4.7	-	-
	Monthly Mean	-	-	-	-	7.7	12.7	15.0	15.7	14.0	8.9	-	-
	Max Daily	-	-	-	-	11.2	15.9	18.8	18.6	15.6	12.8	-	-

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Min Daily	-	-	-	-	4.9	11.6	17.0	14.3	9.5	4.9	-	-
	Monthly Mean	-	-	-	-	7.9	14.6	19.6	17.4	12.8	7.3	-	-
	Max Daily	-	-	-	-	12.1	23.2	21.7	20.7	15.4	9.7	-	-
2022	Min Daily	-	-	-	-	4.3	9.6	15.3	16.9	12.2	4.8	-	-
	Monthly Mean	-	-	-	-	6.2	12.2	17.2	19.6	14.8	10.3	-	-
	Max Daily	-	-	-	-	10.4	16.8	22.0	21.6	18.0	14.0	-	-
2023	Min Daily	-	-	-	-	-	12.9	15.7	16.2	11.4	4.5	-	-
	Monthly Mean	-	-	-	-	-	16.0	17.9	18.0	14.3	10.0	-	-
	Max Daily	-	-	-	-	-	19.9	19.9	20.0	17.1	12.2	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B4.6 TL-01H

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "L1".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

4.5 CHEDAKUZ CREEK HYDROLOGY STATION CC-12

The CC-12 station was installed in Chedakuz Creek between the outlet of Tatelkuz Lake and its confluence with Davidson Creek, on July 5, 2023. The station is shown on Photo B 4.4 and consists of a Levelogger water level data logger installed inside a protective aluminum pipe that is secured to the bank of the creek. The CC-12 station remained operational all year and continuous temperature data were recorded in 2023. Recorded temperatures were verified with manual measurements from July 2023 onwards. The recorded temperatures and manual measurements are shown on Figure B 4.4. The manual water temperature measurements are also summarized in Table B 4.7. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 4.8.

Photo B 4.4 Chedakuz Creek Hydrology Station CC-12 (August 2, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1]B4.4 CC-12

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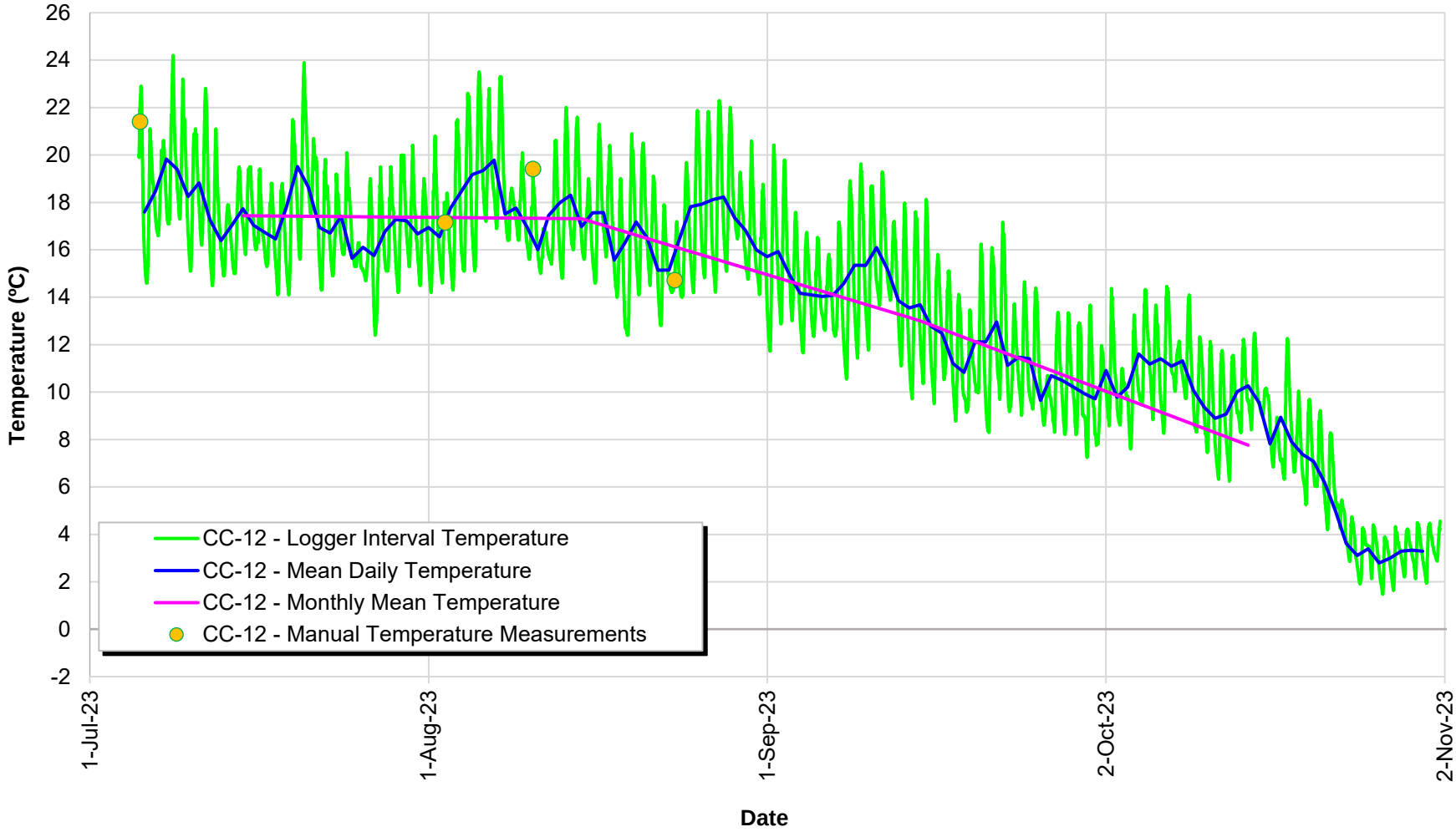

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-12 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 4.4

REV 0

Knight Piésold CONSULTING

TABLE B 4.7

BW GOLD LTD
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK
STATION CC-12 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:43:02

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Jul-23	14:30	21.40	21.80	-0.40	
2-Aug-23	12:50	17.15	17.30	-0.15	
10-Aug-23	13:20	19.40	19.14	0.26	
23-Aug-23	12:43	14.71	14.70	0.01	
			Average Difference	*-0.07*	

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NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 4.8

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-12
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	Min Daily	-	-	-	-	-	-	15.6	15.1	9.6	2.8	-	-
	Monthly Mean	-	-	-	-	-	-	17.4	17.3	13.0	7.8	-	-
	Max Daily	-	-	-	-	-	-	19.8	19.8	16.1	11.6	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B4.8 CC-12

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

5.0 CHEDAKUZ CREEK

5.1 GENERAL

There are three (3) temperature monitoring stations currently operated in Chedakuz Creek, with all three stations installed downstream of Tatelkuz Lake (ST-12 DEEP, CC-15, and CC-30). The station locations are included on Figure 2.1 of the main report. Chedakuz Creek lies downstream of the Davidson Creek Watershed and the Project facilities and thus has been affected by Project activities.

5.2 CHEDAKUZ CREEK WATER TEMPERATURE STATION ST-12 DEEP

The ST-12 DEEP station was installed in Chedakuz Creek on November 5, 2015. The station is shown in Photo B 5.1. The station consists of an Onset TidbiT v2 Temperature Data Logger held in the center of a short section of PVC pipe that is attached to a double concrete cinder block, which is placed in a pool at maximum depth. The recorded and measured water temperatures are shown on Figure B 5.1. A summary of manual measurements is provided in Table B 5.1, and the daily maximum and minimum and monthly mean temperatures are presented in Table B 5.2.

Photo B 5.1 Chedakuz Creek Water Temperature Station ST-12 DEEP (June 20, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1]B5.1 ST-12 DEEP

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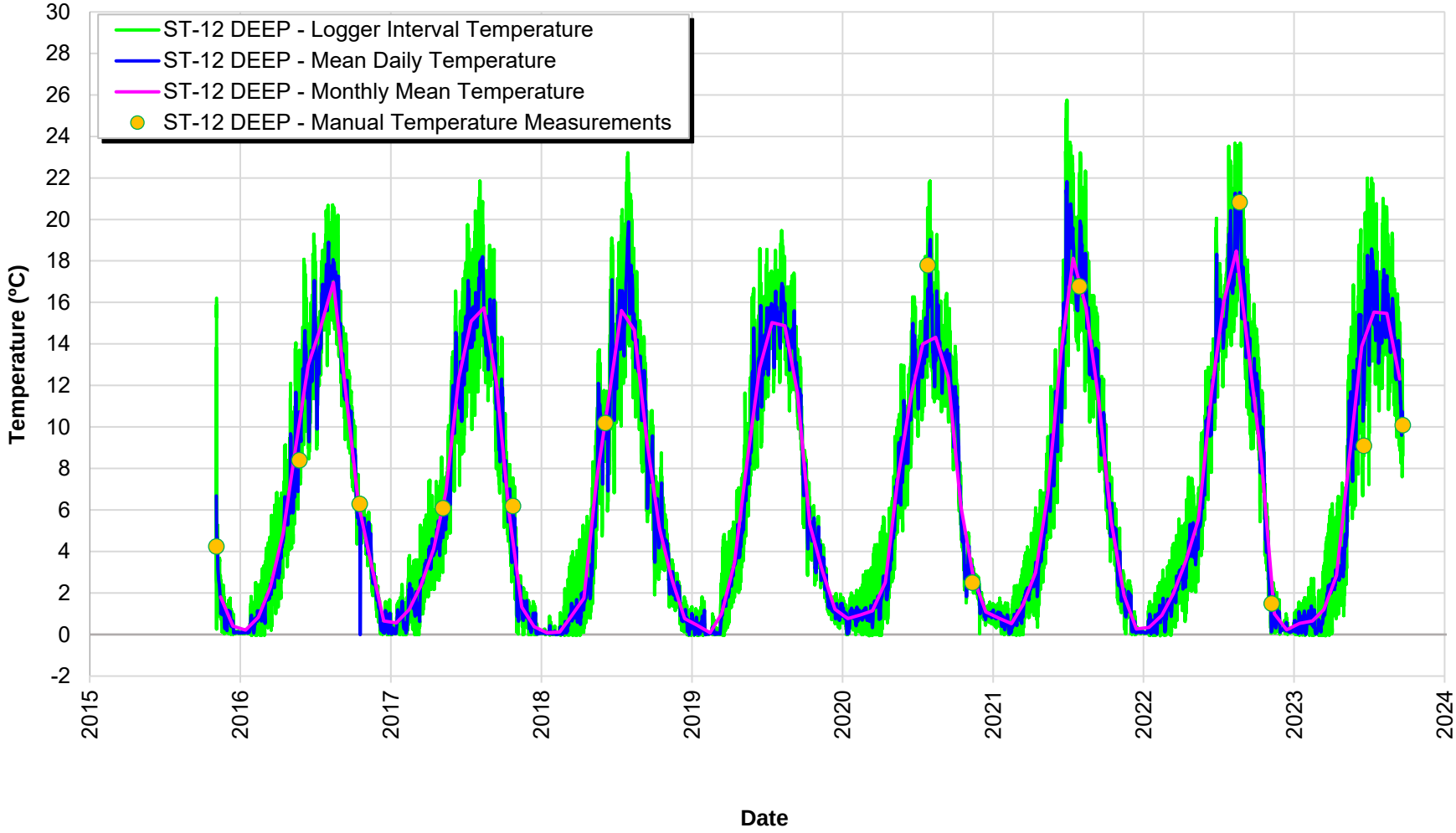

NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK TEMPERATURE STATION
ST-12 DEEP
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 5.1

REV 0

Knight Piésold CONSULTING

TABLE B 5.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK
STATION ST-12 DEEP MANUAL WATER TEMPERATURE MEASUREMENTS

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Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
5-Nov-15	11:29	4.25	4.27	-0.02	
25-May-16	12:34	8.40	12.36	-3.96	
18-Oct-16	13:30	6.30	6.31	-0.01	
8-May-17	13:50	6.10	5.54	0.56	
25-Oct-17	15:15	6.20	6.26	-0.05	
6-Jun-18	12:00	10.20	9.98	0.22	
27-Jul-20	12:57	17.80	17.65	0.15	
13-Nov-20	12:55	2.50	3.01	-0.51	
30-Jul-21	8:15	16.78	16.75	0.03	
23-Aug-22	11:45	20.83	19.75	1.08	
9-Nov-22	13:29	1.50	0.33	1.17	
20-Jun-23	10:55	9.10	9.24	-0.14	
22-Sep-23	11:05	10.09	9.56	0.53	
			Average Difference	*-0.07*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]ST-12 DEEP

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 5.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK TEMPERATURE STATION ST-12 DEEP
WATER TEMPERATURES (°C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	-	-	-	-	-	-	0.2	0.1
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	1.8	0.4
	Max Daily	-	-	-	-	-	-	-	-	-	-	6.7	1.2
2016	Min Daily	0.1	0.1	0.5	2.7	5.8	9.3	9.9	14.4	8.9	5.1	1.6	0.1
	Monthly Mean	0.2	0.8	2.3	4.9	9.0	13.0	14.8	17.0	11.5	6.3	3.3	0.6
	Max Daily	0.9	1.5	3.5	6.9	11.7	17.1	17.8	18.9	15.0	8.9	5.4	1.9
2017	Min Daily	0.0	0.1	0.6	3.1	4.5	9.7	12.7	12.8	8.3	2.9	0.6	0.0
	Monthly Mean	0.6	1.2	2.3	4.1	6.9	12.3	15.1	15.7	12.1	5.9	1.3	0.4
	Max Daily	1.6	2.5	3.6	5.5	11.7	14.6	17.1	18.2	16.1	9.1	4.2	1.0
2018	Min Daily	0.0	0.0	0.1	0.5	1.9	6.9	11.8	12.4	6.1	3.5	1.7	0.0
	Monthly Mean	0.1	0.1	0.9	1.7	7.4	11.5	15.6	14.7	9.2	5.1	2.6	0.8
	Max Daily	0.4	0.6	1.7	2.7	12.1	17.1	19.4	19.9	12.7	7.3	4.5	2.4
2019	Min Daily	0.0	0.0	0.0	2.0	4.2	10.4	12.5	12.7	6.7	3.0	1.3	0.7
	Monthly Mean	0.5	0.1	1.0	3.5	8.2	12.8	15.0	14.9	11.7	5.3	3.0	1.2
	Max Daily	1.0	1.2	1.9	5.3	13.3	15.9	16.5	16.9	15.6	8.3	5.2	1.6
2020	Min Daily	0.0	0.4	0.3	0.7	4.3	8.2	10.9	11.6	9.0	1.8	1.5	0.7
	Monthly Mean	0.8	1.0	1.1	2.5	7.4	11.4	14.0	14.3	12.4	6.3	2.7	1.1
	Max Daily	1.5	1.3	1.8	4.0	11.3	15.0	17.6	19.0	13.7	11.9	4.3	1.6
2021	Min Daily	0.2	0.0	0.5	1.8	4.1	8.8	15.6	12.5	8.5	2.6	0.9	0.1
	Monthly Mean	0.8	0.5	1.4	3.0	6.8	13.5	18.1	15.7	11.2	5.5	1.9	0.3
	Max Daily	1.2	1.0	2.3	4.3	9.9	21.8	20.7	19.9	13.8	8.6	4.0	1.9
2022	Min Daily	0.0	0.0	0.9	2.2	3.4	9.1	13.4	15.2	10.8	4.0	0.1	0.1
	Monthly Mean	0.3	0.9	2.0	3.6	5.6	11.6	16.0	18.5	13.4	8.4	1.0	0.2
	Max Daily	1.0	1.8	3.1	5.3	8.0	18.3	19.4	21.3	17.1	12.6	3.4	0.6
2023	Min Daily	0.0	0.0	0.1	2.0	2.8	8.9	13.0	13.6	9.6	-	-	-
	Monthly Mean	0.5	0.7	1.2	2.8	8.3	13.9	15.5	15.5	12.3	-	-	-
	Max Daily	1.1	1.4	2.4	4.2	12.7	18.3	18.6	17.6	14.7	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B5.2 ST-12 DEEP

NOTES:

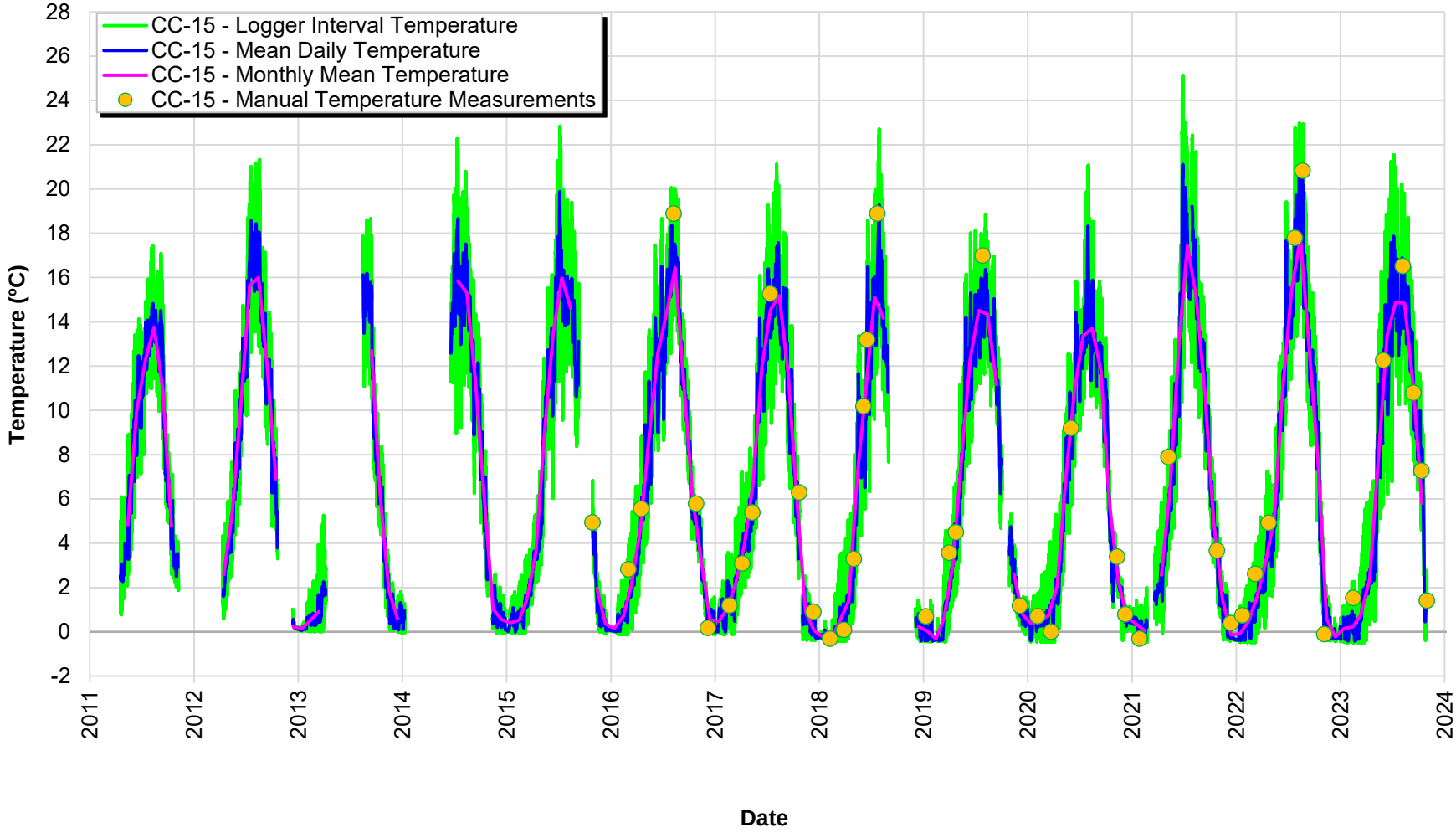
1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

5.3 CHEDAKUZ CREEK HYDROLOGY STATION CC-15

The CC-15 station, previously known as the H5 station, was installed in Chedakuz Creek on April 19, 2011. The station is shown in Photo B 5.2 and consists of a KPSI pressure transducer installed inside a protective aluminum pipe attached to the bank of the creek upstream of a bridge, and wired to a NEON Micrologger in a protective case installed on a tree. The CC-15 station typically remains operational all year, as the site often experiences open water conditions throughout the winter. Therefore, continuous temperature data have been recorded from 2011 to 2023, except for several periods when instrumentation was removed. Recorded temperatures were verified with manual measurements from October 2015 onwards. The recorded temperatures and manual measurements are shown on Figure B 5.2. The manual water temperature measurements are also summarized in Table B 5.3. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 5.4.

Photo B 5.2 Chedakuz Creek Hydrology Station CC-15 (September 15, 2023)



NOTES:

1. WINTER TEMPERATURES REACHED THE MINIMUM DETECTABLE VALUE.
2. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
3. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 5.2

REV 0

Knight Piésold CONSULTING

TABLE B 5.3

BW GOLD LTD
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK
STATION CC-15 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:46:16

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
30-Oct-15	8:00	4.95	4.93	0.02	
4-Mar-16	12:00	2.83	2.73	0.10	
18-Apr-16	8:30	5.57	4.82	0.75	
9-Aug-16	12:56	18.90	18.38	0.52	
27-Oct-16	13:10	5.80	5.64	0.16	
8-Dec-16	10:00	0.18	-0.01	0.18	
22-Feb-17	9:47	1.20	1.08	0.12	
7-Apr-17	9:16	3.10	2.90	0.20	
12-May-17	-	5.40	5.24	0.16	
13-Jul-17	-	15.28	14.85	0.43	
24-Oct-17	-	6.30	6.16	0.14	
3-Nov-17	-	-0.26	-	-	No logger data available
12-Dec-17	13:36	0.90	0.60	0.31	
9-Feb-18	-	-0.30	-0.35	0.05	
29-Mar-18	11:15	0.10	-0.19	0.29	
3-May-18	12:42	3.30	2.93	0.37	
6-Jun-18	-	10.20	9.81	0.39	
18-Jun-18	10:11	13.20	12.75	0.46	
25-Jul-18	-	18.90	18.33	0.57	
26-Nov-18	13:49	2.71	-	-	No logger data available
11-Jan-19	11:49	0.70	0.32	0.38	
14-Mar-19	-	1.10	-	-	No logger data available
2-Apr-19	11:57	3.58	3.36	0.22	
26-Apr-19	-	4.50	4.08	0.42	
29-Jul-19	-	17.00	16.58	0.42	
28-Oct-19	14:14	3.36	-	-	No logger data available
6-Dec-19	13:15	1.19	0.82	0.37	
6-Feb-20	9:55	0.71	0.37	0.34	
25-Mar-20	-	0.01	-0.37	0.38	
2-Jun-20	11:55	9.20	8.79	0.41	
27-Jul-22	12:52	17.80	17.34	0.46	
11-Nov-20	14:39	3.40	3.04	0.36	
10-Dec-20	9:17	0.80	0.47	0.33	
29-Jan-21	-	-0.30	-0.45	0.15	
10-May-21	15:37	7.90	7.48	0.42	
30-Jul-21	8:34	16.89	18.48	-1.59	Omitted - Erroneous manual temp.
30-Jul-21	10:54	18.40	17.71	0.69	Omitted - Erroneous manual temp.
27-Oct-21	8:45	3.68	3.34	0.34	
15-Dec-21	16:10	0.40	0.39	0.01	
24-Jan-22	14:46	0.75	0.50	0.25	
10-Mar-22	14:10	2.63	2.22	0.41	
26-Apr-22	14:48	4.94	4.59	0.35	

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
23-Aug-22	11:27	20.83	20.04	0.79	
7-Nov-22	14:00	-0.10	-0.29	0.19	
16-Feb-23	17:00	1.53	1.22	0.31	
1-Jun-23	16:05	12.27	12.78	-0.51	
9-Aug-23	13:21	16.53	16.02	0.51	
15-Sep-23	10:00	10.80	9.85	0.95	
13-Oct-23	12:35	7.28	6.74	0.54	
1-Nov-23	8:46	1.42	1.13	0.30	
			Average Difference	*0.32*	

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NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 5.4

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-15
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Min Daily	-	-	-	-	2.7	6.8	10.2	12.4	6.8	2.8	-	-
	Monthly Mean	-	-	-	-	4.8	10.0	12.2	13.8	10.9	4.8	-	-
	Max Daily	-	-	-	-	8.7	12.5	14.1	14.8	14.5	7.0	-	-
2012	Min Daily	-	-	-	1.6	3.5	7.0	11.5	13.2	9.9	3.8	-	0.1
	Monthly Mean	-	-	-	2.6	5.4	10.4	15.6	16.0	11.9	6.9	-	0.2
	Max Daily	-	-	-	4.0	8.5	13.3	18.6	18.4	14.4	10.5	-	0.6
2013	Min Daily	0.1	0.3	0.3	-	-	-	-	-	7.7	3.2	0.4	0.1
	Monthly Mean	0.1	0.5	0.9	-	-	-	-	-	12.7	6.2	1.9	0.6
	Max Daily	0.5	0.8	2.3	-	-	-	-	-	15.9	8.4	4.1	1.3
2014	Min Daily	-	-	-	-	-	-	13.0	12.6	8.9	2.4	0.2	0.1
	Monthly Mean	-	-	-	-	-	-	15.8	15.3	11.2	6.1	1.0	0.6
	Max Daily	-	-	-	-	-	-	18.7	17.5	13.2	9.0	2.1	1.3
2015	Min Daily	0.0	0.0	0.2	2.2	4.3	9.7	13.8	12.0	-	-	0.2	0.0
	Monthly Mean	0.4	0.5	1.5	3.6	9.0	13.5	16.0	14.6	-	-	2.0	0.4
	Max Daily	1.1	1.0	2.4	5.4	12.7	16.8	19.9	16.1	-	-	4.5	1.1
2016	Min Daily	0.0	0.0	0.4	2.6	5.6	9.0	9.6	14.0	8.3	4.8	1.5	0.0
	Monthly Mean	0.2	0.7	2.1	4.6	8.7	12.6	14.3	16.4	11.1	6.0	3.2	0.5
	Max Daily	0.8	1.4	3.3	6.7	11.5	16.5	17.3	18.3	14.1	8.6	5.2	1.3
2017	Min Daily	0.0	0.0	0.5	3.0	4.3	9.5	12.3	12.3	8.0	3.3	0.3	-0.3
	Monthly Mean	0.5	1.1	2.2	3.9	6.7	12.0	14.6	15.2	11.6	6.1	0.9	0.1
	Max Daily	1.5	2.3	3.4	5.2	11.7	14.6	16.4	17.6	15.5	8.6	2.0	0.7
2018	Min Daily	-0.3	-0.4	-0.3	0.1	2.4	6.5	11.4	10.8	-	-	-	-0.4
	Monthly Mean	-0.2	-0.3	0.5	1.4	7.0	11.1	15.1	14.2	-	-	-	0.2
	Max Daily	0.1	0.2	1.3	2.3	11.7	16.5	19.3	17.7	-	-	-	0.8
2019	Min Daily	-0.4	-0.4	-0.4	1.6	4.3	10.0	12.0	12.3	6.2	-	0.9	0.3
	Monthly Mean	0.0	-0.3	0.6	3.1	7.8	12.3	14.5	14.3	11.2	-	2.6	0.8
	Max Daily	0.8	-0.1	1.6	4.9	14.2	15.3	16.0	16.4	15.0	-	4.8	1.2

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	Min Daily	-0.4	0.0	-0.1	0.3	4.1	7.8	10.4	11.1	8.6	1.4	0.6	0.3
	Monthly Mean	0.4	0.5	0.7	2.1	7.0	11.0	13.4	13.7	11.8	5.8	2.3	0.7
	Max Daily	0.9	0.9	1.4	3.9	10.8	14.4	18.1	18.3	13.1	11.4	3.8	1.2
2021	Min Daily	-0.2	-0.4	-	1.4	3.7	8.4	15.0	11.8	8.0	2.1	0.4	-0.4
	Monthly Mean	0.4	0.1	-	2.6	6.4	13.0	17.4	15.1	10.7	5.0	1.5	-0.1
	Max Daily	0.7	0.5	-	3.9	10.3	21.1	20.1	19.0	13.2	7.5	3.5	1.4
2022	Min Daily	-0.4	-0.4	0.4	1.7	2.9	9.1	13.3	14.6	10.3	3.0	-0.3	-0.3
	Monthly Mean	-0.1	0.5	1.5	3.1	5.1	11.1	15.4	17.8	12.8	7.9	0.6	-0.2
	Max Daily	0.6	1.3	2.7	4.9	8.7	17.7	19.7	20.5	16.2	12.0	2.2	0.1
2023	Min Daily	-0.4	-0.4	-0.3	1.7	2.7	9.8	12.4	13.0	8.3	0.5	-	-
	Monthly Mean	0.2	0.2	0.8	2.4	7.8	13.4	14.9	14.8	11.0	5.8	-	-
	Max Daily	0.7	0.9	2.0	3.7	12.3	17.6	17.9	16.9	13.7	10.0	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B5.4 CC-15

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H5".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

5.4 CHEDAKUZ CREEK HYDROLOGY STATION CC-30

The CC-30 station was installed in Chedakuz Creek, downstream of its confluence with Davidson Creek, on July 27, 2023. The station is shown on Photo B 5.3 and consists of two Levelogger water level data loggers installed in a protective aluminum pipe that is secured to the bank of the creek. The station is removed during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water season of 2023. Recorded temperatures were verified with manual measurements from July 2023 onwards. The recorded temperatures and manual measurements are included on Figure B 5.3. The manual water temperature measurements are also summarized in Table B 5.5. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 5.6.

Photo B 5.3 Chedakuz Creek Hydrology Station CC-30 (August 24, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1]B5.3 CC-30

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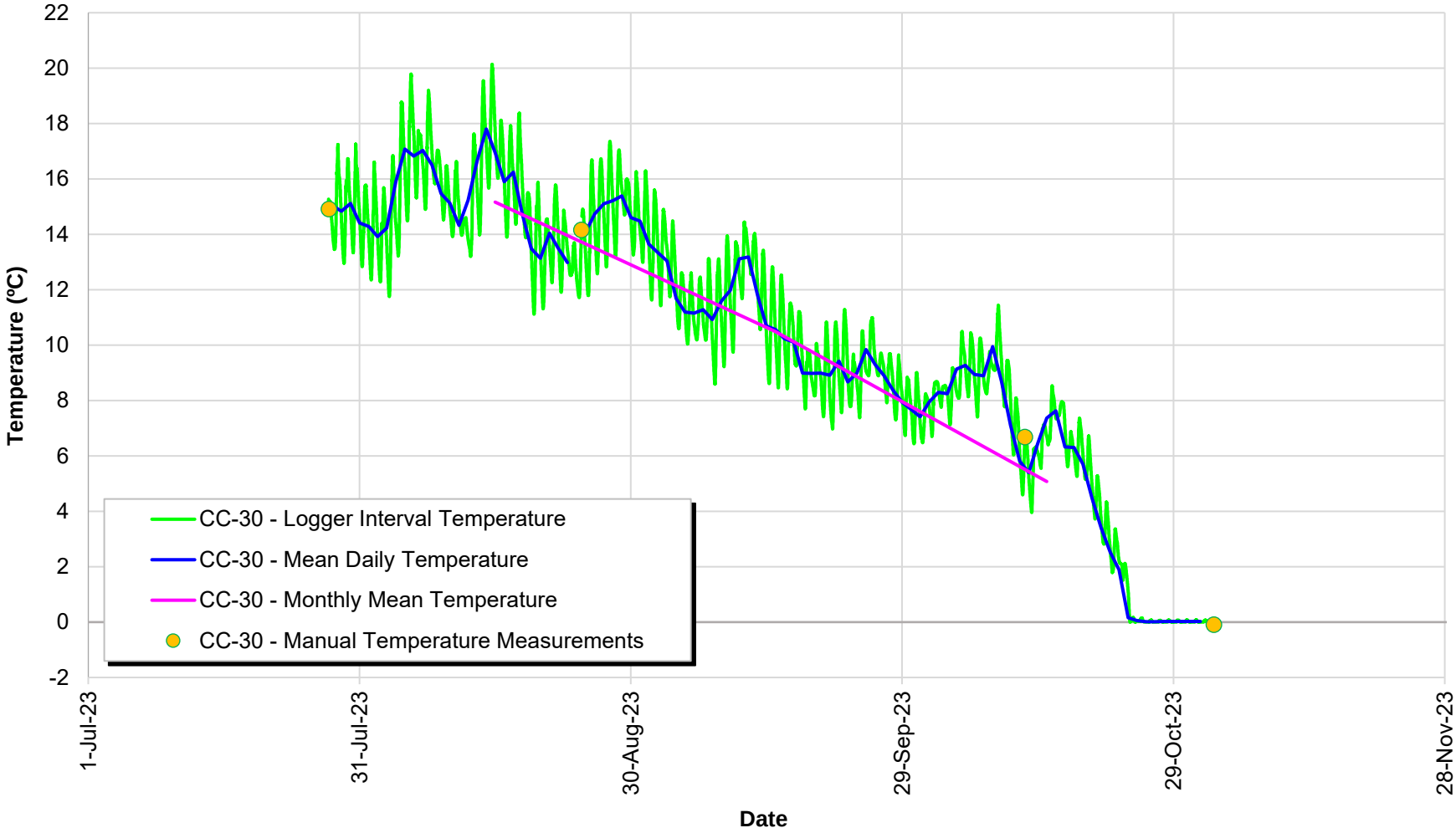

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 5.3

REV 0

Knight Piésold CONSULTING

TABLE B 5.5

BW GOLD LTD
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK
STATION CC-30 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:46:16

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
27-Jul-23	14:50	14.91	15.05	-0.14	
24-Aug-23	13:10	14.15	14.28	-0.13	
12-Oct-23	14:08	6.67	6.17	0.50	
2-Nov-23	11:47	-0.10	0.39	-0.49	
			Average Difference	*-0.07*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]CC-30

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 5.6

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CHEDAKUZ CREEK HYDROLOGY STATION CC-30
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:38:54

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	Min Daily	-	-	-	-	-	-	-	13.0	7.7	0.0	-	-
	Monthly Mean	-	-	-	-	-	-	-	15.2	10.5	5.1	-	-
	Max Daily	-	-	-	-	-	-	-	17.8	13.6	9.9	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B3 1, B4 1-4, and B5 1.xlsx]Table B5.6 CC-30

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

6.0 FAWNIE CREEK WATERSHED

6.1 GENERAL

There are three (3) temperature monitoring stations currently operated in the Fawnie Creek Watershed. The stations are installed at the outlet of Lake 01538NRS (L6-B), in Creek 705 (705-10), and in Mathews Creek (MC-05). The station locations are shown on Figure 2.1 of the main report. The Fawnie Creek watershed is not currently affected by Project activities.

6.2 OUTLET OF LAKE 01538NRS HYDROLOGY STATION L6-B

The L6-B station was installed at the outlet of Lake 01538NRS on May 24, 2013 and was decommissioned on October 29, 2014, and then recommissioned on July 7, 2023. The station is shown on Photo B 6.1 and consists of two Levelogger water level data loggers installed inside a protective aluminum pipe secured to the lakeshore. The station is removed during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were only recorded during the open water seasons of 2013 through 2014, and 2023. Recorded temperatures were verified with manual measurements from July 2023 onwards. The recorded temperatures and manual measurements are shown on Figure B 6.1. The manual water temperature measurements are also summarized in Table B 6.1. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 6.2.

Photo B 6.1 Outlet of Lake 01538NRS Hydrology Station L6-B (September 21, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3]B6.1 L6-B

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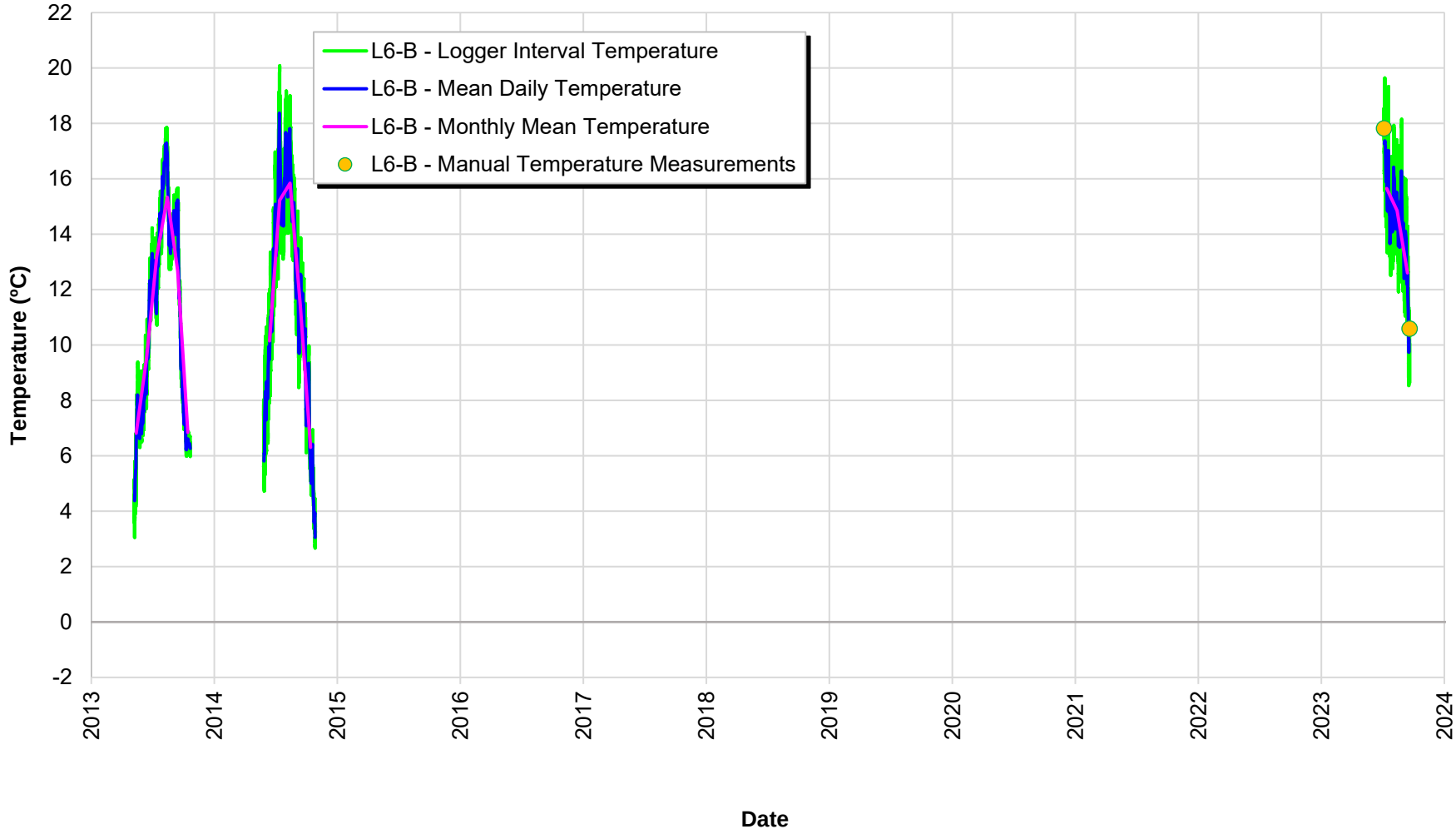

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. DATA LOGGER MALFUNCTION FOR THE 2022 LOGGING SEASON. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.
3. THE STATION WAS DECOMMISSIONED FOR THE PERIOD OF OCTOBER 2014 TO JULY 2023. NO DATA ARE AVAILABLE FOR THIS PERIOD OF RECORD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

LAKE 01538NRS
HYDROLOGY STATION L6-B
WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 6.1

REV 0

Knight Piésold CONSULTING

TABLE B 6.1

BW GOLD LTD
BLACKWATER GOLD PROJECT

LAKE 01582LNRS
STATION L6-B MANUAL WATER TEMPERATURE MEASUREMENTS

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
7-Jul-23	13:10	17.82	17.81	0.01	
21-Sep-23	11:35	10.59	10.73	-0.14	
			Average Difference	*-0.06*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]L6-B

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 6.2

BW GOLD LTD.
BLACKWATER GOLD PROJECT

LAKE 01538NRS HYDROLOGY STATION L6-B
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:50:28

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Min Daily	-	-	-	-	4.4	7.2	11.1	13.3	8.1	6.2	-	-
	Monthly Mean	-	-	-	-	6.8	9.5	13.2	15.3	12.7	6.8	-	-
	Max Daily	-	-	-	-	8.2	13.0	15.7	17.3	15.2	8.1	-	-
2014	Min Daily	-	-	-	-	-	7.3	13.2	12.8	9.1	3.1	-	-
	Monthly Mean	-	-	-	-	-	10.1	15.2	15.8	11.4	6.3	-	-
	Max Daily	-	-	-	-	-	13.5	18.4	17.8	13.5	9.3	-	-
2023	Min Daily	-	-	-	-	-	-	13.7	13.5	9.7	-	-	-
	Monthly Mean	-	-	-	-	-	-	15.7	14.9	12.6	-	-	-
	Max Daily	-	-	-	-	-	-	17.4	16.4	14.4	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3.xlsx]Table B6.2 L6-B

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

6.3 CREEK 705 HYDROLOGY STATION 705-10

The 705-10 station was installed on Creek 705 on May 8, 2012. The station is shown in Photo B 6.2. The station initially consisted of an ultrasonic sensor installed on the bridge over the creek and wired to a NEON Micrologger in a protective case secured to the edge of the bridge deck. The station was vandalized in the summer of 2014, and as a result, the sensor was replaced in July of 2015 with a KPSI pressure transducer, which was installed inside a protective aluminum pipe that was anchored to the bank of the creek just upstream of the previous installation. The ultrasonic sensor did not record water temperatures and therefore water temperature has only been recorded at this station since the installation of the KPSI pressure transducer. The NEON Micrologger and transducer cable were vandalized in the summer of 2022; consequently, no temperature data are available for the open water period of 2022. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were recorded only during the open water seasons of 2015 through 2021, and 2023. Recorded temperatures were verified with manual measurements from March 2016 onwards. The recorded temperatures and manual measurements are shown on Figure B 6.2. The manual water temperature measurements are also summarized in Table B 6.3. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 6.4.

Photo B 6.2 Creek 705 Hydrology Station 705-10 (September 6, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3]B6.2 705-10

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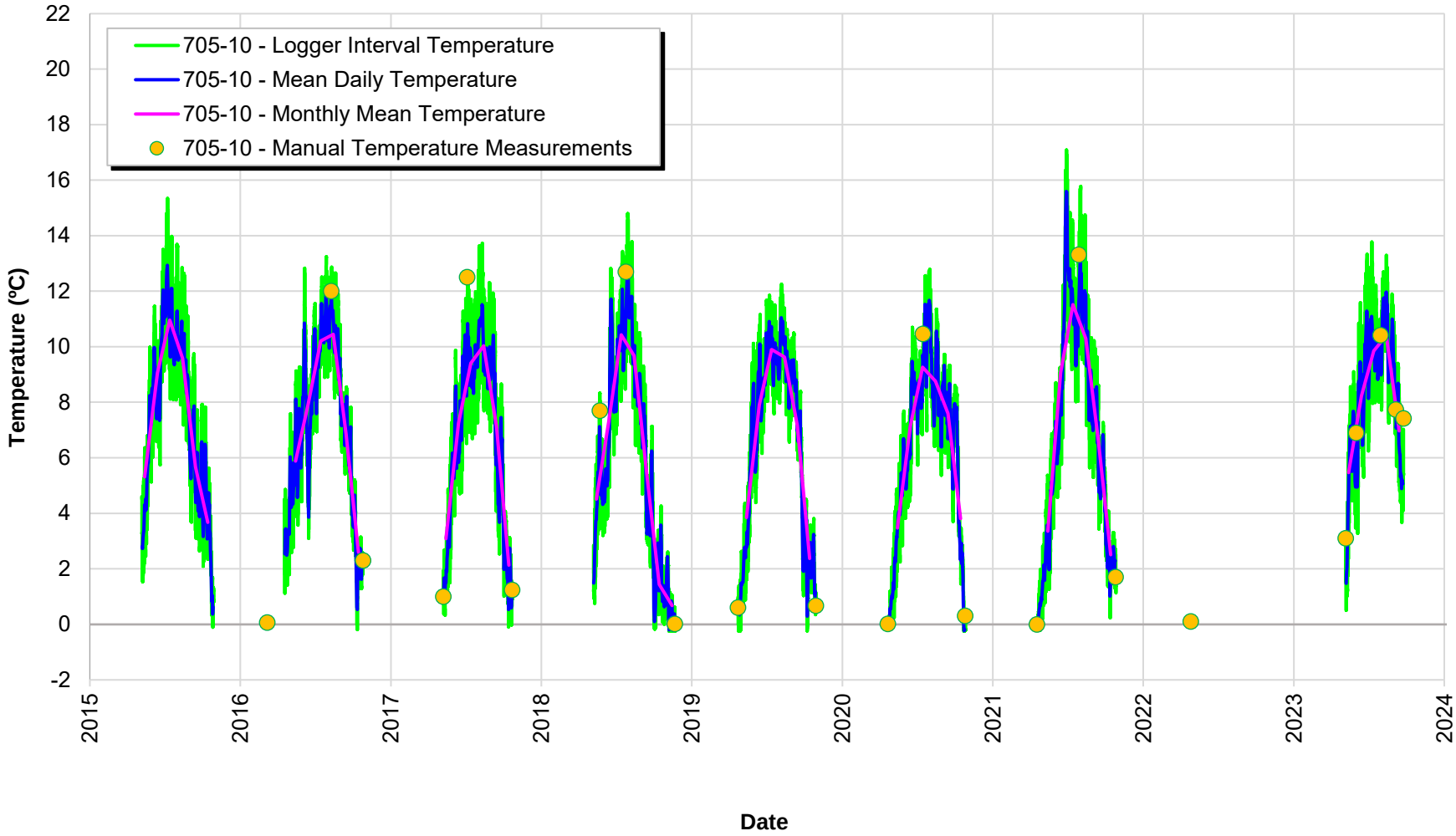

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. DATA LOGGER MALFUNCTION FOR THE 2022 LOGGING SEASON. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.
3. THIS STATION WAS PREVIOUSLY NAMED "H7".

BW GOLD LTD

BLACKWATER GOLD PROJECT

CREEK 705 HYDROLOGY STATION 705-10 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 6.2

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

Knight Piésold CONSULTING

TABLE B 6.3

BW GOLD LTD
BLACKWATER GOLD PROJECT

CREEK 705
STATION 705-10 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:50:28

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
8-Mar-16	12:35	0.06	-	-	No logger data available
10-Aug-16	9:44	12	11.441	0.56	
26-Oct-16	10:13	2.3	2.065	0.24	
9-May-17	10:08	1	0.843	0.16	
6-Jul-17	13:45	12.5	12.025	0.48	
23-Oct-17	11:15	1.244	1.186	0.06	
24-May-18	13:22	7.7	7.343	0.36	
26-Jul-18	13:05	12.7	12.171	0.53	
22-Nov-18	14:50	0.02	-0.181	0.20	
24-Apr-19	11:01	0.6	0.283	0.32	
30-Oct-19	10:33	0.67	0.626	0.04	
22-Apr-20	14:35	0.02	-0.109	0.13	
16-Jul-20	13:29	10.46	10.144	0.32	
27-Oct-20	15:23	0.31	0.198	0.11	
19-Apr-21	16:07	0	-0.126	0.13	
29-Jul-21	15:11	13.31	12.942	0.37	
27-Oct-21	13:05	1.7	1.497	0.20	
27-Apr-22	9:30	0.1	-0.231	0.33	
8-May-23	14:30	3.1	2.658	0.44	
2-Jun-23	14:03	6.894	6.867	0.03	
31-Jul-23	12:45	10.41	9.963	0.45	
6-Sep-23	10:46	7.732	7.681	0.05	
25-Sep-23	13:59	7.42	7.042	0.38	
24-Oct-23	12:09	0.11	-	-	No logger data available
			Average Difference	*0.27*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]705-10

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

Knight Piésold CONSULTING

TABLE B 6.4

BW GOLD LTD.
BLACKWATER GOLD PROJECT

CREEK 705 HYDROLOGY STATION 705-10
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:50:28

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	Min Daily	-	-	-	-	2.7	7.3	9.3	7.6	3.9	0.4	-	-
	Monthly Mean	-	-	-	-	5.3	9.1	11.0	9.6	5.7	3.7	-	-
	Max Daily	-	-	-	-	8.2	12.0	12.9	11.3	7.9	6.6	-	-
2016	Min Daily	-	-	-	-	4.2	3.9	7.6	8.8	3.9	0.5	-	-
	Monthly Mean	-	-	-	-	5.9	7.9	10.2	10.4	6.8	2.6	-	-
	Max Daily	-	-	-	-	8.1	10.8	12.1	11.9	8.6	4.7	-	-
2017	Min Daily	-	-	-	-	0.9	5.3	8.2	8.5	3.7	0.5	-	-
	Monthly Mean	-	-	-	-	3.1	7.2	9.4	10.0	7.1	2.1	-	-
	Max Daily	-	-	-	-	6.2	10.0	10.8	11.5	10.4	4.4	-	-
2018	Min Daily	-	-	-	-	1.5	4.4	7.7	7.9	2.3	0.1	-0.2	-
	Monthly Mean	-	-	-	-	4.5	7.3	10.4	9.7	5.4	1.4	0.7	-
	Max Daily	-	-	-	-	7.1	11.7	12.9	12.2	7.9	3.6	2.4	-
2019	Min Daily	-	-	-	-	1.1	5.5	8.6	7.8	1.9	0.3	-	-
	Monthly Mean	-	-	-	-	3.9	7.9	9.9	9.6	7.2	2.4	-	-
	Max Daily	-	-	-	-	8.5	10.1	10.9	11.0	9.5	4.1	-	-
2020	Min Daily	-	-	-	-	0.9	4.9	6.9	6.4	4.9	-0.2	-	-
	Monthly Mean	-	-	-	-	3.5	7.1	9.3	8.8	7.6	3.8	-	-
	Max Daily	-	-	-	-	6.7	9.5	11.7	11.6	9.3	8.0	-	-
2021	Min Daily	-	-	-	-	1.1	5.8	9.3	7.2	4.5	1.0	-	-
	Monthly Mean	-	-	-	-	3.4	9.1	11.5	10.3	6.6	2.5	-	-
	Max Daily	-	-	-	-	6.1	15.6	14.6	13.4	8.6	4.2	-	-
2022	Min Daily	-	-	-	-	-	-	-	-	-	-	-	-
	Monthly Mean	-	-	-	-	-	-	-	-	-	-	-	-
	Max Daily	-	-	-	-	-	-	-	-	-	-	-	-
2023	Min Daily	-	-	-	-	1.5	4.9	8.1	8.7	4.9	-	-	-
	Monthly Mean	-	-	-	-	5.5	8.2	9.8	10.4	7.0	-	-	-
	Max Daily	-	-	-	-	7.7	11.3	11.1	12.0	9.4	-	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3.xlsx]Table B6.4 705-10

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. DATA LOGGER MALFUNCTION FOR THE 2022 LOGGING SEASON. NO DATA AVAILABLE FOR THIS PERIOD OF RECORD.
4. THIS STATION WAS PREVIOUSLY NAMED "H7".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

6.4 MATHEWS CREEK HYDROLOGY STATION MC-05

The MC-05 station, previously known as the H12 station, was installed in Matthews Creek on May 1, 2014. The station was decommissioned on October 30, 2014 and then recommissioned on May 1, 2018. The station is shown in Photo B 6.3 and consists of two Levelogger water level data loggers installed inside a protective aluminum pipe that is secured to the bank of the creek. The station is removed each year during the winter months to avoid damage to the sensor from ice. Therefore, temperature data were recorded only during the open water seasons of 2014 and 2018 through 2023. Recorded temperatures were verified with manual measurements from May 2018 onwards. The recorded temperatures and manual measurements are shown on Figure B 6.3. The manual water temperature measurements are also summarized in Table B 6.5. Daily maximum and minimum and monthly mean temperatures are summarized in Table B 6.6.

Photo B 6.3 Mathews Creek Hydrology Station MC-05 (September 25, 2023)

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3]B6.3 MC-05

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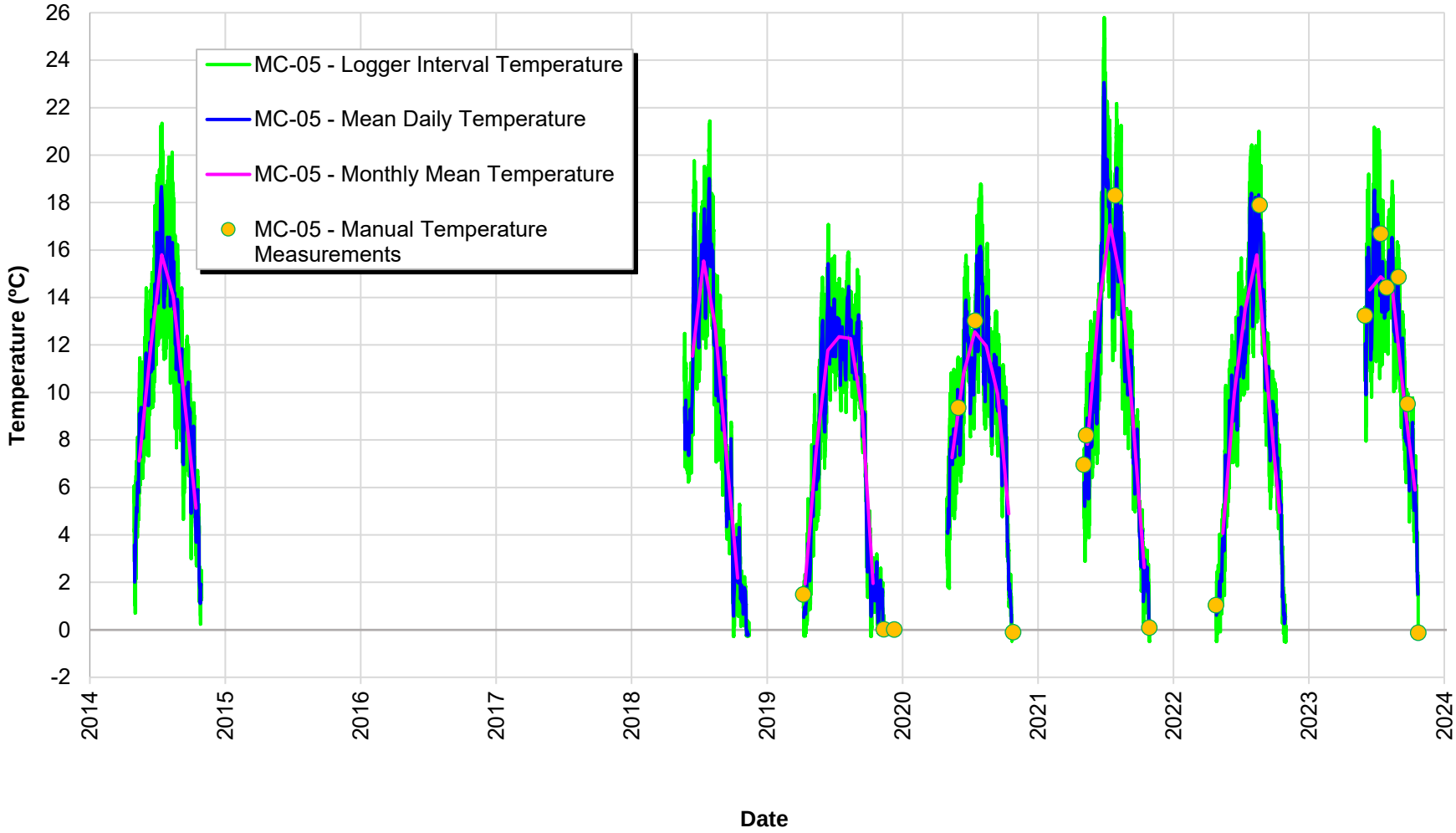

NOTES:

1. MONTHLY MEANS ARE ONLY PRESENTED FOR MONTHS WITH AT LEAST 16 DAYS OF RECORD.
2. THE STATION WAS DECOMISSIONED FOR THE PERIOD OF DECEMBER 2014 TO FEBRUARY 2018. NO DATA IS AVAILABLE FOR THIS PERIOD OF RECORD.
3. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT	IJP	MJB

BW GOLD LTD

BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05 WATER TEMPERATURES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. 4

FIGURE B 6.3

REV 0

Knight Piésold CONSULTING

TABLE B 6.5

BW GOLD LTD
BLACKWATER GOLD PROJECT

MATHEWS CREEK
STATION MC-05 MANUAL WATER TEMPERATURE MEASUREMENTS

Print Mar/07/24 13:52:44

Date	Time	Manual Water Temperature (°C)	Logged Water Temperature (°C)	Difference (°C)	Notes
24-May-18	9:40	11.00	10.54	0.46	Omitted - Erroneous manual temp.
26-Jul-18	11:00	16.20	15.44	0.76	Omitted - Erroneous manual temp.
14-Nov-18	12:27	1.40	0.09	1.31	Omitted - Erroneous manual temp.
10-Apr-19	12:52	1.50	1.29	0.21	
13-Nov-19	10:10	0.03	0.05	-0.02	
11-Dec-19	12:40	0.02	-	-	No logger data available
1-Jun-20	10:58	9.37	9.14	0.23	
16-Jul-20	11:45	13.03	12.62	0.41	
27-Oct-20	12:00	-0.09	-0.44	0.35	
5-May-21	14:17	6.96	6.52	0.44	
12-May-21	10:34	8.20	7.69	0.52	
29-Jul-21	12:24	18.31	18.36	-0.05	
29-Oct-21	9:55	0.10	-0.47	0.57	
27-Apr-22	13:45	1.05	0.56	0.49	
22-Aug-22	12:43	17.90	17.48	0.42	
2-Jun-23	14:30	13.24	13.29	-0.05	
15-Jul-23	11:39	16.70	17.20	-0.50	
31-Jul-23	11:10	14.43	14.42	0.01	
31-Aug-23	12:03	14.87	14.98	-0.11	
25-Sep-23	12:23	9.53	9.61	-0.08	
24-Oct-23	10:04	-0.12	-0.11	-0.01	
			Average Difference	*0.17*	

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Measurement Summary Tables.xlsx]MC-05

NOTES:

1. ANY ANOMALOUS DATA POINTS ARE GREYED OUT AND DISCLUDED FROM THE AVERAGE DIFFERENCE CALCULATIONS.
2. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	BTN	MJB

TABLE B 6.6

BW GOLD LTD.
BLACKWATER GOLD PROJECT

MATHEWS CREEK HYDROLOGY STATION MC-05
WATER TEMPERATURES (^{o}C)

Print Mar/07/24 13:52:44

Year	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	Min Daily	-	-	-	-	2.0	9.4	13.6	10.8	7.0	1.1	-	-
	Monthly Mean	-	-	-	-	7.1	11.9	15.8	14.1	9.6	5.1	-	-
	Max Daily	-	-	-	-	10.1	14.6	18.7	16.5	11.8	8.6	-	-
2018	Min Daily	-	-	-	-	-	7.3	11.9	9.6	4.3	0.6	-	-
	Monthly Mean	-	-	-	-	-	11.5	15.5	12.8	7.3	2.2	-	-
	Max Daily	-	-	-	-	-	17.5	19.0	17.5	10.6	4.3	-	-
2019	Min Daily	-	-	-	0.5	4.4	8.3	10.3	10.5	2.4	0.3	-	-
	Monthly Mean	-	-	-	1.9	7.6	11.8	12.4	12.3	9.2	2.0	-	-
	Max Daily	-	-	-	3.6	12.8	15.4	13.9	14.5	13.3	4.0	-	-
2020	Min Daily	-	-	-	-	4.1	7.4	9.1	8.2	6.1	0.3	-	-
	Monthly Mean	-	-	-	-	7.3	10.8	12.6	12.0	9.9	4.9	-	-
	Max Daily	-	-	-	-	10.1	13.9	16.2	16.0	11.6	9.4	-	-
2021	Min Daily	-	-	-	-	5.2	8.7	13.2	10.3	5.7	-0.1	-	-
	Monthly Mean	-	-	-	-	7.8	13.7	17.1	14.5	8.8	2.6	-	-
	Max Daily	-	-	-	-	10.4	23.1	21.5	19.5	11.8	5.0	-	-
2022	Min Daily	-	-	-	-	0.7	8.4	10.6	12.8	7.1	0.3	-	-
	Monthly Mean	-	-	-	-	4.1	10.0	13.5	15.8	10.0	4.9	-	-
	Max Daily	-	-	-	-	7.6	13.1	18.4	18.3	14.3	9.1	-	-
2023	Min Daily	-	-	-	-	-	9.9	13.1	12.1	5.9	1.5	-	-
	Monthly Mean	-	-	-	-	-	14.3	14.9	14.4	9.8	5.9	-	-
	Max Daily	-	-	-	-	-	18.5	17.5	16.5	13.7	8.7	-	-

M:\1\01\00457\40\A\Data\Task 200 - Hydrometric and Climate Monitoring\4. QAQC\Temperature QAQC\[Figure B6 1-3.xlsx]Table B6.6 MC-05

NOTES:

1. IF FEWER THAN 16 DAYS WORTH OF DATA HAVE BEEN COLLECTED IN A MONTH, THEN NO DATA ARE PRESENTED ABOVE.
2. THE MINIMUM AND MAXIMUM DAILY VALUES REPRESENT THE DAILY AVERAGE TEMPERATURE FOR THE COLDEST AND WARMEST DAY IN A MONTH.
3. THIS STATION WAS PREVIOUSLY NAMED "H12".

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	07MAR'24	ISSUED WITH REPORT VA101-457/40-4	IJP	MJB

7.0 REFERENCES

Knight Piésold Ltd (KP, 2018). 2016 Hydrology and Water Temperature Baseline Report. Prepared for New Gold Inc. Ref. No. VA101-457/22-1 Rev. 1, dated August 29, 2018.

Knight Piésold Ltd. (KP, 2021). Blackwater Gold Project – 2020 Hydrology and Water Temperature Baseline Report. KP Ref. No. VA101-457/33-3 Rev. 1, dated May 17, 2021.

Appendix B Surface Water Quality Results

Appendix B-1:Surface Water Quality Laboratory Results, April 1, 2023 to March 31, 2024

Appendix B-2: Surface Water Field Results, April 1, 2023 to March 31, 2024

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Appendix B-1 Surface Water Quality Laboratory Results, April 1, 2023 to March 31, 2024

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	11-04-2023	7.81	<3.0	70	122	0.17	<2.0	57.7	52.4	51.8	<0.050	<0.50	0.05	3.48	<0.050	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	04-05-2023	7.06	6.1	76	34.3	5.42	3.3	10.9	16.4	15.6	<0.050	0.52	0.025	1.34	0.554	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	09-05-2023	7	4.6	50	26.1	2.9	3	9.3	12	11.8	<0.050	<0.50	0.023	0.78	0.414	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	16-05-2023	7.08	<3.0	47	23.6	1.86	2.9	8.6	9.63	9.95	<0.050	<0.50	<0.020	0.71	0.242	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	23-05-2023	7.25	<3.0	35	31.5	0.53	2.5	13.4	13.3	13	<0.050	<0.50	0.03	0.92	0.192	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	29-05-2023	7.46	<3.0	41	39.9	0.43	2.5	17.2	16.4	17.1	<0.050	<0.50	0.031	1.09	0.131	0.0051
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	21-06-2023	7.52	<3.0	38	48.5	0.43	2	23.7	21.5	22.6	<0.050	<0.50	0.029	1.35	0.171	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	25-07-2023	7.45	<3.0	126	84	1.36	2.1	19.2	33	33.2	<0.050	2.01	0.032	13	0.25	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	16-08-2023	7.64	<3.0	64	73.6	1.22	<2.0	32.2	32.1	30.3	<0.050	0.84	0.035	4.44	0.15	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	04-09-2023	7.68	<3.0	73	84.8	0.38	2	39.7	36.1	35	<0.050	0.7	0.039	3.38	0.092	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	05-10-2023	7.72	3	62	82.6	6.56	2.2	40.5	35	36.5	<0.050	0.64	0.041	3.05	0.119	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	14-10-2023	7.73	<3.0	63	91.6	2.14	2.2	45.6	40.3	40.2	<0.050	0.56	0.041	2.77	0.079	<0.0050
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	14-10-2023	7.72	<3.0	67	92.7	2.21	2.1	45.2	39.9	39	<0.050	0.55	0.04	2.75	0.086	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	16-10-2023	7.88	<3.0	61	95	1.59	2.1	47.6	40.8	41.5	<0.050	0.54	0.041	3.02	0.07	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	25-10-2023	7.84	<3.0	86	101	3.36	<2.0	48.9	46.1	44.1	<0.050	0.73	0.034	3.6	0.125	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	31-10-2023	7.76	<3.0	55	100	1.62	2.2	48.5	41.6	41.3	<0.050	0.54	0.036	3.33	0.084	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	05-11-2023	7.79	<3.0	-	105	31.2	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	08-11-2023	7.57	<3.0	72	76.9	6.76	<2.0	34.2	32.3	30.8	<0.050	0.99	0.034	3.48	0.126	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	15-12-2023	7.88	<3.0	54	86.6	3.39	<2.0	41.6	37.2	35.4	<0.050	0.59	0.034	3.11	0.081	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	14-01-2024	7.93	<3.0	93	138	0.47	<2.0	67.8	61.3	62.7	<0.050	<0.50	0.038	4.12	<0.050	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	26-01-2024	7.89	<3.0	84	111	7.03	<2.0	54.7	48	46.3	<0.050	<0.50	0.041	3.42	0.068	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	04-02-2024	7.96	<3.0	84	135	1.64	<2.0	64.5	55.7	59.7	<0.050	<0.50	0.045	3.97	0.052	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	20-02-2024	7.92	<3.0	112	108	51.4	2.6	55.5	49.8	45.6	<0.050	0.55	0.044	3.82	0.102	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	25-02-2024	8.02	3.9	108	106	44	2	53.1	48.7	44.4	<0.050	0.53	0.048	3.23	0.128	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	03-03-2024	7.91	4.3	100	102	36	<2.0	52	48.8	43.5	<0.050	0.52	0.045	3.39	0.11	<0.0050
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	03-03-2024	7.92	3.9	94	103	34.2	<2.0	51.9	47.8	45	<0.050	0.52	0.044	3.37	0.108	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	17-03-2024	7.92	3.7	113	118	54.4	<2.0	57.2	53.7	50.9	<0.050	1.53	0.041	3.44	0.117	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	11-04-2023	7.81	<3.0	75	120	0.18	<2.0	58.4	51.5	51.6	<0.050	<0.50	0.05	3.55	<0.050	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	04-05-2023	7.07	6.1	73	35.2	4.74	3.1	11.5	17.1	15.8	<0.050	0.52	0.026	1.34	0.552	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	21-06-2023	7.52	14	42	52	1.75	2	24.7	22.8	22.6	<0.050	<0.50	0.031	1.39	0.19	0.0189
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	25-07-2023	7.46	7.6	106	84.1	1.69	2.1	22.4	33.7	33.2	<0.050	1.96	0.033	12.7	0.266	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	16-08-2023	7.67	<3.0	66	72.9	0.89	2	32.9	33.5	33.1	<0.050	0.85	0.036	4.51	0.141	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	19-09-2023	7.86	<3.0	71	91.2	0.37	<2.0	43.9	38.7	41	<0.050	0.56	0.039	2.73	0.089	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	05-10-2023	7.7	<3.0	56	86	3.52	<2.0	42.6	37.5	38.5	<0.050	0.61	0.041	3.08	0.088	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	08-11-2023	7.58	<3.0	74	78.9	6.77	<2.0	35.2	33.3	33.2	<0.050	0.97	0.036	3.49	0.114	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	15-12-2023	7.87	<3.0	61	88.4	2.3	<2.0	42.3	37.8	36.2	<0.050	0.58	0.036	3.21	0.071	<0.0050
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	15-12-2023	7.87	<3.0	61	90	2.37	<2.0	42.4	38.3	37	<0.050	0.58	0.036	3.19	0.072	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	09-01-2024	7.83	<3.0	64	108	2.03	2.1	54	46.9	48.1	<0.050	<0.50	0.037	3.6	0.063	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	04-02-2024	7.96	<3.0	88	130	1.34	<2.0	62.3	53.9	57.2	<0.050	<0.50	0.043	3.95	<0.050	<0.0050
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	04-02-2024	7.96	<3.0	87	130	1.33	<2.0	62.8	54.3	57	<0.050	<0.50	0.042	3.96	<0.050	<0.0050
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	05-03-2024	7.97	<3.0	68	111	29.6	<2.0	52.4	51.9	47.4	<0.050	0.56	0.04	3.43	0.086	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	25-04-2023	7.99	<3.0	112	128	1.13	2.3	62.8	56.7	56.8	<0.050	<0.50	0.045	2.34	0.125	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	04-05-2023	7.24	12.1	71	42	6.18	2.9	15	20.2	19.1	<0.050	0.54	0.029	1.42	0.566	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	21-06-2023	7.65	<3.0	41	63	0.28	<2.0	31.1	28.2	28.7	<0.050	<0.50	0.035	1.45	0.15	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	25-07-2023	7.59	9.4	84	84.2	2.45	2	27.9	35.2	34.7	<0.050	1.49	0.036	9.21	0.259	0.0068
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	25-07-2023	7.57	9.6	83	83.8	1.94	2.1	27.3	34.4	34.9	<0.050	1.53	0.036	9.33	0.234	0.0108
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	16-08-2023	7.79	<3.0	69	85.9	0.42	<2.0	40.4	40	39.6	<0.050	0.78	0.04	4.06	0.12	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	19-09-2023	7.96	<3.0	80	107	0.18	<2.0	52.2	45.9	47.3	<0.050	<0.50	0.044	2.58	0.082	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	10-10-2023	7.81	<3.0	76	109	0.44	<2.0	55	50.3	48.2	<0.050	0.6	0.046	3.08	0.089	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	08-11-2023	7.71	<3.0	74	95.5	3.42	<2.0	44.2	41.2	40.2	<0.050	0.82	0.041	3.2	0.1	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	15-12-2023	7.96	<3.0	74	107	1	<2.0	52	46.7	45.3	<0.050	0.5	0.04	3.13	0.064	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	09-01-2024	7.89	<3.0	72	115	1.32	<2.0	58.4	49.6	51.1	<0.050	<0.50	0.04	3.13	0.058	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	05-02-2024	7.97	<3.0	82	137	0.33	<2.0	68.7	60.8	59.6	<0.050	<0.50	0.043	3.2	0.051	<0.0050
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	05-03-2024	8.07	<3.0	72	123	14.2	<2.0	59.9	54	54.4	<0.050	<0.50	0.043	3.34	0.067	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	26-04-2023	8.12	15.1	90	119	3.02	<2.0	61.4	53.2	50.9	<0.050	<0.50	0.05	1.86	0.186	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	03-05-2023	7.42	28.2	73	55.7	10.1	<2.0	24.9	27.3	26.9	<0.050	0.64	0.036	1.54	0.528	0.0063
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	11-05-2023	7.32	14.9	61	36.7	4.1	2.6	14.7	16.6	16.4	<0.050	<0.50	0.033	0.96	0.349	0.0058
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	17-05-2023	7.35	10.8	38	35.3	2.33	2.3	15.2	16.2	14.7	<0.050	<0.50	0.026	0.58	0.295	0.0061
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	24-05-2023	7.49	6.2	59	45.2	1.37	2.1	23	21.3	20.1	<0.050	<0.50	0.036	1.08	0.167	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	30-05-2023	7.6	<3.0	42	58.3	0.48	2	29.2	25.5	24.6	<0.050	<0.50	0.039	1.02	0.153	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	06-06-2023	7.62	<3.0	65	69.6	0.41	2.1	34.4	30.6	30.4	<0.050	<0.50	0.035	1.09	0.124	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	31-07-2023	7.63	<3.0	83	95.5	0.96	2.4	37.7	40.3	39.8	<0.050	1.19	0.041	6.86	0.166	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	22-08-2023	7.83	5.5	80	101	0.77	2.1	48.7	44.1	44.6	<0.050	0.6	0.039	2.97	0.134	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	20-09-2023	8.04	<3.0	69	108	0.6	<2.0	56	50.8	50.8	<0.050	<0.50	0.046	2.32	0.081	<0.0050
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	20-09-2023	8.05	<3.0	68	108	0.61	<2.0	56.2	51.5	50.7	<0.050	<0.50	0.045	2.28	0.081	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	04-10-2023	7.92	<3.0	73	113	0.49	<2.0	56.9	53.9	49.9	<0.050	<0.50	0.05	2.84	0.077	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	11-10-2023	8.04	<3.0	68	114	0.67	<2.0	57.4	51.1	51.9	<0.050	0.52	0.044	2.39	0.101	0.0141
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	20-10-2023	7.81	10	75	111	3.04	<2.0	56.4	52.8	54.5	<0.050	0.5	0.047	2.79	0.095	<0.0050
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	20-10-2023	7.81	<3.0	81	112	0.74	<2.0	56.4	52.2	52.8	<0.050	0.5	0.045	2.8	0.096	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	24-10-2023	7.85	4.9	69	109	1.69	<2.0	53.1	45.3	47.3	<0.050	0.61	0.039	2.77	0.098	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	01-11-2023	8.02	<3.0	63	122	0.65	<2.0	60	53.4	48.7	<0.050	<0.50	0.04	2.63	0.08	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	06-12-2023	7.67	<3.0	76	112	2.78	<2.0	54	45.5	44.6	<0.050	0.56	0.039	3.23	0.097	0.0136
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	25-01-2024	7.99	<3.0	91	129	0.53	<2.0	67.8	59.2	60.3	<0.050	<0.50	0.04	3.47	0.108	<0.0050
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	18-02-2024	7.93	<3.0	100	127	8.5	<2.0	66.5	61.3	58.2	<0.050	<0.50	0.043	3.32	0.07	0.0082
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-001	25-03-2024	7.75	5.1	102	94.8	42.5	2.5	43.4	42.3	40	<0.050	1.33	0.031	3.96	0.264	<0.0050
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	25-03-2024	7.72	4.5	100	95.1	40.9	2.5	43.4	44.8	39.6	<0.050	1.3	0.04	3.92	0.26	<0.0050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	05-11-2023	-	-	-	-	-	-	-	-	45.5	-	-	-	-	-	-
Creek 661	661-01	Surface	Regular	VA23A8158-006	14-04-2023	7.11	<3.0	28	29.7	0.44	2.6	13.6	10.7	10.6	<0.050	<0.50	0.03	0.57	0.1	<0.0050
Creek 661	661-01	Surface	Regular	VA23B0766-007	16-05-2023	6.85	<3.0	44	16.7	0.6	3.1	5.6	6.53	6.43	<0.050	<0.50	<0.020	<0.30	0.215	<0.0050
Creek 661	661-01	Surface	Regular	VA23B1379-001	22-05-2023	6.92	<3.0	40	19.1	0.4	3	7.4	7.51	7.28	<0.050	<0.50	0.027	<0.30	0.272	<0.0050
Creek 661	661-01	Surface	Replicate	VA23B1379-002	22-05-2023	6.91	<3.0	38	19	0.38	2.9	7.3	7.52	7.27	<0.050	<0.50	0.023	<0.30	0.258	0.0051
Creek 661	661-01	Surface	Regular	VA23B2224-001	31-05-2023	7.26	<3.0	37	22	0.27	2.4	9.4	8.37	7.94	<0.050	<0.50	0.03	<0.30	0.207	<0.0050
Creek 661	661-01	Surface	Regular	VA23B2847-004	06-06-2023	7.03	<3.0	35	22.8	0.21	2.5	9.1	8.97	8.78	<0.050	<0.50	0.023	<0.30	0.227	<0.0050
Creek 661	661-01	Surface	Regular	VA23B3687-001	14-06-2023	6.83	<3.0	35	26.6	0.17	2	12.3	10.2	10.4	<0.050	<0.50	0.026	<0.30	0.147	<0.0050
Creek 661	661-01	Surface	Regular	VA23B7523-004	27-07-2023	6.76	<3.0	25	31.2	0.4	2	14.7	13	12.9	<0.050	<0.50	0.032	0.65	0.157	<0.0050
Creek 661	661-01	Surface	Regular	VA23B8906-006	15-08-2023	7.31	<3.0	31	37.3	0.15	2	17.5	15	15	<0.050	<0.50	0.03	<0.30	0.137	<0.0050
Creek 661	661-01	Surface	Regular	VA23C0875-002	04-09-2023	7.28	<3.0	38	38.2	<0.10	2.3	18.5	15	15.1	<0.050	<0.50	0.031	0.3	0.164	<0.0050
Creek 661	661-01	Surface	Regular	VA23C4014-004	05-10-2023	7.34	<3.0	36	41.3	0.15	2.5	22.2	16.2	17	<0.050	<0.50	0.032	0.56	0.08	<0.0050
Creek 661	661-01	Surface	Regular	VA23C4586-003	14-10-2023	7.23	<3.0	36	39.5	0.94	2.6	18.6	15.7	15.3	<0.050	<0.50	0.029	0.38	0.076	0.0106
Creek 661	661-01	Surface	Regular	VA23C4858-001	16-10-2023	7.49	<3.0	36	41.4	0.17	2.5	19.9	16	16.6	<0.050	<0.50	0.029	0.55	0.074	<0.0050
Creek 661	661-01	Surface	Regular	VA23C5894-003	25-10-2023	7.47	<3.0	53	50.4	0.19	<2.0	25.2	20.1	19.6	<0.050	<0.50	0.02	0.4	0.112	<0.0050
Creek 661	661-01	Surface	Regular	VA23C6383-001	31-10-2023	7.23	<3.0	34	42.8	0.22	3.8	22.2	16.5	16.6	<0.050	<0.50	0.023	0.52	0.069	<0.0050
Creek 661	661-01	Surface	Regular	VA23C7190-008	09-11-2023	7.31	<3.0	45	40	0.17	<2.0	19.3	15.8	14.9	<0.050	<0.50	0.03	0.47	0.074	<0.0050
Creek 661	661-01	Surface	Regular	VA23C9661-001	07-12-2023	7.44	<3.0	42	43.3	0.3	2.4	22.3	16.5	17.6	<0.050	<0.50	0.031	0.46	0.082	0.006
Creek 661	661-01	Surface	Replicate	VA23C9661-002	07-12-2023	7.46	<3.0	40	42.5	0.31	2.3	22.2	16.8	17.4	<0.050	<0.50	0.03	0.46	0.085	0.0061
Creek 661	661-01	Surface	Regular	VA24A1833-003	29-01-2024	7.27	<3.0	35	31.6	0.35	3.2	14.3	11.7	11.8	<0.050	<0.50	0.025	0.45	0.13	<0.0050
Creek 661	661-01	Surface	Regular	VA24A3502-002	19-02-2024	7.36	<3.0	30	30.9	0.35	2.5	14.1	11.4	11.6	<0.050	<0.50	<0.020	0.45	0.111	<0.0050
Creek 661	661-01	Surface	Replicate	VA24A3502-003	19-02-2024	7.36	<3.0	30	31.8	0.36	2.4	14.6	11.6	11.7	<0.050	<0.50	<0.020	0.44	0.138	<0.0050
Creek 661	661-01	Surface	Regular	VA24A6018-004	19-03-2024	7.33	<3.0	29	26.6	0.26	5.2	11.3	9.77	9.45	<0.050	<0.50	<0.020	0.62	0.121	<0.0050
Creek 661	661-04	Surface	Regular	VA23A8158-007	14-04-2023	7.72	<3.0	56	85.8	0.26	2.2	40.9	34.8	34.7	<0.050	<0.50	0.052	4.09	0.052	<0.0050
Creek 661	661-04	Surface	Regular	VA23B0766-008	16-05-2023	7.11	3.3	52	30.9	0.65	3.1	9.3	12.7	12.2	<0.050	<0.50	0.028	2.77	0.205	<0.0050
Creek 661	661-04	Surface	Regular	VA23B1379-004	22-05-2023	7.19	<3.0	45	37.7	0.44	2.9	13.6	15.9	15.6	<0.050	<0.50	0.036	2.67	0.218	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	31-05-2023	7.59	<3.0	44	46.6	0.25	2.3	19.3	19.4	18.4	<0.050	<0.50	0.042	2.34	0.164	0.006
Creek 661	661-04	Surface	Regular	VA23B2847-005	06-06-2023	7.39	<3.0	51	50.9	0.25	2.4	23.3	21.5	20.7	<0.050	<0.50	0.034	1.98	0.132	<0.0050
Creek 661	661-04	Surface	Regular	VA23B3687-002	14-06-2023	7.09	<3.0	61	58	0.28	<2.0	30.1	24	24.2	<0.050	<0.50	0.04	1.58	0.125	<0.0050
Creek 661	661-04	Surface	Replicate	VA23B3687-003	14-06-2023	7.13	<3.0	59	57.6	0.28	2	30.3	23.9	24.1	<0.050	<0.50	0.04	1.61	0.12	<0.0050
Creek 661	661-04	Surface	Regular	VA23B8906-005	14-08-2023	7.71	<3.0	66	81.3	0.29	2	37.9	34.4	34.4	<0.050	0.83	0.047	3.12	0.144	<0.0050
Creek 661	661-04	Surface	Regular	VA23C1991-004	14-09-2023	7.82	<3.0	72	85.5	0.31	<2.0	43.7	37.1	35.9	<0.050	0.54	0.048	1.57	0.069	<0.0050
Creek 661	661-04	Surface	Regular	VA23C4014-005	05-10-2023	7.7	<3.0	64	84.1	0.32	<2.0	42	34.8	37	<0.050	0.91	0.053	2.5	0.067	<0.0050
Creek 661	661-04	Surface	Regular	VA23C4586-004	14-10-2023	7.63	<3.0	56	87	0.25	2.3	41.4	35.7	35.6	<0.050	0.74	0.05	2.17	0.06	0.013
Creek 661	661-04	Surface	Regular	VA23C4858-002	16-10-2023	7.82	<3.0	56	86.6	0.32	2.2	43	35.7	37.5	<0.050	0.88	0.051	2.36	0.056	<0.0050
Creek 661	661-04	Surface	Regular	VA23C5894-002	25-10-2023	7.79	<3.0	57	90.9	0.34	<2.0	42.4	39.3	37.6	<0.050	0.93	0.042	3.42	0.094	<0.0050
Creek 661	661-04	Surface	Regular	VA23C6383-002	31-10-2023	7.7	<3.0	57	88.4	0.32	<2.0	43.2	36.1	36.1	<0.050	0.61	0.044	2.57	0.055	<0.0050
Creek 661	661-04	Surface	Regular	VA23C7190-009	09-11-2023	7.61	<3.0	71	82.8	0.28	<2.0	37	34.1	32.6	<0.050	1.07	0.05	4.18	0.066	<0.0050
Creek 661	661-04	Surface	Regular	VA23C9661-003	07-12-2023	7.81	<3.0	66	90.4	0.28	2	42.9	36.9	39.1	<0.050	0.76	0.049	3.72	<0.050	<0.0050
Creek 661	661-04	Surface	Regular	VA24A1634-001	23-01-2024	7.86	<3.0	65	86.9	0.59	<2.0	44.5	36.9	37	<0.050	<0.50	0.043	3.04	0.066	<0.0050
Creek 661	661-04	Surface	Regular	VA24A3502-004	19-02-2024	7.87	<3.0	64	92.5	0.34	<2.0	43.5	39.6	38.4	<0.050	0.63	0.042	2.97	0.062	<0.0050
Creek 661	661-04	Surface	Regular	VA24A6018-005	19-03-2024	7.87	<3.0	60	90.1	2.93	2.5	39.1	36.9	36.2	<0.050	1.67	0.053	4.64	0.116	<0.0050
Creek 661	661-05	Surface	Regular	VA23A9322-001	27-04-2023	7.96	5.8	59	90.8	2.04	2.1	51	38	38.7	<0.050	<0.50	0.051	2.15	0.146	<0.0050
Creek 661	661-05	Surface	Regular	VA23B0766-005	15-05-2023	7.54	7.3	65	48.4	1.81	2.5	23.3	21.3	20.6	<0.050	<0.50	0.039	0.85	0.219	<0.0050
Creek 661	661-05	Surface	Regular	VA23B4181-001	21-06-2023	7.67	<3.0	45	70.7	0.54	2	36.2	31.8	33.3	<0.050	<0.50	0.046	0.86	0.207	0.0074
Creek 661	661-05	Surface	Regular	VA23B7293-010	25-07-2023	7.76	4.8	76	79.7	1.7	2.1	40.4	35.5	36.4	<0.050	<0.50	0.053	0.68	0.205	<0.0050
Creek 661	661-05	Surface	Regular	VA23B9219-005	16-08-2023	7.89	<3.0	73	94.6	1.06	<2.0	51.4	45.3	42.2	<0.050	<0.50	0.054	0.9	0.13	<0.0050
Creek 661	661-05	Surface	Regular	VA23C1491-002	11-09-2023	7.84	<3.0	69	103	0.92	<2.0	54	46.6	44.8	<0.050	<0.50	0.059	1.07	0.082	<0.0050
Creek 661	661-05	Surface	Regular	VA23C4865-004	16-10-2023	7.96	<3.0	60	107	1.04	2	55.2	44.2	45.3	<0.050	2.62	0.07	2.87	<0.050	<0.0050
Creek 661	661-05	Surface	Replicate	VA23C7190-006	08-11-2023	7.79	<3.0	115	96.5	44.9	<2.0	49.2	45.5	41.6	<0.050	<0.50	0.054	1.03	0.126	<0.0050
Creek 661	661-05	Surface	Regular	VA23C9238-004	04-12-2023	7.92	<3.0	76	104	6.07	<2.0	52.8	45.4	44.6	<0.050	<0.50	0.055	1.11	0.063	0.0086
Creek 661	661-05	Surface	Regular	VA24A0950-003	14-01-2024	7.75	3	80	113	2.24	2.5	56.7	46.8	48.6	<0.050	<0.50	0.055	1.46	0.057	<0.0050
Creek 661	661-05	Surface	Regular	VA24A2397-002	05-02-2024	7.9	<3.0	68	106	1.21	<2.0	55.6	45.7	45	<0.050	<0.50	0.056	1.16	0.056	<0.0050
Creek 661	661-05	Surface	Regular	VA24A6300-001	24-03-2024	7.98	4.5	89	102	23.7	<2.0	53.7	46	44.5	<0.050	<0.50	0.057	1.17	0.104	<0.0050
Creek 661	661-03	Surface	Regular	VA23A8011-002	12-04-2023	7.7	<3.0	76	84.8	0.45	2.2	41.9	36.9	35.9	<0.050	<0.50	0.043	1.32	0.169	<0.0050
Creek 661	661-03	Surface	Regular	VA23A9531-006	01-05-2023	7.05	15.1	81	49.8	3.04	3.1	23.1	22.6	22.6	<0.050	<0.50	0.046	0.96	0.636	0.0069
Creek 661	661-03	Surface	Regular	VA23B0222-001	09-05-2023	7.22	3.4	78	43.2	0.72	2.7	16.7	20.3	20.7	<0.050	<0.50	0.039	0.43	0.497	<0.0050
Creek 661	661-03	Surface	Replicate	VA23B0222-002	09-05-2023	7.21	7	71	42.4	0.97	2.6	16.9	20.5	20.6	<0.050	<0.50	0.04	0.44	0.517	0.0052
Creek 661	661-03	Surface	Regular	VA23B0766-004	15-05-2023	7.55	<3.0	74	54.2	0.81	2.7	26	24.9	24.6	<0.050	<0.50	0.044	0.49	0.345	0.0084
Creek 661	661-03	Surface	Regular	VA23B1529-001	23-05-2023	7.35	<3.0	53	57.2	0.24	3.2	28.2	26.9	25.8	<0.050	<0.50	0.052	0.48	0.336	0.0101
Creek 661	661-03	Surface	Regular	VA23B2052-002	29-05-2023	7.66	<3.0	68	64.5	0.22	3	32.7	29.1	29.9	<0.050	<0.50	0.05	0.54	0.315	0.0054
Creek 661	661-03	Surface	Regular	VA23B3987-002	19-06-2023	7.75	<3.0	74	80.4	0.43	2.1	43.9	40.3	39.2	<0.050	<0.50	0.042	0.52	0.276	<0.0050
Creek 661	661-03	Surface	Regular	VA23B7293-003	25-07-2023	7.7	<3.0	92	85.2	0.43	2.5	44	40.7	40.6	<0.050	<0.50	0.053	0.5	0.229	<0.0050
Creek 661	661-03	Surface	Regular	VA23B9359-002	17-08-2023	7.72	<3.0	90	111	0.29	2.4	57.2	50.6	51	<0.050	<0.50	0.049	0.52	0.18	<0.0050
Creek 661	661-03	Surface	Regular	VA23C1491-001	11-09-2023	7.65	16.4	80	133	1.02	2.7	71.3	63.1	61	<0.050	<0.50	0.054	1.11	0.076	<0.0050
Creek 661	661-03	Surface	Regular	VA23C3847-004	03-10-2023	7.95	75.1	97	134	11.2	<2.0	73.5	64.3	62.8	<0.050	<0.50	0.061	1.26	0.168	<0.0050
Creek 661	661-03	Surface	Regular	VA23C4279-004	10-10-2023	7.86	8	98	136	0.87	<2.0	73	63.2	61.7	<0.050	<0.50	0.058	1.28	0.281	0.0071
Creek 661	661-03	Surface	Replicate	VA23C4279-005	10-10-2023	7.87	8.6	94	135	0.88	2.6	73.4	64.2	61.6	<0.050	<0.50	0.063	1.26	0.384	0.0099
Creek 661	661-03	Surface	Regular	VA23C4865-003	16-10-2023	8.03	<3.0	78	141	0.35	<2.0	73.1	62.3	62.6	<0.050	<0.50	0.07	1.39	<0.050	<0.0050
Creek 661	661-03	Surface	Regular	VA23C5577-001	23-10-2023	7.67	<3.0	82	98	0.59	2.6	50.6	45.6	47	<0.050	<0.50	0.043	0.81	0.145	<0.0050
Creek 661	661-03	Surface	Regular	VA23C6622-002	02-11-2023	7.75	<3.0	82	113	0.48	<2.0	60.5	51.4	49.9	<0.050	<0.50	0.049	0.95	0.094	<0.0050
Creek 661	661-03	Surface	Regular	VA23C9238-001	04-12-2023	7.71	<3.0	73	90.7	0.55	2.1	45.4	40.7	41.3	<0.050	<0.50	0.044	1	0.199	0.0079
Creek 661	661-03	Surface	Regular	VA24A0932-002	14-01-2024	7.7	9.2	94	131	1.9	4.1	64.2	59	58.4	<0.050	<0.50	0.045	3.88	0.423	0.0092
Creek 661	661-03	Surface	Replicate	VA24A0932-003	14-01-2024	7.58	8.8	94	132	1.29	4.3	62.3	58.8	57.7	<0.050	<0.50	0.049	5.09	0.376	0.0089
Creek 661	661-03	Surface	Regular	VA24A2975-003	12-02-2024	7.84	<3.0	75	93	0.46	2.6	46	42	41.2	<0.050	<0.50	0.04	2.55	0.268	0.0059
Creek 661	661-03	Surface	Regular	VA24A5191-002	10-03-2024	7.9	<3.0	84	122	0.38	<2.0	62.1	53.2	56.4	<0.050	<0.50	0.055	1.33	0.109	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	12-04-2023	7.79	<3.0	73	92.9	0.39	<2.0	45.3	37.6	36.3	<0.050	<0.50	0.053	2.23	0.065	<0.0050
Creek 661	661-10	Surface	Replicate	VA23A8011-005	12-04-2023	7.82	<3.0	64	98.1	0.34	2.2	44.7	37.4	36.3	<0.050	<0.50	0.051	2.2	0.069	<0.0050
Creek 661	661-10	Surface	Regular	VA23A9531-001	01-05-2023	7.19	17.7	75	58.5	6.9	3	24.8	25.3	24.6	<0.050	0.97	0.043	2.74	0.503	0.0084
Creek 661	661-10	Surface	Regular	VA23B0222-003	09-05-2023	7.01	25	50	28.4	4.42	2.7	9.4	12.3	12.3	<0.050	<0.50	0.028	1.45	0.483	0.007
Creek 661	661-10	Surface	Regular	VA23B0766-003	15-05-2023	7.17	12.1	54	29.2	1.19	2.8	10.1	12.5	12.1	<0.050	<0.50	0.033	1.5	0.257	<0.0050
Creek 661	661-10	Surface	Regular	VA23B1529-002	23-05-2023	7.25	4.6	38	36.1	1.04	2.8	14.2	15.2	14.6	<0.050	<0.50	0.036	1.51	0.263	0.005
Creek 661	661-10	Surface	Regular	VA23B2052-001	29-05-2023	7.45	<3.0	50	42.8	0.72	2.4	17.8	17.4	18.3	<0.050	<0.50	0.038	1.6	0.198	<0.0050
Creek 661	661-10	Surface	Regular	VA23B3987-001	19-06-2023	7.59	3.1	57	52.7	2.08	2.1	27	23.6	23.4	<0.050	<0.50	0.039	1.24	0.202	<0.0050
Creek 661	661-10	Surface	Regular	VA23B7293-001	25-07-2023	7.63	4.2	74	69.7	1.01	2.5	30.7	30.8	30.5	<0.050	0.61	0.046	3.49	0.204	0.0077
Creek 661	661-10	Surface	Regular	VA23B9359-001	17-08-2023	7.63	<3.0	72	79.4	0.88	2	39.6	34.5	32.6	<0.050	<0.50	0.046	1.34	0.194	<0.0050
Creek 661	661-10	Surface	Regular	VA23C0875-001	04-09-2023	7.6	<3.0	81	81.7	0.65	2.5	40.9	35.6	35	<0.050	<0.50	0.045	1.37	0.183	<0.0050
Creek 661	661-10	Surface	Regular	VA23C3847-003	03-10-2023	7.72	<3.0	70	80.8	0.68	<2.0	41.4	35.7	35.6	<0.050	0.5	0.049	1.43	0.14	<0.0050
Creek 661	661-10	Surface	Regular	VA23C4279-003	10-10-2023	7.66	<3.0	68	81.2	0.68	<2.0	41.4	36.6	34.8	<0.050	0.63	0.051	1.73	0.169	<0.0050
Creek 661	661-10	Surface	Regular	VA23C4865-005	16-10-2023	7.79	<3.0	56	82	0.76	2.2	40.5	34.8	33.9	<0.050	0.73	0.057	1.9	0.135	<0.0050
Creek 661	661-10	Surface	Regular	VA23C5577-002	23-10-2023	7.67	<3.0	72	79.4	0.78	<2.0	38.1	34.9	35.7	<0.050	0.8	0.038	2.1	0.13	<0.0050
Creek 661	661-10	Surface	Replicate	VA23C5577-003	23-10-2023	7.66	<3.0	71	79.3	0.77	<2.0	38.2	33.8	35.4	<0.050	0.8	0.039	2.09	0.155	<0.0050
Creek 661	661-10	Surface	Regular	VA23C6622-001	02-11-2023	7.72	<3.0	73	85.7	0.92	<2.0	43.9	36.1	35	<0.050	0.51	0.044	1.83	0.097	<0.0050
Creek 661	661-10	Surface	Regular	VA23C9238-002	04-12-2023	7.71	<3.0	67	86.8	1.26	<2.0	41.5	36.4	36.9	<0.050	0.57	0.042	2.58	0.102	0.0091
Creek 661	661-10	Surface	Regular	VA24A0932-001	14-01-2024	7.67	<3.0	50	99.4	1.03	2.8	47.9	40.4	41.2	<0.050	<0.50	0.042	2.85	0.101	0.0063
Creek 661	661-10	Surface	Regular	VA24A2975-001	12-02-2024	7.85	<3.0	63	90.4	0.85	2.2	44.3	39.2	37.3	<0.050	0.58	0.049	2.89	0.085	0.005
Creek 661	661-10	Surface	Regular	VA24A5191-001	10-03-2024	7.81	<3.0	66	97.9	1.27	2	48.2	38.4	41.1	<0.050	<0.50	0.054	2	0.072	<0.0050
Creek 661	661-20	Surface	Regular	VA23A8011-004	12-04-2023	8.03	<3.0	92	136	1.28	<2.0	70.1	60.6	63.7	<0.050	<0.50	0.06	2.25	0.146	<0.0050
Creek 661	661-20	Surface	Regular	VA23A9531-002	01-05-2023	7.58	40.3	89	80.9	13.2	2.6	37.5	37.6	36.5	<0.050	0.75	0.048	2.35	0.66	0.0068
Creek 661	661-20	Surface	Regular	VA23B7293-004	25-07-2023	8.01	4.2	127	130	1.68	<2.0	67.2	62.6	61	<0.050	<0.50	0.061	1.08	0.201	<0.0050
Creek 661	661-20	Surface	Regular	VA23C0762-004	31-08-2023	8.07	<3.0	95	157	0.48	<2.0	83.9	72.9	72.4	<0.050	<0.50	0.063	1.78	0.143	0.0123
Creek 661	661-20	Surface	Regular	VA23C6622-005	02-11-2023	8.09	<3.0	86	156	0.63	<2.0	82.9	71.6	72.6	<0.050	<0.50	0.058	2.16	0.068	<0.0050
Creek 661	661-20	Surface	Replicate	VA23C6622-006	02-11-2023	8.09	<3.0	97	156	0.63	<2.0	82.3	70.4	73.1	<0.050	<0.50	0.057	2.16	0.062	<0.0050
Creek 661	661-20	Surface	Regular	VA24A2975-002	12-02-2024	8.17	<3.0	96	155	0.65	<2.0	80	69.7	68.5	<0.050	<0.50	0.06	3.01	0.119	0.0061
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	12-04-2023	8.15	<3.0	119	198	1.09	2.3	96	87.3	88.1	<0.050	<0.50	0.064	3.22	0.287	0.0178
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	01-05-2023	7.64	21.7	91	97.2	7.18	2.5	45.7	47.1	45.4	<0.050	0.54	0.044	2.92	0.584	0.0271
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	01-05-2023	7.66	19.5	92	98.3	8.31	2.3	46.9	46.3	45.1	<0.050	0.57	0.043	2.9	0.587	0.0258
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	09-05-2023	7.8	9.4	70	90.4	2.28	<2.0	46.3	43.4	43	<0.050	<0.50	0.053	1.6	0.482	0.0197
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	15-05-2023	7.99	8.9	104	128	2.95	<2.0	63.8	62.6	59.9	<0.050	<0.50	0.054	2.05	0.446	0.0185
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	23-05-2023	8	3.6	73	145	1.26	<2.0	73.2	68	68	<0.050	<0.50	0.061	2.48	0.454	0.0156
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	29-05-2023	8.04	7.1	106	153	1.99	<2.0	78.8	73	75.6	<0.050	<0.50	0.064	2.68	0.46	0.0123
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	19-06-2023	8.23	<3.0	139	192	0.7	<2.0	104	98.2	99.6	<0.050	<0.50	0.058	5.46	0.23	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	25-07-2023	8.22	<3.0	170	206	0.95	<2.0	108	104	103	<0.050	1.65	0.068	3.36	0.215	0.0056
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	31-08-2023	8.22	<3.0	152	233	0.61	<2.0	125	111	113	<0.050	<0.50	0.072	3.58	0.209	0.0192
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	11-09-2023	8.21	<3.0	135	266	0.51	<2.0	129	119	123	<0.050	<0.50	0.073	4	0.157	0.0055
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	03-10-2023	8.33	<3.0	166	244	0.44	<2.0	132	123	122	<0.050	<0.50	0.077	5.34	0.117	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	10-10-2023	8.24	<3.0	157	246	0.41	<2.0	129	118	117	<0.050	<0.50	0.076	5.24	0.156	0.0108
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	16-10-2023	8.32	<3.0	131	248	0.49	<2.0	129	118	116	<0.050	<0.50	0.081	5.44	0.097	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	23-10-2023	8.19	<3.0	156	236	0.44	<2.0	122	117	126	<0.050	<0.50	0.062	4.8	0.121	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	02-11-2023	8.23	<3.0	162	252	0.89	<2.0	134	120	123	<0.050	<0.50	0.066	6.07	0.076	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	04-12-2023	8.3	<3.0	156	251	0.71	<2.0	126	120	120	<0.050	<0.50	0.066	6.58	0.082	<0.0050
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	14-01-2024	8.14	<3.0	167	272	0.44	<2.0	142	129	134	<0.050	<0.50	0.069	5.43	0.096	0.0054
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	12-02-2024	8.27	<3.0	158	248	0.73	<2.0	135	121	119	<0.050	<0.50	0.079	5.51	0.416	0.0117
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	10-03-2024	8.2	<3.0	146	240	0.77	<2.0	125	114	114	<0.050	<0.50	0.076	3.07	0.275	0.0092
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	01-05-2023	7.62	33.9	97	92.1	9.94	2.4	43.4	45.2	42	<0.050	0.64	0.043	2.98	0.616	0.0175
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	09-05-2023	7.59	20.8	62	65.7	4.89	2.4	31.9	31.1	30.7	<0.050	<0.50	0.037	1.55	0.512	0.0095

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	15-05-2023	7.84	12.9	89	91.9	4.72	2.2	44.7	43.8	42.2	<0.050	<0.50	0.048	1.82	0.372	0.01
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	23-05-2023	7.96	13.2	70	125	2.15	<2.0	62.9	57.8	58.8	<0.050	<0.50	0.059	2.29	0.393	0.0114
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	29-05-2023	8.01	5.5	98	139	1.64	<2.0	69.3	64.5	66.2	<0.050	<0.50	0.061	2.5	0.394	0.0122
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	31-08-2023	8.23	<3.0	128	195	0.53	<2.0	106	92.6	92.2	<0.050	<0.50	0.064	2.51	0.196	0.0136
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	31-08-2023	8.25	<3.0	118	194	0.62	<2.0	107	94.6	94.3	<0.050	<0.50	0.066	2.51	0.195	0.0128
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	03-10-2023	8.25	<3.0	132	199	0.34	<2.0	110	97.3	96.6	<0.050	<0.50	0.069	3.41	0.105	<0.0050
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	10-10-2023	8.16	<3.0	126	195	0.4	<2.0	105	92.9	92.3	<0.050	<0.50	0.072	3.37	0.14	0.0056
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	16-10-2023	8.26	<3.0	105	201	0.69	<2.0	107	96.3	92.6	<0.050	<0.50	0.077	3.63	0.112	<0.0050
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	23-10-2023	8.13	<3.0	132	189	0.49	<2.0	97.2	87.4	96.3	<0.050	<0.50	0.055	3.11	0.111	<0.0050
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	02-11-2023	8.18	<3.0	109	198	0.78	<2.0	107	90.1	92.9	<0.050	<0.50	0.059	3.83	0.092	<0.0050
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	12-02-2024	8.28	<3.0	120	204	0.77	<2.0	112	98.2	95.8	<0.050	<0.50	0.067	4.53	0.138	<0.0050
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	11-05-2023	8.01	48.9	107	140	6.05	<2.0	68.7	64.3	61	<0.050	<0.50	0.062	3.46	1.19	0.0113
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	16-08-2023	8.18	<3.0	91	137	0.44	<2.0	70.3	69.4	67.1	<0.050	<0.50	0.055	3.26	0.291	<0.0050
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	01-11-2023	8.11	<3.0	80	150	0.28	<2.0	73.9	69.4	65	<0.050	<0.50	0.05	2.94	0.277	<0.0050
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	25-02-2024	8.17	<3.0	116	156	0.74	<2.0	81.8	79.6	72.3	<0.050	<0.50	0.059	3.61	0.308	0.0052
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	26-04-2023	8.07	15.1	103	130	5.63	2.1	64.4	57.4	58.8	<0.050	<0.50	0.057	3.42	0.288	0.0177
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	03-05-2023	7.64	49.6	81	88.4	7.26	<2.0	39.9	43.1	42.9	<0.050	0.72	0.053	4.13	0.491	0.0097
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	11-05-2023	7.84	15.3	88	98.2	3.76	<2.0	48.5	45.2	45.6	<0.050	<0.50	0.05	3.34	0.351	0.006
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	11-05-2023	7.85	13.7	89	99.2	3.79	2	47.6	44.6	44.9	<0.050	<0.50	0.051	3.38	0.347	0.0061
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	17-05-2023	7.91	18.6	70	102	2.76	2	50.5	51.9	46.8	<0.050	<0.50	0.042	2.32	0.382	0.0071
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	24-05-2023	7.91	8.8	98	112	1.71	<2.0	57.1	57	53.2	<0.050	<0.50	0.055	3.29	0.268	0.0065
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	30-05-2023	7.96	<3.0	78	124	0.69	<2.0	64.5	58.9	57.3	<0.050	<0.50	0.053	2.8	0.306	0.0088
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	06-06-2023	7.89	4.7	99	129	2.19	<2.0	63.3	63.2	60.7	<0.050	<0.50	0.048	2.65	0.331	0.0091
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	31-07-2023	7.96	<3.0	94	126	1.25	<2.0	59	60.6	60.2	<0.050	0.6	0.052	4.45	0.228	0.008
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	23-08-2023	7.85	5.3	88	131	1.83	<2.0	67	62.4	62	<0.050	<0.50	0.054	2.85	0.281	0.0094
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	20-09-2023	8.12	<3.0	83	136	1.33	<2.0	71.9	65.1	65.2	<0.050	<0.50	0.055	2.75	0.253	0.0065
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	04-10-2023	8	3.1	84	140	0.87	<2.0	71.1	69.3	65.1	<0.050	<0.50	0.059	3.51	0.22	0.0086
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	11-10-2023	8.08	<3.0	79	142	0.98	<2.0	71.1	67.3	67.3	<0.050	<0.50	0.055	3.09	0.285	0.0085
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	20-10-2023	7.81	3	83	135	1.32	<2.0	68.7	70.2	68.1	<0.050	<0.50	0.056	3.53	0.265	0.0056
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	24-10-2023	7.99	<3.0	86	146	1.34	<2.0	71.3	63	70.4	<0.050	0.54	0.05	3.45	0.239	0.0081
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	01-11-2023	8.06	<3.0	89	148	1.18	<2.0	72.8	66.7	63.2	<0.050	<0.50	0.048	3.19	0.244	<0.0050
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	06-12-2023	7.83	<3.0	88	143	1.31	<2.0	71.8	63.3	61.1	<0.050	<0.50	0.049	3.71	0.191	0.0061
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	11-01-2024	7.8	<3.0	70	152	0.95	<2.0	73.4	79.7	78.5	<0.050	<0.50	0.062	3.51	0.222	0.0079
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	05-02-2024	7.88	<3.0	103	158	0.54	<2.0	80	72.6	71.1	<0.050	<0.50	0.059	3.93	0.234	0.0084
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	05-02-2024	7.89	<3.0	96	157	0.6	<2.0	77.9	72.4	70.9	<0.050	<0.50	0.056	3.93	0.247	0.0083
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	04-03-2024	8.14	<3.0	101	157	2.18	<2.0	78.6	70	68.5	<0.050	<0.50	0.053	3.86	0.213	0.0084
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	25-04-2023	7.98	6.5	98	138	1.72	2.3	66	63.3	61.9	<0.050	<0.50	0.051	3.15	0.321	0.0098
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	03-05-2023	7.66	49.4	78	89.9	8.92	<2.0	40.5	42.2	42.8	<0.050	0.73	0.055	4.19	0.518	0.0094
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	11-05-2023	7.85	13.5	89	98.1	3.08	2.1	47.5	45.7	45.6	<0.050	<0.50	0.048	3.3	0.381	0.0072
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	17-05-2023	7.9	17.4	57	102	3.42	<2.0	50.7	50.4	45.9	<0.050	<0.50	0.043	2.31	0.375	0.0077
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	24-05-2023	7.92	10	94	112	2.1	<2.0	57.7	54.5	53.3	<0.050	<0.50	0.054	3.26	0.266	0.0068
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	30-05-2023	7.93	3.7	73	121	1.51	<2.0	63.7	57.5	57.2	<0.050	<0.50	0.05	2.77	0.28	0.0062
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	30-05-2023	7.97	<3.0	78	124	1.17	<2.0	65.7	57.9	57	<0.050	<0.50	0.048	2.77	0.26	0.0061
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	21-06-2023	7.99	4.2	104	124	1.25	<2.0	61.4	58.2	64.9	<0.050	<0.50	0.055	3.36	0.292	0.0065
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	31-07-2023	7.98	3.6	98	128	1.04	<2.0	59.8	59.5	61.8	<0.050	0.59	0.052	4.34	0.22	0.0081
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	23-08-2023	7.87	<3.0	93	135	1.48	2.1	68.3	63.3	61.9	<0.050	<0.50	0.052	2.74	0.265	0.0069
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	20-09-2023	8.12	<3.0	86	135	1.31	<2.0	71.3	66.5	64	<0.050	<0.50	0.055	2.72	0.242	0.008
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	04-10-2023	8.02	<3.0	90	142	1.01	<2.0	73.1	70.6	66.6	<0.050	<0.50	0.06	3.39	0.208	0.0055
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	04-10-2023	8.04	<3.0	84	143	0.95	<2.0	72.6	71.6	66.3	<0.050	<0.50	0.06	3.4	0.208	0.0067
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	11-10-2023	8.14	<3.0	88	143	0.92	<2.0	73.4	68.9	68.8	<0.050	<0.50	0.054	2.95	0.215	0.0051
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	20-10-2023	7.92	<3.0	92	140	1.04	<2.0	71.1	70.2	68.4	<0.050	<0.50	0.056	3.44	0.229	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	24-10-2023	8	<3.0	78	147	1.07	<2.0	72.9	64.5	67.7	<0.050	<0.50	0.05	3.32	0.213	0.0058
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	01-11-2023	8.09	<3.0	88	150	0.72	<2.0	74.8	68.3	65.3	<0.050	<0.50	0.05	3.08	0.214	<0.0050
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	06-12-2023	7.84	<3.0	81	146	1.12	<2.0	73.6	64.4	62.6	<0.050	<0.50	0.051	3.61	0.18	0.0061
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	15-01-2024	8.01	<3.0	89	160	0.78	<2.0	77.6	71.9	74.7	<0.050	<0.50	0.062	3.9	0.25	0.0057
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	15-01-2024	8	<3.0	94	160	0.67	<2.0	78.4	71.6	75.3	<0.050	<0.50	0.061	3.92	0.238	0.0062
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	11-02-2024	8.11	<3.0	104	156	1.47	<2.0	78.8	73	71.3	<0.050	<0.50	0.058	4.31	0.245	<0.0050
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	04-03-2024	8.16	<3.0	90	156	1.96	<2.0	78.1	69.3	71.9	<0.050	<0.50	0.055	3.88	0.214	0.0062
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	11-05-2023	7.78	16.1	92	94.9	5.68	2.2	44.9	42.8	42.9	<0.050	<0.50	0.05	3.24	0.352	0.0066
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	29-08-2023	8.12	<3.0	100	152	1.04	<2.0	76.8	71.2	71.2	<0.050	<0.50	0.062	3.26	0.212	0.0059
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	29-08-2023	8.12	<3.0	96	152	1	<2.0	76.3	69.7	69.5	<0.050	<0.50	0.06	3.25	0.254	0.0057
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	01-11-2023	8.14	<3.0	97	173	1.05	<2.0	88.2	78.3	74.6	<0.050	<0.50	0.055	3.02	0.197	<0.0050
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	11-02-2024	8.1	<3.0	107	177	1.4	2.2	89.9	82.7	79.8	<0.050	<0.50	0.063	4.29	0.273	0.01
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	26-04-2023	8.17	8.7	91	148	3.82	2.1	76	67.5	66.5	<0.050	<0.50	0.064	3.09	0.263	0.0087
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	03-05-2023	7.76	49.4	80	103	10.8	<2.0	47.2	47.8	48	<0.050	0.75	0.056	4.07	0.527	0.0122
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	11-05-2023	7.79	18.5	87	93.6	5.45	<2.0	44.6	42	43.2	<0.050	<0.50	0.051	3.32	0.473	0.0072
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	17-05-2023	7.82	17	75	97.4	4.36	2	48.3	49	44.5	<0.050	<0.50	0.042	2.76	0.486	0.0082
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	17-05-2023	7.82	17.6	73	96.4	4.76	2.1	47.9	47.4	44.4	<0.050	<0.50	0.042	2.14	0.431	0.0071
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	24-05-2023	7.89	13.6	101	112	3.49	<2.0	58.9	54.8	53.9	<0.050	<0.50	0.055	3.04	0.292	0.0107
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	30-05-2023	7.9	12.9	85	126	3.21	<2.0	65.4	57.5	57.9	<0.050	<0.50	0.058	2.6	0.295	0.0112
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	06-06-2023	7.9	4.1	104	140	1.08	<2.0	70	66.5	66.7	<0.050	<0.50	0.053	2.65	0.266	<0.0050
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	27-07-2023	7.62	<3.0	92	164	1.18	<2.0	66.8	68.4	71.6	<0.050	0.66	0.057	5.16	0.225	<0.0050
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	29-08-2023	8.12	<3.0	104	161	1.14	<2.0	81.8	72.6	74	<0.050	<0.50	0.065	3.55	0.23	0.0069
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	20-09-2023	8.25	<3.0	98	169	0.95	<2.0	90.4	83	83.4	<0.050	<0.50	0.07	3.08	0.176	<0.0050
Chedakuz Creek	CC-40	Surface	Regular	VA23C3871-001	04-10-2023	8.16	<3.0	106	178	0.98	<2.0	92.4	86.3	81.7	<0.050	<0.50	0.078	3.88	0.174	0.0061
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	11-10-2023	8.23	<3.0	96	176	1.08	<2.0	91.2	83.5	84	<0.050	<0.50	0.071	3.37	0.193	0.0061
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	20-10-2023	7.99	<3.0	107	173	1.31	<2.0	90.7	90.5	86.9	<0.050	<0.50	0.073	3.91	0.191	<0.0050
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	24-10-2023	8.11	<3.0	96	172	1.83	<2.0	87.1	75	75.2	<0.050	<0.50	0.06	3.66	0.181	<0.0050
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	24-10-2023	8.11	<3.0	95	173	1.9	<2.0	86.9	75.3	78.1	<0.050	<0.50	0.06	3.62	0.193	0.0068
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	01-11-2023	8.16	<3.0	122	186	1.21	<2.0	94.3	84.1	80	<0.050	<0.50	0.064	3.77	0.192	0.0058
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	06-12-2023	7.99	<3.0	100	180	1.16	<2.0	93.1	80.1	79.5	<0.050	<0.50	0.063	4.23	0.183	0.0061
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	15-01-2024	8.04	<3.0	106	198	0.97	2.1	98.5	89.1	90.6	<0.050	<0.50	0.075	4.41	0.245	0.0172
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	11-02-2024	8.15	<3.0	112	180	1.41	<2.0	93	85.2	82.6	<0.050	<0.50	0.067	4.62	0.243	0.009
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	04-03-2024	8.16	<3.0	109	183	1.86	<2.0	94.1	82.1	81	<0.050	<0.50	0.061	4.24	0.2	0.0183
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	20-03-2024	7.99	3.5	99	157	3.55	<2.0	77.7	71	72.1	<0.050	0.79	0.058	3.8	0.404	0.0293
Creek 705	705-05	Surface	Regular	VA23A8158-003	13-04-2023	7.66	4	54	65.1	1.28	2.3	31.8	28.2	28.6	<0.050	<0.50	0.031	1.72	0.199	<0.0050
Creek 705	705-05	Surface	Regular	VA23B0364-002	10-05-2023	7.13	<3.0	54	27.6	1.07	2.1	10.5	13	13	<0.050	<0.50	<0.020	0.56	0.286	<0.0050
Creek 705	705-05	Surface	Regular	VA23B3687-004	14-06-2023	7	<3.0	44	40.4	0.49	<2.0	22.1	17.4	17.6	<0.050	<0.50	0.026	0.41	0.178	<0.0050
Creek 705	705-05	Surface	Regular	VA23B7523-003	27-07-2023	6.84	<3.0	44	39.7	1.06	2.3	17.3	19.8	20.4	<0.050	<0.50	0.023	0.44	0.272	<0.0050
Creek 705	705-05	Surface	Regular	VA23B8906-003	14-08-2023	7.38	<3.0	30	47.2	0.68	2.2	23.4	20.8	21.3	<0.050	<0.50	0.025	0.95	0.232	<0.0050
Creek 705	705-05	Surface	Replicate	VA23B8906-004	14-08-2023	7.42	<3.0	36	46.9	0.66	2.1	23.3	20.9	21.3	<0.050	<0.50	0.024	0.92	0.247	<0.0050
Creek 705	705-05	Surface	Regular	VA23C1674-001	12-09-2023	7.47	<3.0	49	53.7	0.75	2	26.4	24.2	24	<0.050	<0.50	0.022	0.94	0.226	<0.0050
Creek 705	705-05	Surface	Regular	VA23C4014-006	06-10-2023	7.31	<3.0	50	51.6	0.65	2.2	26.9	21.7	22.7	<0.050	<0.50	0.025	0.92	0.153	<0.0050
Creek 705	705-05	Surface	Regular	VA23C7190-010	09-11-2023	7.36	<3.0	56	49.8	0.68	<2.0	24.7	22.7	21.1	<0.050	<0.50	0.025	0.94	0.203	<0.0050
Creek 705	705-05	Surface	Replicate	VA23C7190-011	09-11-2023	7.35	<3.0	53	49.9	0.66	<2.0	24.2	22.5	21.1	<0.050	<0.50	0.021	0.95	0.193	<0.0050
Creek 705	705-05	Surface	Regular	VA23C9661-004	07-12-2023	7.55	<3.0	47	54.1	0.52	2.3	27.2	22.6	24.7	<0.050	<0.50	0.023	1.12	0.148	<0.0050
Creek 705	705-05	Surface	Regular	VA24A1833-002	29-01-2024	7.59	<3.0	49	55.1	0.95	2.6	26.7	23.4	23.3	<0.050	<0.50	0.021	1.26	0.164	<0.0050
Creek 705	705-05	Surface	Regular	VA24A3502-001	19-02-2024	7.61	<3.0	50	58.3	0.9	2.3	28.3	25.3	25.7	<0.050	<0.50	<0.020	1.33	0.223	<0.0050
Creek 705	705-05	Surface	Regular	VA24A6018-001	19-03-2024	7.47	<3.0	48	43.8	3.4	3.8	18.3	19.5	18.8	<0.050	<0.50	<0.020	0.92	0.455	0.0056
Creek 705	705-10	Surface	Regular	VA23A8158-001	13-04-2023	7.69	<3.0	56	67.7	0.87	2.3	32	27.7	27.9	<0.050	<0.50	0.028	1.83	0.191	<0.0050
Creek 705	705-10	Surface	Replicate	VA23A8158-002	13-04-2023	7.68	<3.0	54	65.5	0.9	2.2	32.7	28	27.7	<0.050	<0.50	0.031	1.73	0.194	<0.0050
Creek 705	705-10	Surface	Regular	VA23A9638-001	02-05-2023	7.06	5.7	71	34.3	3.84	3.3	11.4	17.7	17	<0.050	<0.50	0.022	0.84	0.549	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients					
						pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)
						pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	10-05-2023	7.23	5	53	32.6	1.61	2	12.8	15.5	16	<0.050	<0.50	0.02	0.78	0.312	<0.0050
Creek 705	705-10	Surface	Regular	VA23B0766-009	16-05-2023	7.28	<3.0	47	30.5	1.42	2.7	12	14.3	14	<0.050	<0.50	<0.020	0.6	0.212	<0.0050
Creek 705	705-10	Surface	Regular	VA23B1379-005	22-05-2023	7.32	<3.0	45	39.9	0.93	2.5	17.1	18.8	18	<0.050	<0.50	0.024	0.9	0.216	<0.0050
Creek 705	705-10	Surface	Regular	VA23B2224-004	31-05-2023	7.64	<3.0	52	47.5	0.39	2.3	23.1	22.7	20	<0.050	<0.50	0.029	1.09	0.161	<0.0050
Creek 705	705-10	Surface	Regular	VA23B3687-005	14-06-2023	7.16	<3.0	50	53.6	0.24	<2.0	28.7	24.4	24.4	<0.050	<0.50	0.028	0.96	0.205	<0.0050
Creek 705	705-10	Surface	Regular	VA23B7523-002	27-07-2023	6.92	16.1	49	44.7	5.36	2.3	22.4	21.8	23	<0.050	<0.50	0.025	0.44	0.267	0.0051
Creek 705	705-10	Surface	Regular	VA23B8906-002	14-08-2023	7.47	<3.0	42	53	0.3	2	26.6	23.7	24.2	<0.050	<0.50	0.026	0.94	0.192	<0.0050
Creek 705	705-10	Surface	Regular	VA23C1674-002	12-09-2023	7.64	<3.0	55	62.2	0.18	<2.0	31	27.7	27.8	<0.050	<0.50	0.03	1.13	0.13	<0.0050
Creek 705	705-10	Surface	Regular	VA23C4014-007	06-10-2023	7.53	<3.0	46	60.2	0.18	2.1	31.8	27.3	27.4	<0.050	<0.50	0.023	1.11	0.098	<0.0050
Creek 705	705-10	Surface	Regular	VA23C4586-005	14-10-2023	7.43	<3.0	41	63.7	0.12	2.5	31.2	27.5	27.2	<0.050	<0.50	0.026	0.98	0.099	<0.0050
Creek 705	705-10	Surface	Regular	VA23C4858-004	17-10-2023	7.66	<3.0	50	64.7	0.95	2.1	32.4	27.3	29.6	<0.050	<0.50	0.027	1.18	0.083	<0.0050
Creek 705	705-10	Surface	Regular	VA23C5894-004	25-10-2023	7.69	<3.0	64	73.3	1.95	<2.0	36.6	33	31.8	<0.050	<0.50	0.022	1.27	0.146	<0.0050
Creek 705	705-10	Surface	Regular	VA23C6383-004	31-10-2023	7.58	<3.0	44	72	0.13	2.1	36.1	31.1	30.6	<0.050	<0.50	0.022	1.36	0.124	<0.0050
Creek 705	705-10	Surface	Replicate	VA23C6383-006	31-10-2023	7.75	<3.0	46	84.6	<0.10	<2.0	41.5	35.6	35.1	<0.050	<0.50	<0.020	2.61	<0.050	<0.0050
Creek 705	705-10	Surface	Regular	VA23C6880-001	06-11-2023	7.36	<3.0	57	60.4	0.58	<2.0	29.6	27	26.3	<0.050	0.51	0.022	1.09	0.161	<0.0050
Creek 705	705-10	Surface	Regular	VA23C9661-005	07-12-2023	7.65	<3.0	54	63.9	0.26	2.1	31.8	26.3	28.9	<0.050	<0.50	0.024	1.29	0.122	<0.0050
Creek 705	705-10	Surface	Regular	VA24A1833-001	29-01-2024	7.65	<3.0	54	62.4	0.46	2.2	30.5	26.3	26.6	<0.050	<0.50	0.027	1.39	0.125	<0.0050
Creek 705	705-10	Surface	Regular	VA24A3529-004	18-02-2024	7.51	<3.0	64	61.5	0.5	<2.0	31.4	29.1	29.3	<0.050	<0.50	0.022	1.61	0.197	0.0052
Creek 705	705-10	Surface	Regular	VA24A6018-002	19-03-2024	7.65	<3.0	51	58.1	3.07	3.2	27.9	27.4	26	<0.050	<0.50	0.022	1.27	0.386	0.0052
Creek 705	705-10	Surface	Replicate	VA24A6018-003	19-03-2024	7.63	<3.0	52	58.1	3.43	3.3	27.1	27.2	25.7	<0.050	<0.50	0.023	1.28	0.397	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	13-04-2023	7.94	<3.0	59	97.7	0.22	<2.0	48.2	40.9	40.8	<0.050	<0.50	0.033	3.08	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	02-05-2023	7.75	34.3	62	78.8	4.61	2	37.4	35.2	33.9	<0.050	<0.50	0.026	2.68	0.149	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	10-05-2023	7.27	5.4	45	31.7	1.2	<2.0	12.2	14.4	14.7	<0.050	<0.50	<0.020	1.56	0.256	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	15-05-2023	7.09	41.5	42	22.6	12.7	2.7	8.1	12.2	10.2	<0.050	<0.50	<0.020	0.98	0.167	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	22-05-2023	7.27	<3.0	34	31.3	0.53	2.4	13.1	14.5	13.9	<0.050	<0.50	<0.020	1.29	0.18	0.0065
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	31-05-2023	7.6	<3.0	46	42.4	0.17	2	18.8	18.8	17.7	<0.050	<0.50	<0.020	1.52	0.088	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	21-06-2023	7.46	<3.0	44	44.8	0.17	<2.0	22.3	20.4	21	<0.050	<0.50	<0.020	1.34	0.157	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	27-07-2023	6.94	<3.0	45	57.2	0.28	<2.0	28.1	27.3	28.6	<0.050	<0.50	0.02	1.43	0.126	0.0065
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	14-08-2023	7.6	<3.0	40	65.8	<0.10	<2.0	32.6	29	29.8	<0.050	<0.50	0.022	1.64	0.08	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	04-09-2023	7.67	<3.0	64	80.1	<0.10	<2.0	39.8	34.7	33.6	<0.050	<0.50	0.025	2.1	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	06-10-2023	7.72	<3.0	50	75.2	<0.10	<2.0	38.7	33.1	35.8	<0.050	<0.50	0.02	2.4	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	14-10-2023	7.73	<3.0	53	81.1	<0.10	2	39.3	34.6	33.6	<0.050	<0.50	0.023	2.19	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	17-10-2023	7.8	<3.0	56	75.9	0.11	2	37.7	32.4	32.3	<0.050	<0.50	0.022	2.45	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	17-10-2023	7.81	<3.0	54	76.1	0.13	2	37.8	33.6	33.4	<0.050	<0.50	0.022	2.44	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	25-10-2023	7.8	<3.0	60	83.3	<0.10	<2.0	40.8	37.6	36.1	<0.050	<0.50	<0.020	2.47	0.067	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	31-10-2023	7.59	<3.0	52	72	0.13	<2.0	36.1	31.1	30.7	<0.050	<0.50	0.021	1.38	0.137	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	06-11-2023	7.61	<3.0	52	78.3	<0.10	<2.0	38.6	33.4	32.2	<0.050	<0.50	0.025	2.3	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	07-12-2023	7.82	<3.0	62	85.8	<0.10	<2.0	42.5	35.5	38.5	<0.050	<0.50	0.023	2.6	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	22-01-2024	7.86	<3.0	57	90.7	<0.10	<2.0	44	38.8	38.2	<0.050	<0.50	0.025	2.84	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	22-01-2024	7.87	<3.0	63	90.8	<0.10	<2.0	44.3	38.6	37.8	<0.050	<0.50	0.025	2.83	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	18-02-2024	7.78	<3.0	66	90.6	<0.10	<2.0	46.6	42.5	40.8	<0.050	<0.50	0.023	2.99	<0.050	<0.0050
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	05-03-2024	7.98	<3.0	54	99	<0.10	<2.0	47.3	43	42.8	<0.050	<0.50	0.024	3.23	<0.050	<0.0050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	0.0127	<0.0010	0.0057	0.008	<0.0050	<0.0050	<0.50	1.5	1.63	0.013	<0.00010	0.00058	0.00759	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	<0.0050	<0.0010	0.0044	0.0474	<0.0050	<0.0050	0.55	24.4	23.8	0.743	<0.00010	0.0009	0.0108	0.000047	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	<0.0050	<0.0010	0.0013	0.0267	<0.0050	<0.0050	<0.50	17	17	0.479	<0.00010	0.00063	0.00717	0.000043	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	<0.0050	<0.0010	0.0011	0.0174	<0.0050	<0.0050	0.51	13.2	13.1	0.255	<0.00010	0.00054	0.00444	0.000033	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	<0.0050	<0.0010	0.0013	0.0104	<0.0050	<0.0050	<0.50	8.85	8.83	0.17	<0.00010	0.00054	0.00429	0.00003	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	<0.0050	<0.0010	0.0012	0.0124	<0.0050	<0.0050	<0.50	8.31	8.31	0.12	<0.00010	0.0006	0.00482	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	<0.0050	<0.0010	0.0021	0.0094	<0.0050	<0.0050	<0.50	8.43	8.05	0.104	<0.00010	0.00062	0.00532	0.000026	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	<0.0050	<0.0010	0.0032	0.019	<0.0050	<0.0050	<0.50	10.6	10.5	0.146	<0.00010	0.00076	0.0123	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	<0.0050	<0.0010	0.0034	0.0122	<0.0050	<0.0050	<0.50	5.42	5.49	0.0809	<0.00010	0.00095	0.00888	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	<0.0050	<0.0010	0.0022	0.0084	<0.0050	<0.0050	<0.50	4.55	4.46	0.0404	<0.00010	0.00074	0.00827	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	<0.0050	<0.0010	0.0034	0.0189	<0.0050	<0.0050	<0.50	5.05	4.86	0.357	<0.00010	0.00094	0.011	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	<0.0050	<0.0010	0.0038	0.0097	<0.0050	<0.0050	<0.50	4.72	5.39	0.13	<0.00010	0.00071	0.0093	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	<0.0050	<0.0010	<0.0010	0.0103	<0.0050	<0.0050	<0.50	4.51	4.43	0.0959	<0.00010	0.00072	0.00893	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	<0.0050	<0.0010	0.0024	0.0106	<0.0050	<0.0050	<0.50	3.74	4.18	0.095	<0.00010	0.00072	0.00911	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	0.0067	<0.0010	0.003	0.0128	<0.0050	<0.0050	<0.50	4.73	4.92	0.206	<0.00010	0.00073	0.0103	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	<0.0050	<0.0010	0.0035	0.0132	<0.0050	<0.0050	<0.50	3.74	3.75	0.123	<0.00010	0.00069	0.00908	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	0.0599	<0.0010	0.004	0.0193	0.0055	<0.0050	<0.50	6.05	5.77	0.448	<0.00010	0.00085	0.0108	0.000026	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	0.0431	<0.0010	0.0053	0.0131	<0.0050	<0.0050	<0.50	3.86	4.49	0.19	<0.00010	0.00073	0.00932	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	0.0636	<0.0010	0.0057	0.0106	<0.0050	<0.0050	<0.50	1.74	2.13	0.0396	<0.00010	0.00057	0.0106	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	0.0449	<0.0010	0.0067	0.024	<0.0050	<0.0050	<0.50	2.69	2.95	0.389	<0.00010	0.00079	0.012	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	0.0673	<0.0010	0.0066	0.0129	<0.0050	<0.0050	<0.50	2.06	2.06	0.129	<0.00010	0.00064	0.011	<0.000020	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	0.0459	<0.0010	0.0016	0.0542	<0.0050	<0.0050	<0.50	3.57	3.66	1.97	0.00012	0.00199	0.0306	0.00008	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	0.05	<0.0010	0.0023	0.0532	<0.0050	<0.0050	<0.50	3.86	3.78	2.05	0.00015	0.00196	0.0291	0.000094	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	0.0417	<0.0010	0.0076	0.043	<0.0050	<0.0050	<0.50	3.42	4.6	2.17	0.00013	0.00177	0.0264	0.000076	<0.000050
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	0.0416	<0.0010	0.0071	0.0426	<0.0050	<0.0050	<0.50	3.72	4.55	2.48	0.00013	0.00185	0.0274	0.000085	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	0.0305	<0.0010	0.0086	0.0514	<0.0050	<0.0050	<0.50	3.24	2.55	2.73	0.00016	0.00218	0.0347	0.000101	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	0.0183	<0.0010	0.0039	0.0076	<0.0050	<0.0050	<0.50	1.4	1.79	0.0148	<0.00010	0.00056	0.00804	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	<0.0050	<0.0010	0.0041	0.0466	<0.0050	<0.0050	0.56	24	23.4	0.66	<0.00010	0.00085	0.0106	0.000048	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	<0.0050	<0.0010	0.0018	0.0087	<0.0050	<0.0050	<0.50	7.65	7.61	0.0996	<0.00010	0.00058	0.00568	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	<0.0050	<0.0010	0.0032	0.0188	<0.0050	<0.0050	<0.50	10.1	10.5	0.152	<0.00010	0.00076	0.0117	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	<0.0050	<0.0010	0.0034	0.009	<0.0050	<0.0050	<0.50	5.96	5.63	0.0755	<0.00010	0.00089	0.00879	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	<0.0050	<0.0010	0.0035	0.0063	<0.0050	<0.0050	<0.50	3.38	3.52	0.0283	<0.00010	0.00066	0.00859	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	<0.0050	<0.0010	0.0017	0.0124	<0.0050	<0.0050	<0.50	4.4	4.55	0.137	<0.00010	0.00073	0.00938	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	0.0552	<0.0010	0.004	0.0169	<0.0050	<0.0050	<0.50	6.04	6.02	0.503	<0.00010	0.00076	0.0104	0.000021	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	0.0424	<0.0010	0.0044	0.011	<0.0050	<0.0050	<0.50	3.67	3.48	0.16	<0.00010	0.00068	0.0091	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	0.042	<0.0010	0.0045	0.0112	<0.0050	<0.0050	<0.50	3.78	3.62	0.152	<0.00010	0.00068	0.00909	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	0.0482	<0.0010	0.005	0.0101	<0.0050	<0.0050	<0.50	3.02	3.03	0.0964	<0.00010	0.00053	0.00923	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	0.0696	<0.0010	0.0049	0.01	<0.0050	<0.0050	<0.50	2	1.88	0.0971	<0.00010	0.00058	0.0108	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	0.0706	<0.0010	0.0059	0.0102	<0.0050	<0.0050	<0.50	2.17	1.88	0.102	<0.00010	0.00056	0.0108	<0.000020	<0.000050
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	0.0406	<0.0010	0.0077	0.0334	<0.0050	<0.0050	<0.50	3.64	4.99	1.48	0.0001	0.00156	0.0222	0.000069	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	0.0114	<0.0010	0.0036	0.0096	<0.0050	<0.0050	<0.50	4.33	4.73	0.0178	<0.00010	0.00049	0.00878	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	0.0052	<0.0010	0.0036	0.0519	<0.0050	<0.0050	0.54	24.2	22.4	0.636	<0.00010	0.0009	0.0109	0.000049	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	<0.0050	<0.0010	0.002	0.0085	<0.0050	<0.0050	<0.50	6.52	6.29	0.0621	<0.00010	0.00059	0.00616	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	<0.0050	<0.0010	0.0029	0.0259	<0.0050	<0.0050	<0.50	9.76	8.46	0.22	<0.00010	0.0008	0.0108	0.000021	<0.000050
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	<0.0050	<0.0010	0.0021	0.0247	<0.0050	<0.0050	<0.50	8.15	9.79	0.224	<0.00010	0.00084	0.0111	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	<0.0050	<0.0010	0.0028	0.01	<0.0050	<0.0050	<0.50	5.62	5.07	0.0356	<0.00010	0.00078	0.00834	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	<0.0050	<0.0010	0.0027	0.006	<0.0050	<0.0050	<0.50	3.65	3.75	0.0175	<0.00010	0.00062	0.00868	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	0.0057	<0.0010	<0.0010	0.007	<0.0050	<0.0050	<0.50	3.68	3.83	0.0311	<0.00010	0.00066	0.00931	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	0.0346	<0.0010	0.0032	0.0127	<0.0050	<0.0050	<0.50	5.14	4.73	0.188	<0.00010	0.00071	0.00872	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	0.0335	<0.0010	0.0037	0.0084	<0.0050	<0.0050	<0.50	3.15	2.99	0.0639	<0.00010	0.00057	0.00867	<0.000020	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	0.037	<0.0010	0.0044	0.0108	<0.0050	<0.0050	<0.50	3	2.6	0.137	<0.00010	0.00063	0.00882	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	0.055	<0.0010	0.0044	0.0078	<0.0050	<0.0050	10.1	1.76	1.79	0.0261	<0.00010	0.00054	0.0101	<0.000020	<0.000050
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	0.0388	<0.0010	0.0056	0.0195	<0.0050	<0.0050	<0.50	2.78	2.9	0.77	<0.00010	0.00104	0.0158	0.000033	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	<0.0050	<0.0010	0.0034	0.0199	<0.0050	<0.0050	<0.50	5.63	5.13	0.184	<0.00010	0.0007	0.0109	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	<0.0050	<0.0010	0.0021	0.065	<0.0050	<0.0050	0.62	22.9	20.6	0.776	<0.00010	0.00105	0.0129	0.000048	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	<0.0050	<0.0010	0.0017	0.0295	<0.0050	<0.0050	<0.50	14.6	14.6	0.393	<0.00010	0.00057	0.00667	0.000032	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	<0.0050	<0.0010	0.0014	0.0201	<0.0050	<0.0050	0.56	11.6	11.5	0.321	<0.00010	0.00058	0.00549	0.000042	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	<0.0050	<0.0010	0.0017	0.0114	<0.0050	<0.0050	<0.50	8.1	7.3	0.137	<0.00010	0.00055	0.00527	0.000024	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	<0.0050	<0.0010	0.0012	0.0088	<0.0050	<0.0050	<0.50	7.27	7.98	0.0782	<0.00010	0.00056	0.00614	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	<0.0050	<0.0010	0.0016	0.0075	<0.0050	<0.0050	<0.50	5.66	5.84	0.0486	<0.00010	0.00053	0.00677	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	<0.0050	<0.0010	0.0029	0.0123	<0.0050	<0.0050	<0.50	6.91	7.54	0.0572	<0.00010	0.00069	0.00912	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	<0.0050	<0.0010	0.0061	0.013	<0.0050	<0.0050	<0.50	4.38	4.38	0.0318	<0.00010	0.00076	0.00888	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	<0.0050	<0.0010	0.0032	0.0104	<0.0050	<0.0050	<5.00	5.03	3.57	0.0228	<0.00010	0.00068	0.00916	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	<0.0050	<0.0010	0.0037	0.0106	<0.0050	<0.0050	<5.00	4.43	3.45	0.022	<0.00010	0.0007	0.00869	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	<0.0050	<0.0010	<0.0010	0.0097	<0.0050	<0.0050	<0.50	3.28	3.27	0.0178	<0.00010	0.0007	0.00904	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	<0.0050	<0.0010	<0.0010	0.0106	<0.0050	<0.0050	<0.50	3.77	3.64	0.0186	<0.00010	0.0007	0.00898	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	<0.0050	<0.0010	0.0022	0.0096	<0.0050	<0.0050	<0.50	3.67	3.76	0.0266	<0.00010	0.00064	0.0094	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	<0.0050	<0.0010	0.003	0.01	<0.0050	<0.0050	<0.50	3.92	3.45	0.0212	<0.00010	0.00066	0.00908	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	<0.0050	<0.0010	0.0024	0.0128	<0.0050	<0.0050	<0.50	4.05	3.58	0.0854	<0.00010	0.00064	0.00838	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	<0.0050	<0.0010	0.0032	0.0078	<0.0050	<0.0050	<0.50	2.85	3.02	0.025	<0.00010	0.00052	0.00909	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	0.0156	<0.0010	0.0014	0.012	<0.0050	<0.0050	<0.50	3.55	3.16	0.138	<0.00010	0.00054	0.00855	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	0.0477	<0.0010	0.0011	0.0067	<0.0050	<0.0050	<0.50	2.14	2.05	0.0531	<0.00010	0.00049	0.00988	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	0.0294	0.0014	0.0014	0.0138	<0.0050	<0.0050	<0.50	2.81	2.64	0.444	<0.00010	0.00075	0.0135	<0.000020	<0.000050
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	0.0634	<0.0010	0.0038	0.0596	<0.0050	<0.0050	<0.50	6.6	6.9	2.12	0.00014	0.00209	0.027	0.00009	<0.000050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Creek 661	661-01	Surface	Regular	VA23A8158-006	0.07	<0.0010	<0.0010	0.0032	<0.0050	<0.0050	<0.50	3.36	4.07	0.0566	<0.00010	0.00034	0.00267	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23B0766-007	<0.0050	<0.0010	<0.0010	0.0132	<0.0050	<0.0050	<0.50	12.2	12.7	0.192	<0.00010	0.00062	0.00274	0.00003	<0.000050
Creek 661	661-01	Surface	Regular	VA23B1379-001	<0.0050	<0.0010	<0.0010	0.0092	<0.0050	<0.0050	0.5	10.6	10.8	0.145	<0.00010	0.00064	0.00241	0.000026	<0.000050
Creek 661	661-01	Surface	Replicate	VA23B1379-002	<0.0050	<0.0010	<0.0010	0.009	<0.0050	<0.0050	<0.50	10.4	10.4	0.143	<0.00010	0.00062	0.00248	0.000027	<0.000050
Creek 661	661-01	Surface	Regular	VA23B2224-001	<0.0050	<0.0010	<0.0010	0.0087	<0.0050	<0.0050	<0.50	8.16	8.29	0.0952	<0.00010	0.00066	0.00232	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23B2847-004	<0.0050	<0.0010	<0.0010	0.0062	<0.0050	<0.0050	<0.50	7.28	7.4	0.0753	<0.00010	0.0006	0.00224	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23B3687-001	<0.0050	<0.0010	<0.0010	0.0053	<0.0050	<0.0050	<0.50	6.06	6.23	0.0581	<0.00010	0.00051	0.00235	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23B7523-004	<0.0050	<0.0010	<0.0010	0.0094	<0.0050	<0.0050	<0.50	7.54	7.6	0.079	<0.00010	0.00078	0.00259	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23B8906-006	0.0123	<0.0010	<0.0010	0.0043	<0.0050	<0.0050	<0.50	5.04	5.26	0.0341	<0.00010	0.00052	0.00308	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C0875-002	0.0146	<0.0010	<0.0010	0.0038	<0.0050	<0.0050	<0.50	3.78	3.92	0.0314	<0.00010	0.00046	0.00264	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C4014-004	0.0133	<0.0010	<0.0010	0.0031	<0.0050	<0.0050	<0.50	3.5	3.5	0.0281	<0.00010	0.00041	0.00318	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C4586-003	0.0358	<0.0010	<0.0010	0.0049	<0.0050	<0.0050	<0.50	3.19	3.23	0.0378	<0.00010	0.00038	0.00292	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C4858-001	0.0199	<0.0010	<0.0010	0.0037	<0.0050	<0.0050	<0.50	3.02	3.21	0.0286	<0.00010	0.0004	0.00289	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C5894-003	0.0591	<0.0010	<0.0010	0.0054	<0.0050	<0.0050	<0.50	3.58	3.62	0.0396	<0.00010	0.00034	0.00362	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C6383-001	0.061	<0.0010	<0.0010	0.0036	<0.0050	<0.0050	<0.50	3.1	3.04	0.0424	<0.00010	0.00034	0.00352	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C7190-008	0.049	<0.0010	<0.0010	0.0041	<0.0050	<0.0050	<0.50	3.23	3.15	0.0311	<0.00010	0.00034	0.0026	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA23C9661-001	0.071	<0.0010	<0.0010	0.0051	<0.0050	<0.0050	<0.50	3.38	3.75	0.0376	<0.00010	0.00041	0.00314	<0.000020	<0.000050
Creek 661	661-01	Surface	Replicate	VA23C9661-002	0.0738	<0.0010	<0.0010	0.005	<0.0050	<0.0050	<0.50	3.91	3.38	0.0349	<0.00010	0.00044	0.0031	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA24A1833-003	0.0262	<0.0010	<0.0010	0.005	<0.0050	<0.0050	<0.50	5.86	5.81	0.0693	<0.00010	0.00039	0.00285	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA24A3502-002	0.0298	<0.0010	<0.0010	0.0045	<0.0050	<0.0050	<0.50	4.93	4.7	0.0787	<0.00010	0.00037	0.00292	<0.000020	<0.000050
Creek 661	661-01	Surface	Replicate	VA24A3502-003	0.0306	<0.0010	<0.0010	0.0042	<0.0050	<0.0050	<0.50	4.26	4.17	0.0756	<0.00010	0.00035	0.00294	<0.000020	<0.000050
Creek 661	661-01	Surface	Regular	VA24A6018-004	0.0129	<0.0010	<0.0010	0.0055	<0.0050	<0.0050	<0.50	5.06	5.23	0.0791	<0.00010	0.00032	0.00272	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23A8158-007	0.0102	<0.0010	0.0102	0.0138	<0.0050	<0.0050	<0.50	2.01	1.91	0.0212	<0.00010	0.00111	0.00426	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23B0766-008	<0.0050	<0.0010	0.0058	0.023	<0.0050	<0.0050	0.52	13.4	13.4	0.22	<0.00010	0.00083	0.00341	0.000029	<0.000050
Creek 661	661-04	Surface	Regular	VA23B1379-004	<0.0050	<0.0010	0.0063	0.0193	<0.0050	<0.0050	0.52	10.7	10.2	0.154	<0.00010	0.00086	0.00348	<0.000020	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	<0.0050	<0.0010	0.0091	0.013	<0.0050	<0.0050	<0.50	7.56	7.64	0.0947	<0.00010	0.00098	0.00338	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23B2847-005	<0.0050	<0.0010	0.01	0.0142	<0.0050	<0.0050	<0.50	6.09	5.99	0.0654	<0.00010	0.00106	0.00372	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23B3687-002	<0.0050	<0.0010	0.0086	0.0163	<0.0050	<0.0050	<0.50	5.35	5.15	0.0546	<0.00010	0.00113	0.00384	<0.000020	<0.000050
Creek 661	661-04	Surface	Replicate	VA23B3687-003	<0.0050	<0.0010	0.008	0.0161	<0.0050	<0.0050	<0.50	5.05	5.16	0.054	<0.00010	0.00113	0.00381	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23B8906-005	<0.0050	<0.0010	0.0103	0.0165	<0.0050	<0.0050	<0.50	5.56	5.4	0.0375	<0.00010	0.00134	0.00507	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C1991-004	<0.0050	<0.0010	0.0089	0.0145	<0.0050	<0.0050	<0.50	3.46	3.73	0.028	<0.00010	0.00126	0.00469	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C4014-005	<0.0050	<0.0010	0.0098	0.0157	<0.0050	<0.0050	<0.50	3.64	3.54	0.0269	<0.00010	0.00129	0.00479	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C4586-004	<0.0050	<0.0010	0.0066	0.0147	<0.0050	<0.0050	<0.50	3.27	3.33	0.0231	<0.00010	0.00117	0.00448	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C4858-002	<0.0050	<0.0010	0.0088	0.0211	<0.0050	<0.0050	<0.50	2.94	3.37	0.0264	<0.00010	0.00126	0.00455	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C5894-002	<0.0050	<0.0010	0.009	0.0159	<0.0050	<0.0050	<0.50	3.23	3.2	0.0322	<0.00010	0.00108	0.00429	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C6383-002	<0.0050	<0.0010	0.0095	0.0152	<0.0050	<0.0050	<0.50	2.34	2.47	0.027	<0.00010	0.00114	0.0043	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C7190-009	<0.0050	<0.0010	0.0106	0.0162	<0.0050	<0.0050	<0.50	3.8	3.86	0.0285	<0.00010	0.00115	0.00395	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA23C9661-003	0.0052	<0.0010	0.0111	0.0168	<0.0050	<0.0050	<0.50	2.51	3.06	0.0241	0.00012	0.00109	0.00451	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA24A1634-001	0.0124	<0.0010	0.012	0.0187	<0.0050	<0.0050	<0.50	1.48	1.65	0.0358	0.00012	0.0012	0.00483	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA24A3502-004	0.0152	<0.0010	0.0118	0.0168	<0.0050	<0.0050	<0.50	2.27	2.2	0.0302	0.0001	0.00119	0.00464	<0.000020	<0.000050
Creek 661	661-04	Surface	Regular	VA24A6018-005	<0.0050	<0.0010	0.0136	0.0255	<0.0050	<0.0050	<0.50	4.13	4.28	0.163	0.0001	0.0015	0.00616	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23A9322-001	0.0343	<0.0010	0.0371	0.0592	<0.0050	<0.0050	<0.50	5.99	4.74	0.15	<0.00010	0.0012	0.0052	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23B0766-005	0.0111	<0.0010	0.0167	0.0385	<0.0050	<0.0050	<0.50	11.2	11.4	0.185	<0.00010	0.00085	0.00493	0.000022	<0.000050
Creek 661	661-05	Surface	Regular	VA23B4181-001	<0.0050	<0.0010	0.024	0.0351	<0.0050	<0.0050	<0.50	7.09	7.13	0.099	<0.00010	0.00109	0.00498	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23B7293-010	<0.0050	<0.0010	0.0298	0.048	<0.0050	<0.0050	<0.50	8.09	8.2	0.0633	<0.00010	0.0012	0.00509	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23B9219-005	<0.0050	0.0011	0.0376	0.0499	<0.0050	<0.0050	<0.50	3.74	3.85	0.065	<0.00010	0.00152	0.00531	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23C1491-002	<0.0050	<0.0010	0.0369	0.0492	<0.0050	<0.0050	<0.50	2.47	2.12	0.034	<0.00010	0.00155	0.00512	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA23C4865-004	0.0167	0.0045	0.0325	0.0523	<0.0050	<0.0050	<0.50	2.29	2.88	0.0331	<0.00010	0.00145	0.00486	<0.000020	<0.000050
Creek 661	661-05	Surface	Replicate	VA23C7190-006	0.0352	<0.0010	0.0362	0.0915	<0.0050	<0.0050	<0.50	4.58	3.88	2.71	0.00017	0.00287	0.0273	0.000112	<0.000050
Creek 661	661-05	Surface	Regular	VA23C9238-004	0.0496	<0.0010	0.0403	0.0632	<0.0050	<0.0050	<0.50	2.1	2.32	0.437	<0.00010	0.0015	0.00767	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA24A0950-003	0.0674	<0.0010	0.0368	0.0557	<0.0050	<0.0050	<0.50	1.52	2.38	0.165	<0.00010	0.00133	0.00656	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA24A2397-002	0.0604	<0.0010	0.0395	0.0534	<0.0050	<0.0050	<0.50	1.63	1.53	0.0893	<0.00010	0.0013	0.0056	<0.000020	<0.000050
Creek 661	661-05	Surface	Regular	VA24A6300-001	0.0516	<0.0010	0.0383	0.0703	<0.0050	<0.0050	<0.50	2.79	2.3	1.31	0.00013	0.00199	0.015	0.000048	<0.000050
Creek 661	661-03	Surface	Regular	VA23A8011-002	0.0313	<0.0010	0.001	0.006	<0.0050	<0.0050	<0.50	7.74	7.8	0.0899	<0.00010	0.00035	0.00524	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23A9531-006	0.025	<0.0010	0.001	0.0339	<0.0050	<0.0050	<0.50	20.1	20.1	0.315	<0.00010	0.00046	0.00661	0.000021	<0.000050
Creek 661	661-03	Surface	Regular	VA23B0222-001	0.005	<0.0010	0.0016	0.0209	<0.0050	<0.0050	0.71	23.6	22.4	0.25	<0.00010	0.0003	0.00493	<0.000020	<0.000050
Creek 661	661-03	Surface	Replicate	VA23B0222-002	<0.0050	<0.0010	<0.0010	0.0208	<0.0050	<0.0050	0.54	22.6	22.6	0.237	<0.00010	0.00032	0.00475	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B0766-004	0.0358	<0.0010	<0.0010	0.0134	<0.0050	<0.0050	<0.50	16.5	16.9	0.157	<0.00010	0.00035	0.00516	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B1529-001	0.023	<0.0010	<0.0010	0.0072	<0.0050	<0.0050	0.55	14.9	13.9	0.111	<0.00010	0.00034	0.00453	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B2052-002	0.0139	<0.0010	<0.0010	0.0094	<0.0050	<0.0050	0.52	14.1	13.2	0.0962	<0.00010	0.00034	0.00494	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B3987-002	0.0164	<0.0010	<0.0010	0.0125	<0.0050	<0.0050	<0.50	10.1	9.39	0.14	<0.00010	0.00038	0.00679	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B7293-003	<0.0050	<0.0010	<0.0010	0.0071	<0.0050	<0.0050	<0.50	10.1	9.68	0.0618	<0.00010	0.0004	0.00604	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23B9359-002	0.0101	<0.0010	0.0018	0.0078	<0.0050	<0.0050	<0.50	7.98	7.29	0.0402	<0.00010	0.00034	0.00748	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C1491-001	<0.0050	<0.0010	<0.0010	0.0053	<0.0050	<0.0050	<0.50	2.89	2.96	0.0399	<0.00010	0.00028	0.00906	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C3847-004	<0.0050	<0.0010	<0.0010	0.007	<0.0050	<0.0050	<0.50	2.88	2.65	0.0249	<0.00010	0.00028	0.00846	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C4279-004	0.0089	<0.0010	<0.0010	0.0109	<0.0050	<0.0050	<0.50	3.57	2.96	0.0267	<0.00010	0.00028	0.00834	<0.000020	<0.000050
Creek 661	661-03	Surface	Replicate	VA23C4279-005	0.005	<0.0010	<0.0010	0.013	<0.0050	<0.0050	<0.50	3.65	2.54	0.0385	<0.00010	0.00032	0.00902	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C4865-003	0.0089	<0.0010	<0.0010	0.0039	<0.0050	<0.0050	<0.50	2.28	2.38	<0.0180	<0.00010	0.00029	0.00809	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C5577-001	0.005	<0.0010	<0.0010	0.0034	<0.0050	<0.0050	<0.50	6.02	6.56	0.0259	<0.00010	0.00034	0.00558	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C6622-002	0.0155	<0.0010	<0.0010	0.0038	<0.0050	<0.0050	<0.50	4.27	4.08	0.0304	<0.00010	0.00029	0.00664	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA23C9238-001	0.0475	<0.0010	0.0013	0.0067	<0.0050	<0.0050	<0.50	7.9	7.75	0.0568	<0.00010	0.00033	0.00529	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA24A0932-002	0.0571	<0.0010	<0.0010	0.0376	<0.0050	<0.0050	<0.50	8.57	4.14	1.29	<0.00010	0.00088	0.0185	0.00006	<0.000050
Creek 661	661-03	Surface	Replicate	VA24A0932-003	0.0586	0.0019	<0.0010	0.0337	<0.0050	<0.0050	<0.50	7.34	4.33	1.72	<0.00010	0.00105	0.022	0.000077	<0.000050
Creek 661	661-03	Surface	Regular	VA24A2975-003	0.252	<0.0010	<0.0010	0.0066	<0.0050	<0.0050	<0.50	9.54	9.54	0.0651	<0.00010	0.00032	0.00568	<0.000020	<0.000050
Creek 661	661-03	Surface	Regular	VA24A5191-002	0.0479	<0.0010	<0.0010	0.0035	<0.0050	<0.0050	<0.50	3.97	3.88	0.0315	<0.00010	0.00026	0.00623	<0.000020	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	0.0255	<0.0010	0.0189	0.0223	<0.0050	<0.0050	<0.50	2.72	2.85	0.0406	<0.00010	0.00097	0.0045	<0.000020	<0.000050
Creek 661	661-10	Surface	Replicate	VA23A8011-005	0.026	<0.0010	0.0171	0.0226	<0.0050	<0.0050	<0.50	2.56	2.78	0.037	<0.00010	0.00094	0.00444	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23A9531-001	0.127	<0.0010	0.0115	0.0626	<0.0050	<0.0050	<0.50	16.8	16.4	0.587	0.0001	0.00118	0.00892	0.000035	<0.000050
Creek 661	661-10	Surface	Regular	VA23B0222-003	0.0053	<0.0010	0.0044	0.0371	<0.0050	<0.0050	0.57	16.9	16.2	0.551	0.00013	0.00076	0.00606	0.000042	<0.000050
Creek 661	661-10	Surface	Regular	VA23B0766-003	<0.0050	<0.0010	0.0042	0.0218	<0.0050	<0.0050	0.53	13.6	12.1	0.278	<0.00010	0.00075	0.00396	0.00003	<0.000050
Creek 661	661-10	Surface	Regular	VA23B1529-002	<0.0050	<0.0010	0.0038	0.0201	<0.0050	<0.0050	0.51	9.78	9.8	0.239	<0.00010	0.00075	0.00407	0.000022	<0.000050
Creek 661	661-10	Surface	Regular	VA23B2052-001	<0.0050	<0.0010	0.0047	0.0161	<0.0050	<0.0050	<0.50	9.09	9.11	0.138	<0.00010	0.00084	0.00376	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23B3987-001	<0.0050	<0.0010	0.0067	0.0223	<0.0050	<0.0050	<0.50	7.22	6.52	0.146	<0.00010	0.00099	0.00486	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23B7293-001	<0.0050	<0.0010	0.0088	0.0241	<0.0050	<0.0050	<0.50	8.13	7.47	0.124	<0.00010	0.00125	0.00563	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23B9359-001	0.0098	<0.0010	0.0172	0.0311	<0.0050	<0.0050	<0.50	6.62	6.82	0.0702	<0.00010	0.0013	0.00534	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C0875-001	<0.0050	<0.0010	0.0119	0.0257	<0.0050	<0.0050	<0.50	6.57	6.57	0.0469	<0.00010	0.00134	0.00511	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C3847-003	<0.0050	<0.0010	0.0044	0.0192	<0.0050	<0.0050	<0.50	5.59	4.96	0.0408	<0.00010	0.00116	0.00484	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C4279-003	<0.0050	<0.0010	0.0047	0.0237	<0.0050	<0.0050	<0.50	5.95	6.43	0.0407	<0.00010	0.00122	0.00515	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C4865-005	<0.0050	<0.0010	0.0031	0.0225	<0.0050	<0.0050	<0.50	5.14	5.57	0.045	<0.00010	0.00116	0.005	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C5577-002	<0.0050	<0.0010	0.0075	0.0147	<0.0050	<0.0050	<0.50	5.14	5.27	0.0408	<0.00010	0.00094	0.00446	<0.000020	<0.000050
Creek 661	661-10	Surface	Replicate	VA23C5577-003	<0.0050	<0.0010	0.0073	0.0159	<0.0050	<0.0050	<0.50	5.58	6	0.0346	<0.00010	0.00098	0.00454	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C6622-001	0.0112	<0.0010	0.0081	0.015	<0.0050	<0.0050	<0.50	3.76	3.32	0.0422	<0.00010	0.00091	0.0051	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA23C9238-002	0.0242	<0.0010	0.0092	0.0181	<0.0050	<0.0050	<0.50	4.07	3.93	0.0784	<0.00010	0.00078	0.00514	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA24A0932-001	0.0302	<0.0010	0.0099	0.0178	<0.0050	<0.0050	<0.50	3.22	2.88	0.0605	<0.00010	0.00078	0.00569	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA24A2975-001	0.0264	<0.0010	0.0113	0.0179	<0.0050	<0.0050	<0.50	2.47	2.25	0.0434	<0.00010	0.0009	0.00497	<0.000020	<0.000050
Creek 661	661-10	Surface	Regular	VA24A5191-001	0.0278	<0.0010	0.0117	0.0199	<0.0050	<0.0050	<0.50	3	2	0.0452	<0.00010	0.00086	0.00501	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA23A8011-004	0.0158	<0.0010	0.0186	0.0331	<0.0050	<0.0050	<0.50	6.6	7.21	0.192	0.00012	0.00088	0.00713	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA23A9531-002	0.254	0.0015	0.0094	0.0779	<0.0050	<0.0050	0.5	18.6	17.7	0.637	<0.00010	0.00157	0.0118	0.000036	<0.000050
Creek 661	661-20	Surface	Regular	VA23B3987-003	<0.0050	<0.0010	0.0157	0.0271	<0.0050	<0.0050	<0.50	6.36	5.61	0.217	<0.00010	0.0012	0.00899	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA23B7293-004	<0.0050	<0.0010	0.0141	0.0297	<0.0050	<0.0050	<0.50	8.35	8.41	0.112	<0.00010	0.00124	0.00798	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA23C0762-004	0.0064	<0.0010	0.0197	0.0293	<0.0050	<0.0050	<0.50	4.44	4.56	0.0305	<0.00010	0.00114	0.00772	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA23C6622-005	0.0203	<0.0010	0.0191	0.0232	<0.0050	<0.0050	<0.50	2.66	2.59	0.0234	<0.00010	0.00099	0.00722	<0.000020	<0.000050
Creek 661	661-20	Surface	Replicate	VA23C6622-006	0.0202	<0.0010	0.0183	0.0232	<0.0050	<0.0050	<0.50	2.58	2.57	0.0213	<0.00010	0.00094	0.00707	<0.000020	<0.000050
Creek 661	661-20	Surface	Regular	VA24A2975-002	0.101	<0.0010	0.0225	0.0269	<0.0050	<0.0050	<0.50	2.85	3.32	0.0211	<0.00010	0.00101	0.00703	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	0.0898	0.0014	0.0079	0.0217	<0.0050	<0.0050	<0.50	8.24	7.95	0.0858	<0.00010	0.00063	0.00826	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	0.0465	0.0012	0.0066	0.0602	<0.0050	<0.0050	<0.50	15.5	15.1	0.535	0.00012	0.00066	0.0104	0.000024	<0.000050
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	0.0489	<0.0010	0.0069	0.0608	<0.0050	<0.0050	<0.50	15.6	15.1	0.522	<0.00010	0.00067	0.00989	0.000023	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	0.0258	0.0015	0.0038	0.0316	<0.0050	<0.0050	<0.50	12.2	11.7	0.146	<0.00010	0.00048	0.00579	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	0.0344	0.0034	0.0052	0.0318	<0.0050	<0.0050	<0.50	10.8	12.1	0.0917	<0.00010	0.0006	0.00797	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	0.0315	0.0022	0.0049	0.0243	<0.0050	<0.0050	<0.50	9.65	9.02	0.0572	<0.00010	0.00061	0.00683	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	0.0356	0.0019	0.0086	0.0298	<0.0050	<0.0050	<0.50	10.5	10.8	0.0542	<0.00010	0.00073	0.00699	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	<0.0050	<0.0010	0.0112	0.0214	<0.0050	<0.0050	<0.50	6.95	6.35	0.0351	<0.00010	0.00078	0.00722	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	<0.0050	<0.0010	0.0109	0.0236	<0.0050	<0.0050	<0.50	7.76	7.6	0.0281	<0.00010	0.00089	0.00736	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	0.0409	<0.0010	0.0147	0.0259	<0.0050	<0.0050	<0.50	6.44	5.64	0.0225	<0.00010	0.00085	0.00749	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	0.0145	<0.0010	0.0123	0.0214	<0.0050	<0.0050	<0.50	4.4	4.42	0.0095	<0.00010	0.00089	0.00781	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	<0.0050	<0.0010	0.0028	0.0155	<0.0050	<0.0050	<0.50	3.96	4.49	0.0074	<0.00010	0.00079	0.00719	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	0.0073	<0.0010	0.0031	0.016	<0.0050	<0.0050	<0.50	4.01	3.87	0.0096	<0.00010	0.00077	0.00707	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	0.0072	<0.0010	0.0039	0.0187	<0.0050	<0.0050	<0.50	3.52	4.49	0.009	<0.00010	0.00078	0.00676	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	0.0115	<0.0010	0.0084	0.0157	<0.0050	<0.0050	<0.50	3.75	4.2	0.0064	<0.00010	0.00068	0.00616	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	0.0415	<0.0010	0.0102	0.0153	<0.0050	<0.0050	<0.50	3.02	3.03	0.0132	<0.00010	0.00068	0.00697	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	0.0552	<0.0010	0.0122	0.0196	<0.0050	<0.0050	<0.50	3.28	3.15	0.0094	<0.00010	0.00067	0.00659	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	0.117	<0.0010	0.0123	0.0215	<0.0050	<0.0050	<0.50	2.87	2.98	0.0128	<0.00010	0.00073	0.00783	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	0.0746	<0.0010	0.0092	0.0225	<0.0050	<0.0050	<0.50	5.14	4.86	0.027	0.00016	0.00077	0.00832	<0.000020	<0.000050
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	0.0545	<0.0010	0.008	0.0192	<0.0050	<0.0050	<0.50	6.25	6.12	0.0178	<0.00010	0.0007	0.00897	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	0.111	0.0013	0.0074	0.071	<0.0050	<0.0050	<0.50	17.2	17	0.801	<0.00010	0.00106	0.014	0.00003	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	0.0206	<0.0010	0.0046	0.0392	<0.0050	<0.0050	0.56	15	14.9	0.478	<0.00010	0.00078	0.00758	0.000024	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	0.02	0.0016	0.0055	0.0291	<0.0050	<0.0050	<0.50	12.9	12.2	0.194	<0.00010	0.00068	0.0071	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	0.0196	0.0012	0.0055	0.0271	<0.0050	<0.0050	<0.50	9.33	9.23	0.11	<0.00010	0.00072	0.00659	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	0.0209	<0.0010	0.0072	0.0247	<0.0050	<0.0050	<0.50	10.1	9.14	0.0826	<0.00010	0.00075	0.00689	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	0.0334	<0.0010	0.0171	0.0294	<0.0050	<0.0050	<0.50	6.04	5.47	0.0353	<0.00010	0.00096	0.00771	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	0.0326	<0.0010	0.0178	0.0324	<0.0050	<0.0050	<0.50	5.06	5.79	0.134	<0.00010	0.00098	0.00794	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	<0.0050	<0.0010	0.0059	0.019	<0.0050	<0.0050	<0.50	4.02	3.34	0.0127	<0.00010	0.00088	0.00722	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	<0.0050	<0.0010	0.0061	0.0228	<0.0050	<0.0050	<0.50	4.31	4.18	0.0118	<0.00010	0.00086	0.00721	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	<0.0050	<0.0010	0.009	0.024	<0.0050	<0.0050	<0.50	3.38	4.26	0.0139	<0.00010	0.00084	0.0072	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	<0.0050	<0.0010	0.0159	0.0193	<0.0050	<0.0050	<0.50	3.58	3.42	0.0126	<0.00010	0.0008	0.00639	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	0.0309	<0.0010	0.0142	0.0206	<0.0050	<0.0050	<0.50	2.98	2.86	0.0265	<0.00010	0.00079	0.00726	<0.000020	<0.000050
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	0.0888	<0.0010	0.0205	0.0237	<0.0050	<0.0050	<0.50	3.91	3.72	0.034	<0.00010	0.00085	0.00753	<0.000020	<0.000050
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	<0.0050	<0.0010	0.0014	0.0789	<0.0050	<0.0050	<0.50	10.8	9.3	0.327	<0.00010	0.00066	0.00931	<0.000020	<0.000050
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	<0.0050	<0.0010	<0.0010	0.011	<0.0050	<0.0050	<0.50	8.4	8.32	0.0052	<0.00010	0.00049	0.00562	<0.000020	<0.000050
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	0.0307	<0.0010	0.005	0.0144	<0.0050	<0.0050	<0.50	7.63	7.53	0.0032	<0.00010	0.00058	0.00567	<0.000020	<0.000050
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	0.0803	0.0011	0.0134	0.0296	<0.0050	<0.0050	<0.50	8.43	7.42	<0.0030	<0.00010	0.0006	0.00616	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	0.017	<0.0010	0.0044	0.0132	<0.0050	<0.0050	<0.50	8.93	8.58	0.224	<0.00010	0.00088	0.0112	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	<0.0050	<0.0010	0.0022	0.0615	<0.0050	<0.0050	<0.50	17.6	15.6	1.08	0.00012	0.00158	0.0216	0.000045	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	<0.0050	<0.0010	0.0012	0.0306	<0.0050	<0.0050	<0.50	12	12	0.257	<0.00010	0.00068	0.00856	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	<0.0050	<0.0010	0.001	0.0343	<0.0050	<0.0050	<0.50	11.2	11.4	0.261	<0.00010	0.00073	0.00848	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	<0.0050	<0.0010	<0.0010	0.0224	<0.0050	<0.0050	<0.50	10.2	10.1	0.191	<0.00010	0.00065	0.00721	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	<0.0050	<0.0010	<0.0010	0.0193	<0.0050	<0.0050	<0.50	8.66	8.42	0.0859	<0.00010	0.00064	0.0065	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	0.0125	0.0014	0.0025	0.0177	<0.0050	<0.0050	<0.50	8.22	8.86	0.0456	<0.00010	0.00061	0.00689	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	<0.0050	<0.0010	<0.0010	0.0204	<0.0050	<0.0050	<0.50	7.94	7.98	0.123	<0.00010	0.00067	0.00838	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	<0.0050	<0.0010	0.0014	0.0157	<0.0050	<0.0050	<0.50	8.53	8.1	0.042	<0.00010	0.00077	0.00818	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	<0.0050	<0.0010	<0.0010	0.0208	<0.0050	<0.0050	<0.50	7.02	7.59	0.0657	<0.00010	0.00074	0.00927	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	<0.0050	<0.0010	0.0023	0.0194	<0.0050	<0.0050	<5.00	6.87	6.46	0.0441	<0.00010	0.00067	0.008	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	<0.0050	<0.0010	<0.0010	0.0129	<0.0050	<0.0050	<0.50	6.1	6.25	0.033	<0.00010	0.00066	0.00821	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	<0.0050	<0.0010	<0.0010	0.0141	<0.0050	<0.0050	0.7	6.5	6.23	0.0159	<0.00010	0.00073	0.00854	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	0.0056	<0.0010	<0.0010	0.014	<0.0050	<0.0050	<0.50	6.47	6.14	0.0198	<0.00010	0.00067	0.00879	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	<0.0050	<0.0010	0.0021	0.015	<0.0050	<0.0050	<0.50	7.53	6.44	0.0592	<0.00010	0.00064	0.00825	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	0.0186	<0.0010	0.0042	0.0179	<0.0050	<0.0050	<0.50	6.16	6	0.0736	<0.00010	0.00061	0.00861	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	0.0486	<0.0010	0.0069	0.0169	<0.0050	<0.0050	<0.50	6.05	5.89	0.0458	<0.00010	0.00056	0.00744	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	0.0665	<0.0010	0.0082	0.0206	<0.0050	<0.0050	<0.50	6.64	6.94	0.0294	<0.00010	0.00058	0.00754	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	0.0765	0.0014	0.0097	0.0242	<0.0050	<0.0050	<0.50	6.38	6.58	0.009	<0.00010	0.0006	0.0078	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	0.0748	0.0017	0.0096	0.0243	<0.0050	<0.0050	<0.50	6.56	6.61	0.0102	<0.00010	0.00061	0.00784	<0.000020	<0.000050
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	0.0792	<0.0010	0.0092	0.0201	<0.0050	<0.0050	<0.50	6.7	7.01	0.095	<0.00010	0.00063	0.00761	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	0.0268	<0.0010	0.0215	0.028	<0.0050	<0.0050	<0.50	8.17	8.62	0.103	<0.00010	0.00072	0.00891	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	<0.0050	<0.0010	0.0025	0.0623	<0.0050	<0.0050	<0.50	17.4	15.4	0.625	<0.00010	0.00119	0.016	0.00003	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	<0.0050	<0.0010	0.0012	0.0304	<0.0050	<0.0050	1.88	12	12.3	0.24	<0.00010	0.00071	0.00844	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	<0.0050	<0.0010	<0.0010	0.0272	<0.0050	<0.0050	<0.50	10.2	9.96	0.179	<0.00010	0.00065	0.0071	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	<0.0050	<0.0010	<0.0010	0.0239	<0.0050	<0.0050	<0.50	8.65	8.5	0.062	<0.00010	0.00063	0.00634	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	<0.0050	<0.0010	0.0016	0.0187	<0.0050	<0.0050	<0.50	8.47	8.9	0.051	<0.00010	0.00061	0.00696	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	<0.0050	<0.0010	0.0014	0.0196	<0.0050	<0.0050	<0.50	8.59	9.35	0.0517	<0.00010	0.00063	0.00684	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	<0.0050	<0.0010	<0.0010	0.013	<0.0050	<0.0050	<0.50	7.98	8.1	0.0268	<0.00010	0.00066	0.00676	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	<0.0050	<0.0010	0.0027	0.0146	<0.0050	<0.0050	<0.50	8.08	7.84	0.0416	<0.00010	0.00076	0.00846	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	<0.0050	<0.0010	<0.0010	0.018	<0.0050	<0.0050	<5.00	6.5	6.5	0.0353	<0.00010	0.00068	0.00825	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	<0.0050	<0.0010	0.002	0.0196	<0.0050	<0.0050	<5.00	6.97	6.25	0.0391	<0.00010	0.0007	0.0082	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	<0.0050	<0.0010	<0.0010	0.0118	<0.0050	<0.0050	<0.50	6.08	6.49	0.0142	<0.00010	0.00064	0.00841	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	<0.0050	<0.0010	<0.0010	0.0119	<0.0050	<0.0050	<0.50	6.18	6.27	0.0143	<0.00010	0.00064	0.00773	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	<0.0050	<0.0010	<0.0010	0.0124	<0.0050	<0.0050	<0.50	6.07	7.19	0.012	<0.00010	0.00068	0.00804	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	<0.0050	<0.0010	<0.0010	0.013	<0.0050	<0.0050	<0.50	6.27	6.02	0.0132	<0.00010	0.00066	0.00837	<0.000020	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	<0.0050	<0.0010	0.0019	0.013	<0.0050	<0.0050	<0.50	6.51	6.18	0.0366	<0.00010	0.00062	0.00806	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	0.0174	<0.0010	0.0034	0.0112	<0.0050	<0.0050	<0.50	5.89	5.63	0.0147	<0.00010	0.00057	0.0079	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	0.0474	<0.0010	0.0052	0.0155	<0.0050	<0.0050	<0.50	5.69	5.62	0.0392	<0.00010	0.00056	0.00743	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	0.0802	<0.0010	0.0041	0.0201	<0.0050	<0.0050	<0.50	7.31	6.88	0.0116	<0.00010	0.00054	0.00754	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	0.0771	<0.0010	0.005	0.0206	<0.0050	<0.0050	<0.50	6.9	6.81	0.0123	<0.00010	0.00058	0.0074	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	0.0597	<0.0010	0.0091	0.0199	<0.0050	<0.0050	<0.50	6.8	7	0.107	<0.00010	0.00065	0.0084	<0.000020	<0.000050
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	0.0584	<0.0010	0.0078	0.0189	<0.0050	<0.0050	<0.50	6.66	6.69	0.0722	<0.00010	0.00063	0.00757	<0.000020	<0.000050
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	<0.0050	<0.0010	0.0022	0.034	<0.0050	<0.0050	<0.50	12	11.6	0.249	<0.00010	0.00066	0.0092	<0.000020	<0.000050
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	<0.0050	<0.0010	0.0031	0.0107	<0.0050	<0.0050	<0.50	6.35	6.62	0.0174	<0.00010	0.00082	0.00842	<0.000020	<0.000050
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	<0.0050	<0.0010	0.0036	0.0182	<0.0050	<0.0050	<0.50	7.12	7.22	0.0297	<0.00010	0.00083	0.00862	<0.000020	<0.000050
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	<0.0050	<0.0010	0.0047	0.013	<0.0050	<0.0050	<0.50	5.97	5.7	0.0163	<0.00010	0.00054	0.00939	<0.000020	<0.000050
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	0.0718	<0.0010	0.003	0.0144	<0.0050	<0.0050	<0.50	6.3	6.29	0.0228	<0.00010	0.00053	0.00952	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	0.0108	<0.0010	0.0062	0.0274	<0.0050	<0.0050	<0.50	7.88	8.46	0.171	<0.00010	0.00084	0.0107	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	0.0129	<0.0010	0.0044	0.0672	<0.0050	<0.0050	<0.50	15.7	14.2	0.633	<0.00010	0.00124	0.0159	0.000026	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	0.0058	<0.0010	0.0025	0.0445	<0.0050	<0.0050	<0.50	12.4	12.4	0.299	<0.00010	0.00065	0.0104	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	<0.0050	<0.0010	0.0018	0.0315	<0.0050	<0.0050	<0.50	11.3	9.87	0.267	<0.00010	0.00066	0.00907	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	<0.0050	<0.0010	0.0019	0.0321	<0.0050	<0.0050	<0.50	11.1	11.6	0.27	<0.00010	0.00068	0.00916	0.000025	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	0.0077	<0.0010	0.0033	0.0261	<0.0050	<0.0050	<0.50	9.04	8.23	0.128	<0.00010	0.00068	0.00836	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	<0.0050	<0.0010	0.004	0.0347	<0.0050	<0.0050	<0.50	8.7	9.3	0.32	<0.00010	0.00086	0.011	0.000021	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	<0.0050	<0.0010	0.0025	0.0156	<0.0050	<0.0050	<0.50	7.62	7.26	0.0474	<0.00010	0.0007	0.00886	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	<0.0050	<0.0010	0.0045	0.017	<0.0050	<0.0050	<0.50	8.53	8.48	0.0246	<0.00010	0.00088	0.00832	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	<0.0050	<0.0010	0.0042	0.0159	<0.0050	<0.0050	<0.50	5.94	6.34	0.0128	<0.00010	0.00097	0.00844	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	<0.0050	<0.0010	0.0044	0.0152	<0.0050	<0.0050	<5.00	5.59	5.63	0.0079	<0.00010	0.00086	0.00869	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C3871-001	<0.0050	<0.0010	0.0012	0.0141	<0.0050	<0.0050	<0.50	5.06	5	0.0096	<0.00010	0.00088	0.00932	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	<0.0050	<0.0010	0.0022	0.0162	<0.0050	<0.0050	<0.50	5.54	5.8	0.0147	<0.00010	0.00093	0.00922	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	<0.0050	<0.0010	0.0062	0.0152	<0.0050	<0.0050	<0.50	5.34	5.43	0.0099	<0.00010	0.00081	0.00924	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	<0.0050	<0.0010	0.0044	0.0165	<0.0050	<0.0050	<0.50	5.6	5.97	0.0445	<0.00010	0.0008	0.00865	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	<0.0050	<0.0010	0.0044	0.0191	<0.0050	<0.0050	<0.50	5.54	5.63	0.0717	<0.00010	0.00084	0.009	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	<0.0050	<0.0010	0.0056	0.0145	<0.0050	<0.0050	<0.50	5.47	5.38	0.0343	0.00011	0.00074	0.00972	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	0.0307	<0.0010	0.0038	0.0133	<0.0050	<0.0050	<0.50	4.98	5.16	0.0172	<0.00010	0.00064	0.00908	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	0.081	<0.0010	<0.0010	0.0138	<0.0050	<0.0050	<0.50	6.16	6.36	0.016	<0.00010	0.00055	0.011	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	0.0664	<0.0010	0.0038	0.0148	<0.0050	<0.0050	<0.50	6.54	6.94	0.0447	<0.00010	0.00061	0.00997	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	0.0724	<0.0010	0.0027	0.0148	<0.0050	<0.0050	<0.50	5.89	6.22	0.0401	<0.00010	0.00059	0.00897	<0.000020	<0.000050
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	0.0623	0.0023	0.0271	0.0673	<0.0050	<0.0050	<0.50	7.12	7.19	0.127	<0.00010	0.00076	0.00982	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23A8158-003	0.0272	<0.0010	<0.0010	0.0123	<0.0050	<0.0050	<0.50	8.53	8.71	0.146	<0.00010	0.00023	0.00979	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23B0364-002	<0.0050	<0.0010	<0.0010	0.0158	<0.0050	<0.0050	0.61	14.2	14.7	0.219	<0.00010	0.00021	0.00605	0.000035	<0.000050
Creek 705	705-05	Surface	Regular	VA23B3687-004	<0.0050	<0.0010	<0.0010	0.0066	<0.0050	<0.0050	<0.50	7.06	6.97	0.0663	<0.00010	0.00029	0.00555	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23B7523-003	<0.0050	<0.0010	<0.0010	0.0113	<0.0050	<0.0050	0.56	14.8	14.3	0.143	<0.00010	0.00028	0.00689	0.000027	<0.000050
Creek 705	705-05	Surface	Regular	VA23B8906-003	<0.0050	<0.0010	<0.0010	0.0098	<0.0050	<0.0050	<0.50	8.64	8.28	0.0665	<0.00010	0.00034	0.00822	0.000025	<0.000050
Creek 705	705-05	Surface	Replicate	VA23B8906-004	<0.0050	<0.0010	<0.0010	0.0095	<0.0050	<0.0050	<0.50	8.6	8.75	0.0672	<0.00010	0.00037	0.00819	0.000025	<0.000050
Creek 705	705-05	Surface	Regular	VA23C1674-001	<0.0050	<0.0010	<0.0010	0.0099	<0.0050	<0.0050	<0.50	6.89	6.88	0.0559	<0.00010	0.00033	0.0089	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23C4014-006	<0.0050	<0.0010	<0.0010	0.0084	<0.0050	<0.0050	1.6	6.3	6.26	0.0345	<0.00010	0.00031	0.00792	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23C7190-010	<0.0050	<0.0010	0.0012	0.0087	<0.0050	<0.0050	<0.50	7.74	7.7	0.0682	<0.00010	0.00025	0.00615	<0.000020	<0.000050
Creek 705	705-05	Surface	Replicate	VA23C7190-011	<0.0050	<0.0010	<0.0010	0.009	<0.0050	<0.0050	<0.50	8.16	7.84	0.081	<0.00010	0.00025	0.00616	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA23C9661-004	0.0082	<0.0010	<0.0010	0.0063	<0.0050	<0.0050	<0.50	6.77	6.8	0.0398	<0.00010	0.00026	0.0066	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA24A1833-002	0.0262	<0.0010	<0.0010	0.0072	<0.0050	<0.0050	<0.50	7.08	6.93	0.049	<0.00010	0.00026	0.00608	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA24A3502-001	0.0313	<0.0010	<0.0010	0.008	<0.0050	<0.0050	<0.50	9.14	9.65	0.0748	<0.00010	0.00029	0.00751	<0.000020	<0.000050
Creek 705	705-05	Surface	Regular	VA24A6018-001	0.0098	<0.0010	0.0034	0.0346	<0.0050	<0.0050	<0.50	14.4	14.5	0.394	<0.00010	0.00033	0.0101	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23A8158-001	0.0333	<0.0010	<0.0010	0.0061	<0.0050	<0.0050	<0.50	7.89	8.07	0.106	<0.00010	0.00022	0.00976	<0.000020	<0.000050
Creek 705	705-10	Surface	Replicate	VA23A8158-002	0.0289	<0.0010	<0.0010	0.0064	<0.0050	<0.0050	<0.50	8.14	7.95	0.106	<0.00010	0.00019	0.00954	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23A9638-001	<0.0050	<0.0010	0.0011	0.0364	<0.0100	-	0.6	23.1	23.6	0.535	<0.00010	0.00032	0.0122	0.000041	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Anions and Nutrients (cont'd)				Cyanides			Organic / Inorganic Carbon		Total Metals					
					Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total	Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	<0.0050	<0.0010	<0.0010	0.0179	<0.0050	<0.0050	<0.50	16.2	16.2	0.297	<0.00010	0.00026	0.00793	0.00004	<0.000050
Creek 705	705-10	Surface	Regular	VA23B0766-009	<0.0050	<0.0010	<0.0010	0.0127	<0.0050	<0.0050	0.56	13	13.3	0.256	<0.00010	0.00024	0.00717	0.000035	<0.000050
Creek 705	705-10	Surface	Regular	VA23B1379-005	<0.0050	<0.0010	<0.0010	0.0082	<0.0050	<0.0050	0.52	10.5	10.7	0.143	<0.00010	0.00023	0.00737	0.000027	<0.000050
Creek 705	705-10	Surface	Regular	VA23B2224-004	<0.0050	<0.0010	<0.0010	0.0047	<0.0050	<0.0050	<0.50	8.98	9.22	0.0955	<0.00010	0.00025	0.00731	0.000022	<0.000050
Creek 705	705-10	Surface	Regular	VA23B3687-005	<0.0050	<0.0010	<0.0010	0.0043	<0.0050	<0.0050	<0.50	7.22	6.99	0.0499	<0.00010	0.00019	0.00856	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23B7523-002	<0.0050	<0.0010	<0.0010	0.0089	<0.0050	<0.0050	0.55	13.8	13.6	0.132	<0.00010	0.00028	0.00786	0.000021	<0.000050
Creek 705	705-10	Surface	Regular	VA23B8906-002	0.0159	<0.0010	<0.0010	0.0057	<0.0050	<0.0050	<0.50	7.73	7.52	0.049	<0.00010	0.00024	0.00891	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C1674-002	<0.0050	<0.0010	<0.0010	0.0033	<0.0050	<0.0050	<0.50	5.68	5.64	0.0255	<0.00010	0.00021	0.00872	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C4014-007	<0.0050	<0.0010	<0.0010	0.0031	<0.0050	<0.0050	<0.50	5.32	5.28	0.0219	<0.00010	0.00017	0.00872	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C4586-005	0.0078	<0.0010	<0.0010	0.0025	<0.0050	<0.0050	<0.50	5.3	5.21	0.0184	<0.00010	0.00015	0.00858	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C4858-004	0.0066	<0.0010	<0.0010	0.0033	<0.0050	<0.0050	<0.50	5.27	4.93	0.0202	<0.00010	0.00017	0.00849	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C5894-004	0.0294	<0.0010	<0.0010	0.003	<0.0050	<0.0050	<0.50	5.54	5.73	0.0194	<0.00010	0.00018	0.00889	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C6383-004	0.0343	<0.0010	<0.0010	0.0034	<0.0050	<0.0050	<0.50	5.31	5.16	0.0209	<0.00010	0.00017	0.00918	<0.000020	<0.000050
Creek 705	705-10	Surface	Replicate	VA23C6383-006	0.0128	<0.0010	0.0021	0.0048	<0.0050	<0.0050	<0.50	1.46	1.47	0.0097	<0.00010	0.00073	0.0041	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C6880-001	0.0093	<0.0010	<0.0010	0.008	<0.0050	<0.0050	<0.50	7.7	7.09	0.0675	<0.00010	0.00021	0.00877	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA23C9661-005	0.0572	<0.0010	<0.0010	0.0049	<0.0050	<0.0050	<0.50	6.24	6.18	0.0302	<0.00010	0.00018	0.00864	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA24A1833-001	0.0365	<0.0010	0.0012	0.0069	<0.0050	<0.0050	<0.50	6.73	6.77	0.0431	<0.00010	0.00021	0.00805	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA24A3529-004	0.0415	<0.0010	<0.0010	0.0061	<0.0050	<0.0050	<0.50	8.96	7.89	0.0863	<0.00010	0.00022	0.00944	<0.000020	<0.000050
Creek 705	705-10	Surface	Regular	VA24A6018-002	0.0256	<0.0010	0.0033	0.0268	<0.0050	<0.0050	<0.50	13.8	13.5	0.392	<0.00010	0.00036	0.0124	0.000022	<0.000050
Creek 705	705-10	Surface	Replicate	VA24A6018-003	0.0273	<0.0010	0.0016	0.0278	<0.0050	<0.0050	<0.50	14.1	13.3	0.403	<0.00010	0.00032	0.0131	0.000021	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	0.0589	<0.0010	0.0076	0.0082	<0.0050	<0.0050	<0.50	0.78	1.56	0.011	<0.00010	0.00103	0.00474	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	0.0361	<0.0010	0.0053	0.0276	<0.0050	<0.0050	<0.50	7.88	7.18	0.468	<0.00010	0.00118	0.00804	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	<0.0050	<0.0010	<0.0010	0.0164	<0.0050	<0.0050	<0.50	10.4	10.8	0.226	<0.00010	0.00046	0.0028	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	<0.0050	<0.0010	<0.0010	0.0599	<0.0050	<0.0050	<0.50	10.4	10.4	1.03	<0.00010	0.00086	0.0099	0.000034	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	<0.0050	<0.0010	<0.0010	0.0068	<0.0050	<0.0050	<0.50	7.1	7.17	0.148	<0.00010	0.00045	0.00248	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	<0.0050	<0.0010	0.0012	0.0043	<0.0050	<0.0050	<0.50	4.65	5.04	0.0579	<0.00010	0.00059	0.00249	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	<0.0050	<0.0010	0.0018	0.0052	<0.0050	<0.0050	<0.50	5.63	5.33	0.0536	<0.00010	0.00061	0.0028	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	<0.0050	<0.0010	0.003	0.0065	<0.0050	<0.0050	<0.50	4.84	4.56	0.0287	<0.00010	0.00085	0.00352	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	0.0053	<0.0010	0.0022	0.0055	<0.0050	<0.0050	<0.50	3.42	2.99	0.021	<0.00010	0.00077	0.00378	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	0.0056	<0.0010	0.0016	0.0052	<0.0050	<0.0050	<0.50	1.6	1.48	0.0164	<0.00010	0.00081	0.00466	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	<0.0050	<0.0010	0.0017	0.0041	<0.0050	<0.0050	<0.50	1.99	1.57	0.0094	<0.00010	0.00081	0.00428	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	<0.0050	<0.0010	<0.0010	0.0037	<0.0050	<0.0050	<0.50	2.1	1.59	0.009	<0.00010	0.0008	0.00412	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	<0.0050	<0.0010	0.0011	0.0062	<0.0050	<0.0050	<0.50	1.42	1.67	0.0262	<0.00010	0.00089	0.00404	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	<0.0050	<0.0010	<0.0010	0.0057	<0.0050	<0.0050	<0.50	1.63	1.6	0.014	<0.00010	0.00087	0.00393	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	0.0092	<0.0010	<0.0010	0.005	<0.0050	<0.0050	<0.50	2.19	1.82	0.01	<0.00010	0.0007	0.00403	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	0.0327	<0.0010	0.0023	0.0038	<0.0050	<0.0050	<0.50	5.49	5.45	0.0201	<0.00010	0.00016	0.00922	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	0.0143	<0.0010	0.0033	0.0046	<0.0050	<0.0050	<0.50	1.43	1.55	0.009	<0.00010	0.0008	0.00383	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	0.051	<0.0010	0.0033	0.0068	<0.0050	<0.0050	<0.50	1.28	1.21	0.0076	<0.00010	0.00085	0.00423	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	0.0876	<0.0010	0.0058	0.0079	<0.0050	<0.0050	<0.50	0.69	0.87	0.0069	<0.00010	0.00096	0.00449	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	0.0885	<0.0010	0.0055	0.0079	<0.0050	<0.0050	<0.50	0.66	0.78	0.0323	<0.00010	0.00094	0.0043	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	0.0807	<0.0010	0.007	0.0075	<0.0050	<0.0050	<0.50	0.82	0.79	0.0064	<0.00010	0.00097	0.00469	<0.000020	<0.000050
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	0.0886	<0.0010	0.007	0.0072	<0.0050	<0.0050	<0.50	0.86	0.75	0.0079	<0.00010	0.00104	0.00482	<0.000020	<0.000050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	<0.010	<0.0000050	15.7	<0.00050	<0.00010	<0.00050	0.03	<0.000050	<0.0010	3.21	0.00196	<0.0000050	0.001	<0.00050	<0.050	0.51
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	<0.010	0.0000185	4.88	0.00071	0.00014	0.00107	0.548	0.000219	<0.0010	1.02	0.0293	0.0000156	0.000229	0.00062	0.054	0.842
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	<0.010	0.0000133	3.58	<0.00050	<0.00010	0.00085	0.339	0.000117	<0.0010	0.735	0.0169	0.0000112	0.000194	<0.00050	<0.050	0.443
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	<0.010	0.0000087	2.94	<0.00050	<0.00010	0.00056	0.161	<0.000050	<0.0010	0.555	0.00678	0.0000104	0.000184	<0.00050	<0.050	0.247
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	<0.010	0.0000071	4.06	<0.00050	<0.00010	0.00054	0.114	<0.000050	<0.0010	0.77	0.00662	0.0000064	0.000271	<0.00050	<0.050	0.301
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	<0.010	0.0000073	4.96	<0.00050	<0.00010	<0.00050	0.092	<0.000050	<0.0010	0.989	0.00505	0.0000052	0.000364	<0.00050	<0.050	0.341
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	<0.010	<0.0000050	6.54	<0.00050	<0.00010	<0.00050	0.09	<0.000050	<0.0010	1.26	0.00414	<0.0000050	0.000464	<0.00050	<0.050	0.359
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	<0.010	0.0000109	10	<0.00050	0.00011	0.00061	0.155	<0.000050	<0.0010	1.96	0.0116	<0.0000050	0.000385	<0.00050	<0.050	1.21
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	<0.010	0.0000081	9.9	<0.00050	<0.00010	<0.00050	0.217	<0.000050	<0.0010	1.8	0.00657	<0.0000050	0.00272	<0.00050	<0.050	0.796
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	<0.010	<0.0000050	11	<0.00050	<0.00010	<0.00050	0.075	<0.000050	<0.0010	2.09	0.00422	<0.0000050	0.000723	<0.00050	<0.050	0.652
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	<0.010	0.0000077	10.5	0.00052	0.0001	0.00053	0.356	0.000142	<0.0010	2.13	0.0105	<0.0000050	0.000738	<0.00050	<0.050	0.683
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	<0.010	<0.0000050	12.2	<0.00050	<0.00010	0.00055	0.157	0.000061	<0.0010	2.38	0.00499	<0.0000050	0.000808	<0.00050	<0.050	0.634
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	<0.010	<0.0000050	12.1	<0.00050	<0.00010	<0.00050	0.135	0.000061	<0.0010	2.36	0.00481	<0.0000050	0.000774	<0.00050	<0.050	0.608
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	<0.010	<0.0000050	12.3	<0.00050	<0.00010	<0.00050	0.134	<0.000050	<0.0010	2.44	0.00473	<0.0000050	0.000829	<0.00050	<0.050	0.618
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	<0.010	<0.0000050	14	<0.00050	<0.00010	<0.00050	0.228	0.000095	<0.0010	2.71	0.00804	<0.0000050	0.000866	<0.00050	<0.050	0.638
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	<0.010	<0.0000050	12.4	<0.00050	<0.00010	<0.00050	0.165	0.000064	<0.0010	2.58	0.0102	<0.0000050	0.000829	<0.00050	<0.050	0.616
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	<0.010	0.0000068	9.65	0.0005	0.00014	0.00064	0.429	0.000232	<0.0010	2	0.0139	0.0000078	0.000571	<0.00050	<0.050	0.732
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	<0.010	0.0000057	11.2	0.00073	<0.00010	<0.00050	0.212	0.000092	<0.0010	2.24	0.00816	<0.0000050	0.000716	<0.00050	<0.050	0.619
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	<0.010	<0.0000050	18.3	<0.00050	<0.00010	<0.00050	0.039	<0.000050	<0.0010	3.8	0.00271	<0.0000050	0.000986	<0.00050	<0.050	0.631
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	<0.010	0.0000056	14.2	0.00053	<0.00010	0.00051	0.327	0.000152	<0.0010	3.05	0.0106	<0.0000050	0.000875	<0.00050	<0.050	0.679
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	<0.010	<0.0000050	16.4	<0.00050	<0.00010	<0.00050	0.101	0.000054	<0.0010	3.59	0.00408	<0.0000050	0.00101	<0.00050	<0.050	0.669
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	<0.010	0.0000196	14.3	0.00154	0.00074	0.00272	1.94	0.00131	0.001	3.42	0.0572	0.0000082	0.000841	0.00152	<0.050	1.04
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	<0.010	0.0000194	14.1	0.00156	0.00072	0.00263	1.95	0.00118	0.0013	3.28	0.0557	0.0000071	0.00108	0.00146	0.063	1.05
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	<0.010	0.0000212	14	0.00146	0.0006	0.00224	1.7	0.000956	<0.0010	3.35	0.0444	<0.0000050	0.000809	0.00134	<0.050	1.14
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	<0.010	0.000018	14	0.00154	0.00061	0.00232	1.81	0.000972	<0.0010	3.13	0.0441	0.0000061	0.000778	0.0014	<0.050	1.2
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	<0.010	0.0000263	15.4	0.00178	0.00091	0.00306	2.36	0.00144	0.0012	3.7	0.0709	0.0000083	0.00115	0.00185	0.073	1.34
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	<0.010	<0.0000050	15.3	<0.00050	<0.00010	<0.00050	0.021	<0.000050	<0.0010	3.22	0.00192	<0.0000050	0.00101	<0.00050	<0.050	0.512
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	<0.010	0.0000224	5.14	0.00064	0.00014	0.00111	0.547	0.000228	<0.0010	1.03	0.0294	0.0000157	0.000224	0.00062	0.058	0.813
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	<0.010	0.0000064	6.93	<0.00050	<0.00010	0.00054	0.087	<0.000050	<0.0010	1.34	0.00432	<0.0000050	0.00048	<0.00050	<0.050	0.384
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	<0.010	0.0000093	10.2	<0.00050	0.00012	0.00061	0.15	0.00005	<0.0010	2	0.0116	<0.0000050	0.000404	<0.00050	<0.050	1.16
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	<0.010	0.0000071	10.3	<0.00050	<0.00010	<0.00050	0.182	<0.000050	<0.0010	1.89	0.00546	<0.0000050	0.00199	<0.00050	<0.050	0.789
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	<0.010	<0.0000050	11.6	<0.00050	<0.00010	<0.00050	0.067	<0.000050	<0.0010	2.37	0.00367	<0.0000050	0.000791	<0.00050	<0.050	0.662
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	<0.010	<0.0000050	11.3	<0.00050	<0.00010	<0.00050	0.187	0.000064	<0.0010	2.25	0.00587	<0.0000050	0.000792	<0.00050	<0.050	0.646
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	<0.010	0.0000073	10	<0.00050	0.00012	0.00057	0.372	0.000192	<0.0010	2.02	0.00956	0.0000063	0.000598	<0.00050	<0.050	0.698
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	<0.010	<0.0000050	11.3	0.00064	<0.00010	<0.00050	0.173	0.000079	<0.0010	2.34	0.00473	<0.0000050	0.00074	<0.00050	<0.050	0.619
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	<0.010	<0.0000050	11.4	0.00068	<0.00010	<0.00050	0.167	0.000066	<0.0010	2.38	0.00468	<0.0000050	0.000723	<0.00050	<0.050	0.622
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	<0.010	<0.0000050	14.2	<0.00050	<0.00010	<0.00050	0.075	<0.000050	<0.0010	2.78	0.00233	<0.0000050	0.00137	<0.00050	<0.050	0.575
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	<0.010	<0.0000050	15.8	<0.00050	<0.00010	<0.00050	0.072	<0.000050	<0.0010	3.51	0.00261	<0.0000050	0.000975	<0.00050	<0.050	0.648
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	<0.010	<0.0000050	16	<0.00050	<0.00010	<0.00050	0.072	<0.000050	<0.0010	3.48	0.0025	<0.0000050	0.000949	<0.00050	<0.050	0.637
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	<0.010	0.000012	15.2	0.0011	0.00044	0.00179	1.32	0.000749	<0.0010	3.39	0.0326	0.0000051	0.000854	0.00106	<0.050	0.951
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	<0.010	<0.0000050	16.8	<0.00050	<0.00010	<0.00050	0.046	<0.000050	<0.0010	3.58	0.00579	<0.0000050	0.000796	<0.00050	<0.050	0.785
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	<0.010	0.0000222	6.02	0.00074	0.00017	0.00116	0.597	0.000266	<0.0010	1.26	0.0374	0.0000133	0.00029	0.00066	0.061	0.806
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	<0.010	<0.0000050	8.46	<0.00050	<0.00010	<0.00050	0.064	<0.000050	<0.0010	1.73	0.00431	<0.0000050	0.00081	<0.00050	<0.050	0.446
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	<0.010	0.0000109	10.6	<0.00050	0.00014	0.0006	0.264	0.000106	<0.0010	2.13	0.0344	0.0000052	0.00071	<0.00050	<0.050	0.836
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	<0.010	0.0000201	10.3	<0.00050	0.00015	0.00102	0.261	0.000139	<0.0010	2.1	0.0342	<0.0000050	0.000472	<0.00050	<0.050	0.841
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	<0.010	<0.0000050	12.2	<0.00050	<0.00010	<0.00050	0.092	<0.000050	<0.0010	2.33	0.00515	<0.0000050	0.000727	<0.00050	<0.050	0.721
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	<0.010	<0.0000050	13.6	<0.00050	<0.00010	<0.00050	0.042	<0.000050	<0.0010	2.9	0.00422	<0.0000050	0.000801	<0.00050	<0.050	0.695
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	<0.010	<0.0000050	14.8	<0.00050	<0.00010	<0.00050	0.062	<0.000050	<0.0010	3.24	0.00469	<0.0000050	0.000868	<0.00050	<0.050	0.713
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	<0.010	<0.0000050	12.2	<0.00050	<0.00010	<0.00050	0.2	0.000111	<0.0010	2.61	0.00792	<0.0000050	0.000671	<0.00050	<0.050	0.601
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	<0.010	<0.0000050	13.8	0.00072	<0.00010	<0.00050	0.078	<0.000050	<0.0010	2.98	0.0044	<0.0000050	0.00078	<0.00050	<0.050	0.604

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	<0.010	<0.0000050	14.8	<0.00050	<0.00010	<0.00050	0.109	<0.000050	<0.0010	3.08	0.00337	<0.0000050	0.000842	<0.00050	<0.050	0.577
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	<0.010	<0.0000050	17.6	<0.00050	<0.00010	<0.00050	0.03	<0.000050	<0.0010	4.09	0.0027	<0.0000050	0.000861	<0.00050	<0.050	0.667
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	<0.010	0.0000068	15.5	0.00063	0.0002	0.00092	0.666	0.000348	<0.0010	3.72	0.0161	<0.0000050	0.000832	0.00053	<0.050	0.782
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	<0.010	0.0000057	15	<0.00050	0.00012	0.00056	0.409	0.000069	<0.0010	3.82	0.043	<0.0000050	0.000692	<0.00050	<0.050	0.914
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	<0.010	0.0000182	7.95	0.00098	0.00028	0.00137	0.916	0.00034	<0.0010	1.8	0.0558	0.000012	0.000361	0.00095	<0.050	0.905
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	<0.010	0.0000096	4.84	0.00054	0.00012	0.00085	0.373	0.000124	<0.0010	1.1	0.0166	0.0000093	0.000274	0.00053	<0.050	0.475
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	<0.010	0.0000074	4.84	<0.00050	0.00011	0.00082	0.308	0.00008	<0.0010	1	0.015	0.0000081	0.000278	<0.00050	<0.050	0.357
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	<0.010	<0.0000050	6.39	<0.00050	<0.00010	0.00064	0.171	<0.000050	<0.0010	1.3	0.0115	<0.0000050	0.000357	<0.00050	<0.050	0.397
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	<0.010	<0.0000050	7.45	<0.00050	<0.00010	0.00051	0.139	<0.000050	<0.0010	1.67	0.0107	<0.0000050	0.000741	<0.00050	<0.050	0.463
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	<0.010	<0.0000050	8.88	<0.00050	<0.00010	0.0503	0.152	<0.000050	<0.0010	2.06	0.0108	<0.0000050	0.000531	0.0045	<0.050	0.449
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	<0.010	<0.0000050	11.9	<0.00050	<0.00010	<0.00050	0.207	<0.000050	<0.0010	2.58	0.0175	<0.0000050	0.000773	<0.00050	<0.050	0.741
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	<0.010	<0.0000050	13	<0.00050	<0.00010	<0.00050	0.279	<0.000050	<0.0010	2.82	0.016	<0.0000050	0.000737	<0.00050	<0.050	0.691
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	<0.010	<0.0000050	14.8	<0.00050	<0.00010	<0.00050	0.282	<0.000050	<0.0010	3.36	0.0224	<0.0000050	0.000823	<0.00050	<0.050	0.685
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	<0.010	<0.0000050	14.9	<0.00050	<0.00010	<0.00050	0.279	<0.000050	<0.0010	3.47	0.0217	<0.0000050	0.000814	<0.00050	<0.050	0.686
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	<0.010	<0.0000050	15.5	<0.00050	<0.00010	<0.00050	0.303	<0.000050	<0.0010	3.69	0.0218	<0.0000050	0.000819	<0.00050	<0.050	0.717
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	<0.010	0.0000065	14.6	<0.00050	<0.00010	<0.00050	0.3	<0.000050	<0.0010	3.55	0.0216	<0.0000050	0.000774	<0.00050	<0.050	0.715
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	<0.010	<0.0000050	14.9	<0.00050	<0.00010	<0.00050	0.278	<0.000050	<0.0010	3.8	0.0241	<0.0000050	0.000827	<0.00050	<0.050	0.71
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	<0.010	<0.0000050	14.7	<0.00050	<0.00010	<0.00050	0.266	<0.000050	<0.0010	3.77	0.0196	<0.0000050	0.00082	<0.00050	<0.050	0.698
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	<0.010	<0.0000050	13	<0.00050	0.0001	<0.00050	0.369	<0.000050	<0.0010	3.12	0.0372	<0.0000050	0.000738	<0.00050	<0.050	0.588
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	<0.010	<0.0000050	15.4	<0.00050	<0.00010	<0.00050	0.248	<0.000050	<0.0010	3.62	0.0319	<0.0000050	0.000755	<0.00050	<0.050	0.596
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	<0.010	<0.0000050	13.2	<0.00050	<0.00010	<0.00050	0.259	0.000079	<0.0010	3.05	0.0212	<0.0000050	0.000691	<0.00050	<0.050	0.569
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	<0.010	0.0000056	16.8	<0.00050	<0.00010	<0.00050	0.228	<0.000050	<0.0010	4.19	0.03	<0.0000050	0.000812	<0.00050	<0.050	0.845
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	<0.010	0.0000052	17.7	<0.00050	0.00016	0.00057	0.533	0.000193	<0.0010	4.16	0.0298	<0.0000050	0.000833	<0.00050	<0.050	0.722
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-001	<0.010	0.0000226	11.5	0.00154	0.00063	0.00252	2.08	0.00116	<0.0010	3.31	0.0702	0.0000085	0.000722	0.00151	0.064	1.27
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	<0.010	0.0000179	12.4	0.00154	0.00066	0.00252	2.09	0.00119	0.001	3.35	0.0698	0.0000072	0.000741	0.0015	0.085	1.28
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Creek 661	661-01	Surface	Regular	VA23A8158-006	<0.010	<0.0000050	2.98	<0.00050	<0.00010	<0.00050	0.094	<0.000050	<0.0010	0.796	0.0124	<0.0000050	0.000154	<0.00050	<0.050	0.192
Creek 661	661-01	Surface	Regular	VA23B0766-007	<0.010	0.0000054	1.87	<0.00050	<0.00010	<0.00050	0.186	<0.000050	<0.0010	0.453	0.00826	0.0000071	0.000103	<0.00050	<0.050	0.176
Creek 661	661-01	Surface	Regular	VA23B1379-001	<0.010	<0.0000050	2.17	<0.00050	<0.00010	<0.00050	0.15	<0.000050	<0.0010	0.507	0.00814	<0.0000050	0.000117	<0.00050	<0.050	0.185
Creek 661	661-01	Surface	Replicate	VA23B1379-002	<0.010	<0.0000050	2.18	<0.00050	<0.00010	<0.00050	0.149	<0.000050	<0.0010	0.505	0.00838	<0.0000050	0.000108	<0.00050	<0.050	0.191
Creek 661	661-01	Surface	Regular	VA23B2224-001	<0.010	<0.0000050	2.36	<0.00050	<0.00010	<0.00050	0.116	<0.000050	<0.0010	0.601	0.00955	<0.0000050	0.000592	<0.00050	<0.050	0.203
Creek 661	661-01	Surface	Regular	VA23B2847-004	<0.010	<0.0000050	2.49	<0.00050	<0.00010	<0.00050	0.122	<0.000050	<0.0010	0.669	0.00803	<0.0000050	0.000147	<0.00050	<0.050	0.166
Creek 661	661-01	Surface	Regular	VA23B3687-001	<0.010	<0.0000050	2.89	<0.00050	<0.00010	<0.00050	0.075	<0.000050	<0.0010	0.726	0.0088	<0.0000050	0.000177	<0.00050	<0.050	0.178
Creek 661	661-01	Surface	Regular	VA23B7523-004	<0.010	<0.0000050	3.68	<0.00050	<0.00010	<0.00050	0.237	<0.000050	<0.0010	0.915	0.0137	<0.0000050	0.000205	<0.00050	<0.050	0.243
Creek 661	661-01	Surface	Regular	VA23B8906-006	<0.010	<0.0000050	4.17	<0.00050	<0.00010	<0.00050	0.057	<0.000050	<0.0010	1.11	0.0124	<0.0000050	0.000257	<0.00050	<0.050	0.267
Creek 661	661-01	Surface	Regular	VA23C0875-002	<0.010	<0.0000050	4.23	<0.00050	<0.00010	<0.00050	0.048	<0.000050	<0.0010	1.08	0.0129	<0.0000050	0.000225	<0.00050	<0.050	0.276
Creek 661	661-01	Surface	Regular	VA23C4014-004	<0.010	<0.0000050	4.43	<0.00050	<0.00010	<0.00050	0.06	<0.000050	<0.0010	1.24	0.0157	<0.0000050	0.000254	<0.00050	<0.050	0.328
Creek 661	661-01	Surface	Regular	VA23C4586-003	<0.010	<0.0000050	4.35	<0.00050	<0.00010	<0.00050	0.086	0.000062	<0.0010	1.17	0.0387	<0.0000050	0.000217	<0.00050	<0.050	0.277
Creek 661	661-01	Surface	Regular	VA23C4858-001	<0.010	<0.0000050	4.45	<0.00050	<0.00010	<0.00050	0.056	<0.000050	<0.0010	1.2	0.0186	<0.0000050	0.000295	<0.00050	<0.050	0.299
Creek 661	661-01	Surface	Regular	VA23C5894-003	<0.010	<0.0000050	5.74	<0.00050	<0.00010	<0.00050	0.075	<0.000050	<0.0010	1.41	0.0335	<0.0000050	0.000167	<0.00050	<0.050	0.276
Creek 661	661-01	Surface	Regular	VA23C6383-001	<0.010	<0.0000050	4.6	<0.00050	<0.00010	<0.00050	0.082	<0.000050	<0.0010	1.21	0.0374	<0.0000050	0.000145	<0.00050	<0.050	0.257
Creek 661	661-01	Surface	Regular	VA23C7190-008	<0.010	<0.0000050	4.29	<0.00050	<0.00010	<0.00050	0.053	<0.000050	<0.0010	1.23	0.00819	<0.0000050	0.000205	<0.00050	<0.050	0.29
Creek 661	661-01	Surface	Regular	VA23C9661-001	<0.010	<0.0000050	4.55	<0.00050	<0.00010	<0.00050	0.127	<0.000050	<0.0010	1.25	0.0255	<0.0000050	0.000228	<0.00050	<0.050	0.27
Creek 661	661-01	Surface	Replicate	VA23C9661-002	<0.010	<0.0000050	4.69	<0.00050	<0.00010	<0.00050	0.125	<0.000050	<0.0010	1.23	0.0234	<0.0000050	0.000226	<0.00050	<0.050	0.263
Creek 661	661-01	Surface	Regular	VA24A1833-003	<0.010	<0.0000050	3.35	<0.00050	<0.00010	<0.00050	0.11	<0.000050	<0.0010	0.806	0.0134	<0.0000050	0.000093	<0.00050	<0.050	0.21
Creek 661	661-01	Surface	Regular	VA24A3502-002	<0.010	<0.0000050	3.21	<0.00050	<0.00010	<0.00050	0.113	<0.000050	<0.0010	0.83	0.0323	<0.0000050	0.000089	<0.00050	<0.050	0.211
Creek 661	661-01	Surface	Replicate	VA24A3502-003	<0.010	<0.0000050	3.26	<0.00050	<0.00010	<0.00050	0.096	<0.000050	<0.0010	0.851	0.0288	<0.0000050	0.00009	<0.00050	<0.050	0.219
Creek 661	661-01	Surface	Regular	VA24A6018-004	<0.010	<0.0000050	2.72	<0.00050	<0.00010	<0.00050	0.082	<0.000050	<0.0010	0.724	0.015	<0.0000050	0.000099	<0.00050	<0.050	0.24
Creek 661	661-04	Surface	Regular	VA23A8158-007	<0.010	0.0000102	9.87	<0.00050	<0.00010	<0.00050	0.037	<0.000050	<0.0010	2.48	0.00451	<0.0000050	0.00066	<0.00050	<0.050	0.547
Creek 661	661-04	Surface	Regular	VA23B0766-008	<0.010	0.0000352	3.7	<0.00050	<0.00010	0.00062	0.124	0.000057	<0.0010	0.832	0.00513	0.0000091	0.000158	<0.00050	<0.050	0.43
Creek 661	661-04	Surface	Regular	VA23B1379-004	<0.010	0.0000256	4.75	<0.00050	<0.00010	0.00053	0.092	<0.000050	<0.0010	0.99	0.00477	<0.0000050	0.000233	<0.00050	<0.050	0.485

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	<0.010	0.000019	5.54	<0.00050	<0.00010	0.00062	0.064	<0.000050	<0.0010	1.34	0.00455	<0.0000050	0.000344	<0.00050	<0.050	0.482
Creek 661	661-04	Surface	Regular	VA23B2847-005	<0.010	0.0000183	6.2	<0.00050	<0.00010	<0.00050	0.052	<0.000050	<0.0010	1.46	0.00392	<0.0000050	0.000372	<0.00050	<0.050	0.445
Creek 661	661-04	Surface	Regular	VA23B3687-002	<0.010	0.0000189	6.91	<0.00050	<0.00010	<0.00050	0.052	<0.000050	<0.0010	1.64	0.00438	<0.0000050	0.000481	<0.00050	<0.050	0.485
Creek 661	661-04	Surface	Replicate	VA23B3687-003	<0.010	0.000018	6.9	<0.00050	<0.00010	<0.00050	0.053	<0.000050	<0.0010	1.62	0.00447	<0.0000050	0.00045	<0.00050	<0.050	0.492
Creek 661	661-04	Surface	Regular	VA23B8906-005	<0.010	0.0000216	9.8	<0.00050	<0.00010	<0.00050	0.057	<0.000050	<0.0010	2.41	0.00624	<0.0000050	0.000756	<0.00050	<0.050	0.615
Creek 661	661-04	Surface	Regular	VA23C1991-004	<0.010	0.0000145	10.6	<0.00050	<0.00010	<0.00050	0.067	<0.000050	<0.0010	2.58	0.00669	<0.0000050	0.000711	<0.00050	<0.050	0.59
Creek 661	661-04	Surface	Regular	VA23C4014-005	<0.010	0.0000136	9.81	<0.00050	<0.00010	<0.00050	0.061	<0.000050	<0.0010	2.5	0.00658	<0.0000050	0.00064	<0.00050	<0.050	0.708
Creek 661	661-04	Surface	Regular	VA23C4586-004	<0.010	0.0000133	10.2	<0.00050	<0.00010	<0.00050	0.052	<0.000050	<0.0010	2.48	0.0066	<0.0000050	0.000607	<0.00050	<0.050	0.64
Creek 661	661-04	Surface	Regular	VA23C4858-002	<0.010	0.0000112	10.2	<0.00050	<0.00010	<0.00050	0.053	<0.000050	<0.0010	2.48	0.00692	<0.0000050	0.000669	<0.00050	<0.050	0.66
Creek 661	661-04	Surface	Regular	VA23C5894-002	<0.010	0.0000149	11.3	<0.00050	<0.00010	<0.00050	0.058	<0.000050	<0.0010	2.69	0.0086	<0.0000050	0.00062	<0.00050	<0.050	0.552
Creek 661	661-04	Surface	Regular	VA23C6383-002	<0.010	0.000014	10.1	<0.00050	<0.00010	<0.00050	0.055	<0.000050	<0.0010	2.65	0.00769	<0.0000050	0.000598	<0.00050	<0.050	0.536
Creek 661	661-04	Surface	Regular	VA23C7190-009	<0.010	0.0000126	9.41	<0.00050	<0.00010	<0.00050	0.052	<0.000050	<0.0010	2.58	0.00574	0.0000054	0.000551	<0.00050	<0.050	0.567
Creek 661	661-04	Surface	Regular	VA23C9661-003	<0.010	0.0000138	10.3	<0.00050	<0.00010	<0.00050	0.047	<0.000050	<0.0010	2.71	0.00648	<0.0000050	0.000587	<0.00050	<0.050	0.543
Creek 661	661-04	Surface	Regular	VA24A1634-001	<0.010	0.0000164	10.5	<0.00050	<0.00010	<0.00050	0.054	<0.000050	<0.0010	2.6	0.00766	<0.0000050	0.000663	<0.00050	<0.050	0.53
Creek 661	661-04	Surface	Regular	VA24A3502-004	<0.010	0.0000078	11.3	0.00054	<0.00010	<0.00050	0.05	<0.000050	<0.0010	2.77	0.00609	<0.0000050	0.000608	<0.00050	<0.050	0.584
Creek 661	661-04	Surface	Regular	VA24A6018-005	<0.010	0.0000221	10.4	<0.00050	<0.00010	<0.00050	0.152	0.00013	<0.0010	2.65	0.0112	<0.0000050	0.0006	<0.00050	<0.050	0.678
Creek 661	661-05	Surface	Regular	VA23A9322-001	<0.010	0.0000054	10.8	0.00096	<0.00010	<0.00050	0.276	0.000066	<0.0010	2.69	0.0152	<0.0000050	0.00069	<0.00050	0.075	0.638
Creek 661	661-05	Surface	Regular	VA23B0766-005	<0.010	0.0000067	6.22	0.00072	<0.00010	0.00063	0.238	0.000058	<0.0010	1.4	0.00972	0.0000078	0.000356	<0.00050	<0.050	0.421
Creek 661	661-05	Surface	Regular	VA23B4181-001	<0.010	0.0000056	9.29	0.00077	<0.00010	<0.00050	0.168	<0.000050	<0.0010	2.1	0.0085	<0.0000050	0.000622	<0.00050	<0.050	0.446
Creek 661	661-05	Surface	Regular	VA23B7293-010	<0.010	<0.0000050	10.4	0.00073	<0.00010	<0.00050	0.182	<0.000050	<0.0010	2.31	0.0102	<0.0000050	0.00069	<0.00050	0.05	0.51
Creek 661	661-05	Surface	Regular	VA23B9219-005	<0.010	<0.0000050	13.2	0.00075	<0.00010	<0.00050	0.216	<0.000050	<0.0010	2.99	0.0102	<0.0000050	0.000899	<0.00050	0.077	0.559
Creek 661	661-05	Surface	Regular	VA23C1491-002	<0.010	<0.0000050	13.4	0.00074	<0.00010	<0.00050	0.184	<0.000050	<0.0010	3.18	0.00999	<0.0000050	0.000914	<0.00050	0.065	0.574
Creek 661	661-05	Surface	Regular	VA23C4865-004	<0.010	<0.0000050	12.6	0.00086	<0.00010	<0.00050	0.153	<0.000050	<0.0010	3.1	0.0119	<0.0000050	0.00085	<0.00050	0.051	0.68
Creek 661	661-05	Surface	Replicate	VA23C7190-006	<0.010	0.000019	12.5	0.00258	0.00084	0.00279	2.52	0.00154	0.0013	3.46	0.0659	0.0000132	0.0008	0.00203	0.093	1.19
Creek 661	661-05	Surface	Regular	VA23C9238-004	<0.010	0.000005	13	0.00135	0.0001	<0.00050	0.425	0.000165	<0.0010	3.13	0.0144	<0.0000050	0.000932	<0.00050	0.07	0.633
Creek 661	661-05	Surface	Regular	VA24A0950-003	<0.010	<0.0000050	13.3	0.00103	<0.00010	<0.00050	0.218	0.000066	<0.0010	3.3	0.0117	<0.0000050	0.000918	<0.00050	0.082	0.602
Creek 661	661-05	Surface	Regular	VA24A2397-002	<0.010	<0.0000050	12.9	0.00097	<0.00010	<0.00050	0.144	<0.000050	<0.0010	3.28	0.00693	<0.0000050	0.000968	<0.00050	0.062	0.588
Creek 661	661-05	Surface	Regular	VA24A6300-001	<0.010	0.0000107	12.9	0.00184	0.00035	0.00152	1.19	0.000724	<0.0010	3.36	0.0306	<0.0000050	0.000864	0.00084	0.074	0.834
Creek 661	661-03	Surface	Regular	VA23A8011-002	<0.010	<0.0000050	9.8	<0.00050	<0.00010	<0.00050	0.124	<0.000050	<0.0010	3.03	0.0146	<0.0000050	0.000161	<0.00050	<0.050	0.346
Creek 661	661-03	Surface	Regular	VA23A9531-006	<0.010	0.0000123	6.04	<0.00050	0.00011	0.0011	0.36	0.00007	<0.0010	1.82	0.0724	0.0000093	0.000179	<0.00050	0.054	0.726
Creek 661	661-03	Surface	Regular	VA23B0222-001	<0.010	0.0000064	5.45	<0.00050	<0.00010	0.00094	0.212	<0.000050	<0.0010	1.63	0.0148	0.0000101	0.00015	<0.00050	<0.050	0.491
Creek 661	661-03	Surface	Replicate	VA23B0222-002	<0.010	<0.0000050	5.48	<0.00050	<0.00010	0.00096	0.205	<0.000050	<0.0010	1.65	0.0119	0.0000094	0.000156	<0.00050	<0.050	0.506
Creek 661	661-03	Surface	Regular	VA23B0766-004	<0.010	<0.0000050	6.73	<0.00050	<0.00010	0.00075	0.146	<0.000050	<0.0010	1.96	0.0109	0.0000069	0.00019	<0.00050	<0.050	0.383
Creek 661	661-03	Surface	Regular	VA23B1529-001	<0.010	<0.0000050	7.28	<0.00050	<0.00010	0.00068	0.079	<0.000050	<0.0010	2.13	0.00539	<0.0000050	0.000192	<0.00050	<0.050	0.331
Creek 661	661-03	Surface	Regular	VA23B2052-002	<0.010	<0.0000050	7.88	<0.00050	<0.00010	0.00108	0.077	<0.000050	<0.0010	2.3	0.00564	<0.0000050	0.000176	<0.00050	<0.050	0.335
Creek 661	661-03	Surface	Regular	VA23B3987-002	<0.010	<0.0000050	11	<0.00050	<0.00010	0.00053	0.191	<0.000050	<0.0010	3.12	0.0317	<0.0000050	0.000224	<0.00050	<0.050	0.376
Creek 661	661-03	Surface	Regular	VA23B7293-003	<0.010	<0.0000050	11.2	<0.00050	<0.00010	0.00054	0.097	<0.000050	<0.0010	3.09	0.0154	<0.0000050	0.000215	<0.00050	<0.050	0.346
Creek 661	661-03	Surface	Regular	VA23B9359-002	<0.010	<0.0000050	13.6	0.00096	<0.00010	<0.00050	0.089	<0.000050	<0.0010	4.05	0.0228	<0.0000050	0.000288	<0.00050	<0.050	0.431
Creek 661	661-03	Surface	Regular	VA23C1491-001	<0.010	<0.0000050	16.9	<0.00050	<0.00010	<0.00050	0.122	<0.000050	<0.0010	5.07	0.0318	<0.0000050	0.00103	<0.00050	<0.050	0.626
Creek 661	661-03	Surface	Regular	VA23C3847-004	<0.010	<0.0000050	17	<0.00050	<0.00010	0.00088	0.111	0.000063	<0.0010	5.31	0.0307	0.0000087	0.000359	<0.00050	<0.050	0.771
Creek 661	661-03	Surface	Regular	VA23C4279-004	<0.010	<0.0000050	16.8	0.0006	<0.00010	<0.00050	0.111	<0.000050	<0.0010	5.16	0.0288	<0.0000050	0.000363	<0.00050	<0.050	0.708
Creek 661	661-03	Surface	Replicate	VA23C4279-005	<0.010	<0.0000050	17.1	<0.00050	<0.00010	0.00077	0.16	0.000063	<0.0010	5.23	0.0408	<0.0000050	0.000362	<0.00050	<0.050	0.765
Creek 661	661-03	Surface	Regular	VA23C4865-003	<0.010	<0.0000050	16.6	<0.00050	<0.00010	<0.00050	0.07	<0.000050	<0.0010	5.07	0.0251	<0.0000050	0.000339	<0.00050	<0.050	0.731
Creek 661	661-03	Surface	Regular	VA23C5577-001	<0.010	<0.0000050	11.8	<0.00050	<0.00010	<0.00050	0.077	<0.000050	<0.0010	3.91	0.0155	<0.0000050	0.00026	<0.00050	<0.050	0.398
Creek 661	661-03	Surface	Regular	VA23C6622-002	<0.010	<0.0000050	13.7	<0.00050	<0.00010	<0.00050	0.088	<0.000050	<0.0010	4.18	0.0181	<0.0000050	0.000402	<0.00050	<0.050	0.49
Creek 661	661-03	Surface	Regular	VA23C9238-001	<0.010	<0.0000050	10.9	<0.00050	<0.00010	<0.00050	0.099	<0.000050	<0.0010	3.27	0.0143	<0.0000050	0.000224	<0.00050	<0.050	0.308
Creek 661	661-03	Surface	Regular	VA24A0932-002	<0.010	0.000029	15.5	0.00149	0.00032	0.00167	1.14	0.000305	<0.0010	4.93	0.153	0.0000081	0.000356	0.00092	0.08	0.641
Creek 661	661-03	Surface	Replicate	VA24A0932-003	<0.010	0.0000332	15.5	0.00184	0.00041	0.00208	1.46	0.000471	<0.0010	4.88	0.198	0.0000118	0.000379	0.00113	0.087	0.662
Creek 661	661-03	Surface	Regular	VA24A2975-003	<0.010	<0.0000050	11	<0.00050	<0.00010	<0.00050	0.09	<0.000050	<0.0010	3.53	0.0118	<0.0000050	0.000183	<0.00050	<0.050	0.341
Creek 661	661-03	Surface	Regular	VA24A5191-002	<0.010	<0.0000050	14	<0.00050	<0.00010	<0.00050	0.069	<0.000050	<0.0010	4.44	0.016	<0.0000050	0.000268	<0.00050	<0.050	0.493

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	<0.010	0.0000065	10.7	<0.00050	<0.00010	<0.00050	0.088	<0.000050	<0.0010	2.64	0.00751	<0.0000050	0.000657	<0.00050	<0.050	0.521
Creek 661	661-10	Surface	Replicate	VA23A8011-005	<0.010	0.0000056	10.6	<0.00050	<0.00010	<0.00050	0.086	<0.000050	<0.0010	2.65	0.00704	<0.0000050	0.000678	<0.00050	<0.050	0.517
Creek 661	661-10	Surface	Regular	VA23A9531-001	<0.010	0.0000424	7.07	0.0009	0.00019	0.00103	0.622	0.000307	<0.0010	1.86	0.0437	<0.0000050	0.000348	0.00051	0.067	0.888
Creek 661	661-10	Surface	Regular	VA23B0222-003	<0.010	0.0000238	3.42	0.00075	0.00013	0.00097	0.405	0.000343	<0.0010	0.924	0.0185	0.0000114	0.000178	<0.00050	<0.050	0.469
Creek 661	661-10	Surface	Regular	VA23B0766-003	<0.010	0.0000194	3.58	<0.00050	<0.00010	0.00076	0.209	0.000096	<0.0010	0.866	0.00889	0.0000085	0.000183	<0.00050	<0.050	0.347
Creek 661	661-10	Surface	Regular	VA23B1529-002	<0.010	0.0000194	4.29	<0.00050	<0.00010	0.00069	0.196	0.000096	<0.0010	1.1	0.00985	<0.0000050	0.000238	<0.00050	<0.050	0.395
Creek 661	661-10	Surface	Regular	VA23B2052-001	<0.010	0.0000148	4.92	<0.00050	<0.00010	0.00054	0.13	<0.000050	<0.0010	1.23	0.00647	<0.0000050	0.000553	<0.00050	<0.050	0.409
Creek 661	661-10	Surface	Regular	VA23B3987-001	<0.010	0.0000176	6.7	<0.00050	<0.00010	<0.00050	0.215	0.000074	<0.0010	1.67	0.0144	<0.0000050	0.000404	<0.00050	0.052	0.457
Creek 661	661-10	Surface	Regular	VA23B7293-001	<0.010	0.0000207	8.82	<0.00050	<0.00010	<0.00050	0.198	0.000064	<0.0010	2.14	0.017	<0.0000050	0.000479	<0.00050	<0.050	0.546
Creek 661	661-10	Surface	Regular	VA23B9359-001	<0.010	0.0000139	9.86	<0.00050	<0.00010	<0.00050	0.251	<0.000050	<0.0010	2.4	0.0104	<0.0000050	0.00061	<0.00050	<0.050	0.538
Creek 661	661-10	Surface	Regular	VA23C0875-001	<0.010	0.0000121	10.3	<0.00050	<0.00010	<0.00050	0.277	<0.000050	<0.0010	2.4	0.00759	<0.0000050	0.000618	<0.00050	<0.050	0.529
Creek 661	661-10	Surface	Regular	VA23C3847-003	<0.010	0.0000096	10.2	<0.00050	<0.00010	<0.00050	0.227	<0.000050	<0.0010	2.48	0.00657	<0.0000050	0.00065	<0.00050	<0.050	0.612
Creek 661	661-10	Surface	Regular	VA23C4279-003	<0.010	0.0000133	10.4	<0.00050	<0.00010	<0.00050	0.256	<0.000050	<0.0010	2.58	0.00641	<0.0000050	0.000644	<0.00050	<0.050	0.603
Creek 661	661-10	Surface	Regular	VA23C4865-005	<0.010	0.0000131	9.96	<0.00050	<0.00010	<0.00050	0.225	<0.000050	<0.0010	2.42	0.00712	<0.0000050	0.000604	<0.00050	<0.050	0.634
Creek 661	661-10	Surface	Regular	VA23C5577-002	<0.010	0.0000133	9.79	<0.00050	<0.00010	<0.00050	0.196	<0.000050	<0.0010	2.53	0.00886	<0.0000050	0.000576	<0.00050	<0.050	0.512
Creek 661	661-10	Surface	Replicate	VA23C5577-003	<0.010	0.0000127	9.3	<0.00050	<0.00010	<0.00050	0.187	<0.000050	<0.0010	2.57	0.00746	<0.0000050	0.000553	<0.00050	<0.050	0.511
Creek 661	661-10	Surface	Regular	VA23C6622-001	<0.010	0.000013	10.1	<0.00050	<0.00010	<0.00050	0.188	<0.000050	<0.0010	2.64	0.0104	<0.0000050	0.000522	<0.00050	<0.050	0.531
Creek 661	661-10	Surface	Regular	VA23C9238-002	<0.010	0.0000114	10.2	<0.00050	<0.00010	<0.00050	0.171	<0.000050	<0.0010	2.66	0.00785	<0.0000050	0.000504	<0.00050	<0.050	0.486
Creek 661	661-10	Surface	Regular	VA24A0932-001	<0.010	0.000012	11.3	<0.00050	<0.00010	<0.00050	0.173	<0.000050	<0.0010	2.96	0.0124	<0.0000050	0.000586	<0.00050	<0.050	0.549
Creek 661	661-10	Surface	Regular	VA24A2975-001	<0.010	0.0000106	11.1	<0.00050	<0.00010	<0.00050	0.129	<0.000050	<0.0010	2.8	0.00993	<0.0000050	0.000626	<0.00050	<0.050	0.556
Creek 661	661-10	Surface	Regular	VA24A5191-001	<0.010	0.0000103	10.7	<0.00050	<0.00010	<0.00050	0.126	<0.000050	<0.0010	2.83	0.00929	<0.0000050	0.000643	<0.00050	<0.050	0.581
Creek 661	661-20	Surface	Regular	VA23A8011-004	<0.010	0.0000067	16.2	<0.00050	<0.00010	<0.00050	0.27	<0.000050	<0.0010	4.9	0.00781	<0.0000050	0.0009	<0.00050	<0.050	0.915
Creek 661	661-20	Surface	Regular	VA23A9531-002	<0.010	0.0000299	10.2	0.00122	0.00034	0.00147	0.993	0.000283	<0.0010	2.95	0.0821	0.0000083	0.00067	0.00086	0.089	1.14
Creek 661	661-20	Surface	Regular	VA23B3987-003	<0.010	0.0000104	16.6	0.00064	0.00012	<0.00050	0.408	0.000114	<0.0010	4.39	0.0333	<0.0000050	0.000933	<0.00050	0.065	0.82
Creek 661	661-20	Surface	Regular	VA23B7293-004	<0.010	0.000005	17	<0.00050	<0.00010	<0.00050	0.301	<0.000050	<0.0010	4.9	0.0121	<0.0000050	0.000895	<0.00050	<0.050	0.827
Creek 661	661-20	Surface	Regular	VA23C0762-004	<0.010	<0.0000050	19.6	<0.00050	<0.00010	<0.00050	0.128	<0.000050	<0.0010	5.82	0.00691	<0.0000050	0.00119	<0.00050	<0.050	0.847
Creek 661	661-20	Surface	Regular	VA23C6622-005	<0.010	<0.0000050	19	<0.00050	<0.00010	<0.00050	0.151	<0.000050	<0.0010	5.86	0.00871	<0.0000050	0.00101	<0.00050	<0.050	0.788
Creek 661	661-20	Surface	Replicate	VA23C6622-006	<0.010	<0.0000050	18.7	<0.00050	<0.00010	<0.00050	0.147	<0.000050	<0.0010	5.77	0.00814	<0.0000050	0.001	<0.00050	<0.050	0.776
Creek 661	661-20	Surface	Regular	VA24A2975-002	<0.010	<0.0000050	18.3	<0.00050	<0.00010	<0.00050	0.132	<0.000050	<0.0010	5.84	0.00483	<0.0000050	0.000995	<0.00050	<0.050	0.822
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	<0.010	<0.0000050	23.5	<0.00050	<0.00010	<0.00050	0.179	<0.000050	<0.0010	6.95	0.0233	<0.0000050	0.00078	<0.00050	<0.050	1.28
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	<0.010	0.0000095	12.7	0.00068	0.00025	0.00106	0.812	0.000122	<0.0010	3.74	0.114	0.0000054	0.0005	0.00091	0.077	1.32
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	<0.010	0.0000055	12.7	0.0007	0.00025	0.00114	0.787	0.00011	<0.0010	3.55	0.106	0.0000053	0.000492	0.0009	0.083	1.3
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	<0.010	<0.0000050	11.9	<0.00050	<0.00010	<0.00050	0.241	<0.000050	<0.0010	3.32	0.0356	<0.0000050	0.000499	<0.00050	<0.050	0.707
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	<0.010	<0.0000050	17.3	<0.00050	<0.00010	<0.00050	0.181	<0.000050	<0.0010	4.72	0.0492	<0.0000050	0.000658	<0.00050	0.058	0.788
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	<0.010	<0.0000050	18.7	<0.00050	<0.00010	<0.00050	0.137	<0.000050	<0.0010	5.18	0.0481	<0.0000050	0.000699	<0.00050	<0.050	0.862
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	<0.010	<0.0000050	20.2	<0.00050	<0.00010	<0.00050	0.14	<0.000050	<0.0010	5.49	0.0479	<0.0000050	0.000788	<0.00050	<0.050	0.894
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	<0.010	<0.0000050	27.7	<0.00050	<0.00010	<0.00050	0.199	<0.000050	<0.0010	7.05	0.0444	<0.0000050	0.000891	<0.00050	<0.050	1.02
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	<0.010	<0.0000050	29.4	<0.00050	<0.00010	<0.00050	0.175	<0.000050	<0.0010	7.5	0.031	<0.0000050	0.000896	<0.00050	<0.050	1.03
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	<0.010	<0.0000050	30.5	<0.00050	<0.00010	<0.00050	0.147	<0.000050	<0.0010	8.5	0.0273	<0.0000050	0.00117	0.00056	<0.050	1.16
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	<0.010	<0.0000050	32.7	<0.00050	<0.00010	<0.00050	0.147	<0.000050	<0.0010	9.18	0.0213	<0.0000050	0.00121	<0.00050	<0.050	1.25
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	<0.010	<0.0000050	33.4	<0.00050	<0.00010	<0.00050	0.125	<0.000050	<0.0010	9.71	0.0167	<0.0000050	0.00112	<0.00050	<0.050	1.37
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	<0.010	<0.0000050	31.5	<0.00050	<0.00010	<0.00050	0.119	<0.000050	<0.0010	9.51	0.0154	<0.0000050	0.00109	<0.00050	<0.050	1.31
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	<0.010	<0.0000050	32.2	<0.00050	<0.00010	<0.00050	0.136	<0.000050	<0.0010	9.27	0.0174	<0.0000050	0.00104	<0.00050	<0.050	1.29
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	<0.010	<0.0000050	31.1	<0.00050	<0.00010	<0.00050	0.122	<0.000050	<0.0010	9.66	0.014	<0.0000050	0.00102	<0.00050	<0.050	1.12
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	<0.010	<0.0000050	31.6	<0.00050	<0.00010	<0.00050	0.134	<0.000050	<0.0010	10	0.0173	<0.0000050	0.00106	<0.00050	<0.050	1.2
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	<0.010	<0.0000050	32.2	<0.00050	<0.00010	<0.00050	0.139	<0.000050	<0.0010	9.63	0.0108	<0.0000050	0.00102	<0.00050	<0.050	1.15
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	<0.010	<0.0000050	33.7	<0.00050	<0.00010	<0.00050	0.115	<0.000050	<0.0010	10.9	0.0123	<0.0000050	0.00115	<0.00050	<0.050	1.32
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	<0.010	<0.0000050	31.9	<0.00050	<0.00010	0.00067	0.13	<0.000050	<0.0010	10.1	0.0226	<0.0000050	0.000978	<0.00050	<0.050	1.54
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	<0.010	<0.0000050	30.7	<0.00050	<0.00010	<0.00050	0.106	<0.000050	<0.0010	9.18	0.023	<0.0000050	0.000752	<0.00050	<0.050	1.38
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	<0.010	0.0000125	12.3	0.00112	0.00044	0.00152	1.26	0.000265	<0.0010	3.53	0.155	0.0000064	0.000536	0.00112	0.115	1.29
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	<0.010	0.0000155	8.46	0.00071	0.0002	0.00104	0.582	0.000147	<0.0010	2.43	0.0428	0.0000059	0.00044	0.00065	0.069	0.704

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	<0.010	0.0000066	12.4	<0.00050	0.0001	0.00066	0.282	0.000056	<0.0010	3.11	0.0352	0.0000054	0.000531	<0.00050	<0.050	0.654
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	<0.010	<0.0000050	15.8	<0.00050	<0.00010	<0.00050	0.201	<0.000050	<0.0010	4.45	0.0364	<0.0000050	0.000648	<0.00050	<0.050	0.809
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	<0.010	0.0000055	17.9	<0.00050	<0.00010	<0.00050	0.168	<0.000050	<0.0010	4.82	0.0361	<0.0000050	0.000716	<0.00050	<0.050	0.842
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	<0.010	<0.0000050	25.4	<0.00050	<0.00010	<0.00050	0.154	<0.000050	<0.0010	7.09	0.0208	<0.0000050	0.00111	0.00058	<0.050	1
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	<0.010	<0.0000050	26.1	<0.00050	0.00013	<0.00050	0.149	<0.000050	<0.0010	7.15	0.0162	<0.0000050	0.00115	0.00053	<0.050	1
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	<0.010	<0.0000050	26.7	<0.00050	<0.00010	<0.00050	0.106	<0.000050	<0.0010	7.45	0.00909	<0.0000050	0.00109	<0.00050	<0.050	1.11
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	<0.010	<0.0000050	25.2	<0.00050	<0.00010	<0.00050	0.112	<0.000050	<0.0010	7.27	0.0102	<0.0000050	0.00103	<0.00050	<0.050	1.04
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	<0.010	<0.0000050	26.1	<0.00050	<0.00010	<0.00050	0.112	<0.000050	<0.0010	7.56	0.0104	<0.0000050	0.000963	<0.00050	<0.050	1.04
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	<0.010	<0.0000050	23	<0.00050	<0.00010	<0.00050	0.127	<0.000050	<0.0010	7.28	0.00888	<0.0000050	0.000973	<0.00050	<0.050	0.882
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	<0.010	<0.0000050	23.8	<0.00050	<0.00010	<0.00050	0.149	<0.000050	<0.0010	7.45	0.0135	<0.0000050	0.000974	<0.00050	<0.050	0.929
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	<0.010	<0.0000050	26.1	<0.00050	<0.00010	<0.00050	0.131	<0.000050	<0.0010	8.03	0.0105	<0.0000050	0.00103	<0.00050	<0.050	1.14
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	<0.010	0.0000065	18.3	<0.00050	0.00015	0.001	0.409	0.000239	<0.0010	4.51	0.0295	<0.0000050	0.000561	0.00061	0.122	0.879
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	<0.010	<0.0000050	20	<0.00050	<0.00010	<0.00050	0.014	<0.000050	<0.0010	4.73	0.00487	<0.0000050	0.000631	<0.00050	<0.050	0.763
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	<0.010	<0.0000050	20.1	<0.00050	<0.00010	<0.00050	0.018	<0.000050	<0.0010	4.66	0.0101	<0.0000050	0.000608	<0.00050	<0.050	0.81
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	<0.010	<0.0000050	23.2	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	5.27	0.00331	<0.0000050	0.000682	<0.00050	<0.050	0.813
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	<0.010	<0.0000050	16.5	<0.00050	0.00014	0.00075	0.492	0.00008	<0.0010	3.93	0.064	<0.0000050	0.000763	<0.00050	<0.050	1.01
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	<0.010	0.0000161	12.8	0.00152	0.00053	0.00205	1.56	0.000452	<0.0010	2.71	0.0976	0.0000084	0.000743	0.00141	0.104	1.4
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	<0.010	0.0000052	13	<0.00050	0.00011	0.00079	0.331	0.000085	<0.0010	3.09	0.02	<0.0000050	0.000553	0.00062	<0.050	0.841
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	<0.010	0.000005	12.9	<0.00050	0.00012	0.00081	0.333	0.0001	<0.0010	3.02	0.0198	<0.0000050	0.000527	0.00052	0.05	0.829
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	<0.010	<0.0000050	15.4	<0.00050	<0.00010	0.00077	0.251	0.000116	<0.0010	3.26	0.0167	<0.0000050	0.000534	0.00053	<0.050	0.733
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	<0.010	<0.0000050	16.8	<0.00050	<0.00010	0.00052	0.16	<0.000050	<0.0010	3.65	0.0166	<0.0000050	0.000558	<0.00050	<0.050	0.77
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	<0.010	<0.0000050	16.8	<0.00050	<0.00010	<0.00050	0.111	<0.000050	<0.0010	4.11	0.0193	<0.0000050	0.000983	<0.00050	<0.050	0.822
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	<0.010	<0.0000050	18.3	<0.00050	<0.00010	0.00064	0.205	<0.000050	<0.0010	4.25	0.019	<0.0000050	0.000616	<0.00050	<0.050	0.82
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	<0.010	<0.0000050	17.6	<0.00050	<0.00010	<0.00050	0.174	<0.000050	<0.0010	4.05	0.0228	<0.0000050	0.000718	<0.00050	<0.050	0.838
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	<0.010	0.0000057	17.7	<0.00050	<0.00010	0.00057	0.238	<0.000050	<0.0010	4.42	0.0305	<0.0000050	0.000714	<0.00050	<0.050	0.881
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	<0.010	0.0000053	19	<0.00050	<0.00010	<0.00050	0.225	<0.000050	<0.0010	4.29	0.035	<0.0000050	0.00082	<0.00050	<0.050	0.825
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	<0.010	<0.0000050	19.4	<0.00050	<0.00010	<0.00050	0.228	<0.000050	<0.0010	5.07	0.0245	<0.0000050	0.000724	<0.00050	<0.050	0.93
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	<0.010	<0.0000050	19.2	<0.00050	<0.00010	<0.00050	0.235	<0.000050	<0.0010	4.7	0.0286	<0.0000050	0.000789	<0.00050	<0.050	0.885
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	<0.010	<0.0000050	19.8	<0.00050	<0.00010	<0.00050	0.18	<0.000050	<0.0010	5.03	0.0171	<0.0000050	0.000755	<0.00050	<0.050	0.921
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	<0.010	<0.0000050	18.2	<0.00050	<0.00010	<0.00050	0.234	<0.000050	<0.0010	4.26	0.0326	<0.0000050	0.000727	<0.00050	<0.050	0.839
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	<0.010	<0.0000050	19.4	<0.00050	<0.00010	<0.00050	0.288	<0.000050	<0.0010	4.43	0.0272	<0.0000050	0.000718	<0.00050	<0.050	0.807
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	<0.010	<0.0000050	18.3	<0.00050	<0.00010	<0.00050	0.158	<0.000050	<0.0010	4.27	0.0213	<0.0000050	0.000659	<0.00050	<0.050	0.779
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	<0.010	<0.0000050	22.6	<0.00050	<0.00010	<0.00050	0.125	<0.000050	<0.0010	5.65	0.0234	<0.0000050	0.00074	<0.00050	<0.050	0.846
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	<0.010	<0.0000050	20.8	<0.00050	<0.00010	<0.00050	0.11	<0.000050	<0.0010	5.03	0.0192	<0.0000050	0.000711	<0.00050	<0.050	0.925
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	<0.010	<0.0000050	20.7	<0.00050	<0.00010	<0.00050	0.112	<0.000050	<0.0010	5.02	0.0198	<0.0000050	0.000724	<0.00050	<0.050	0.93
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	<0.010	<0.0000050	20	<0.00050	<0.00010	<0.00050	0.155	<0.000050	<0.0010	4.86	0.0195	<0.0000050	0.000695	<0.00050	<0.050	0.927
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	<0.010	<0.0000050	18.3	<0.00050	<0.00010	0.00054	0.288	<0.000050	<0.0010	4.27	0.0426	<0.0000050	0.000692	<0.00050	<0.050	0.999
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	<0.010	0.0000151	12.7	0.00083	0.00032	0.00155	0.986	0.000272	<0.0010	2.55	0.0692	0.0000075	0.000676	0.00093	0.086	1.31
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	<0.010	0.0000062	13.2	<0.00050	0.00012	0.00092	0.331	0.000096	<0.0010	3.09	0.0218	<0.0000050	0.000542	<0.00050	0.059	0.914
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	<0.010	0.000005	14.9	<0.00050	<0.00010	0.00066	0.251	0.000059	<0.0010	3.21	0.0172	<0.0000050	0.000534	<0.00050	<0.050	0.725
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	<0.010	<0.0000050	15.9	<0.00050	<0.00010	<0.00050	0.137	<0.000050	<0.0010	3.6	0.0157	<0.0000050	0.00056	<0.00050	<0.050	0.727
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	<0.010	<0.0000050	16.2	<0.00050	<0.00010	<0.00050	0.121	<0.000050	<0.0010	4.14	0.0179	<0.0000050	0.00091	<0.00050	<0.050	0.802
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	<0.010	<0.0000050	16.5	<0.00050	<0.00010	<0.00050	0.118	<0.000050	<0.0010	4.06	0.0177	<0.0000050	0.000915	<0.00050	<0.050	0.812
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	<0.010	<0.0000050	17	<0.00050	<0.00010	<0.00050	0.114	<0.000050	<0.0010	3.82	0.0191	<0.0000050	0.000663	<0.00050	<0.050	0.819
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	<0.010	<0.0000050	17.2	<0.00050	<0.00010	<0.00050	0.185	<0.000050	<0.0010	4.01	0.0269	<0.0000050	0.000864	<0.00050	<0.050	0.852
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	<0.010	<0.0000050	18.1	<0.00050	<0.00010	<0.00050	0.215	<0.000050	<0.0010	4.39	0.0286	<0.0000050	0.00158	<0.00050	<0.050	0.846
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	<0.010	<0.0000050	19.4	<0.00050	<0.00010	<0.00050	0.214	<0.000050	<0.0010	4.38	0.0246	<0.0000050	0.000792	<0.00050	<0.050	0.832
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	<0.010	<0.0000050	19.8	<0.00050	<0.00010	<0.00050	0.221	<0.000050	<0.0010	5.15	0.0234	<0.0000050	0.000748	<0.00050	<0.050	0.906
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	<0.010	<0.0000050	20.4	<0.00050	<0.00010	<0.00050	0.216	<0.000050	<0.0010	5.02	0.0232	<0.0000050	0.000752	<0.00050	<0.050	0.89
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	<0.010	<0.0000050	19.7	<0.00050	<0.00010	<0.00050	0.204	<0.000050	<0.0010	4.79	0.021	<0.0000050	0.000743	<0.00050	<0.050	0.884
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	<0.010	<0.0000050	19.8	<0.00050	<0.00010	<0.00050	0.176	<0.000050	<0.0010	5.03	0.0141	<0.0000050	0.000783	<0.00050	<0.050	0.904

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	<0.010	<0.0000050	18.6	<0.00050	<0.00010	<0.00050	0.212	<0.000050	<0.0010	4.38	0.0266	<0.0000050	0.000708	<0.00050	<0.050	0.836
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	<0.010	<0.0000050	19.9	<0.00050	<0.00010	<0.00050	0.18	<0.000050	<0.0010	4.53	0.0237	<0.0000050	0.000701	<0.00050	<0.050	0.817
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	<0.010	<0.0000050	18.7	<0.00050	<0.00010	<0.00050	0.153	<0.000050	<0.0010	4.31	0.0227	<0.0000050	0.00067	<0.00050	<0.050	0.776
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	<0.010	<0.0000050	20.6	<0.00050	<0.00010	<0.00050	0.095	<0.000050	<0.0010	4.97	0.0162	<0.0000050	0.000683	<0.00050	<0.050	0.861
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	<0.010	<0.0000050	20.2	<0.00050	<0.00010	<0.00050	0.096	<0.000050	<0.0010	5.13	0.0165	<0.0000050	0.000666	<0.00050	<0.050	0.88
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	<0.010	<0.0000050	20.6	<0.00050	<0.00010	<0.00050	0.169	<0.000050	<0.0010	5.23	0.0174	<0.0000050	0.000695	<0.00050	<0.050	0.954
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	<0.010	<0.0000050	20	<0.00050	<0.00010	<0.00050	0.132	<0.000050	<0.0010	4.71	0.0155	<0.0000050	0.000683	<0.00050	<0.050	0.872
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	<0.010	<0.0000050	12.2	<0.00050	0.00014	0.00088	0.475	0.000094	<0.0010	2.99	0.0368	<0.0000050	0.000528	<0.00050	0.052	0.909
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	<0.010	<0.0000050	20.6	<0.00050	<0.00010	<0.00050	0.279	<0.000050	<0.0010	4.8	0.0292	<0.0000050	0.00102	<0.00050	<0.050	1.02
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	<0.010	<0.0000050	20	<0.00050	<0.00010	<0.00050	0.289	<0.000050	<0.0010	4.8	0.0275	<0.0000050	0.000986	<0.00050	<0.050	1.02
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	<0.010	0.0000051	22.5	<0.00050	<0.00010	<0.00050	0.379	<0.000050	<0.0010	5.38	0.0307	<0.0000050	0.000919	<0.00050	<0.050	0.912
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	<0.010	<0.0000050	23.1	<0.00050	<0.00010	<0.00050	0.215	<0.000050	<0.0010	6.08	0.0315	<0.0000050	0.000909	<0.00050	<0.050	1.04
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	<0.010	0.000006	18.9	<0.00050	0.00012	0.00065	0.665	0.000059	<0.0010	4.94	0.0602	<0.0000050	0.000795	<0.00050	<0.050	1.3
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	<0.010	0.0000126	13.9	0.00096	0.00038	0.00153	1.45	0.000252	<0.0010	3.18	0.138	0.0000054	0.000678	0.00121	0.097	1.57
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	<0.010	0.0000072	11.9	0.00053	0.00017	0.00099	0.566	0.000123	<0.0010	2.99	0.0444	0.0000064	0.000511	0.00063	0.061	0.965
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	<0.010	0.0000062	14.4	<0.00050	0.00016	0.00087	0.522	0.00009	<0.0010	3.16	0.049	<0.0000050	0.000529	0.00058	<0.050	0.755
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	<0.010	0.0000055	13.8	<0.00050	0.00016	0.00089	0.522	0.000086	<0.0010	3.14	0.048	<0.0000050	0.000521	0.00061	<0.050	0.75
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	<0.010	<0.0000050	15.9	<0.00050	0.0001	0.00063	0.347	<0.000050	<0.0010	3.68	0.0444	<0.0000050	0.000566	<0.00050	<0.050	0.768
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	<0.010	0.0000054	16.2	0.00052	0.00021	0.00081	0.58	0.00014	<0.0010	4.15	0.0562	<0.0000050	0.000697	0.00065	<0.050	0.847
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	<0.010	<0.0000050	18.8	<0.00050	<0.00010	0.00062	0.264	<0.000050	<0.0010	4.74	0.0428	<0.0000050	0.000743	0.00052	<0.050	0.805
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	<0.010	<0.0000050	19.3	<0.00050	<0.00010	<0.00050	0.266	<0.000050	<0.0010	4.9	0.0332	<0.0000050	0.000898	<0.00050	<0.050	0.895
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	<0.010	<0.0000050	20.7	<0.00050	<0.00010	<0.00050	0.285	<0.000050	<0.0010	5.07	0.0328	<0.0000050	0.00109	<0.00050	<0.050	1.05
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	<0.010	<0.0000050	23.5	<0.00050	<0.00010	<0.00050	0.348	<0.000050	<0.0010	5.9	0.0291	<0.0000050	0.00114	<0.00050	<0.050	1
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	<0.010	<0.0000050	23.3	<0.00050	<0.00010	<0.00050	0.392	<0.000050	<0.0010	6.15	0.0283	<0.0000050	0.00117	<0.00050	<0.050	1.1
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	<0.010	<0.0000050	25.5	<0.00050	<0.00010	<0.00050	0.367	<0.000050	<0.0010	6.51	0.0203	<0.0000050	0.00113	<0.00050	<0.050	1.07
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	<0.010	<0.0000050	21.1	<0.00050	<0.00010	<0.00050	0.457	<0.000050	<0.0010	5.42	0.0368	<0.0000050	0.000998	<0.00050	<0.050	0.971
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	<0.010	<0.0000050	21.3	<0.00050	<0.00010	<0.00050	0.508	<0.000050	<0.0010	5.38	0.0506	<0.0000050	0.00103	<0.00050	<0.050	0.969
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	<0.010	<0.0000050	23.4	<0.00050	<0.00010	<0.00050	0.418	<0.000050	<0.0010	6.23	0.0316	<0.0000050	0.00103	<0.00050	<0.050	1.01
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	<0.010	<0.0000050	22.4	<0.00050	<0.00010	<0.00050	0.328	<0.000050	<0.0010	5.87	0.0275	<0.0000050	0.000934	<0.00050	<0.050	0.952
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	<0.010	<0.0000050	24.9	<0.00050	<0.00010	<0.00050	0.217	<0.000050	<0.0010	6.55	0.0337	<0.0000050	0.000947	<0.00050	<0.050	1.04
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	<0.010	<0.0000050	23.5	<0.00050	<0.00010	<0.00050	0.282	<0.000050	<0.0010	6.45	0.0332	<0.0000050	0.000927	<0.00050	<0.050	1.09
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	<0.010	<0.0000050	23	<0.00050	<0.00010	<0.00050	0.228	<0.000050	<0.0010	5.99	0.0312	<0.0000050	0.000898	<0.00050	<0.050	0.976
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	<0.010	0.0000058	19.8	<0.00050	<0.00010	0.00069	0.427	<0.000050	<0.0010	5.24	0.0361	<0.0000050	0.00117	<0.00050	0.053	2.45
Creek 705	705-05	Surface	Regular	VA23A8158-003	<0.010	<0.0000050	8.54	<0.00050	<0.00010	0.00058	0.189	<0.000050	<0.0010	1.66	0.00585	<0.0000050	0.000411	<0.00050	<0.050	0.359
Creek 705	705-05	Surface	Regular	VA23B0364-002	<0.010	<0.0000050	4.15	<0.00050	<0.00010	0.00056	0.166	<0.000050	<0.0010	0.654	0.00884	0.0000086	0.000264	<0.00050	<0.050	0.333
Creek 705	705-05	Surface	Regular	VA23B3687-004	<0.010	<0.0000050	5.43	<0.00050	<0.00010	<0.00050	0.135	<0.000050	<0.0010	0.938	0.00573	<0.0000050	0.000626	<0.00050	<0.050	0.222
Creek 705	705-05	Surface	Regular	VA23B7523-003	<0.010	<0.0000050	6.37	<0.00050	<0.00010	<0.00050	0.197	<0.000050	<0.0010	0.953	0.00975	<0.0000050	0.000411	<0.00050	<0.050	0.224
Creek 705	705-05	Surface	Regular	VA23B8906-003	<0.010	<0.0000050	6.59	<0.00050	<0.00010	<0.00050	0.206	<0.000050	<0.0010	1.06	0.0118	<0.0000050	0.000613	<0.00050	<0.050	0.292
Creek 705	705-05	Surface	Replicate	VA23B8906-004	<0.010	<0.0000050	6.64	<0.00050	<0.00010	<0.00050	0.203	<0.000050	<0.0010	1.06	0.0129	<0.0000050	0.000622	<0.00050	<0.050	0.291
Creek 705	705-05	Surface	Regular	VA23C1674-001	<0.010	<0.0000050	7.69	0.0006	<0.00010	<0.00050	0.241	<0.000050	<0.0010	1.22	0.0102	<0.0000050	0.000644	<0.00050	<0.050	0.349
Creek 705	705-05	Surface	Regular	VA23C4014-006	<0.010	<0.0000050	6.75	<0.00050	<0.00010	<0.00050	0.228	<0.000050	<0.0010	1.18	0.00917	<0.0000050	0.000612	<0.00050	<0.050	0.375
Creek 705	705-05	Surface	Regular	VA23C7190-010	<0.010	<0.0000050	7.18	<0.00050	<0.00010	<0.00050	0.205	<0.000050	<0.0010	1.16	0.00984	<0.0000050	0.000471	<0.00050	<0.050	0.341
Creek 705	705-05	Surface	Replicate	VA23C7190-011	<0.010	<0.0000050	7.11	<0.00050	<0.00010	<0.00050	0.201	<0.000050	<0.0010	1.16	0.00875	0.000006	0.000523	<0.00050	<0.050	0.334
Creek 705	705-05	Surface	Regular	VA23C9661-004	<0.010	<0.0000050	7.11	<0.00050	<0.00010	<0.00050	0.178	<0.000050	<0.0010	1.17	0.0088	<0.0000050	0.000568	<0.00050	<0.050	0.342
Creek 705	705-05	Surface	Regular	VA24A1833-002	<0.010	<0.0000050	7.54	<0.00050	<0.00010	<0.00050	0.2	<0.000050	<0.0010	1.12	0.00868	<0.0000050	0.000585	<0.00050	<0.050	0.385
Creek 705	705-05	Surface	Regular	VA24A3502-001	<0.010	<0.0000050	8.06	<0.00050	<0.00010	<0.00050	0.218	<0.000050	<0.0010	1.25	0.00794	<0.0000050	0.000526	<0.00050	<0.050	0.417
Creek 705	705-05	Surface	Regular	VA24A6018-001	<0.010	0.0000072	6.08	<0.00050	0.00011	0.00069	0.492	0.000058	<0.0010	1.06	0.0284	0.0000073	0.000368	<0.00050	<0.050	0.78
Creek 705	705-10	Surface	Regular	VA23A8158-001	<0.010	<0.0000050	8.37	<0.00050	<0.00010	0.00054	0.143	<0.000050	<0.0010	1.66	0.00442	<0.0000050	0.000423	<0.00050	<0.050	0.371
Creek 705	705-10	Surface	Replicate	VA23A8158-002	<0.010	<0.0000050	8.53	<0.00050	<0.00010	<0.00050	0.146	<0.000050	<0.0010	1.64	0.00437	<0.0000050	0.000388	<0.00050	<0.050	0.35
Creek 705	705-10	Surface	Regular	VA23A9638-001	<0.010	0.0000128	5.42	<0.00050	0.00012	0.00183	0.423	0.000095	<0.0010	1.01	0.0162	0.0000115	0.000174	0.00108	<0.050	0.678

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)														
					Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total	Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	<0.010	<0.0000050	4.82	<0.00050	<0.00010	0.00076	0.233	0.000056	<0.0010	0.844	0.00914	0.0000092	0.000255	<0.00050	<0.050	0.344
Creek 705	705-10	Surface	Regular	VA23B0766-009	<0.010	<0.0000050	4.44	<0.00050	<0.00010	0.00067	0.189	<0.000050	<0.0010	0.777	0.00754	0.0000084	0.000228	<0.00050	<0.050	0.241
Creek 705	705-10	Surface	Regular	VA23B1379-005	<0.010	<0.0000050	5.89	<0.00050	<0.00010	0.00059	0.118	<0.000050	<0.0010	0.986	0.00533	0.0000052	0.00036	<0.00050	<0.050	0.286
Creek 705	705-10	Surface	Regular	VA23B2224-004	<0.010	<0.0000050	7.07	<0.00050	<0.00010	0.00056	0.071	<0.000050	<0.0010	1.23	0.00259	<0.0000050	0.000816	<0.00050	<0.050	0.275
Creek 705	705-10	Surface	Regular	VA23B3687-005	<0.010	<0.0000050	7.56	<0.00050	<0.00010	<0.00050	0.044	<0.000050	<0.0010	1.35	0.00161	<0.0000050	0.000502	<0.00050	<0.050	0.302
Creek 705	705-10	Surface	Regular	VA23B7523-002	<0.010	<0.0000050	6.78	<0.00050	<0.00010	0.0006	0.143	<0.000050	<0.0010	1.19	0.00524	<0.0000050	0.000378	<0.00050	<0.050	0.268
Creek 705	705-10	Surface	Regular	VA23B8906-002	<0.010	0.0000051	7.33	<0.00050	<0.00010	<0.00050	0.077	<0.000050	<0.0010	1.32	0.00312	<0.0000050	0.000491	<0.00050	<0.050	0.311
Creek 705	705-10	Surface	Regular	VA23C1674-002	<0.010	<0.0000050	8.55	0.00058	<0.00010	<0.00050	0.037	<0.000050	<0.0010	1.55	0.00214	<0.0000050	0.000582	<0.00050	<0.050	0.346
Creek 705	705-10	Surface	Regular	VA23C4014-007	<0.010	<0.0000050	8.43	<0.00050	<0.00010	<0.00050	0.043	<0.000050	<0.0010	1.52	0.0014	<0.0000050	0.000596	<0.00050	<0.050	0.32
Creek 705	705-10	Surface	Regular	VA23C4586-005	<0.010	<0.0000050	8.41	<0.00050	<0.00010	<0.00050	0.027	<0.000050	<0.0010	1.57	0.00121	<0.0000050	0.000476	<0.00050	<0.050	0.316
Creek 705	705-10	Surface	Regular	VA23C4858-004	<0.010	<0.0000050	8.3	<0.00050	<0.00010	<0.00050	0.032	<0.000050	<0.0010	1.6	0.00133	<0.0000050	0.000535	<0.00050	<0.050	0.316
Creek 705	705-10	Surface	Regular	VA23C5894-004	<0.010	<0.0000050	10.1	<0.00050	<0.00010	<0.00050	0.026	<0.000050	<0.0010	1.89	0.00112	<0.0000050	0.000516	<0.00050	<0.050	0.307
Creek 705	705-10	Surface	Regular	VA23C6383-004	<0.010	<0.0000050	9.51	<0.00050	<0.00010	<0.00050	0.036	<0.000050	<0.0010	1.78	0.00116	<0.0000050	0.00049	<0.00050	<0.050	0.314
Creek 705	705-10	Surface	Replicate	VA23C6383-006	<0.010	0.0000055	12.1	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.3	0.00014	<0.0000050	0.000765	<0.00050	<0.050	0.377
Creek 705	705-10	Surface	Regular	VA23C6880-001	<0.010	<0.0000050	8.38	<0.00050	<0.00010	<0.00050	0.14	<0.000050	<0.0010	1.48	0.00344	<0.0000050	0.000779	<0.00050	<0.050	0.351
Creek 705	705-10	Surface	Regular	VA23C9661-005	<0.010	<0.0000050	7.98	<0.00050	<0.00010	<0.00050	0.078	<0.000050	<0.0010	1.55	0.00173	<0.0000050	0.000462	<0.00050	<0.050	0.311
Creek 705	705-10	Surface	Regular	VA24A1833-001	<0.010	<0.0000050	8.24	<0.00050	<0.00010	<0.00050	0.097	<0.000050	<0.0010	1.4	0.00247	<0.0000050	0.000534	<0.00050	<0.050	0.379
Creek 705	705-10	Surface	Regular	VA24A3529-004	<0.010	<0.0000050	9.03	<0.00050	<0.00010	<0.00050	0.134	<0.000050	<0.0010	1.6	0.00269	<0.0000050	0.000507	<0.00050	<0.050	0.389
Creek 705	705-10	Surface	Regular	VA24A6018-002	<0.010	0.0000067	8.48	<0.00050	0.0001	0.00081	0.443	0.000071	<0.0010	1.52	0.00896	0.0000073	0.000395	<0.00050	<0.050	0.563
Creek 705	705-10	Surface	Replicate	VA24A6018-003	<0.010	0.0000076	8.33	<0.00050	0.0001	0.00082	0.456	0.000069	<0.0010	1.55	0.0091	0.0000058	0.000429	<0.00050	<0.050	0.584
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	<0.010	<0.0000050	13.8	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.56	0.00019	<0.0000050	0.00103	<0.00050	<0.050	0.458
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	<0.010	0.0000159	12	<0.00050	0.00017	0.00113	0.43	0.000165	<0.0010	1.28	0.0103	<0.0000050	0.000641	0.00056	<0.050	0.488
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	<0.010	0.0000107	4.93	<0.00050	<0.00010	0.00078	0.152	<0.000050	<0.0010	0.504	0.00384	0.0000065	0.000191	<0.00050	<0.050	0.351
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	<0.010	0.0000486	4.02	0.00064	0.00045	0.0016	0.817	0.000385	<0.0010	0.534	0.0404	0.0000072	0.000145	0.00062	0.088	0.367
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	<0.010	0.0000148	5.09	<0.00050	<0.00010	0.00064	0.071	<0.000050	<0.0010	0.445	0.00197	<0.0000050	0.000202	<0.00050	<0.050	0.271
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	<0.010	0.0000054	6.48	<0.00050	<0.00010	0.00056	0.026	<0.000050	<0.0010	0.634	0.00066	<0.0000050	0.00033	<0.00050	<0.050	0.298
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	<0.010	0.0000087	7.04	<0.00050	<0.00010	<0.00050	0.021	<0.000050	<0.0010	0.684	0.00047	<0.0000050	0.000313	<0.00050	<0.050	0.311
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	<0.010	0.0000082	9.44	<0.00050	<0.00010	<0.00050	0.011	<0.000050	<0.0010	0.917	0.00029	<0.0000050	0.000428	<0.00050	<0.050	0.375
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	<0.010	0.0000077	9.97	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.01	0.00065	<0.0000050	0.000528	<0.00050	<0.050	0.397
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	<0.010	0.0000067	11.9	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.22	0.00038	<0.0000050	0.000692	<0.00050	<0.050	0.453
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	<0.010	<0.0000050	11.3	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.19	0.00014	<0.0000050	0.000688	<0.00050	<0.050	0.391
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	<0.010	<0.0000050	11.8	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.26	0.00016	<0.0000050	0.000688	<0.00050	<0.050	0.406
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	<0.010	0.0000059	11	<0.00050	<0.00010	<0.00050	0.013	<0.000050	<0.0010	1.19	0.00059	<0.0000050	0.000715	<0.00050	<0.050	0.394
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	<0.010	0.0000051	11.5	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.2	0.00036	<0.0000050	0.000736	<0.00050	<0.050	0.382
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	<0.010	0.0000058	12.9	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.31	0.00024	<0.0000050	0.000726	<0.00050	<0.050	0.366
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	<0.010	<0.0000050	9.53	<0.00050	<0.00010	<0.00050	0.036	<0.000050	<0.0010	1.77	0.00114	<0.0000050	0.000496	<0.00050	<0.050	0.314
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	<0.010	0.0000055	11.4	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.21	0.00014	<0.0000050	0.000682	<0.00050	<0.050	0.368
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	<0.010	0.0000064	12	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.34	0.00011	<0.0000050	0.000766	<0.00050	<0.050	0.374
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	<0.010	<0.0000050	13	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.53	<0.00010	<0.0000050	0.000946	<0.00050	<0.050	0.415
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	<0.010	<0.0000050	13	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.49	0.00012	<0.0000050	0.000966	<0.00050	<0.050	0.41
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	<0.010	0.0000062	14.4	<0.00050	<0.00010	<0.00050	0.012	<0.000050	<0.0010	1.58	0.00049	<0.0000050	0.00108	<0.00050	<0.050	0.436
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	<0.010	0.0000057	14.6	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	1.6	<0.00010	<0.0000050	0.00106	<0.00050	<0.050	0.412

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	0.000103	6.21	<0.000010	3.76	0.0974	1.04	<0.000010	<0.00010	<0.00030	0.000378	<0.00050	<0.0030	0.0093	<0.00010	0.00056	0.00779
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	0.000056	5.96	0.00003	1.8	0.0375	<0.50	<0.000010	<0.00010	0.0188	0.000203	0.00127	0.0034	0.337	<0.00010	0.00057	0.00715
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	0.000064	4.67	0.00002	1.52	0.0287	<0.50	<0.000010	<0.00010	0.0101	0.000178	0.00108	<0.0030	0.273	<0.00010	0.00043	0.00572
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	0.000052	4.13	0.00001	1.34	0.0241	<0.50	<0.000010	<0.00010	0.00416	0.000194	0.00064	<0.0030	0.176	<0.00010	0.00042	0.00392
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	<0.000050	4.96	<0.000010	1.77	0.0301	<0.50	<0.000010	<0.00010	0.00234	0.000182	0.00058	<0.0030	0.129	<0.00010	0.00047	0.00395
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	<0.000050	5.43	<0.000010	2.02	0.0373	<0.50	<0.000010	<0.00010	0.0019	0.000164	0.00062	<0.0030	0.083	<0.00010	0.00048	0.00436
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	0.000073	5.56	<0.000010	2.2	0.0474	<0.50	<0.000010	<0.00010	0.00143	0.000152	0.00055	<0.0030	0.0806	<0.00010	0.00057	0.00524
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	0.000062	6.36	<0.000010	3.17	0.078	5.01	<0.000010	<0.00010	0.00361	0.000111	0.00058	<0.0030	0.0678	<0.00010	0.00063	0.0108
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	0.000067	6.42	<0.000010	3.07	0.0746	1.79	<0.000010	<0.00010	0.00142	0.000146	0.00071	<0.0030	0.0373	<0.00010	0.00083	0.00853
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	0.000062	6.31	<0.000010	3.25	0.0773	1.07	<0.000010	<0.00010	0.00077	0.000165	<0.00050	<0.0030	0.025	<0.00010	0.00066	0.00794
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	0.000063	6.71	<0.000010	2.8	0.0745	1.02	<0.000010	<0.00010	0.00874	0.000191	0.00103	<0.0030	0.054	<0.00010	0.00067	0.00809
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	0.000075	6.56	<0.000010	3.28	0.0861	0.54	<0.000010	<0.00010	0.00332	0.000209	0.00054	<0.0030	0.0293	<0.00010	0.00068	0.00851
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	0.00006	6.28	<0.000010	3.25	0.0846	<0.50	<0.000010	<0.00010	0.00245	0.000208	0.00054	<0.0030	0.0328	<0.00010	0.00062	0.0083
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	0.000068	6.34	<0.000010	3.14	0.0867	1.14	<0.000010	<0.00010	0.00212	0.000194	<0.00050	<0.0030	0.029	<0.00010	0.00067	0.0091
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	0.000074	7.31	<0.000010	3.51	0.0895	1.25	<0.000010	<0.00010	0.00523	0.000212	0.00064	<0.0030	0.042	<0.00010	0.00058	0.00896
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	0.00007	6.92	<0.000010	3.31	0.0887	1.28	<0.000010	<0.00010	0.00278	0.000223	0.00053	<0.0030	0.03	<0.00010	0.00055	0.00813
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	0.00007	7.13	<0.000010	2.95	0.0672	1.35	<0.000010	<0.00010	0.0105	0.000197	0.00094	<0.0030	0.0599	<0.00010	0.00053	0.00683
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	0.00006	7.33	<0.000010	3.14	0.0814	1.08	<0.000010	<0.00010	0.00512	0.000205	0.00062	<0.0030	0.0301	<0.00010	0.00055	0.00746
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	0.000086	7.02	<0.000010	3.97	0.122	1.11	<0.000010	<0.00010	0.00075	0.000479	<0.00050	<0.0030	0.0153	<0.00010	0.0005	0.0111
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	0.000064	7.24	<0.000010	3.39	0.0949	0.66	<0.000010	<0.00010	0.00961	0.000346	0.001	<0.0030	0.0209	<0.00010	0.00059	0.00857
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	0.000079	6.89	<0.000010	3.83	0.117	1.24	<0.000010	<0.00010	0.00298	0.000498	0.0006	<0.0030	0.0149	<0.00010	0.00055	0.00983
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	0.000105	10.5	0.00002	3.39	0.103	1.11	0.000024	<0.00010	0.0434	0.000396	0.00366	0.0088	0.0166	<0.00010	0.00062	0.0078
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	0.000089	10.9	0.000019	3.51	0.0982	1	0.000026	<0.00010	0.0495	0.000417	0.00367	0.008	0.0146	<0.00010	0.00056	0.00753
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	0.000094	10.8	0.000017	3.84	0.0864	1.06	0.000024	0.00014	0.051	0.000353	0.00347	0.0078	0.0269	<0.00010	0.00058	0.00751
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	0.000074	11.5	0.00002	4.07	0.0878	0.75	0.000028	<0.00010	0.0594	0.000358	0.00373	0.0076	0.0326	<0.00010	0.00059	0.00748
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	0.000089	11.3	0.000019	4	0.11	1.33	0.000036	<0.00010	0.0584	0.00046	0.00435	0.0099	0.0299	<0.00010	0.0005	0.00904
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	0.000069	6.23	<0.000010	3.76	0.0988	1.2	<0.000010	<0.00010	0.00033	0.000396	<0.00050	<0.0030	0.0088	<0.00010	0.00055	0.00804
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	0.000075	5.8	0.00003	1.81	0.0377	<0.50	<0.000010	<0.00010	0.0154	0.000206	0.00119	0.0034	0.33	<0.00010	0.00056	0.00694
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	0.000062	5.62	<0.000010	2.3	0.0478	<0.50	<0.000010	<0.00010	0.00179	0.000144	0.0006	<0.0030	0.0673	<0.00010	0.00049	0.00504
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	0.000065	6.28	<0.000010	3.2	0.0782	4.56	<0.000010	<0.00010	0.00405	0.000113	0.00063	<0.0030	0.058	<0.00010	0.00061	0.01
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	0.000061	6.37	<0.000010	3.12	0.077	1.74	<0.000010	<0.00010	0.00145	0.000128	0.00063	<0.0030	0.0338	<0.00010	0.00075	0.00873
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	0.00007	6.04	<0.000010	3.21	0.086	1.2	<0.000010	<0.00010	0.00058	0.000179	<0.00050	<0.0030	0.0168	<0.00010	0.00058	0.00837
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	0.000061	6.28	<0.000010	2.85	0.0787	1	<0.000010	<0.00010	0.00338	0.000168	0.00069	<0.0030	0.0352	<0.00010	0.00063	0.00839
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	0.000058	6.97	<0.000010	2.9	0.0682	1.23	<0.000010	<0.00010	0.013	0.000161	0.00091	<0.0030	0.0506	<0.00010	0.00054	0.00694
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	0.000069	7.34	<0.000010	3.21	0.0834	1.16	<0.000010	<0.00010	0.00392	0.00019	0.00058	<0.0030	0.0267	<0.00010	0.00053	0.00754
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	0.000067	7.21	<0.000010	3.22	0.0836	1.06	<0.000010	<0.00010	0.00366	0.00019	0.00057	<0.0030	0.0296	<0.00010	0.00053	0.0077
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	<0.000050	6.57	<0.000010	3.39	0.0996	0.98	<0.000010	<0.00010	0.00246	0.000313	<0.00050	<0.0030	0.0198	<0.00010	0.00047	0.00839
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	0.000077	6.63	<0.000010	3.77	0.113	1.08	<0.000010	<0.00010	0.00208	0.000457	0.00051	<0.0030	0.0645	<0.00010	0.00052	0.0103
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	0.00008	6.68	<0.000010	3.75	0.114	1.2	<0.000010	<0.00010	0.00215	0.00046	<0.00050	<0.0030	0.0135	<0.00010	0.0005	0.00973
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	0.00007	10.1	0.000012	3.82	0.094	0.86	0.000016	<0.00010	0.0333	0.000346	0.00263	0.0051	0.0245	<0.00010	0.00059	0.00795
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	<0.000050	5.98	<0.000010	3.59	0.0967	0.96	<0.000010	<0.00010	<0.00030	0.000257	0.00052	<0.0030	0.0082	<0.00010	0.00049	0.00909
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	0.000081	5.81	0.000027	1.91	0.0423	<0.50	<0.000010	<0.00010	0.0159	0.000246	0.00141	<0.0030	0.291	<0.00010	0.00057	0.00683
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	0.000055	5.64	<0.000010	2.54	0.0562	<0.50	<0.000010	<0.00010	0.00101	0.00011	0.00056	<0.0030	0.0395	<0.00010	0.00053	0.00537
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	0.000065	6.44	<0.000010	3.22	0.0741	3.6	<0.000010	<0.00010	0.00612	0.000131	0.00094	<0.0030	0.0432	<0.00010	0.0006	0.00793
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	0.000065	6.39	<0.000010	3.15	0.0745	3.6	<0.000010	<0.00010	0.00608	0.00013	0.00091	<0.0030	0.0414	<0.00010	0.00058	0.00832
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	0.000067	6.64	<0.000010	3.24	0.084	1.7	<0.000010	<0.00010	0.00072	0.0001	0.0006	<0.0030	0.0216	<0.00010	0.00066	0.00836
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	<0.000050	6.21	<0.000010	3.42	0.0935	1.15	<0.000010	<0.00010	0.00034	0.000148	<0.00050	<0.0030	0.011	<0.00010	0.00058	0.00876
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	<0.000050	6.93	<0.000010	3.66	0.0983	1.11	<0.000010	<0.00010	0.00076	0.000171	<0.00050	<0.0030	0.0148	<0.00010	0.00061	0.00898
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	<0.000050	6.41	<0.000010	3.16	0.0778	1.24	<0.000010	<0.00010	0.00447	0.000142	0.00064	<0.0030	0.0412	<0.00010	0.00054	0.00771
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	0.00006	7.1	<0.000010	3.39	0.0934	0.97	<0.000010	<0.00010	0.00168	0.000175	0.0005	<0.0030	0.0157	<0.00010	0.0005	0.0081

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	0.000054	6.54	<0.000010	3.41	0.0982	0.9	<0.000010	<0.00010	0.00345	0.000221	0.00056	<0.0030	0.0182	<0.00010	0.00054	0.0082
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	<0.000050	6.81	<0.000010	4.04	0.115	0.96	<0.000010	<0.00010	0.00058	0.000326	<0.00050	<0.0030	0.01	<0.00010	0.00053	0.00972
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	0.000073	8.8	<0.000010	4.03	0.0953	1	<0.000010	<0.00010	0.0176	0.000286	0.00159	<0.0030	0.0209	<0.00010	0.00055	0.00856
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	0.000065	6.02	<0.000010	3.3	0.0914	0.72	<0.000010	<0.00010	0.00964	0.000266	0.00093	<0.0030	0.0139	<0.00010	0.00044	0.00868
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	0.000081	5.77	0.000025	2.25	0.0484	<0.50	<0.000010	<0.00010	0.0213	0.000225	0.00206	0.0033	0.134	<0.00010	0.00056	0.007
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	0.00006	4.91	0.000014	1.72	0.036	<0.50	<0.000010	<0.00010	0.0122	0.0002	0.0012	<0.0030	0.144	<0.00010	0.00041	0.00463
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	0.000076	5.01	<0.000010	1.67	0.0318	<0.50	<0.000010	<0.00010	0.00823	0.000196	0.00101	<0.0030	0.116	<0.00010	0.00044	0.00392
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	0.000052	5.35	<0.000010	1.98	0.04	<0.50	<0.000010	<0.00010	0.00351	0.000158	0.00073	<0.0030	0.0659	<0.00010	0.00042	0.00456
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	0.000054	5.95	<0.000010	2.41	0.0489	0.5	<0.000010	<0.00010	0.00195	0.00013	0.00079	<0.0030	0.0386	<0.00010	0.00054	0.00528
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	<0.000050	6.31	<0.000010	2.66	0.0574	<0.50	<0.000010	<0.00010	0.00126	0.000099	0.0006	<0.0030	0.0243	<0.00010	0.00048	0.00592
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	0.000066	6.38	<0.000010	3.14	0.0796	2.35	<0.000010	<0.00010	0.00197	0.000096	0.0007	<0.0030	0.0204	<0.00010	0.00061	0.00843
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	0.000063	6.46	<0.000010	3.34	0.0866	1.39	<0.000010	<0.00010	0.0011	0.000112	0.00069	<0.0030	0.0139	<0.00010	0.00074	0.00923
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	<0.000050	6.14	<0.000010	3.43	0.0943	0.61	<0.000010	<0.00010	0.00091	0.000132	0.0005	<0.0030	0.009	<0.00010	0.00065	0.00901
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	<0.000050	6.29	<0.000010	3.48	0.0933	0.53	<0.000010	<0.00010	0.00093	0.000131	0.0005	<0.0030	0.009	<0.00010	0.00066	0.00932
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	<0.000050	6.64	<0.000010	3.77	0.0936	1.12	<0.000010	<0.00010	0.0005	0.000129	0.00051	<0.0030	0.0082	<0.00010	0.00063	0.00883
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	0.000051	6.62	<0.000010	3.7	0.0962	1	<0.000010	<0.00010	0.00071	0.000152	0.00056	<0.0030	0.0093	<0.00010	0.00061	0.00927
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	<0.000050	6.51	<0.000010	3.88	0.101	0.91	<0.000010	<0.00010	0.00096	0.000152	0.00051	<0.0030	0.008	<0.00010	0.00059	0.00936
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	<0.000050	6.58	<0.000010	3.81	0.0995	0.99	<0.000010	<0.00010	0.00063	0.000146	<0.00050	<0.0030	0.0089	<0.00010	0.00059	0.00922
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	0.000056	6.41	<0.000010	3.36	0.0864	0.96	<0.000010	<0.00010	0.00352	0.000178	0.00064	<0.0030	0.01	<0.00010	0.00048	0.00749
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	<0.000050	6.53	<0.000010	3.62	0.0955	1.04	<0.000010	<0.00010	0.00084	0.000209	<0.00050	<0.0030	0.0077	<0.00010	0.00041	0.00841
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	<0.000050	6.76	<0.000010	3.23	0.0863	1.09	<0.000010	<0.00010	0.00369	0.00016	0.00058	<0.0030	0.0196	<0.00010	0.00041	0.00774
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	0.000062	6.58	<0.000010	3.86	0.104	0.84	<0.000010	<0.00010	0.0021	0.00025	0.0005	0.01	0.0062	<0.00010	0.00035	0.00931
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	<0.000050	7.96	<0.000010	3.96	0.112	1.34	<0.000010	<0.00010	0.0102	0.000297	0.00107	<0.0030	0.0077	<0.00010	0.00033	0.00946
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	0.000111	9.91	0.000023	3.48	0.078	1.17	0.000024	<0.00010	0.0468	0.000243	0.00389	0.008	0.053	<0.00010	0.00048	0.00783
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	-	-	-	-	-	-	-	-	-	-	-	-	0.0442	<0.00010	0.00059	0.00856
Creek 661	661-01	Surface	Regular	VA23A8158-006	<0.000050	4.66	<0.000010	1.99	0.0243	<0.50	<0.000010	<0.00010	0.00065	0.000027	<0.00050	<0.0030	0.0471	<0.00010	0.00032	0.00242
Creek 661	661-01	Surface	Regular	VA23B0766-007	<0.000050	3.33	<0.000010	1.27	0.0159	<0.50	<0.000010	<0.00010	0.00156	0.000077	<0.00050	<0.0030	0.175	<0.00010	0.00055	0.00262
Creek 661	661-01	Surface	Regular	VA23B1379-001	0.000052	3.38	<0.000010	1.43	0.0173	<0.50	<0.000010	<0.00010	0.00106	0.000074	<0.00050	<0.0030	0.13	<0.00010	0.00055	0.00201
Creek 661	661-01	Surface	Replicate	VA23B1379-002	0.000054	3.48	<0.000010	1.4	0.0179	<0.50	<0.000010	<0.00010	0.00105	0.000069	<0.00050	<0.0030	0.132	<0.00010	0.00057	0.00214
Creek 661	661-01	Surface	Regular	VA23B2224-001	<0.000050	3.67	<0.000010	1.6	0.0196	<0.50	<0.000010	<0.00010	0.00089	0.00005	<0.00050	<0.0030	0.0844	<0.00010	0.00055	0.00218
Creek 661	661-01	Surface	Regular	VA23B2847-004	<0.000050	3.39	<0.000010	1.61	0.0203	<0.50	<0.000010	<0.00010	0.00055	0.00004	<0.00050	<0.0030	0.0696	<0.00010	0.00054	0.00197
Creek 661	661-01	Surface	Regular	VA23B3687-001	<0.000050	3.78	<0.000010	1.75	0.0235	<0.50	<0.000010	<0.00010	0.00047	0.000034	<0.00050	<0.0030	0.0483	<0.00010	0.0005	0.00234
Creek 661	661-01	Surface	Regular	VA23B7523-004	<0.000050	3.64	<0.000010	1.83	0.0285	<0.50	<0.000010	<0.00010	0.00064	0.000029	<0.00050	<0.0030	0.0446	<0.00010	0.00071	0.00237
Creek 661	661-01	Surface	Regular	VA23B8906-006	<0.000050	4.57	<0.000010	2.11	0.0348	<0.50	<0.000010	<0.00010	0.00037	0.000027	<0.00050	<0.0030	0.0306	<0.00010	0.00044	0.003
Creek 661	661-01	Surface	Regular	VA23C0875-002	<0.000050	5.12	<0.000010	2.26	0.0319	<0.50	<0.000010	<0.00010	0.00039	0.000024	<0.00050	<0.0030	0.027	<0.00010	0.00041	0.00255
Creek 661	661-01	Surface	Regular	VA23C4014-004	<0.000050	5.39	<0.000010	2.12	0.0356	<0.50	<0.000010	<0.00010	0.00037	0.000023	<0.00050	<0.0030	0.0242	<0.00010	0.00036	0.00296
Creek 661	661-01	Surface	Regular	VA23C4586-003	<0.000050	5.17	<0.000010	2.2	0.0346	<0.50	<0.000010	<0.00010	0.00055	0.000025	<0.00050	<0.0030	0.0397	<0.00010	0.00042	0.00311
Creek 661	661-01	Surface	Regular	VA23C4858-001	<0.000050	5.3	<0.000010	2.31	0.0342	<0.50	<0.000010	<0.00010	<0.00060	0.000023	<0.00050	<0.0030	0.0259	<0.00010	0.00035	0.00304
Creek 661	661-01	Surface	Regular	VA23C5894-003	<0.000050	5.94	<0.000010	2.38	0.043	<0.50	<0.000010	<0.00010	0.00058	0.000027	<0.00050	<0.0030	0.0375	<0.00010	0.00033	0.00368
Creek 661	661-01	Surface	Regular	VA23C6383-001	<0.000050	5.67	<0.000010	2.19	0.037	<0.50	<0.000010	<0.00010	0.00048	0.000028	<0.00050	<0.0030	0.0355	<0.00010	0.00031	0.00335
Creek 661	661-01	Surface	Regular	VA23C7190-008	<0.000050	5.41	<0.000010	2.21	0.0326	<0.50	<0.000010	<0.00010	0.00037	0.000022	<0.00050	<0.0030	0.0264	<0.00010	0.00028	0.00251
Creek 661	661-01	Surface	Regular	VA23C9661-001	<0.000050	5.45	<0.000010	2.24	0.0347	<0.50	<0.000010	<0.00010	0.00052	0.00002	<0.00050	<0.0030	0.0313	<0.00010	0.00038	0.003
Creek 661	661-01	Surface	Replicate	VA23C9661-002	<0.000050	5.37	<0.000010	2.24	0.0346	<0.50	<0.000010	<0.00010	0.00047	0.000022	<0.00050	<0.0030	0.0305	<0.00010	0.00037	0.003
Creek 661	661-01	Surface	Regular	VA24A1833-003	0.00005	4.54	<0.000010	1.92	0.0262	<0.50	<0.000010	<0.00010	0.00073	0.000038	<0.00050	<0.0030	0.063	<0.00010	0.00039	0.00295
Creek 661	661-01	Surface	Regular	VA24A3502-002	<0.000050	4.75	<0.000010	2.09	0.0259	<0.50	<0.000010	<0.00010	0.00092	0.000032	<0.00050	<0.0030	0.0623	<0.00010	0.00027	0.00295
Creek 661	661-01	Surface	Replicate	VA24A3502-003	<0.000050	4.71	<0.000010	2.11	0.0272	<0.50	<0.000010	<0.00010	0.00087	0.000033	<0.00050	<0.0030	0.0645	<0.00010	0.00029	0.00306
Creek 661	661-01	Surface	Regular	VA24A6018-004	<0.000050	5.1	<0.000010	1.9	0.0222	<0.50	<0.000010	<0.00010	0.00056	0.00004	<0.00050	<0.0030	0.0756	<0.00010	0.0003	0.00263
Creek 661	661-04	Surface	Regular	VA23A8158-007	<0.000050	7.61	<0.000010	3.51	0.0613	1.3	<0.000010	<0.00010	0.00035	0.000057	<0.00050	0.0038	0.0146	<0.00010	0.00108	0.00414
Creek 661	661-04	Surface	Regular	VA23B0766-008	0.00005	4.2	0.000022	1.68	0.0266	0.9	<0.000010	<0.00010	0.00288	0.000091	0.00076	0.0095	0.163	<0.00010	0.00071	0.00274
Creek 661	661-04	Surface	Regular	VA23B1379-004	<0.000050	5.31	<0.000010	1.91	0.0325	0.97	<0.000010	<0.00010	0.00221	0.000095	0.00072	0.0087	0.11	<0.00010	0.00078	0.00281

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	<0.000050	6.17	<0.000010	2.4	0.0379	0.7	<0.000010	<0.00010	0.00117	0.000077	0.00062	0.0072	0.0758	<0.00010	0.00087	0.00332
Creek 661	661-04	Surface	Regular	VA23B2847-005	<0.000050	6.93	<0.000010	2.54	0.0406	0.79	<0.000010	<0.00010	0.00095	0.000057	0.00058	0.0058	0.0472	<0.00010	0.00102	0.0033
Creek 661	661-04	Surface	Regular	VA23B3687-002	<0.000050	7.1	<0.000010	2.65	0.0479	0.62	<0.000010	<0.00010	0.00088	0.000059	0.00063	0.0053	0.0414	<0.00010	0.00107	0.00395
Creek 661	661-04	Surface	Replicate	VA23B3687-003	<0.000050	7.11	<0.000010	2.64	0.0473	0.67	<0.000010	<0.00010	0.00074	0.000061	0.00064	0.0051	0.0414	<0.00010	0.00107	0.00381
Creek 661	661-04	Surface	Regular	VA23B8906-005	<0.000050	7.46	<0.000010	3.56	0.0654	1.03	<0.000010	<0.00010	0.0006	0.000063	0.00068	0.004	0.0284	<0.00010	0.00127	0.00536
Creek 661	661-04	Surface	Regular	VA23C1991-004	0.000054	7.33	<0.000010	3.5	0.0684	<0.50	<0.000010	<0.00010	0.00048	0.000077	0.00052	0.0036	0.0224	<0.00010	0.00118	0.00443
Creek 661	661-04	Surface	Regular	VA23C4014-005	<0.000050	7.7	<0.000010	3.21	0.0646	0.75	<0.000010	<0.00010	0.0005	0.000054	0.00052	0.0038	0.0185	<0.00010	0.00123	0.0047
Creek 661	661-04	Surface	Regular	VA23C4586-004	<0.000050	7.66	<0.000010	3.5	0.0672	<0.50	<0.000010	<0.00010	0.00041	0.000059	<0.00050	0.0034	0.0162	<0.00010	0.00117	0.00439
Creek 661	661-04	Surface	Regular	VA23C4858-002	<0.000050	7.64	<0.000010	3.51	0.0667	0.7	<0.000010	<0.00010	0.00044	0.000057	<0.00050	0.0034	0.0182	<0.00010	0.00123	0.0048
Creek 661	661-04	Surface	Regular	VA23C5894-002	<0.000050	8.03	<0.000010	3.63	0.0668	1.12	<0.000010	<0.00010	0.00069	0.000061	<0.00050	0.004	0.0159	<0.00010	0.00109	0.00434
Creek 661	661-04	Surface	Regular	VA23C6383-002	<0.000050	8.21	<0.000010	3.41	0.0637	0.91	<0.000010	<0.00010	<0.00090	0.000057	<0.00050	0.0037	0.0134	<0.00010	0.00104	0.00405
Creek 661	661-04	Surface	Regular	VA23C7190-009	<0.000050	7.59	<0.000010	3.32	0.0609	1.66	<0.000010	<0.00010	0.00059	0.00005	<0.00050	0.0039	0.0194	<0.00010	0.00111	0.0039
Creek 661	661-04	Surface	Regular	VA23C9661-003	0.00006	8.15	<0.000010	3.54	0.0662	1.07	<0.000010	<0.00010	<0.00060	0.000055	<0.00050	0.0034	0.0155	<0.00010	0.00101	0.00417
Creek 661	661-04	Surface	Regular	VA24A1634-001	<0.000050	8.4	<0.000010	3.56	0.0656	0.75	<0.000010	<0.00010	0.00154	0.00007	0.00055	0.0042	0.012	<0.00010	0.00113	0.00462
Creek 661	661-04	Surface	Regular	VA24A3502-004	<0.000050	7.93	<0.000010	3.77	0.0674	1.1	<0.000010	<0.00010	0.00114	0.000068	0.00053	0.0038	0.0152	<0.00010	0.00103	0.00457
Creek 661	661-04	Surface	Regular	VA24A6018-005	0.00005	7.92	<0.000010	3.33	0.0655	1.34	<0.000010	<0.00010	0.00653	0.000113	0.00102	0.0064	0.031	<0.00010	0.0013	0.00466
Creek 661	661-05	Surface	Regular	VA23A9322-001	0.000096	7.92	<0.000010	3.44	0.0718	0.51	<0.000010	<0.00010	0.00394	0.000179	0.00204	<0.0030	0.0195	<0.00010	0.00101	0.00424
Creek 661	661-05	Surface	Regular	VA23B0766-005	0.000054	5.92	<0.000010	2.3	0.0436	<0.50	<0.000010	<0.00010	0.00445	0.00016	0.00195	<0.0030	0.103	<0.00010	0.00066	0.00376
Creek 661	661-05	Surface	Regular	VA23B4181-001	0.000079	7.26	<0.000010	3.05	0.0617	<0.50	<0.000010	<0.00010	0.00253	0.000126	0.00183	<0.0030	0.0403	<0.00010	0.00106	0.00446
Creek 661	661-05	Surface	Regular	VA23B7293-010	<0.000050	7.44	<0.000010	3.27	0.0697	<0.50	<0.000010	<0.00010	0.0016	0.000123	0.00178	<0.0030	0.0303	<0.00010	0.00116	0.00453
Creek 661	661-05	Surface	Regular	VA23B9219-005	0.000056	8.35	<0.000010	4	0.0888	<0.50	<0.000010	<0.00010	0.00172	0.00018	0.00189	<0.0030	0.027	<0.00010	0.00143	0.00493
Creek 661	661-05	Surface	Regular	VA23C1491-002	0.000072	9.03	<0.000010	3.98	0.0895	<0.50	<0.000010	<0.00010	0.0009	0.000213	0.00196	<0.0030	0.0135	<0.00010	0.00131	0.0047
Creek 661	661-05	Surface	Regular	VA23C4865-004	0.000082	8.89	<0.000010	4.01	0.0893	<0.50	<0.000010	<0.00010	0.00076	0.000192	0.00186	<0.0030	0.0103	<0.00010	0.00137	0.00467
Creek 661	661-05	Surface	Replicate	VA23C7190-006	0.000064	14	0.000025	3.65	0.0836	0.52	0.000034	<0.00010	0.0592	0.000261	0.00566	0.0095	0.0149	<0.00010	0.00112	0.00465
Creek 661	661-05	Surface	Regular	VA23C9238-004	0.000089	9.66	<0.000010	3.76	0.0864	<0.50	<0.000010	<0.00010	0.0124	0.000241	0.00241	<0.0030	0.0288	<0.00010	0.00123	0.00468
Creek 661	661-05	Surface	Regular	VA24A0950-003	0.000106	9.7	<0.000010	4.16	0.0914	<0.50	<0.000010	<0.00010	0.0041	0.0002	0.00206	<0.0030	0.0157	<0.00010	0.00119	0.00529
Creek 661	661-05	Surface	Regular	VA24A2397-002	0.000093	8.96	0.000036	3.96	0.0885	<0.50	<0.000010	<0.00010	0.00245	0.000225	0.00203	<0.0030	0.0175	<0.00010	0.00116	0.00492
Creek 661	661-05	Surface	Regular	VA24A6300-001	0.000135	12.2	0.000013	4.15	0.085	<0.50	0.000015	<0.00010	0.0348	0.000276	0.00381	0.0054	0.0353	<0.00010	0.00116	0.00497
Creek 661	661-03	Surface	Regular	VA23A8011-002	<0.000050	7.12	<0.000010	3.31	0.055	<0.50	<0.000010	<0.00010	0.00136	0.00005	<0.00050	<0.0030	0.0696	<0.00010	0.00029	0.00516
Creek 661	661-03	Surface	Regular	VA23A9531-006	0.000065	5.62	0.000013	2.35	0.0377	<0.50	<0.000010	<0.00010	0.0049	0.000086	0.00079	<0.0030	0.137	<0.00010	0.00024	0.00457
Creek 661	661-03	Surface	Regular	VA23B0222-001	0.00009	5.31	0.000012	2.38	0.0339	<0.50	<0.000010	<0.00010	0.00342	0.000073	0.00075	<0.0030	0.188	<0.00010	0.00026	0.00443
Creek 661	661-03	Surface	Replicate	VA23B0222-002	<0.000050	5.28	0.00001	2.28	0.0335	<0.50	<0.000010	<0.00010	0.00324	0.000067	0.00073	<0.0030	0.187	<0.00010	0.00029	0.00443
Creek 661	661-03	Surface	Regular	VA23B0766-004	0.000093	5.48	<0.000010	2.54	0.0398	<0.50	<0.000010	<0.00010	0.00169	0.000059	0.00062	<0.0030	0.107	<0.00010	0.00028	0.00457
Creek 661	661-03	Surface	Regular	VA23B1529-001	<0.000050	6.28	<0.000010	2.79	0.043	<0.50	<0.000010	<0.00010	0.00089	0.000048	0.0005	<0.0030	0.0872	<0.00010	0.0003	0.00427
Creek 661	661-03	Surface	Regular	VA23B2052-002	0.000061	6.54	<0.000010	2.86	0.0462	<0.50	<0.000010	<0.00010	0.00097	0.00005	0.00052	0.0035	0.0777	<0.00010	0.00031	0.00461
Creek 661	661-03	Surface	Regular	VA23B3987-002	<0.000050	7.08	<0.000010	3.17	0.0638	<0.50	<0.000010	<0.00010	0.00226	0.000074	0.00058	<0.0030	0.0514	<0.00010	0.00033	0.00567
Creek 661	661-03	Surface	Regular	VA23B7293-003	<0.000050	7.66	<0.000010	3.44	0.066	<0.50	<0.000010	<0.00010	0.00081	0.000045	<0.00050	<0.0030	0.0505	<0.00010	0.00034	0.00594
Creek 661	661-03	Surface	Regular	VA23B9359-002	<0.000050	8.09	<0.000010	3.9	0.0783	<0.50	<0.000010	<0.00010	0.00047	0.00007	<0.00050	<0.0030	0.028	<0.00010	0.00035	0.00764
Creek 661	661-03	Surface	Regular	VA23C1491-001	<0.000050	9.42	<0.000010	4.4	0.0963	<0.50	<0.000010	<0.00010	0.00097	0.000109	<0.00050	<0.0030	0.0139	<0.00010	0.00026	0.0085
Creek 661	661-03	Surface	Regular	VA23C3847-004	<0.000050	9.39	<0.000010	4.62	0.102	<0.50	<0.000010	<0.00010	0.00035	0.000111	<0.00050	<0.0030	0.0112	<0.00010	0.00024	0.00805
Creek 661	661-03	Surface	Regular	VA23C4279-004	<0.000050	9.63	<0.000010	4.38	0.0958	<0.50	<0.000010	<0.00010	0.00061	0.000118	<0.00050	<0.0030	0.0101	<0.00010	0.00025	0.00814
Creek 661	661-03	Surface	Replicate	VA23C4279-005	<0.000050	9.75	<0.000010	4.49	0.0973	<0.50	<0.000010	<0.00010	0.00072	0.000125	<0.00050	0.0048	0.0099	<0.00010	0.00024	0.00823
Creek 661	661-03	Surface	Regular	VA23C4865-003	<0.000050	9.25	<0.000010	4.49	0.0947	<0.50	<0.000010	<0.00010	<0.00030	0.000095	<0.00050	<0.0030	0.0097	<0.00010	0.00025	0.00826
Creek 661	661-03	Surface	Regular	VA23C5577-001	<0.000050	7.96	<0.000010	3.74	0.0694	<0.50	<0.000010	<0.00010	<0.00060	0.000046	<0.00050	<0.0030	0.0229	<0.00010	0.00031	0.00563
Creek 661	661-03	Surface	Regular	VA23C6622-002	<0.000050	8.41	<0.000010	3.71	0.0775	<0.50	<0.000010	<0.00010	0.00065	0.00006	<0.00050	<0.0030	0.0136	<0.00010	0.00025	0.00612
Creek 661	661-03	Surface	Regular	VA23C9238-001	<0.000050	7.49	<0.000010	3.26	0.0611	<0.50	<0.000010	<0.00010	0.00093	0.000051	<0.00050	<0.0030	0.0389	<0.00010	0.00031	0.0051
Creek 661	661-03	Surface	Regular	VA24A0932-002	0.000084	11	0.000035	4.38	0.0868	<0.50	<0.000010	<0.00010	0.0237	0.000487	0.00206	0.0066	0.0728	<0.00010	0.00029	0.00853
Creek 661	661-03	Surface	Replicate	VA24A0932-003	0.000107	11.3	0.000051	4.16	0.0953	<0.50	0.00001	<0.00010	0.0316	0.000638	0.00264	0.0076	0.0247	<0.00010	0.00027	0.00752
Creek 661	661-03	Surface	Regular	VA24A2975-003	<0.000050	7.55	<0.000010	3.51	0.0631	0.87	<0.000010	<0.00010	0.00087	0.000051	<0.00050	<0.0030	0.0561	<0.00010	0.00031	0.0057
Creek 661	661-03	Surface	Regular	VA24A5191-002	<0.000050	8.48	<0.000010	3.75	0.0831	<0.50	<0.000010	<0.00010	0.00047	0.000084	<0.00050	<0.0030	0.0189	<0.00010	0.00023	0.0065

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	0.000055	7.64	<0.000010	3.54	0.0657	0.7	<0.000010	<0.00010	0.00066	0.000139	0.00108	<0.0030	0.0239	<0.00010	0.00083	0.00434
Creek 661	661-10	Surface	Replicate	VA23A8011-005	0.000067	7.66	<0.000010	3.56	0.0677	0.58	<0.000010	<0.00010	0.00068	0.000138	0.00105	<0.0030	0.0234	<0.00010	0.00086	0.00439
Creek 661	661-10	Surface	Regular	VA23A9531-001	0.000094	6.8	0.000023	2.55	0.0487	1.02	<0.000010	<0.00010	0.0182	0.000197	0.00231	0.009	0.15	<0.00010	0.00068	0.00547
Creek 661	661-10	Surface	Regular	VA23B0222-003	0.000081	4.73	0.000027	1.77	0.025	<0.50	<0.000010	<0.00010	0.0273	0.000169	0.00174	0.0059	0.236	<0.00010	0.00057	0.00384
Creek 661	661-10	Surface	Regular	VA23B0766-003	<0.000050	4.34	0.000016	1.66	0.0257	<0.50	<0.000010	<0.00010	0.00572	0.000124	0.00117	0.0053	0.146	<0.00010	0.0006	0.00301
Creek 661	661-10	Surface	Regular	VA23B1529-002	0.000067	5.21	<0.000010	2.04	0.0308	<0.50	<0.000010	<0.00010	0.00521	0.00012	0.00116	0.0047	0.0968	<0.00010	0.00064	0.00307
Creek 661	661-10	Surface	Regular	VA23B2052-001	0.000059	5.58	<0.000010	2.21	0.0345	0.61	<0.000010	<0.00010	0.00276	0.000094	0.00112	0.0034	0.0818	<0.00010	0.00073	0.00358
Creek 661	661-10	Surface	Regular	VA23B3987-001	<0.000050	6.2	<0.000010	2.64	0.0479	<0.50	<0.000010	<0.00010	0.00346	0.000104	0.00116	0.0043	0.0511	<0.00010	0.00086	0.00392
Creek 661	661-10	Surface	Regular	VA23B7293-001	0.000056	6.91	<0.000010	3.28	0.0592	1.43	<0.000010	<0.00010	<0.00360	0.000097	0.00108	0.0043	0.0375	<0.00010	0.00109	0.00473
Creek 661	661-10	Surface	Regular	VA23B9359-001	0.000059	6.48	<0.000010	3.45	0.0659	0.58	<0.000010	<0.00010	0.00113	0.000107	0.00122	<0.0030	0.0337	<0.00010	0.00125	0.00531
Creek 661	661-10	Surface	Regular	VA23C0875-001	<0.000050	7.27	<0.000010	3.59	0.0704	<0.50	<0.000010	<0.00010	0.00106	0.000097	0.00102	<0.0030	0.0319	<0.00010	0.00114	0.0048
Creek 661	661-10	Surface	Regular	VA23C3847-003	<0.000050	7.5	<0.000010	3.58	0.0725	<0.50	<0.000010	<0.00010	0.00092	0.0001	0.00091	<0.0030	0.0276	<0.00010	0.00107	0.00477
Creek 661	661-10	Surface	Regular	VA23C4279-003	0.000061	7.77	<0.000010	3.5	0.0679	0.6	<0.000010	<0.00010	0.00095	0.000108	0.00092	<0.0030	0.0298	<0.00010	0.00116	0.00488
Creek 661	661-10	Surface	Regular	VA23C4865-005	0.000062	7.47	<0.000010	3.68	0.0687	0.66	<0.000010	<0.00010	0.00099	0.000092	0.00084	<0.0030	0.0285	<0.00010	0.00109	0.00493
Creek 661	661-10	Surface	Regular	VA23C5577-002	<0.000050	7.55	<0.000010	3.57	0.0665	0.77	<0.000010	<0.00010	0.0009	0.000086	0.00067	<0.0030	0.0267	<0.00010	0.0009	0.00452
Creek 661	661-10	Surface	Replicate	VA23C5577-003	0.000051	7.36	<0.000010	3.57	0.0658	0.82	<0.000010	<0.00010	0.00078	0.000082	0.00067	<0.0030	0.0264	<0.00010	0.00084	0.00457
Creek 661	661-10	Surface	Regular	VA23C6622-001	<0.000050	8.12	<0.000010	3.48	0.0683	0.76	<0.000010	<0.00010	0.001	0.000091	0.00067	<0.0030	0.0203	<0.00010	0.00076	0.00485
Creek 661	661-10	Surface	Regular	VA23C9238-002	<0.000050	7.93	<0.000010	3.34	0.066	0.84	<0.000010	<0.00010	0.00202	0.00008	0.00069	<0.0030	0.0278	<0.00010	0.00073	0.00503
Creek 661	661-10	Surface	Regular	VA24A0932-001	<0.000050	8.95	<0.000010	3.74	0.076	0.75	<0.000010	<0.00010	<0.00240	0.000079	0.00069	0.0031	0.0224	<0.00010	0.0007	0.00538
Creek 661	661-10	Surface	Regular	VA24A2975-001	<0.000050	8.08	<0.000010	3.56	0.0677	1.05	<0.000010	<0.00010	0.00135	0.000098	0.00074	<0.0030	0.0166	<0.00010	0.00081	0.00474
Creek 661	661-10	Surface	Regular	VA24A5191-001	<0.000050	8.34	<0.000010	3.54	0.0716	0.55	<0.000010	<0.00010	0.00106	0.000095	0.00072	<0.0030	0.0188	<0.00010	0.00077	0.00507
Creek 661	661-20	Surface	Regular	VA23A8011-004	0.000065	7.56	<0.000010	4.52	0.0853	0.8	<0.000010	<0.00010	0.00579	0.000316	0.00102	<0.0030	0.0884	<0.00010	0.00079	0.00657
Creek 661	661-20	Surface	Regular	VA23A9531-002	0.000096	7.07	0.000017	2.93	0.0602	0.87	<0.000010	<0.00010	0.021	0.000297	0.00296	0.0045	0.127	<0.00010	0.00081	0.00612
Creek 661	661-20	Surface	Regular	VA23B3987-003	0.000101	6.75	<0.000010	4.03	0.0936	<0.50	<0.000010	<0.00010	0.011	0.000327	0.0016	<0.0030	0.0194	<0.00010	0.00104	0.0068
Creek 661	661-20	Surface	Regular	VA23B7293-004	0.000064	7.14	<0.000010	4.32	0.0926	<0.50	<0.000010	<0.00010	0.00353	0.00024	0.00115	<0.0030	0.0609	<0.00010	0.00116	0.00725
Creek 661	661-20	Surface	Regular	VA23C0762-004	0.000068	7.28	<0.000010	4.73	0.11	<0.50	<0.000010	<0.00010	0.00092	0.000352	0.00089	<0.0030	0.0147	<0.00010	0.00112	0.00793
Creek 661	661-20	Surface	Regular	VA23C6622-005	0.000067	8.01	<0.000010	4.84	0.102	0.98	<0.000010	<0.00010	0.00095	0.00041	0.00066	<0.0030	0.0058	<0.00010	0.00087	0.00688
Creek 661	661-20	Surface	Replicate	VA23C6622-006	0.00006	7.97	<0.000010	4.78	0.102	0.94	<0.000010	<0.00010	0.00084	0.000412	0.00068	<0.0030	0.006	<0.00010	0.00087	0.00704
Creek 661	661-20	Surface	Regular	VA24A2975-002	0.000079	8.22	<0.000010	4.94	0.098	1.03	<0.000010	<0.00010	0.0007	0.000395	0.00077	<0.0030	0.0112	<0.00010	0.00095	0.00686
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	0.000062	6.63	<0.000010	4.3	0.104	1.18	<0.000010	<0.00010	0.00283	0.000126	<0.00050	<0.0030	0.0278	<0.00010	0.00054	0.00783
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	0.000076	5.5	<0.000010	2.44	0.057	1.08	<0.000010	<0.00010	0.0191	0.000078	0.00152	<0.0030	0.18	<0.00010	0.00045	0.00612
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	0.00008	5.66	<0.000010	2.43	0.0551	1.1	<0.000010	<0.00010	0.0203	0.000073	0.0015	<0.0030	0.202	<0.00010	0.00044	0.00618
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	0.000098	4.25	<0.000010	2.52	0.0559	<0.50	<0.000010	<0.00010	0.00529	0.000042	0.00085	<0.0030	0.041	<0.00010	0.0004	0.00512
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	0.000077	5.17	<0.000010	3.15	0.0834	0.82	<0.000010	<0.00010	0.00443	0.000059	0.0009	<0.0030	0.0127	<0.00010	0.00055	0.00647
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	0.000057	5.65	<0.000010	3.29	0.0894	0.72	<0.000010	<0.00010	0.00225	0.000066	0.00068	<0.0030	0.0117	<0.00010	0.00055	0.00592
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	0.000068	5.97	<0.000010	3.43	0.0964	1.16	<0.000010	<0.00010	0.00202	0.000086	0.00086	<0.0030	0.0099	<0.00010	0.00065	0.00624
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	<0.000050	6.38	<0.000010	4.14	0.118	2.62	<0.000010	<0.00010	0.00123	0.000167	0.00063	<0.0030	0.0094	<0.00010	0.00068	0.00703
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	0.000065	6.69	<0.000010	4.63	0.115	1.52	<0.000010	<0.00010	0.00114	0.000153	0.00052	<0.0030	0.0078	<0.00010	0.00081	0.0069
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	0.000066	7.14	<0.000010	4.86	0.134	1.24	<0.000010	<0.00010	0.00098	0.000209	0.00056	<0.0030	0.0049	<0.00010	0.00082	0.00738
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	0.000064	7.56	<0.000010	5.52	0.137	1.38	<0.000010	<0.00010	0.00044	0.000261	0.0006	<0.0030	0.0037	<0.00010	0.00078	0.00769
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	<0.000050	7.66	<0.000010	5.85	0.147	1.86	<0.000010	<0.00010	0.00036	0.000292	<0.00050	<0.0030	0.0022	<0.00010	0.00069	0.00671
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	0.000052	7.72	<0.000010	5.63	0.133	1.96	<0.000010	<0.00010	0.00038	0.000279	<0.00050	<0.0030	0.0032	<0.00010	0.00071	0.00688
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	0.000058	7.89	<0.000010	5.79	0.134	2.06	<0.000010	<0.00010	0.0004	0.000259	<0.00050	<0.0030	0.0041	<0.00010	0.00073	0.0069
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	0.000058	7.77	<0.000010	5.7	0.136	2.02	<0.000010	<0.00010	<0.00030	0.000268	<0.00050	<0.0030	0.003	<0.00010	0.00065	0.00621
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	0.000061	8.08	<0.000010	5.75	0.135	2.65	<0.000010	<0.00010	0.00056	0.000353	<0.00050	<0.0030	0.0035	<0.00010	0.00056	0.00648
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	0.000062	8.32	<0.000010	5.6	0.13	2.61	<0.000010	<0.00010	0.00041	0.000326	<0.00050	<0.0030	0.0028	<0.00010	0.00059	0.00642
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	0.000069	9.19	<0.000010	6.52	0.146	1.57	<0.000010	<0.00010	0.00054	0.000344	<0.00050	<0.0030	0.006	<0.00010	0.0007	0.00797
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	0.000084	7.53	<0.000010	6.08	0.138	1.98	<0.000010	<0.00010	0.00106	0.000285	<0.00050	0.0075	0.0034	<0.00010	0.0007	0.00766
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	0.000072	5.17	<0.000010	5.2	0.14	1.34	<0.000010	<0.00010	0.00083	0.000184	<0.00050	<0.0030	0.0018	<0.00010	0.00063	0.00882
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	0.000054	6.48	0.000012	2.6	0.0602	1.15	<0.000010	<0.00010	0.0299	0.00017	0.00245	0.0034	0.175	<0.00010	0.00054	0.00581
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	0.00009	4.99	0.000014	2.31	0.0447	<0.50	<0.000010	<0.00010	0.016	0.000153	0.00179	<0.0030	0.122	<0.00010	0.00053	0.0046

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	0.000074	5.07	<0.000010	2.67	0.0591	0.74	<0.000010	<0.00010	0.00708	0.000114	0.00123	<0.0030	0.0497	<0.00010	0.00055	0.00518
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	0.000053	5.96	<0.000010	3.17	0.0773	0.85	<0.000010	<0.00010	0.00374	0.000095	0.00092	<0.0030	0.0179	<0.00010	0.00061	0.00562
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	0.000064	6.19	<0.000010	3.35	0.0846	1.07	<0.000010	<0.00010	0.0028	0.000118	0.00099	<0.0030	0.0169	<0.00010	0.00068	0.00612
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	0.000074	7.02	<0.000010	4.7	0.118	0.79	<0.000010	<0.00010	0.0015	0.000279	0.00077	<0.0030	0.0091	<0.00010	0.0009	0.00725
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	0.000076	7.17	<0.000010	4.73	0.122	0.89	<0.000010	<0.00010	0.00275	0.00027	0.00077	<0.0030	0.0088	<0.00010	0.00092	0.0073
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	0.000054	7.58	<0.000010	5.45	0.129	1.21	<0.000010	<0.00010	0.00042	0.000328	0.00058	<0.0030	0.0045	<0.00010	0.0008	0.007
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	<0.000050	7.63	<0.000010	5.17	0.117	1.23	<0.000010	<0.00010	0.00036	0.000308	0.00055	<0.0030	0.0042	<0.00010	0.00082	0.00714
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	0.000059	7.55	<0.000010	5.46	0.112	1.26	<0.000010	<0.00010	0.00047	0.000306	0.00051	<0.0030	0.0048	<0.00010	0.00082	0.00688
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	<0.000050	7.38	<0.000010	5.19	0.115	1.26	<0.000010	<0.00010	0.00044	0.000299	<0.00050	<0.0030	0.0047	<0.00010	0.00075	0.0061
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	<0.000050	7.99	<0.000010	5.08	0.117	1.62	<0.000010	<0.00010	0.00105	0.000386	0.00051	<0.0030	0.0041	<0.00010	0.0007	0.00676
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	0.000062	7.85	<0.000010	5.51	0.121	1.51	<0.000010	<0.00010	0.00086	0.000353	0.00058	<0.0030	0.007	<0.00010	0.00078	0.0073
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	0.000054	5.04	<0.000010	3.38	0.0954	1.42	<0.000010	<0.00010	0.0162	0.00017	0.00127	<0.0030	0.013	<0.00010	0.00048	0.00522
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	0.000081	2.76	<0.000010	3.53	0.102	1.45	<0.000010	0.00012	<0.00030	0.000098	<0.00050	<0.0030	0.0022	<0.00010	0.0004	0.00562
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	0.000068	3.45	<0.000010	3.41	0.0982	1.16	<0.000010	<0.00010	<0.00030	0.00011	<0.00050	<0.0030	<0.0010	<0.00010	0.00052	0.00519
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	0.000068	5.04	<0.000010	3.64	0.116	1.22	<0.000010	<0.00010	<0.00030	0.000112	<0.00050	<0.0030	<0.0010	<0.00010	0.00059	0.00593
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	0.000067	5.56	<0.000010	3.04	0.0957	1.24	<0.000010	<0.00010	<0.0114	0.000174	0.00116	<0.0030	0.0096	<0.00010	0.00056	0.00795
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	0.000142	6.66	0.000017	2.43	0.0706	1.42	<0.000010	<0.00010	0.0449	0.000256	0.00372	0.0041	0.0517	<0.00010	0.0007	0.00993
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	0.000074	4.9	<0.000010	2.55	0.0711	1.06	<0.000010	<0.00010	0.0108	0.000134	0.00102	<0.0030	0.0572	<0.00010	0.00052	0.00678
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	0.000088	4.85	<0.000010	2.56	0.0713	1.07	<0.000010	<0.00010	0.0156	0.000136	0.00111	<0.0030	0.0575	<0.00010	0.00053	0.00665
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	0.00008	4.91	<0.000010	2.93	0.077	0.95	<0.000010	<0.00010	0.00771	0.000125	0.00083	<0.0030	0.0434	<0.00010	0.00055	0.00613
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	0.000053	4.7	<0.000010	2.88	0.0801	0.98	<0.000010	<0.00010	0.00372	0.000114	0.00068	<0.0030	0.016	<0.00010	0.00052	0.00594
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	0.000066	5.33	<0.000010	3.34	0.0898	1.26	<0.000010	<0.00010	0.00227	0.000107	0.00057	<0.0030	0.0086	<0.00010	0.00061	0.00626
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	0.000064	4.96	<0.000010	3.29	0.0901	1.26	<0.000010	<0.00010	0.00534	0.000113	0.00078	<0.0030	0.0079	<0.00010	0.00052	0.00639
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	0.000081	4.45	<0.000010	3.22	0.0936	1.65	<0.000010	<0.00010	0.00176	0.000109	0.00063	<0.0030	0.0103	<0.00010	0.00067	0.00786
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	0.00007	4.26	<0.000010	3.52	0.0996	1.37	<0.000010	<0.00010	0.00291	0.000103	0.00064	<0.0030	0.0057	<0.00010	0.00064	0.00814
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	0.000078	4.17	<0.000010	3.38	0.103	0.97	<0.000010	<0.00010	0.00244	0.000125	0.00057	<0.0030	0.0064	<0.00010	0.00065	0.00815
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	0.000057	4.48	<0.000010	3.86	0.101	1.27	<0.000010	<0.00010	0.00257	0.00011	0.00051	<0.0030	0.0053	<0.00010	0.00061	0.00805
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	0.000058	4.56	<0.000010	3.79	0.106	1.39	<0.000010	<0.00010	0.00064	0.000119	0.00052	<0.0030	0.0041	<0.00010	0.00063	0.00848
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	0.00005	4.54	<0.000010	3.96	0.106	1.18	<0.000010	<0.00010	0.00082	0.000115	<0.00050	<0.0030	0.0046	<0.00010	0.00061	0.00885
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	0.000069	4.41	<0.000010	3.49	0.1	1.14	<0.000010	<0.00010	0.00276	0.000134	0.00065	<0.0030	0.0045	<0.00010	0.00058	0.00828
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	0.000067	4.82	<0.000010	3.51	0.105	1.28	<0.000010	<0.00010	0.00378	0.000149	0.00058	<0.0030	0.0034	<0.00010	0.00052	0.00763
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	0.000075	5.45	<0.000010	3.66	0.0998	1.61	<0.000010	<0.00010	0.00141	0.000129	<0.00050	<0.0030	0.0067	<0.00010	0.00052	0.00696
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	0.000071	5.97	<0.000010	3.99	0.11	1.44	<0.000010	<0.00010	0.00097	0.000138	<0.00050	<0.0030	0.0021	<0.00010	0.00054	0.00755
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	0.000076	5.31	<0.000010	3.85	0.111	1.42	<0.000010	<0.00010	0.00037	0.000138	<0.00050	<0.0030	0.0021	<0.00010	0.00057	0.00764
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	0.000071	5.35	<0.000010	3.8	0.11	1.31	<0.000010	<0.00010	0.00047	0.000139	<0.00050	<0.0030	0.0028	<0.00010	0.00056	0.00752
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	0.000056	5.31	<0.000010	3.48	0.101	1	<0.000010	<0.00010	0.00323	0.000146	0.00055	<0.0030	0.004	<0.00010	0.00045	0.00749
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	0.000053	5.3	<0.000010	3.23	0.0928	1.46	<0.000010	<0.00010	0.00476	0.000148	0.00081	<0.0030	0.008	<0.00010	0.00058	0.00786
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	0.000123	5.83	0.000015	2.3	0.0663	1.32	<0.000010	<0.00010	0.025	0.000177	0.00226	<0.0030	0.051	<0.00010	0.00061	0.00995
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	0.000081	5.06	<0.000010	2.7	0.0719	1.11	<0.000010	<0.00010	0.00993	0.000133	0.00104	<0.0030	0.0532	<0.00010	0.00049	0.00683
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	0.00006	4.9	<0.000010	2.8	0.0757	1	<0.000010	<0.00010	0.00692	0.000129	0.00084	<0.0030	0.0422	<0.00010	0.00054	0.00608
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	<0.000050	4.69	<0.000010	2.81	0.0773	1.14	<0.000010	<0.00010	0.00235	0.000107	0.00062	<0.0030	0.0181	<0.00010	0.00059	0.00611
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	0.00009	5.13	<0.000010	3.23	0.0889	1.33	<0.000010	<0.00010	0.00206	0.000108	0.00063	<0.0030	0.0098	<0.00010	0.00056	0.0061
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	0.00007	5.44	<0.000010	3.27	0.0891	1.32	<0.000010	<0.00010	0.00194	0.000107	0.00062	<0.0030	0.0081	<0.00010	0.00059	0.00623
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	0.000079	4.22	<0.000010	3.14	0.0896	1.08	<0.000010	<0.00010	0.00078	0.000111	0.00065	<0.0030	0.0094	<0.00010	0.00067	0.00703
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	0.000069	4.63	<0.000010	3.31	0.0958	1.66	<0.000010	<0.00010	0.00178	0.000111	0.00064	<0.0030	0.009	<0.00010	0.00068	0.00728
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	0.000065	4.25	<0.000010	3.43	0.101	1.31	<0.000010	<0.00010	0.00142	0.000101	0.00059	<0.0030	0.0062	<0.00010	0.0006	0.0079
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	0.000059	4.12	<0.000010	3.41	0.103	0.88	<0.000010	<0.00010	0.00162	0.000118	0.00056	<0.0030	0.0045	<0.00010	0.0006	0.00814
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	<0.000050	4.67	<0.000010	4.01	0.104	1.38	<0.000010	<0.00010	0.00036	0.000113	<0.00050	<0.0030	0.004	<0.00010	0.0006	0.00788
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	0.000061	4.6	<0.000010	3.9	0.104	1.2	<0.000010	<0.00010	0.00039	0.00011	<0.00050	<0.0030	0.0042	<0.00010	0.00061	0.00775
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	0.00007	4.59	<0.000010	3.78	0.107	1.2	<0.000010	<0.00010	0.00057	0.000124	<0.00050	<0.0030	0.0042	<0.00010	0.0006	0.00812
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	0.000054	4.82	<0.000010	3.99	0.11	1.22	<0.000010	<0.00010	0.00051	0.000122	<0.00050	<0.0030	0.0041	<0.00010	0.0006	0.00832

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	<0.000050	4.6	<0.000010	3.56	0.103	1.17	<0.000010	<0.00010	0.00196	0.000132	0.00055	<0.0030	0.0043	<0.00010	0.00053	0.00757
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	0.000073	4.86	<0.000010	3.56	0.107	1.18	<0.000010	<0.00010	0.00061	0.000145	<0.00050	<0.0030	0.0031	<0.00010	0.00048	0.00733
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	0.000053	5.37	<0.000010	3.45	0.102	1.22	<0.000010	<0.00010	0.00122	0.000128	<0.00050	<0.0030	0.0066	<0.00010	0.00051	0.0071
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	0.00006	5.35	<0.000010	3.79	0.111	0.95	<0.000010	<0.00010	0.00057	0.000117	<0.00050	<0.0030	0.002	<0.00010	0.00053	0.00718
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	0.000076	5.57	<0.000010	3.82	0.109	1.11	<0.000010	<0.00010	0.00065	0.000123	<0.00050	<0.0030	0.0023	<0.00010	0.0005	0.00739
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	0.000059	5.5	<0.000010	3.95	0.108	1.64	<0.000010	<0.00010	0.00259	0.000143	<0.00050	<0.0030	0.0041	<0.00010	0.00056	0.00737
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	<0.000050	5.12	<0.000010	3.41	0.0999	0.96	<0.000010	<0.00010	0.00222	0.000142	<0.00050	<0.0030	0.0048	<0.00010	0.00048	0.00686
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	0.000067	5.04	<0.000010	2.62	0.0684	1.08	<0.000010	<0.00010	0.0108	0.000106	0.00115	<0.0030	0.0287	<0.00010	0.00046	0.00714
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	0.000058	4.15	<0.000010	4.21	0.111	1.18	<0.000010	<0.00010	0.00066	0.00014	0.00064	<0.0030	0.0035	<0.00010	0.00072	0.00857
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	<0.000050	4.13	<0.000010	4.33	0.107	1.16	<0.000010	<0.00010	<0.00180	0.000134	0.00066	<0.0030	0.0036	<0.00010	0.00077	0.00834
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	0.000077	5.43	<0.000010	4.48	0.117	1.2	<0.000010	<0.00010	0.00074	0.000204	<0.00050	<0.0030	0.0097	<0.00010	0.00046	0.00874
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	0.000069	5.88	<0.000010	4.77	0.119	1.56	<0.000010	<0.00010	0.00086	0.000206	<0.00050	<0.0030	0.0077	<0.00010	0.00048	0.00928
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	0.000085	5.55	<0.000010	3.76	0.0972	1.2	<0.000010	<0.00010	0.00755	0.000175	0.00099	<0.0030	0.0083	<0.00010	0.00052	0.00789
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	0.000121	6.02	0.00001	2.69	0.0721	1.2	<0.000010	<0.00010	0.0258	0.000143	0.00257	<0.0030	0.039	<0.00010	0.00065	0.0087
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	0.000054	5.29	<0.000010	2.64	0.0668	1.1	<0.000010	<0.00010	0.013	0.000108	0.0013	<0.0030	0.0394	<0.00010	0.00047	0.00715
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	0.000054	5.19	<0.000010	2.74	0.0721	0.8	<0.000010	<0.00010	0.0108	0.000113	0.0012	<0.0030	0.0249	<0.00010	0.00049	0.00696
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	0.000094	5.18	<0.000010	2.83	0.0729	0.95	<0.000010	<0.00010	0.0111	0.000103	0.0012	<0.0030	0.0225	<0.00010	0.00048	0.00698
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	<0.000050	5.01	<0.000010	3.07	0.0803	1.05	<0.000010	<0.00010	0.00578	0.000121	0.00085	<0.0030	0.0114	<0.00010	0.00051	0.0071
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	0.000072	5.7	<0.000010	3.43	0.0907	1.24	<0.000010	<0.00010	0.0175	0.000169	0.00155	<0.0030	0.0101	<0.00010	0.00058	0.00748
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	0.000062	5.06	<0.000010	3.82	0.0902	1.34	<0.000010	<0.00010	0.00195	0.000144	0.00072	<0.0030	0.006	<0.00010	0.00063	0.00767
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	0.000059	5	<0.000010	4.22	0.104	2.08	<0.000010	<0.00010	<0.00120	0.000124	0.00067	<0.0030	0.006	<0.00010	0.00084	0.00787
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	<0.000050	4.21	<0.000010	4.58	0.116	1.3	<0.000010	<0.00010	0.0006	0.00016	0.00062	<0.0030	0.0031	<0.00010	0.00092	0.00868
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	0.000053	4.4	<0.000010	4.71	0.123	1.08	<0.000010	<0.00010	0.00043	0.000218	0.00051	<0.0030	0.0021	<0.00010	0.00081	0.00876
Chedakuz Creek	CC-40	Surface	Regular	VA23C3871-001	0.000059	5.05	<0.000010	5.41	0.118	1.63	<0.000010	<0.00010	0.0005	0.000196	0.0005	<0.0030	0.0033	<0.00010	0.00082	0.00902
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	0.000067	5.06	<0.000010	5.29	0.128	1.49	<0.000010	<0.00010	0.00069	0.000226	0.00058	<0.0030	0.0025	<0.00010	0.00082	0.00922
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	0.000051	5.05	<0.000010	5.3	0.128	1.35	<0.000010	<0.00010	0.00058	0.000195	<0.00050	<0.0030	0.0024	<0.00010	0.00075	0.00944
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	0.000056	5.4	<0.000010	4.85	0.113	1.26	<0.000010	<0.00010	0.00208	0.000219	0.00055	<0.0030	0.0034	<0.00010	0.00067	0.00785
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	<0.000050	5.38	<0.000010	4.8	0.117	1.33	<0.000010	<0.00010	0.00354	0.000228	0.00062	<0.0030	0.0038	<0.00010	0.00067	0.00805
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	0.000078	5.74	<0.000010	5.16	0.122	1.6	<0.000010	<0.00010	0.00147	0.000243	<0.00050	<0.0030	0.003	<0.00010	0.00063	0.00873
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	0.000072	5.79	<0.000010	4.82	0.12	1.42	<0.000010	<0.00010	0.00075	0.00022	<0.00050	<0.0030	0.0027	<0.00010	0.00058	0.00886
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	<0.000050	6.36	<0.000010	5.27	0.133	1.42	<0.000010	<0.00010	0.00082	0.000207	<0.00050	<0.0030	0.0022	<0.00010	0.00048	0.0103
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	0.000061	6.03	<0.000010	5.06	0.122	1.83	<0.000010	<0.00010	0.00142	0.000231	<0.00050	<0.0030	0.0041	<0.00010	0.00054	0.00934
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	0.000063	5.63	<0.000010	4.33	0.112	1.14	<0.000010	<0.00010	0.00136	0.000212	<0.00050	<0.0030	0.0043	<0.00010	0.00042	0.0087
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	0.000053	4.79	<0.000010	3.81	0.103	1.35	<0.000010	<0.00010	0.0037	0.000188	0.00086	<0.0030	0.0102	<0.00010	0.0006	0.00865
Creek 705	705-05	Surface	Regular	VA23A8158-003	<0.000050	4.52	<0.000010	2.41	0.0556	0.62	<0.000010	<0.00010	<0.00480	0.000161	0.0005	<0.0030	0.0677	<0.00010	0.0002	0.00924
Creek 705	705-05	Surface	Regular	VA23B0364-002	0.000058	3.5	<0.000010	1.26	0.034	<0.50	<0.000010	<0.00010	0.00368	0.000254	<0.00050	<0.0030	0.147	<0.00010	0.0002	0.00543
Creek 705	705-05	Surface	Regular	VA23B3687-004	0.000053	3.65	<0.000010	1.72	0.0407	<0.50	<0.000010	<0.00010	0.0012	0.000173	<0.00050	<0.0030	0.0484	<0.00010	0.00025	0.00539
Creek 705	705-05	Surface	Regular	VA23B7523-003	<0.000050	4	<0.000010	1.73	0.0502	<0.50	<0.000010	<0.00010	0.00236	0.000232	0.00057	<0.0030	0.109	<0.00010	0.00028	0.00639
Creek 705	705-05	Surface	Regular	VA23B8906-003	<0.000050	3.71	<0.000010	1.84	0.055	<0.50	<0.000010	<0.00010	0.00114	0.000175	<0.00050	<0.0030	0.0468	<0.00010	0.0003	0.00808
Creek 705	705-05	Surface	Replicate	VA23B8906-004	<0.000050	3.65	<0.000010	1.84	0.0548	<0.50	<0.000010	<0.00010	0.00127	0.000185	<0.00050	<0.0030	0.0465	<0.00010	0.00032	0.00771
Creek 705	705-05	Surface	Regular	VA23C1674-001	<0.000050	3.47	<0.000010	2.1	0.0618	<0.50	<0.000010	<0.00010	0.00134	0.000119	0.00059	<0.0030	0.0352	<0.00010	0.0003	0.00873
Creek 705	705-05	Surface	Regular	VA23C4014-006	<0.000050	3.01	<0.000010	1.9	0.0542	<0.50	<0.000010	<0.00010	0.00067	0.000099	<0.00050	<0.0030	0.0254	<0.00010	0.00027	0.00746
Creek 705	705-05	Surface	Regular	VA23C7190-010	<0.000050	3.68	<0.000010	1.97	0.0541	0.54	<0.000010	<0.00010	0.00149	0.000129	<0.00050	<0.0030	0.0498	<0.00010	0.00023	0.00594
Creek 705	705-05	Surface	Replicate	VA23C7190-011	<0.000050	3.64	<0.000010	1.98	0.0542	0.56	<0.000010	<0.00010	0.00151	0.000132	<0.00050	<0.0030	0.0518	<0.00010	0.00025	0.00594
Creek 705	705-05	Surface	Regular	VA23C9661-004	<0.000050	3.34	<0.000010	2.14	0.057	<0.50	<0.000010	<0.00010	0.00096	0.00013	<0.00050	<0.0030	0.0281	<0.00010	0.00023	0.00622
Creek 705	705-05	Surface	Regular	VA24A1833-002	<0.000050	3.01	<0.000010	2.03	0.0558	<0.50	<0.000010	<0.00010	0.00105	0.000146	<0.00050	<0.0030	0.032	<0.00010	0.00023	0.00666
Creek 705	705-05	Surface	Regular	VA24A3502-001	<0.000050	3.56	<0.000010	2.28	0.0663	0.52	<0.000010	<0.00010	0.00176	0.000153	<0.00050	<0.0030	0.0533	<0.00010	0.00024	0.00756
Creek 705	705-05	Surface	Regular	VA24A6018-001	<0.000050	4.9	<0.000010	1.87	0.0513	<0.50	<0.000010	<0.00010	0.00946	0.000205	0.00092	<0.0030	0.259	<0.00010	0.00026	0.00874
Creek 705	705-10	Surface	Regular	VA23A8158-001	<0.000050	4.4	<0.000010	2.46	0.057	0.58	<0.000010	<0.00010	0.00316	0.00016	<0.00050	<0.0030	0.0712	<0.00010	0.00017	0.0093
Creek 705	705-10	Surface	Replicate	VA23A8158-002	<0.000050	4.52	<0.000010	2.45	0.0574	0.65	<0.000010	<0.00010	0.00298	0.000162	<0.00050	<0.0030	0.0691	<0.00010	0.00018	0.00905
Creek 705	705-10	Surface	Regular	VA23A9638-001	0.000056	4.63	0.000015	1.4	0.0381	0.57	<0.000010	<0.00010	0.0138	0.000214	0.00108	<0.0030	0.318	<0.00010	0.00021	0.0102

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Total Metals (cont'd)												Dissolved Metals			
					Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total	Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	<0.000050	4	<0.000010	1.35	0.0373	<0.50	<0.000010	<0.00010	0.00652	0.000276	0.00062	<0.0030	0.2	<0.00010	0.00018	0.0071
Creek 705	705-10	Surface	Regular	VA23B0766-009	<0.000050	3.7	<0.000010	1.29	0.033	<0.50	<0.000010	<0.00010	0.00602	0.000271	0.00063	<0.0030	0.147	<0.00010	0.00015	0.00582
Creek 705	705-10	Surface	Regular	VA23B1379-005	<0.000050	4.12	<0.000010	1.58	0.0399	<0.50	<0.000010	<0.00010	0.00255	0.000257	<0.00050	<0.0030	0.104	<0.00010	0.0002	0.00614
Creek 705	705-10	Surface	Regular	VA23B2224-004	<0.000050	4.1	<0.000010	1.78	0.0472	<0.50	<0.000010	<0.00010	0.00178	0.000225	<0.00050	<0.0030	0.0726	<0.00010	0.00017	0.00713
Creek 705	705-10	Surface	Regular	VA23B3687-005	<0.000050	4.35	<0.000010	1.94	0.0527	<0.50	<0.000010	<0.00010	0.00072	0.000142	<0.00050	<0.0030	0.0408	<0.00010	0.00018	0.00853
Creek 705	705-10	Surface	Regular	VA23B7523-002	<0.000050	4.35	<0.000010	1.92	0.0512	<0.50	<0.000010	<0.00010	0.00252	0.000236	0.00053	<0.0030	0.0857	<0.00010	0.00027	0.00761
Creek 705	705-10	Surface	Regular	VA23B8906-002	<0.000050	4.13	<0.000010	2.01	0.0545	<0.50	<0.000010	<0.00010	0.00083	0.000155	<0.00050	<0.0030	0.0422	<0.00010	0.00025	0.0087
Creek 705	705-10	Surface	Regular	VA23C1674-002	<0.000050	3.93	<0.000010	2.39	0.0597	<0.50	<0.000010	<0.00010	0.00036	0.000102	<0.00050	<0.0030	0.0234	<0.00010	0.00019	0.00891
Creek 705	705-10	Surface	Regular	VA23C4014-007	<0.000050	3.59	<0.000010	2.14	0.0581	<0.50	<0.000010	<0.00010	0.00037	0.000089	<0.00050	<0.0030	0.0176	<0.00010	0.00016	0.00847
Creek 705	705-10	Surface	Regular	VA23C4586-005	0.000055	3.5	<0.000010	2.36	0.0599	<0.50	<0.000010	<0.00010	<0.00030	0.000086	<0.00050	<0.0030	0.0163	<0.00010	0.00018	0.00849
Creek 705	705-10	Surface	Regular	VA23C4858-004	<0.000050	3.5	<0.000010	2.41	0.0606	<0.50	<0.000010	<0.00010	0.00031	0.000084	<0.00050	<0.0030	0.0185	<0.00010	0.00015	0.00869
Creek 705	705-10	Surface	Regular	VA23C5894-004	<0.000050	4.15	<0.000010	2.59	0.0648	<0.50	<0.000010	<0.00010	0.00035	0.000086	<0.00050	<0.0030	0.0171	<0.00010	0.00016	0.0091
Creek 705	705-10	Surface	Regular	VA23C6383-004	<0.000050	4.09	<0.000010	2.56	0.0656	0.51	<0.000010	<0.00010	0.00036	0.000092	<0.00050	<0.0030	0.0167	<0.00010	0.00015	0.009
Creek 705	705-10	Surface	Replicate	VA23C6383-006	<0.000050	5.57	<0.000010	2.28	0.0535	0.86	<0.000010	<0.00010	<0.00030	0.00006	<0.00050	<0.0030	0.0066	<0.00010	0.00074	0.00408
Creek 705	705-10	Surface	Regular	VA23C6880-001	<0.000050	3.92	<0.000010	2.26	0.0591	<0.50	<0.000010	<0.00010	0.00182	0.00013	<0.00050	<0.0030	0.0467	<0.00010	0.00018	0.00853
Creek 705	705-10	Surface	Regular	VA23C9661-005	<0.000050	3.85	<0.000010	2.48	0.0589	<0.50	<0.000010	<0.00010	0.00054	0.000105	<0.00050	<0.0030	0.0232	<0.00010	0.00016	0.00851
Creek 705	705-10	Surface	Regular	VA24A1833-001	0.000061	3.45	<0.000010	2.27	0.0577	<0.50	<0.000010	<0.00010	0.00099	0.000128	<0.00050	<0.0030	0.0289	<0.00010	0.0002	0.00861
Creek 705	705-10	Surface	Regular	VA24A3529-004	<0.000050	4.39	<0.000010	2.48	0.0678	0.73	<0.000010	<0.00010	0.00197	0.000156	<0.00050	<0.0030	0.0568	<0.00010	0.00018	0.00953
Creek 705	705-10	Surface	Regular	VA24A6018-002	<0.000050	5.15	<0.000010	2.21	0.0643	<0.50	<0.000010	<0.00010	0.011	0.00021	0.00108	<0.0030	0.248	<0.00010	0.00023	0.0109
Creek 705	705-10	Surface	Replicate	VA24A6018-003	<0.000050	5.25	<0.000010	2.24	0.0661	<0.50	<0.000010	<0.00010	0.0116	0.000199	0.00109	<0.0030	0.256	<0.00010	0.00024	0.0109
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	<0.000050	5.34	<0.000010	2.92	0.0596	1.04	<0.000010	<0.00010	0.00031	0.000127	0.00058	<0.0030	0.0064	<0.00010	0.00096	0.00457
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	0.000061	5.79	<0.000010	1.95	0.0518	0.77	<0.000010	<0.00010	0.0212	0.000074	0.00162	<0.0030	0.0617	<0.00010	0.00097	0.00449
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	<0.000050	3.68	0.000012	0.999	0.0237	<0.50	<0.000010	<0.00010	0.00461	0.000048	0.0006	<0.0030	0.132	<0.00010	0.00041	0.00227
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	<0.000050	4.14	0.000015	0.888	0.0223	<0.50	0.000012	<0.00010	0.037	0.000067	0.00241	0.006	0.147	<0.00010	0.00033	0.0017
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	<0.000050	3.85	<0.000010	0.972	0.0234	0.53	<0.000010	<0.00010	0.0023	0.000039	0.00052	<0.0030	0.0838	<0.00010	0.00043	0.00182
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	<0.000050	4.29	<0.000010	1.27	0.0287	<0.50	<0.000010	<0.00010	0.00088	0.000038	<0.00050	<0.0030	0.0455	<0.00010	0.0005	0.00236
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	<0.000050	4.46	<0.000010	1.32	0.0325	0.54	<0.000010	<0.00010	0.00046	0.000046	0.00058	<0.0030	0.0477	<0.00010	0.00064	0.00274
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	<0.000050	5	<0.000010	1.71	0.0411	0.57	<0.000010	<0.00010	<0.00030	0.000034	0.00071	<0.0030	0.0239	<0.00010	0.0008	0.0034
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	<0.000050	5.21	<0.000010	1.86	0.045	<0.50	<0.000010	<0.00010	<0.00030	0.000039	0.00064	<0.0030	0.0175	<0.00010	0.00073	0.00417
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	<0.000050	5.63	<0.000010	2.44	0.0544	0.67	<0.000010	<0.00010	<0.00030	0.000045	0.0006	<0.0030	0.0105	<0.00010	0.00074	0.00456
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	<0.000050	5.24	<0.000010	2.11	0.049	0.7	<0.000010	<0.00010	<0.00030	0.000044	0.00055	<0.0030	0.0082	<0.00010	0.00076	0.00415
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	<0.000050	5.05	<0.000010	2.42	0.054	<0.50	<0.000010	<0.00010	<0.00030	0.000052	0.0005	<0.0030	0.0085	<0.00010	0.00075	0.00436
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	<0.000050	5.14	<0.000010	2.29	0.0503	0.77	<0.000010	<0.00010	0.00067	0.000054	0.00055	<0.0030	0.0102	<0.00010	0.00083	0.00432
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	<0.000050	5.06	<0.000010	2.25	0.0506	0.75	<0.000010	<0.00010	0.0009	0.000044	0.00056	<0.0030	0.0099	<0.00010	0.00086	0.00408
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	<0.000050	5.6	<0.000010	2.3	0.0547	0.92	<0.000010	<0.00010	<0.00030	0.000054	<0.00050	<0.0030	0.0083	<0.00010	0.00071	0.0042
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	<0.000050	4.14	<0.000010	2.53	0.0664	<0.50	<0.000010	<0.00010	0.00035	0.000088	<0.00050	<0.0030	0.0165	<0.00010	0.00015	0.00878
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	<0.000050	4.92	<0.000010	2.14	0.0499	0.81	<0.000010	<0.00010	<0.00030	0.000053	<0.00050	<0.0030	0.0083	<0.00010	0.00077	0.00387
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	<0.000050	5.46	<0.000010	2.5	0.0534	0.66	<0.000010	<0.00010	<0.00030	0.000065	0.00054	<0.0030	0.0073	<0.00010	0.0008	0.004
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	0.000062	5.71	<0.000010	2.68	0.0572	0.82	<0.000010	<0.00010	<0.00030	0.000084	0.00052	<0.0030	0.0048	<0.00010	0.0009	0.00424
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	<0.000050	5.6	<0.000010	2.66	0.0589	0.74	<0.000010	<0.00010	<0.00030	0.000084	0.00054	<0.0030	0.0053	<0.00010	0.0009	0.00434
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	<0.000050	5.93	<0.000010	2.83	0.065	1.01	<0.000010	<0.00010	<0.00030	0.000101	0.00055	<0.0030	0.005	<0.00010	0.00089	0.00475
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	0.00007	6.12	<0.000010	2.96	0.0606	0.77	<0.000010	<0.00010	<0.00030	0.000115	0.00061	<0.0030	0.0053	<0.00010	0.00095	0.00477

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	<0.000020	<0.000050	<0.010	<0.0000050	15.6	<0.00050	<0.00010	<0.00020	0.02	<0.000050	<0.0010	3.11	0.00143	<0.0000050	0.000947	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	0.000045	<0.000050	<0.010	0.0000132	4.77	<0.00050	<0.00010	0.00089	0.241	0.000072	<0.0010	0.906	0.0104	0.0000139	0.000216	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	0.000034	<0.000050	<0.010	0.0000089	3.58	<0.00050	<0.00010	0.0007	0.158	<0.000050	<0.0010	0.698	0.00633	0.0000103	0.000185	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	0.000034	<0.000050	<0.010	0.0000053	3.07	<0.00050	<0.00010	0.00057	0.087	<0.000050	<0.0010	0.555	0.00252	0.0000102	0.000163	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	0.000028	<0.000050	<0.010	<0.0000050	3.96	<0.00050	<0.00010	0.0005	0.074	<0.000050	<0.0010	0.758	0.00179	0.000006	0.000248	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	<0.000020	<0.000050	<0.010	<0.0000050	5.29	<0.00050	<0.00010	0.0004	0.056	<0.000050	<0.0010	0.942	0.00182	<0.0000050	0.000353	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	0.000024	<0.000050	<0.010	<0.0000050	6.94	<0.00050	<0.00010	0.00042	0.07	<0.000050	<0.0010	1.28	0.00212	0.0000072	0.000473	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	<0.000020	<0.000050	<0.010	<0.0000050	10.1	<0.00050	<0.00010	0.00052	0.079	<0.000050	<0.0010	1.94	0.0038	<0.0000050	0.000388	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	<0.000020	<0.000050	<0.010	<0.0000050	9.18	<0.00050	<0.00010	0.00034	0.131	<0.000050	<0.0010	1.79	0.00274	<0.0000050	0.000733	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	<0.000020	<0.000050	<0.010	<0.0000050	10.6	<0.00050	<0.00010	0.00025	0.051	<0.000050	<0.0010	2.06	0.00207	<0.0000050	0.000716	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	<0.000020	<0.000050	<0.010	<0.0000050	11.2	<0.00050	<0.00010	0.00031	0.099	<0.000050	<0.0010	2.07	0.00332	<0.0000050	0.000728	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	<0.000020	<0.000050	<0.010	<0.0000050	12	<0.00050	<0.00010	0.00026	0.059	<0.000050	<0.0010	2.48	0.00283	<0.0000050	0.000777	<0.00050
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	<0.000020	<0.000050	<0.010	<0.0000050	11.6	<0.00050	<0.00010	0.00026	0.06	<0.000050	<0.0010	2.44	0.00277	<0.0000050	0.000803	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	<0.000020	<0.000050	<0.010	<0.0000050	12.6	<0.00050	<0.00010	0.00021	0.072	<0.000050	<0.0010	2.43	0.00244	<0.0000050	0.00079	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	<0.000020	<0.000050	<0.010	<0.0000050	13.3	<0.00050	<0.00010	0.00025	0.076	<0.000050	<0.0010	2.65	0.0042	<0.0000050	0.000798	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	<0.000020	<0.000050	<0.010	<0.0000050	12.3	<0.00050	<0.00010	<0.00020	0.057	<0.000050	<0.0010	2.58	0.00327	<0.0000050	0.00077	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	<0.000020	<0.000050	<0.010	<0.0000050	9.27	<0.00050	<0.00010	0.00033	0.076	<0.000050	<0.0010	1.85	0.00414	<0.0000050	0.00054	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	<0.000020	<0.000050	<0.010	<0.0000050	10.6	<0.00050	<0.00010	0.00025	0.055	<0.000050	<0.0010	2.18	0.00229	<0.0000050	0.000641	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	<0.000020	<0.000050	<0.010	<0.0000050	18.7	<0.00050	<0.00010	<0.00020	0.015	<0.000050	<0.0010	3.88	0.0018	<0.0000050	0.000993	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	<0.000020	<0.000050	<0.010	<0.0000050	13.9	<0.00050	<0.00010	<0.00020	0.041	<0.000050	<0.0010	2.82	0.00439	<0.0000050	0.000884	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	<0.000020	<0.000050	<0.010	<0.0000050	17.9	<0.00050	<0.00010	<0.00020	0.021	<0.000050	<0.0010	3.64	0.00155	<0.0000050	0.00101	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	<0.000020	<0.000050	<0.010	<0.0000050	13.4	<0.00050	<0.00010	0.00034	0.03	<0.000050	<0.0010	2.96	0.00277	<0.0000050	0.000901	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	<0.000020	<0.000050	<0.010	<0.0000050	13.1	<0.00050	<0.00010	0.00029	0.028	<0.000050	<0.0010	2.84	0.00413	<0.0000050	0.001	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	<0.000020	<0.000050	<0.010	<0.0000050	13.2	<0.00050	<0.00010	0.00032	0.045	<0.000050	<0.0010	2.56	0.00445	<0.0000050	0.000839	<0.00050
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	<0.000020	<0.000050	<0.010	<0.0000050	13.9	<0.00050	<0.00010	0.00032	0.049	<0.000050	<0.0010	2.51	0.00416	<0.0000050	0.000823	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	<0.000020	<0.000050	<0.010	<0.0000050	15.1	<0.00050	<0.00010	0.00026	0.014	<0.000050	<0.0010	3.2	0.00908	<0.0000050	0.00103	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	<0.000020	<0.000050	<0.010	<0.0000050	15.4	<0.00050	<0.00010	<0.00020	0.013	<0.000050	<0.0010	3.19	0.00144	<0.0000050	0.00101	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	0.000035	<0.000050	<0.010	0.0000166	4.81	<0.00050	<0.00010	0.00086	0.239	0.000074	<0.0010	0.925	0.00933	0.0000128	0.000209	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	<0.000020	<0.000050	<0.010	<0.0000050	7	<0.00050	<0.00010	0.00039	0.062	<0.000050	<0.0010	1.24	0.00174	<0.0000050	0.000425	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	<0.000020	<0.000050	<0.010	<0.0000050	10.1	<0.00050	<0.00010	0.0005	0.071	<0.000050	<0.0010	1.95	0.00344	<0.0000050	0.000406	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	<0.000020	<0.000050	<0.010	<0.0000050	10.2	<0.00050	<0.00010	0.00033	0.102	<0.000050	<0.0010	1.86	0.00262	<0.0000050	0.000948	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	<0.000020	<0.000050	<0.010	<0.0000050	12.6	<0.00050	<0.00010	<0.00040	0.04	<0.000050	<0.0010	2.33	0.00229	<0.0000050	0.000773	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	<0.000020	<0.000050	<0.010	<0.0000050	11.8	<0.00050	<0.00010	0.00027	0.081	<0.000050	<0.0010	2.2	0.00252	<0.0000050	0.000742	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	<0.000020	<0.000050	<0.010	<0.0000050	10.1	<0.00050	<0.00010	0.00036	0.068	<0.000050	<0.0010	1.95	0.00274	<0.0000050	0.000617	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	<0.000020	<0.000050	<0.010	<0.0000050	10.8	<0.00050	<0.00010	0.00022	0.047	<0.000050	<0.0010	2.25	0.00159	<0.0000050	0.000678	<0.00050
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	<0.000020	<0.000050	<0.010	<0.0000050	11	<0.00050	<0.00010	0.00021	0.05	<0.000050	<0.0010	2.31	0.00163	<0.0000050	0.000686	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	<0.000020	<0.000050	<0.010	<0.0000050	14.6	<0.00050	<0.00010	<0.00020	0.022	<0.000050	<0.0010	2.82	0.00119	<0.0000050	0.000988	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	<0.000020	<0.000050	<0.010	<0.0000050	17	<0.00050	<0.00010	<0.00020	0.044	<0.000050	<0.0010	3.58	0.00176	<0.0000050	0.00096	<0.00050
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	<0.000020	<0.000050	<0.010	<0.0000050	17.1	<0.00050	<0.00010	<0.00020	0.015	<0.000050	<0.0010	3.47	0.00094	<0.0000050	0.000993	<0.00050
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	<0.000020	<0.000050	<0.010	<0.0000050	14.1	<0.00050	<0.00010	0.0003	0.038	<0.000050	<0.0010	2.96	0.00201	<0.0000050	0.0008	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	<0.000020	<0.000050	<0.010	<0.0000050	16.7	<0.00050	<0.00010	<0.00020	0.029	<0.000050	<0.0010	3.68	0.00391	<0.0000050	0.000821	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	0.000037	<0.000050	<0.010	0.0000101	5.77	<0.00050	<0.00010	0.00087	0.231	0.000064	<0.0010	1.13	0.00755	0.0000137	0.000259	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	<0.000020	<0.000050	<0.010	<0.0000050	8.76	<0.00050	<0.00010	0.00037	0.047	<0.000050	<0.0010	1.65	0.00198	<0.0000050	0.000511	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	<0.000020	<0.000050	<0.010	<0.0000050	10.5	<0.00050	<0.00010	0.00041	0.058	<0.000050	<0.0010	2.06	0.00488	<0.0000050	0.000515	<0.00050
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	<0.000020	<0.000050	<0.010	<0.0000050	10.5	<0.00050	<0.00010	0.00047	0.059	<0.000050	<0.0010	2.1	0.005	<0.0000050	0.000449	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	<0.000020	<0.000050	<0.010	<0.0000050	12	<0.00050	<0.00010	0.00028	0.062	<0.000050	<0.0010	2.33	0.00253	<0.0000050	0.000673	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	<0.000020	<0.000050	<0.010	<0.0000050	14.2	<0.00050	<0.00010	<0.00040	0.026	<0.000050	<0.0010	2.88	0.00245	<0.0000050	0.000781	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	<0.000020	<0.000050	<0.010	<0.0000050	14.1	<0.00050	<0.00010	0.00024	0.038	<0.000050	<0.0010	3.16	0.00313	<0.0000050	0.00078	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	<0.000020	<0.000050	<0.010	<0.0000050	11.9	<0.00050	<0.00010	0.00028	0.058	<0.000050	<0.0010	2.54	0.00347	<0.0000050	0.000626	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	<0.000020	<0.000050	<0.010	<0.0000050	13.3	<0.00050	<0.00010	<0.00020	0.028	<0.000050	<0.0010	2.94	0.00217	<0.0000050	0.000714	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	<0.000020	<0.000050	<0.010	<0.0000050	15.2	<0.00050	<0.00010	<0.00020	0.026	<0.000050	<0.0010	3.2	0.00172	<0.0000050	0.000812	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	<0.000020	<0.000050	<0.010	<0.0000050	17.2	<0.00050	<0.00010	<0.00020	0.016	<0.000050	<0.0010	4.04	0.00214	<0.0000050	0.000846	<0.00050
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	<0.000020	<0.000050	<0.010	<0.0000050	16.2	<0.00050	<0.00010	0.00023	0.032	<0.000050	<0.0010	3.38	0.00192	<0.0000050	0.000836	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	<0.000020	<0.000050	<0.010	<0.0000050	14.5	<0.00050	<0.00010	0.00024	0.111	<0.000050	<0.0010	3.58	0.0267	<0.0000050	0.000649	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	<0.000020	<0.000050	<0.010	0.0000079	7.91	<0.00050	<0.00010	0.00081	0.191	<0.000050	<0.0010	1.74	0.0187	0.0000079	0.00033	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	0.000023	<0.000050	<0.010	0.0000052	4.79	<0.00050	<0.00010	0.00066	0.123	<0.000050	<0.0010	1.07	0.00574	0.0000097	0.000236	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	0.000028	<0.000050	<0.010	<0.0000050	4.34	<0.00050	<0.00010	0.0006	0.098	<0.000050	<0.0010	0.934	0.00568	0.0000081	0.000276	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	<0.000020	<0.000050	<0.010	<0.0000050	5.94	<0.00050	<0.00010	0.0005	0.082	<0.000050	<0.0010	1.28	0.00663	<0.0000050	0.000353	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	<0.000020	<0.000050	<0.010	<0.0000050	7.2	<0.00050	<0.00010	0.00046	0.081	<0.000050	<0.0010	1.6	0.00758	<0.0000050	0.0005	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	<0.000020	<0.000050	<0.010	<0.0000050	8.83	<0.00050	<0.00010	0.0004	0.088	<0.000050	<0.0010	2.02	0.00896	<0.0000050	0.000542	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	<0.000020	<0.000050	<0.010	<0.0000050	11.7	<0.00050	<0.00010	0.00041	0.135	<0.000050	<0.0010	2.57	0.011	<0.0000050	0.000593	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	<0.000020	<0.000050	<0.010	<0.0000050	13.1	<0.00050	<0.00010	0.00032	0.21	<0.000050	<0.0010	2.9	0.0126	<0.0000050	0.000761	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	<0.000020	<0.000050	<0.010	<0.0000050	14.9	<0.00050	<0.00010	0.00026	0.213	<0.000050	<0.0010	3.3	0.0172	<0.0000050	0.000775	<0.00050
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	<0.000020	<0.000050	<0.010	<0.0000050	14.9	<0.00050	<0.00010	0.00026	0.216	<0.000050	<0.0010	3.28	0.0174	<0.0000050	0.000768	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	<0.000020	<0.000050	<0.010	<0.0000050	14.3	<0.00050	<0.00010	0.00021	0.221	<0.000050	<0.0010	3.44	0.0182	<0.0000050	0.000783	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	<0.000020	<0.000050	<0.010	<0.0000050	14.8	<0.00050	<0.00010	0.00025	0.214	<0.000050	<0.0010	3.63	0.018	<0.0000050	0.000785	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	<0.000020	<0.000050	<0.010	<0.0000050	15.3	<0.00050	<0.00010	0.00023	0.192	<0.000050	<0.0010	3.96	0.0207	<0.0000050	0.000792	<0.00050
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	<0.000020	<0.000050	<0.010	<0.0000050	14.8	<0.00050	<0.00010	0.00023	0.197	<0.000050	<0.0010	3.85	0.0205	<0.0000050	0.000809	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	<0.000020	<0.000050	<0.010	<0.0000050	13.7	<0.00050	<0.00010	0.00024	0.19	<0.000050	<0.0010	3.19	0.0213	<0.0000050	0.000696	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	<0.000020	<0.000050	<0.010	<0.0000050	13.7	<0.00050	<0.00010	<0.00020	0.17	<0.000050	<0.0010	3.52	0.0282	<0.0000050	0.00068	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	<0.000020	<0.000050	<0.010	<0.0000050	12.7	<0.00050	<0.00010	0.00022	0.103	<0.000050	<0.0010	3.12	0.017	<0.0000050	0.000704	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	<0.000020	<0.000050	<0.010	<0.0000050	17	<0.00050	<0.00010	<0.00020	0.084	<0.000050	<0.0010	4.34	0.0211	<0.0000050	0.000801	<0.00050
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	<0.000020	<0.000050	<0.010	<0.0000050	16.6	<0.00050	<0.00010	<0.00020	0.053	<0.000050	<0.0010	4.07	0.0192	<0.0000050	0.0009	<0.00050
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	<0.000020	<0.000050	<0.010	<0.0000050	11.7	<0.00050	<0.00010	0.00045	0.08	<0.000050	<0.0010	2.53	0.0165	<0.0000050	0.000677	<0.00050
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	<0.000020	<0.000050	<0.010	<0.0000050	13.6	<0.00050	<0.00010	0.0003	0.056	<0.000050	<0.0010	2.81	0.00417	-	0.000737	<0.00050
Creek 661	661-01	Surface	Regular	VA23A8158-006	<0.000020	<0.000050	<0.010	<0.0000050	2.97	<0.00050	<0.00010	<0.00020	0.079	<0.000050	<0.0010	0.785	0.0102	<0.0000050	0.000131	<0.00050
Creek 661	661-01	Surface	Regular	VA23B0766-007	0.000025	<0.000050	<0.010	<0.0000050	1.85	<0.00050	<0.00010	0.00048	0.14	<0.000050	<0.0010	0.439	0.00373	0.0000064	0.000076	<0.00050
Creek 661	661-01	Surface	Regular	VA23B1379-001	0.000024	<0.000050	<0.010	<0.0000050	2.04	<0.00050	<0.00010	0.00036	0.112	<0.000050	<0.0010	0.53	0.00335	0.0000051	0.000103	<0.00050
Creek 661	661-01	Surface	Replicate	VA23B1379-002	<0.000020	<0.000050	<0.010	<0.0000050	2.05	<0.00050	<0.00010	0.00036	0.122	<0.000050	<0.0010	0.523	0.00347	0.0000052	0.000103	<0.00050
Creek 661	661-01	Surface	Regular	VA23B2224-001	<0.000020	<0.000050	<0.010	<0.0000050	2.24	<0.00050	<0.00010	0.0003	0.096	<0.000050	<0.0010	0.569	0.00426	<0.0000050	0.00024	<0.00050
Creek 661	661-01	Surface	Regular	VA23B2847-004	<0.000020	<0.000050	<0.010	<0.0000050	2.46	<0.00050	<0.00010	0.00027	0.092	<0.000050	<0.0010	0.641	0.00451	<0.0000050	0.000141	<0.00050
Creek 661	661-01	Surface	Regular	VA23B3687-001	<0.000020	<0.000050	<0.010	<0.0000050	2.95	<0.00050	<0.00010	0.00024	0.055	<0.000050	<0.0010	0.727	0.00542	<0.0000050	0.000173	<0.00050
Creek 661	661-01	Surface	Regular	VA23B7523-004	<0.000020	<0.000050	<0.010	<0.0000050	3.65	<0.00050	<0.00010	<0.00020	0.195	<0.000050	<0.0010	0.925	0.00838	<0.0000050	0.00021	<0.00050
Creek 661	661-01	Surface	Regular	VA23B8906-006	<0.000020	<0.000050	<0.010	<0.0000050	4.23	<0.00050	<0.00010	<0.00020	0.044	<0.000050	<0.0010	1.09	0.00992	<0.0000050	0.000207	<0.00050
Creek 661	661-01	Surface	Regular	VA23C0875-002	<0.000020	<0.000050	<0.010	<0.0000050	4.26	<0.00050	<0.00010	<0.00020	0.038	<0.000050	<0.0010	1.08	0.01	<0.0000050	0.00024	<0.00050
Creek 661	661-01	Surface	Regular	VA23C4014-004	<0.000020	<0.000050	<0.010	<0.0000050	4.8	<0.00050	<0.00010	<0.00020	0.042	<0.000050	<0.0010	1.21	0.0117	<0.0000050	0.000258	<0.00050
Creek 661	661-01	Surface	Regular	VA23C4586-003	<0.000020	<0.000050	<0.010	<0.0000050	4.11	<0.00050	<0.00010	<0.00020	0.06	<0.000050	<0.0010	1.23	0.0254	<0.0000050	0.000216	<0.00050
Creek 661	661-01	Surface	Regular	VA23C4858-001	<0.000020	<0.000050	<0.010	<0.0000050	4.72	<0.00050	<0.00010	<0.00020	0.04	<0.000050	<0.0010	1.16	0.0138	<0.0000050	0.00029	<0.00050
Creek 661	661-01	Surface	Regular	VA23C5894-003	<0.000020	<0.000050	<0.010	<0.0000050	5.42	<0.00050	<0.00010	<0.00020	0.056	<0.000050	<0.0010	1.48	0.029	<0.0000050	0.000144	<0.00050
Creek 661	661-01	Surface	Regular	VA23C6383-001	<0.000020	<0.000050	<0.010	<0.0000050	4.57	<0.00050	<0.00010	<0.00020	0.056	<0.000050	<0.0010	1.26	0.0333	<0.0000050	0.000148	<0.00050
Creek 661	661-01	Surface	Regular	VA23C7190-008	<0.000020	<0.000050	<0.010	<0.0000050	4.08	<0.00050	<0.00010	<0.00020	0.045	<0.000050	<0.0010	1.15	0.00674	<0.0000050	0.00019	<0.00050
Creek 661	661-01	Surface	Regular	VA23C9661-001	<0.000020	<0.000050	<0.010	<0.0000050	5.02	<0.00050	<0.00010	<0.00020	0.1	<0.000050	<0.0010	1.22	0.0203	<0.0000050	0.00022	<0.00050
Creek 661	661-01	Surface	Replicate	VA23C9661-002	<0.000020	<0.000050	<0.010	<0.0000050	4.94	<0.00050	<0.00010	<0.00020	0.097	<0.000050	<0.0010	1.22	0.0202	<0.0000050	0.000216	<0.00050
Creek 661	661-01	Surface	Regular	VA24A1833-003	<0.000020	<0.000050	<0.010	<0.0000050	3.35	<0.00050	<0.00010	0.00023	0.097	<0.000050	<0.0010	0.838	0.0124	<0.0000050	0.000112	<0.00050
Creek 661	661-01	Surface	Regular	VA24A3502-002	<0.000020	<0.000050	<0.010	<0.0000050	3.22	<0.00050	<0.00010	<0.00020	0.081	<0.000050	<0.0010	0.861	0.0268	<0.0000050	0.000101	<0.00050
Creek 661	661-01	Surface	Replicate	VA24A3502-003	<0.000020	<0.000050	<0.010	<0.0000050	3.28	<0.00050	<0.00010	<0.00020	0.081	<0.000050	<0.0010	0.863	0.0269	<0.0000050	0.000112	<0.00050
Creek 661	661-01	Surface	Regular	VA24A6018-004	<0.000020	<0.000050	<0.010	<0.0000050	2.61	<0.00050	<0.00010	<0.00020	0.066	<0.000050	<0.0010	0.713	0.0138	<0.0000050	0.00008	<0.00050
Creek 661	661-04	Surface	Regular	VA23A8158-007	<0.000020	<0.000050	<0.010	0.00001	9.84	<0.00050	<0.00010	<0.00020	0.026	<0.000050	<0.0010	2.46	0.00359	<0.0000050	0.000638	<0.00050
Creek 661	661-04	Surface	Regular	VA23B0766-008	0.000021	<0.000050	<0.010	0.0000248	3.63	<0.00050	<0.00010	0.00065	0.072	<0.000050	<0.0010	0.775	0.00133	0.0000065	0.000149	<0.00050
Creek 661	661-04	Surface	Regular	VA23B1379-004	<0.000020	<0.000050	<0.010	0.000015	4.55	<0.00050	<0.00010	0.00046	0.054	<0.000050	<0.0010	1.02	0.00126	<0.0000050	0.000209	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	<0.000020	<0.000050	<0.010	0.0000128	5.31	<0.00050	<0.00010	0.00036	0.043	<0.000050	<0.0010	1.24	0.00187	<0.0000050	0.000318	<0.00050
Creek 661	661-04	Surface	Regular	VA23B2847-005	<0.000020	<0.000050	<0.010	0.0000164	5.95	<0.00050	<0.00010	0.00029	0.031	<0.000050	<0.0010	1.43	0.00189	<0.0000050	0.000374	<0.00050
Creek 661	661-04	Surface	Regular	VA23B3687-002	<0.000020	<0.000050	<0.010	0.0000155	7.02	<0.00050	<0.00010	0.00029	0.035	<0.000050	<0.0010	1.62	0.00236	<0.0000050	0.000504	<0.00050
Creek 661	661-04	Surface	Replicate	VA23B3687-003	<0.000020	<0.000050	<0.010	0.0000132	7.03	<0.00050	<0.00010	0.00027	0.035	<0.000050	<0.0010	1.6	0.00237	<0.0000050	0.000475	<0.00050
Creek 661	661-04	Surface	Regular	VA23B8906-005	<0.000020	<0.000050	<0.010	0.000017	9.9	<0.00050	<0.00010	<0.00020	0.041	<0.000050	<0.0010	2.34	0.00441	<0.0000050	0.000642	<0.00050
Creek 661	661-04	Surface	Regular	VA23C1991-004	<0.000020	<0.000050	<0.010	0.0000108	10.1	<0.00050	<0.00010	<0.00020	0.045	<0.000050	<0.0010	2.6	0.00495	<0.0000050	0.000675	<0.00050
Creek 661	661-04	Surface	Regular	VA23C4014-005	<0.000020	<0.000050	<0.010	0.0000104	10.5	<0.00050	<0.00010	<0.00020	0.04	<0.000050	<0.0010	2.63	0.00438	<0.0000050	0.000674	<0.00050
Creek 661	661-04	Surface	Regular	VA23C4586-004	<0.000020	<0.000050	<0.010	0.0000084	10	<0.00050	<0.00010	<0.00020	0.037	<0.000050	<0.0010	2.59	0.00517	<0.0000050	0.000633	<0.00050
Creek 661	661-04	Surface	Regular	VA23C4858-002	<0.000020	<0.000050	<0.010	0.0000095	10.8	<0.00050	<0.00010	<0.00020	0.04	<0.000050	<0.0010	2.55	0.005	<0.0000050	0.000672	<0.00050
Creek 661	661-04	Surface	Regular	VA23C5894-002	<0.000020	<0.000050	<0.010	0.0000107	10.6	<0.00050	<0.00010	<0.00020	0.038	<0.000050	<0.0010	2.7	0.00634	<0.0000050	0.000593	<0.00050
Creek 661	661-04	Surface	Regular	VA23C6383-002	<0.000020	<0.000050	<0.010	0.0000115	10.1	<0.00050	<0.00010	<0.00020	0.034	<0.000050	<0.0010	2.65	0.00576	<0.0000050	0.000605	<0.00050
Creek 661	661-04	Surface	Regular	VA23C7190-009	<0.000020	<0.000050	<0.010	0.0000114	9.12	<0.00050	<0.00010	<0.00020	0.038	<0.000050	<0.0010	2.4	0.0044	<0.0000050	0.00052	<0.00050
Creek 661	661-04	Surface	Regular	VA23C9661-003	<0.000020	<0.000050	<0.010	0.0000118	11.4	<0.00050	<0.00010	<0.00020	0.028	<0.000050	<0.0010	2.59	0.0048	<0.0000050	0.000591	<0.00050
Creek 661	661-04	Surface	Regular	VA24A1634-001	<0.000020	<0.000050	<0.010	0.0000116	10.4	<0.00050	<0.00010	<0.00020	0.027	<0.000050	<0.0010	2.68	0.00539	<0.0000050	0.000606	<0.00050
Creek 661	661-04	Surface	Regular	VA24A3502-004	<0.000020	<0.000050	<0.010	0.0000095	10.7	<0.00050	<0.00010	<0.00020	0.031	<0.000050	<0.0010	2.85	0.00449	<0.0000050	0.000654	<0.00050
Creek 661	661-04	Surface	Regular	VA24A6018-005	<0.000020	<0.000050	<0.010	0.0000098	10.2	<0.00050	<0.00010	<0.00020	0.045	<0.000050	<0.0010	2.6	0.00713	<0.0000050	0.00054	<0.00050
Creek 661	661-05	Surface	Regular	VA23A9322-001	<0.000020	<0.000050	<0.010	<0.0000050	11	0.0006	<0.00010	<0.00020	0.094	<0.000050	<0.0010	2.73	0.00565	<0.0000050	0.00068	<0.00050
Creek 661	661-05	Surface	Regular	VA23B0766-005	0.000022	<0.000050	<0.010	0.0000051	6.05	0.00054	<0.00010	0.00063	0.112	<0.000050	<0.0010	1.34	0.00297	<0.0000050	0.000365	<0.00050
Creek 661	661-05	Surface	Regular	VA23B4181-001	<0.000020	<0.000050	<0.010	<0.0000050	9.73	0.00064	<0.00010	0.00037	0.098	<0.000050	<0.0010	2.19	0.00399	<0.0000050	0.000739	<0.00050
Creek 661	661-05	Surface	Regular	VA23B7293-010	<0.000020	<0.000050	<0.010	<0.0000050	10.6	0.00058	<0.00010	0.0003	0.115	<0.000050	<0.0010	2.41	0.00516	<0.0000050	0.000646	<0.00050
Creek 661	661-05	Surface	Regular	VA23B9219-005	<0.000020	<0.000050	<0.010	<0.0000050	12.1	0.00064	<0.00010	<0.00020	0.129	<0.000050	<0.0010	2.91	0.00647	<0.0000050	0.000857	<0.00050
Creek 661	661-05	Surface	Regular	VA23C1491-002	<0.000020	<0.000050	<0.010	<0.0000050	12.8	0.00064	<0.00010	<0.00020	0.078	<0.000050	<0.0010	3.12	0.00598	<0.0000050	0.000913	<0.00050
Creek 661	661-05	Surface	Regular	VA23C4865-004	<0.000020	<0.000050	<0.010	<0.0000050	12.9	0.00072	<0.00010	<0.00020	0.083	<0.000050	<0.0010	3.18	0.00661	<0.0000050	0.00083	<0.00050
Creek 661	661-05	Surface	Replicate	VA23C7190-006	<0.000020	<0.000050	<0.010	<0.0000050	12	0.00066	<0.00010	0.00024	0.029	<0.000050	<0.0010	2.82	0.00304	<0.0000050	0.000745	<0.00050
Creek 661	661-05	Surface	Regular	VA23C9238-004	<0.000020	<0.000050	<0.010	<0.0000050	12.9	0.00068	<0.00010	<0.00020	0.059	<0.000050	<0.0010	3.01	0.00553	<0.0000050	0.00084	<0.00050
Creek 661	661-05	Surface	Regular	VA24A0950-003	<0.000020	<0.000050	<0.010	<0.0000050	13.9	0.00074	<0.00010	<0.00020	0.044	<0.000050	<0.0010	3.37	0.00624	<0.0000050	0.000857	<0.00050
Creek 661	661-05	Surface	Regular	VA24A2397-002	<0.000020	<0.000050	<0.010	<0.0000050	12.7	0.00078	<0.00010	<0.00020	0.055	<0.000050	<0.0010	3.23	0.00403	<0.0000050	0.00087	<0.00050
Creek 661	661-05	Surface	Regular	VA24A6300-001	<0.000020	<0.000050	<0.010	<0.0000050	12.6	0.00075	<0.00010	<0.00020	0.046	<0.000050	<0.0010	3.16	0.00386	<0.0000050	0.000836	<0.00050
Creek 661	661-03	Surface	Regular	VA23A8011-002	<0.000020	<0.000050	<0.010	<0.0000050	9.64	<0.00050	<0.00010	0.00051	0.09	<0.000050	<0.0010	2.88	0.0122	<0.0000050	0.000166	<0.00050
Creek 661	661-03	Surface	Regular	VA23A9531-006	<0.000020	<0.000050	<0.010	<0.0000050	6.02	<0.00050	<0.00010	0.00078	0.114	<0.000050	<0.0010	1.84	0.0103	0.0000088	0.000164	<0.00050
Creek 661	661-03	Surface	Regular	VA23B0222-001	<0.000020	<0.000050	<0.010	0.0000067	5.68	<0.00050	<0.00010	0.00085	0.139	<0.000050	<0.0010	1.58	0.00426	0.0000095	0.000149	<0.00050
Creek 661	661-03	Surface	Replicate	VA23B0222-002	<0.000020	<0.000050	<0.010	0.0000055	5.67	<0.00050	<0.00010	0.00089	0.136	<0.000050	<0.0010	1.57	0.00418	0.000008	0.000151	<0.00050
Creek 661	661-03	Surface	Regular	VA23B0766-004	<0.000020	<0.000050	<0.010	<0.0000050	6.72	<0.00050	<0.00010	0.00074	0.07	<0.000050	<0.0010	1.89	0.004	0.0000053	0.000169	<0.00050
Creek 661	661-03	Surface	Regular	VA23B1529-001	<0.000020	<0.000050	<0.010	<0.0000050	7.06	<0.00050	<0.00010	0.00062	0.058	<0.000050	<0.0010	1.98	0.00276	<0.0000050	0.000192	<0.00050
Creek 661	661-03	Surface	Regular	VA23B2052-002	<0.000020	<0.000050	<0.010	<0.0000050	8.33	<0.00050	<0.00010	0.00058	0.059	<0.000050	<0.0010	2.21	0.00319	<0.0000050	0.00019	<0.00050
Creek 661	661-03	Surface	Regular	VA23B3987-002	<0.000020	<0.000050	<0.010	<0.0000050	10.6	<0.00050	<0.00010	0.00044	0.065	<0.000050	<0.0010	3.08	0.00864	<0.0000050	0.000216	<0.00050
Creek 661	661-03	Surface	Regular	VA23B7293-003	<0.000020	<0.000050	<0.010	<0.0000050	11.1	<0.00050	<0.00010	0.0004	0.08	<0.000050	<0.0010	3.12	0.0128	<0.0000050	0.00022	<0.00050
Creek 661	661-03	Surface	Regular	VA23B9359-002	<0.000020	<0.000050	<0.010	<0.0000050	13.8	<0.00050	<0.00010	0.00029	0.063	<0.000050	<0.0010	4.02	0.019	<0.0000050	0.000307	<0.00050
Creek 661	661-03	Surface	Regular	VA23C1491-001	<0.000020	<0.000050	<0.010	<0.0000050	16.3	<0.00050	<0.00010	<0.00020	0.058	<0.000050	<0.0010	4.92	0.026	<0.0000050	0.000698	<0.00050
Creek 661	661-03	Surface	Regular	VA23C3847-004	<0.000020	<0.000050	<0.010	<0.0000050	17	<0.00050	<0.00010	<0.00020	0.06	<0.000050	<0.0010	4.94	0.0253	<0.0000050	0.000337	<0.00050
Creek 661	661-03	Surface	Regular	VA23C4279-004	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	<0.00020	0.06	<0.000050	<0.0010	5.05	0.0267	<0.0000050	0.00107	<0.00050
Creek 661	661-03	Surface	Replicate	VA23C4279-005	<0.000020	<0.000050	<0.010	<0.0000050	16.3	<0.00050	<0.00010	<0.00020	0.06	<0.000050	<0.0010	5.08	0.0263	<0.0000050	0.000352	<0.00050
Creek 661	661-03	Surface	Regular	VA23C4865-003	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	<0.00020	0.051	<0.000050	<0.0010	5.27	0.0226	<0.0000050	0.000343	<0.00050
Creek 661	661-03	Surface	Regular	VA23C5577-001	<0.000020	<0.000050	<0.010	<0.0000050	12.9	<0.00050	<0.00010	0.00025	0.063	<0.000050	<0.0010	3.6	0.014	<0.0000050	0.000245	<0.00050
Creek 661	661-03	Surface	Regular	VA23C6622-002	<0.000020	<0.000050	<0.010	<0.0000050	13.5	<0.00050	<0.00010	<0.00020	0.051	<0.000050	<0.0010	3.94	0.0126	<0.0000050	0.000557	<0.00050
Creek 661	661-03	Surface	Regular	VA23C9238-001	<0.000020	<0.000050	<0.010	<0.0000050	11.1	<0.00050	<0.00010	0.00034	0.06	<0.000050	<0.0010	3.3	0.00694	<0.0000050	0.000224	<0.00050
Creek 661	661-03	Surface	Regular	VA24A0932-002	<0.000020	<0.000050	<0.010	<0.0000050	15.5	<0.00050	<0.00010	0.00031	0.128	<0.000050	<0.0010	4.78	0.0352	<0.0000050	0.000248	<0.00050
Creek 661	661-03	Surface	Replicate	VA24A0932-003	<0.000020	<0.000050	<0.010	<0.0000050	15.3	<0.00050	<0.00010	0.00025	0.077	<0.000050	<0.0010	4.73	0.027	<0.0000050	0.00027	<0.00050
Creek 661	661-03	Surface	Regular	VA24A2975-003	<0.000020	<0.000050	<0.010	<0.0000050	10.8	<0.00050	<0.00010	0.00042	0.07	<0.000050	<0.0010	3.47	0.00971	<0.0000050	0.000191	<0.00050
Creek 661	661-03	Surface	Regular	VA24A5191-002	<0.000020	<0.000050	<0.010	<0.0000050	15.6	<0.00050	<0.00010	0.00024	0.046	<0.000050	<0.0010	4.24	0.0133	<0.0000050	0.00027	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	<0.000020	<0.000050	<0.010	0.0000061	10.4	<0.00050	<0.00010	<0.00020	0.055	<0.000050	<0.0010	2.5	0.00544	<0.0000050	0.000626	<0.00050
Creek 661	661-10	Surface	Replicate	VA23A8011-005	<0.000020	<0.000050	<0.010	0.0000062	10.4	<0.00050	<0.00010	<0.00020	0.055	<0.000050	<0.0010	2.52	0.00561	<0.0000050	0.00065	<0.00050
Creek 661	661-10	Surface	Regular	VA23A9531-001	<0.000020	<0.000050	<0.010	0.000016	6.86	<0.00050	<0.00010	0.00081	0.199	0.000054	<0.0010	1.81	0.017	0.000006	0.000348	<0.00050
Creek 661	661-10	Surface	Regular	VA23B0222-003	0.000024	<0.000050	<0.010	0.0000151	3.5	<0.00050	<0.00010	0.00072	0.182	<0.000050	<0.0010	0.856	0.00872	0.0000087	0.000167	<0.00050
Creek 661	661-10	Surface	Regular	VA23B0766-003	0.000021	<0.000050	<0.010	0.000012	3.49	<0.00050	<0.00010	0.00064	0.097	<0.000050	<0.0010	0.825	0.00411	0.0000065	0.000179	<0.00050
Creek 661	661-10	Surface	Regular	VA23B1529-002	<0.000020	<0.000050	<0.010	0.0000117	4.2	<0.00050	<0.00010	0.00049	0.089	<0.000050	<0.0010	0.997	0.00354	<0.0000050	0.000231	<0.00050
Creek 661	661-10	Surface	Regular	VA23B2052-001	<0.000020	<0.000050	<0.010	0.0000095	5.38	<0.00050	<0.00010	0.00064	0.089	<0.000050	<0.0010	1.19	0.00416	<0.0000050	0.000292	<0.00050
Creek 661	661-10	Surface	Regular	VA23B3987-001	<0.000020	<0.000050	<0.010	0.0000115	6.65	<0.00050	<0.00010	0.00041	0.095	<0.000050	<0.0010	1.64	0.00514	<0.0000050	0.000443	<0.00050
Creek 661	661-10	Surface	Regular	VA23B7293-001	<0.000020	<0.000050	<0.010	0.0000101	8.78	<0.00050	<0.00010	0.00036	0.103	<0.000050	<0.0010	2.09	0.00583	<0.0000050	0.000446	<0.00050
Creek 661	661-10	Surface	Regular	VA23B9359-001	<0.000020	<0.000050	<0.010	0.0000098	9.28	<0.00050	<0.00010	0.00036	0.183	<0.000050	<0.0010	2.29	0.0049	<0.0000050	0.000576	<0.00050
Creek 661	661-10	Surface	Regular	VA23C0875-001	<0.000020	<0.000050	<0.010	0.000013	9.99	<0.00050	<0.00010	0.00046	0.223	<0.000050	<0.0010	2.44	0.00511	<0.0000050	0.000647	<0.00050
Creek 661	661-10	Surface	Regular	VA23C3847-003	<0.000020	<0.000050	<0.010	0.0000097	10.1	<0.00050	<0.00010	0.00026	0.18	<0.000050	<0.0010	2.51	0.0043	<0.0000050	0.000627	<0.00050
Creek 661	661-10	Surface	Regular	VA23C4279-003	<0.000020	<0.000050	<0.010	0.0000104	9.71	<0.00050	<0.00010	0.00031	0.215	<0.000050	<0.0010	2.56	0.00408	<0.0000050	0.000634	<0.00050
Creek 661	661-10	Surface	Regular	VA23C4865-005	<0.000020	<0.000050	<0.010	0.0000101	9.44	<0.00050	<0.00010	0.0003	0.176	<0.000050	<0.0010	2.52	0.00471	<0.0000050	0.000585	<0.00050
Creek 661	661-10	Surface	Regular	VA23C5577-002	<0.000020	<0.000050	<0.010	0.0000114	10.2	<0.00050	<0.00010	0.00026	0.156	<0.000050	<0.0010	2.48	0.00593	<0.0000050	0.000557	<0.00050
Creek 661	661-10	Surface	Replicate	VA23C5577-003	<0.000020	<0.000050	<0.010	0.0000139	10.2	<0.00050	<0.00010	0.00026	0.156	<0.000050	<0.0010	2.42	0.00593	<0.0000050	0.000555	<0.00050
Creek 661	661-10	Surface	Regular	VA23C6622-001	<0.000020	<0.000050	<0.010	0.0000101	9.85	<0.00050	<0.00010	<0.00020	0.128	<0.000050	<0.0010	2.54	0.00705	<0.0000050	0.000499	<0.00050
Creek 661	661-10	Surface	Regular	VA23C9238-002	<0.000020	<0.000050	<0.010	0.00001	10.3	<0.00050	<0.00010	0.00021	0.108	<0.000050	<0.0010	2.71	0.00608	<0.0000050	0.000512	<0.00050
Creek 661	661-10	Surface	Regular	VA24A0932-001	<0.000020	<0.000050	<0.010	0.0000083	11.5	<0.00050	<0.00010	<0.00020	0.104	<0.000050	<0.0010	3.02	0.00833	<0.0000050	0.000548	<0.00050
Creek 661	661-10	Surface	Regular	VA24A2975-001	<0.000020	<0.000050	<0.010	0.0000054	10.3	<0.00050	<0.00010	<0.00020	0.068	<0.000050	<0.0010	2.81	0.00656	<0.0000050	0.000595	<0.00050
Creek 661	661-10	Surface	Regular	VA24A5191-001	<0.000020	<0.000050	<0.010	0.0000073	11.8	<0.00050	<0.00010	<0.00020	0.073	<0.000050	<0.0010	2.82	0.00684	<0.0000050	0.000663	<0.00050
Creek 661	661-20	Surface	Regular	VA23A8011-004	<0.000020	<0.000050	<0.010	<0.0000050	17.2	<0.00050	<0.00010	0.00033	0.164	<0.000050	<0.0010	5.05	0.00425	<0.0000050	0.000903	<0.00050
Creek 661	661-20	Surface	Regular	VA23A9531-002	<0.000020	<0.000050	<0.010	0.0000056	10	<0.00050	<0.00010	0.00077	0.209	<0.000050	<0.0010	2.8	0.0119	0.0000055	0.000647	<0.00050
Creek 661	661-20	Surface	Regular	VA23B7293-004	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	0.00036	0.21	<0.000050	<0.0010	4.86	0.00504	<0.0000050	0.00104	<0.00050
Creek 661	661-20	Surface	Regular	VA23C0762-004	<0.000020	<0.000050	<0.010	<0.0000050	19.2	<0.00050	<0.00010	0.00023	0.116	<0.000050	<0.0010	5.94	0.00412	<0.0000050	0.00113	<0.00050
Creek 661	661-20	Surface	Regular	VA23C6622-005	<0.000020	<0.000050	<0.010	<0.0000050	19.5	<0.00050	<0.00010	<0.00020	0.098	<0.000050	<0.0010	5.81	0.00381	<0.0000050	0.000898	<0.00050
Creek 661	661-20	Surface	Replicate	VA23C6622-006	<0.000020	<0.000050	<0.010	<0.0000050	19.8	<0.00050	<0.00010	<0.00020	0.098	<0.000050	<0.0010	5.75	0.00374	<0.0000050	0.000887	<0.00050
Creek 661	661-20	Surface	Regular	VA24A2975-002	<0.000020	<0.000050	<0.010	<0.0000050	18	<0.00050	<0.00010	<0.00020	0.089	<0.000050	<0.0010	5.72	0.00277	<0.0000050	0.000994	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	<0.000020	<0.000050	<0.010	<0.0000050	23.9	<0.00050	<0.00010	<0.00020	0.091	<0.000050	<0.0010	6.9	0.0102	<0.0000050	0.000785	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	<0.000020	<0.000050	<0.010	<0.0000050	12.4	<0.00050	<0.00010	0.00064	0.25	<0.000050	<0.0010	3.52	0.02	<0.0000050	0.000483	0.0005
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	<0.000020	<0.000050	<0.010	<0.0000050	12.4	<0.00050	<0.00010	0.00067	0.259	<0.000050	<0.0010	3.44	0.0206	<0.0000050	0.000484	0.00058
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	<0.000020	<0.000050	<0.010	<0.0000050	11.8	<0.00050	<0.00010	0.00036	0.073	<0.000050	<0.0010	3.29	0.00631	<0.0000050	0.000473	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	<0.000020	<0.000050	<0.010	<0.0000050	16.7	<0.00050	<0.00010	0.00044	0.039	<0.000050	<0.0010	4.43	0.00999	<0.0000050	0.000672	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	<0.000020	<0.000050	<0.010	<0.0000050	19	<0.00050	<0.00010	0.00022	0.05	<0.000050	<0.0010	5	0.0169	<0.0000050	0.000626	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	<0.000020	<0.000050	<0.010	<0.0000050	21.4	<0.00050	<0.00010	0.00022	0.051	<0.000050	<0.0010	5.38	0.0163	<0.0000050	0.000738	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	<0.000020	<0.000050	<0.010	<0.0000050	28	<0.00050	<0.00010	0.00025	0.111	<0.000050	<0.0010	7.2	0.0236	<0.0000050	0.000964	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	<0.000020	<0.000050	<0.010	<0.0000050	28.7	<0.00050	<0.00010	0.0002	0.122	<0.000050	<0.0010	7.52	0.0135	<0.0000050	0.000976	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	<0.000020	<0.000050	<0.010	<0.0000050	30.9	<0.00050	<0.00010	<0.00020	0.099	<0.000050	<0.0010	8.67	0.0122	<0.0000050	0.00112	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	<0.000020	<0.000050	<0.010	<0.0000050	34	<0.00050	<0.00010	<0.00020	0.084	<0.000050	<0.0010	9.22	0.0141	<0.0000050	0.00123	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	<0.000020	<0.000050	<0.010	<0.0000050	33.3	<0.00050	<0.00010	<0.00020	0.081	<0.000050	<0.0010	9.37	0.0103	<0.0000050	0.00113	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	<0.000020	<0.000050	<0.010	<0.0000050	31.3	<0.00050	<0.00010	<0.00020	0.083	<0.000050	<0.0010	9.5	0.0103	<0.0000050	0.00106	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	<0.000020	<0.000050	<0.010	<0.0000050	30.8	<0.00050	<0.00010	0.00027	0.091	<0.000050	<0.0010	9.43	0.00934	<0.0000050	0.00101	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	<0.000020	<0.000050	<0.010	<0.0000050	34.2	<0.00050	<0.00010	<0.00020	0.088	<0.000050	<0.0010	9.87	0.00934	<0.0000050	0.00097	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	<0.000020	<0.000050	<0.010	<0.0000050	33.8	<0.00050	<0.00010	<0.00020	0.067	<0.000050	<0.0010	9.33	0.00835	<0.0000050	0.000922	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	<0.000020	<0.000050	<0.010	<0.0000050	32.6	<0.00050	<0.00010	<0.00020	0.081	<0.000050	<0.0010	9.43	0.00575	<0.0000050	0.00101	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	<0.000020	<0.000050	<0.010	<0.0000050	35.2	<0.00050	<0.00010	<0.00020	0.097	<0.000050	<0.0010	11.2	0.0106	<0.0000050	0.00108	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	<0.000020	<0.000050	<0.010	<0.0000050	31.4	<0.00050	<0.00010	<0.00020	0.055	<0.000050	<0.0010	9.92	0.00555	<0.0000050	0.000937	<0.00050
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	<0.000020	<0.000050	<0.010	<0.0000050	31.2	<0.00050	<0.00010	<0.00020	0.041	<0.000050	<0.0010	8.9	0.00802	<0.0000050	0.000808	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	<0.000020	<0.000050	<0.010	0.0000058	11.6	<0.00050	<0.00010	0.00067	0.256	<0.000050	<0.0010	3.16	0.0212	<0.0000050	0.000503	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	<0.000020	<0.000050	<0.010	0.0000064	8.58	<0.00050	<0.00010	0.00066	0.143	<0.000050	<0.0010	2.26	0.0042	<0.0000050	0.000404	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	<0.000020	<0.000050	<0.010	<0.0000050	11.9	<0.00050	<0.00010	0.00054	0.067	<0.000050	<0.0010	3.04	0.00537	<0.0000050	0.000534	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	<0.000020	<0.000050	<0.010	<0.0000050	16.2	<0.00050	<0.00010	0.00032	0.055	<0.000050	<0.0010	4.46	0.00764	<0.0000050	0.000602	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	<0.000020	<0.000050	<0.010	<0.0000050	18.8	<0.00050	<0.00010	0.00028	0.06	<0.000050	<0.0010	4.69	0.00956	<0.0000050	0.000731	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	<0.000020	<0.000050	<0.010	<0.0000050	24.9	<0.00050	<0.00010	0.00021	0.097	<0.000050	<0.0010	7.28	0.00577	<0.0000050	0.0011	<0.00050
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	<0.000020	<0.000050	<0.010	<0.0000050	25.8	<0.00050	<0.00010	0.00023	0.097	<0.000050	<0.0010	7.25	0.00567	<0.0000050	0.00107	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	<0.000020	<0.000050	<0.010	<0.0000050	26.2	<0.00050	<0.00010	<0.00020	0.072	<0.000050	<0.0010	7.57	0.00449	<0.0000050	0.00103	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	<0.000020	<0.000050	<0.010	<0.0000050	24.8	<0.00050	<0.00010	<0.00020	0.078	<0.000050	<0.0010	7.38	0.00449	<0.0000050	0.00101	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	<0.000020	<0.000050	<0.010	<0.0000050	24.9	<0.00050	<0.00010	<0.00020	0.074	<0.000050	<0.0010	7.4	0.00384	<0.0000050	0.00102	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	<0.000020	<0.000050	<0.010	<0.0000050	26.7	<0.00050	<0.00010	<0.00020	0.092	<0.000050	<0.0010	7.19	0.00381	<0.0000050	0.000994	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	<0.000020	<0.000050	<0.010	<0.0000050	25.3	<0.00050	<0.00010	<0.00020	0.079	<0.000050	<0.0010	7.21	0.00377	<0.0000050	0.000886	<0.00050
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	<0.000020	<0.000050	<0.010	<0.0000050	25.3	<0.00050	<0.00010	0.00024	0.07	<0.000050	<0.0010	7.93	0.00363	<0.0000050	0.00093	<0.00050
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	<0.000020	<0.000050	<0.010	<0.0000050	17.5	<0.00050	<0.00010	0.00036	0.019	<0.000050	<0.0010	4.21	0.00545	<0.0000050	0.000552	<0.00050
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	<0.000020	<0.000050	<0.010	<0.0000050	19.3	<0.00050	<0.00010	0.00031	<0.010	<0.000050	<0.0010	4.6	0.00203	<0.0000050	0.00061	<0.00050
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	<0.000020	<0.000050	<0.010	<0.0000050	18.4	<0.00050	<0.00010	0.00026	<0.010	<0.000050	<0.0010	4.63	0.0032	<0.0000050	0.000556	<0.00050
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	<0.000020	<0.000050	<0.010	<0.0000050	20.2	<0.00050	<0.00010	0.00028	<0.010	<0.000050	<0.0010	5.31	0.00086	<0.0000050	0.000587	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	<0.000020	<0.000050	<0.010	<0.0000050	17.4	<0.00050	<0.00010	0.00037	0.122	<0.000050	<0.0010	3.72	0.0389	<0.0000050	0.000653	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	<0.000020	<0.000050	<0.010	<0.0000050	12.9	<0.00050	<0.00010	0.00088	0.203	<0.000050	<0.0010	2.59	0.0253	0.0000054	0.000652	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	<0.000020	<0.000050	<0.010	<0.0000050	13.3	<0.00050	<0.00010	0.00059	0.091	<0.000050	<0.0010	3.02	0.00792	0.0000073	0.000538	<0.00050
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	<0.000020	<0.000050	<0.010	<0.0000050	13.2	<0.00050	<0.00010	0.00056	0.091	<0.000050	<0.0010	2.91	0.00772	0.0000055	0.000524	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	<0.000020	<0.000050	<0.010	<0.0000050	13.6	<0.00050	<0.00010	0.0005	0.071	<0.000050	<0.0010	3.12	0.00767	<0.0000050	0.000535	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	<0.000020	<0.000050	<0.010	<0.0000050	15.6	<0.00050	<0.00010	0.00038	0.055	<0.000050	<0.0010	3.46	0.00952	<0.0000050	0.000523	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	<0.000020	<0.000050	<0.010	<0.0000050	16.6	<0.00050	<0.00010	0.00037	0.052	<0.000050	<0.0010	3.85	0.0121	<0.0000050	0.000641	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	<0.000020	<0.000050	<0.010	<0.0000050	17.7	<0.00050	<0.00010	0.0004	0.05	<0.000050	<0.0010	4.01	0.012	<0.0000050	0.000617	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	<0.000020	<0.000050	<0.010	<0.0000050	17.5	<0.00050	<0.00010	0.00042	0.104	<0.000050	<0.0010	4.02	0.0164	<0.0000050	0.000741	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	<0.000020	<0.000050	<0.010	<0.0000050	18.2	<0.00050	<0.00010	0.00034	0.121	<0.000050	<0.0010	4.03	0.024	<0.0000050	0.000684	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	<0.000020	<0.000050	<0.010	<0.0000050	18.9	<0.00050	<0.00010	0.00034	0.14	<0.000050	<0.0010	4.37	0.0276	<0.0000050	0.0008	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	<0.000020	<0.000050	<0.010	<0.0000050	18.7	<0.00050	<0.00010	0.00034	0.135	<0.000050	<0.0010	4.47	0.0202	<0.0000050	0.000732	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	<0.000020	<0.000050	<0.010	<0.0000050	19.3	<0.00050	<0.00010	0.00035	0.152	<0.000050	<0.0010	4.65	0.0253	<0.0000050	0.000704	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	<0.000020	<0.000050	<0.010	<0.0000050	19.2	<0.00050	<0.00010	0.00032	0.133	<0.000050	<0.0010	4.9	0.0174	<0.0000050	0.000717	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	<0.000020	<0.000050	<0.010	<0.0000050	20.5	<0.00050	<0.00010	0.00037	0.14	<0.000050	<0.0010	4.66	0.0327	<0.0000050	0.000771	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	<0.000020	<0.000050	<0.010	<0.0000050	17.9	<0.00050	<0.00010	0.00026	0.139	<0.000050	<0.0010	4.49	0.0233	<0.0000050	0.000625	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	<0.000020	<0.000050	<0.010	<0.0000050	17.4	<0.00050	<0.00010	0.00028	0.084	<0.000050	<0.0010	4.28	0.0167	<0.0000050	0.000677	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	<0.000020	<0.000050	<0.010	<0.0000050	22.5	<0.00050	<0.00010	0.00031	0.069	<0.000050	<0.0010	5.43	0.02	<0.0000050	0.000695	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	<0.000020	<0.000050	<0.010	<0.0000050	20.2	<0.00050	<0.00010	0.0003	0.076	<0.000050	<0.0010	5.02	0.018	<0.0000050	0.000725	<0.00050
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	<0.000020	<0.000050	<0.010	<0.0000050	20.2	<0.00050	<0.00010	0.0003	0.075	<0.000050	<0.0010	4.98	0.0173	<0.0000050	0.000744	<0.00050
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	<0.000020	<0.000050	<0.010	<0.0000050	19.4	<0.00050	<0.00010	0.00029	0.051	<0.000050	<0.0010	4.88	0.0161	<0.0000050	0.000664	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	<0.000020	<0.000050	<0.010	<0.0000050	18.1	<0.00050	<0.00010	0.00038	0.113	<0.000050	<0.0010	4.06	0.0313	<0.0000050	0.000668	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	<0.000020	<0.000050	<0.010	<0.0000050	12.8	<0.00050	<0.00010	0.0009	0.2	<0.000050	<0.0010	2.62	0.0245	<0.0000050	0.000687	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	<0.000020	<0.000050	<0.010	<0.0000050	13.4	<0.00050	<0.00010	0.00068	0.091	<0.000050	<0.0010	2.94	0.00828	0.0000065	0.000518	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	<0.000020	<0.000050	<0.010	<0.0000050	13.3	<0.00050	<0.00010	0.00047	0.069	<0.000050	<0.0010	3.08	0.00849	<0.0000050	0.00054	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	<0.000020	<0.000050	<0.010	<0.0000050	15.6	<0.00050	<0.00010	0.00041	0.062	<0.000050	<0.0010	3.48	0.0105	<0.0000050	0.000526	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	0.00038	0.051	<0.000050	<0.0010	3.94	0.0117	<0.0000050	0.000573	<0.00050
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	0.00036	0.05	<0.000050	<0.0010	3.89	0.0117	<0.0000050	0.000626	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	<0.000020	<0.000050	<0.010	<0.0000050	19	<0.00050	<0.00010	0.00043	0.087	<0.000050	<0.0010	4.24	0.0181	<0.0000050	0.000677	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	<0.000020	<0.000050	<0.010	<0.0000050	18.1	<0.00050	<0.00010	0.00041	0.107	<0.000050	<0.0010	4.04	0.0184	<0.0000050	0.000731	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	<0.000020	<0.000050	<0.010	0.0000061	18.1	<0.00050	<0.00010	0.00036	0.124	<0.000050	<0.0010	4.06	0.0234	<0.0000050	0.000986	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	<0.000020	<0.000050	<0.010	<0.0000050	18.6	<0.00050	<0.00010	0.00033	0.128	<0.000050	<0.0010	4.26	0.0194	<0.0000050	0.000734	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	<0.000020	<0.000050	<0.010	<0.0000050	19	<0.00050	<0.00010	0.00036	0.138	<0.000050	<0.0010	4.65	0.0203	<0.0000050	0.000743	<0.00050
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	<0.000020	<0.000050	<0.010	<0.0000050	19.1	<0.00050	<0.00010	0.00034	0.139	<0.000050	<0.0010	4.52	0.02	<0.0000050	0.00072	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	<0.000020	<0.000050	<0.010	<0.0000050	19.7	<0.00050	<0.00010	0.00036	0.127	<0.000050	<0.0010	4.75	0.0182	<0.0000050	0.000724	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	<0.000020	<0.000050	<0.010	<0.0000050	19.2	<0.00050	<0.00010	0.00033	0.13	<0.000050	<0.0010	4.97	0.0167	<0.0000050	0.000695	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	<0.000020	<0.000050	<0.010	<0.0000050	19.7	<0.00050	<0.00010	0.00034	0.129	<0.000050	<0.0010	4.49	0.0206	<0.0000050	0.00069	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	<0.000020	<0.000050	<0.010	<0.0000050	18.6	<0.00050	<0.00010	0.00032	0.12	<0.000050	<0.0010	4.59	0.0217	<0.0000050	0.000641	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	<0.000020	<0.000050	<0.010	<0.0000050	17.9	<0.00050	<0.00010	0.0003	0.083	<0.000050	<0.0010	4.34	0.0181	<0.0000050	0.000655	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	<0.000020	<0.000050	<0.010	<0.0000050	21.4	<0.00050	<0.00010	0.00033	0.051	<0.000050	<0.0010	5.16	0.0128	<0.0000050	0.000632	<0.00050
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	<0.000020	<0.000050	<0.010	<0.0000050	21.7	<0.00050	<0.00010	0.00033	0.051	<0.000050	<0.0010	5.13	0.0126	<0.0000050	0.000624	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	<0.000020	<0.000050	<0.010	<0.0000050	20.3	<0.00050	<0.00010	0.00028	0.051	<0.000050	<0.0010	5.01	0.0138	<0.0000050	0.000714	<0.00050
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	<0.000020	<0.000050	<0.010	<0.0000050	20.6	<0.00050	<0.00010	0.00029	0.047	<0.000050	<0.0010	4.97	0.0118	<0.0000050	0.000665	<0.00050
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	<0.000020	<0.000050	<0.010	<0.0000050	12.4	<0.00050	<0.00010	0.00062	0.109	<0.000050	<0.0010	2.89	0.0103	<0.0000050	0.000522	<0.00050
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	<0.000020	<0.000050	<0.010	<0.0000050	20.6	<0.00050	<0.00010	0.00037	0.209	<0.000050	<0.0010	4.79	0.0215	<0.0000050	0.000961	<0.00050
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	<0.000020	<0.000050	<0.010	<0.0000050	20.2	<0.00050	<0.00010	0.00034	0.208	<0.000050	<0.0010	4.64	0.0212	<0.0000050	0.000975	<0.00050
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	<0.000020	<0.000050	<0.010	<0.0000050	21	<0.00050	<0.00010	0.00026	0.262	<0.000050	<0.0010	5.38	0.0248	<0.0000050	0.000815	<0.00050
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	<0.000020	<0.000050	<0.010	<0.0000050	22.4	<0.00050	<0.00010	0.00026	0.141	<0.000050	<0.0010	5.81	0.0267	<0.0000050	0.000881	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	<0.000020	<0.000050	<0.010	<0.0000050	19.2	<0.00050	<0.00010	0.00034	0.287	<0.000050	<0.0010	4.51	0.0288	<0.0000050	0.000718	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	<0.000020	<0.000050	<0.010	<0.0000050	14	<0.00050	<0.00010	0.00083	0.33	<0.000050	<0.0010	3.17	0.0259	<0.0000050	0.000644	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	<0.000020	<0.000050	<0.010	<0.0000050	12.5	<0.00050	<0.00010	0.00069	0.133	<0.000050	<0.0010	2.9	0.00912	<0.0000050	0.000496	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	<0.000020	<0.000050	<0.010	<0.0000050	12.9	<0.00050	<0.00010	0.00058	0.108	<0.000050	<0.0010	2.99	0.0157	<0.0000050	0.000506	<0.00050
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	<0.000020	<0.000050	<0.010	<0.0000050	12.9	<0.00050	<0.00010	0.00058	0.103	<0.000050	<0.0010	2.96	0.0155	<0.0000050	0.000553	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	<0.000020	<0.000050	<0.010	<0.0000050	15.7	<0.00050	<0.00010	0.00046	0.106	<0.000050	<0.0010	3.57	0.0209	<0.0000050	0.000555	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	<0.000020	<0.000050	<0.010	<0.0000050	16.4	<0.00050	<0.00010	0.00044	0.126	<0.000050	<0.0010	4.11	0.0266	<0.0000050	0.00065	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	<0.000020	<0.000050	<0.010	<0.0000050	18.8	<0.00050	<0.00010	0.00039	0.132	<0.000050	<0.0010	4.79	0.032	<0.0000050	0.000768	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	<0.000020	<0.000050	<0.010	<0.0000050	20.6	<0.00050	<0.00010	0.00042	0.184	<0.000050	<0.0010	4.91	0.0224	<0.0000050	0.000897	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	<0.000020	<0.000050	<0.010	<0.0000050	21.1	<0.00050	<0.00010	0.00035	0.219	<0.000050	<0.0010	5.19	0.025	<0.0000050	0.00106	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	<0.000020	<0.000050	<0.010	<0.0000050	23.7	<0.00050	<0.00010	0.00032	0.268	<0.000050	<0.0010	5.87	0.0248	<0.0000050	0.00114	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	<0.000020	<0.000050	<0.010	<0.0000050	23.4	<0.00050	<0.00010	0.0003	0.276	<0.000050	<0.0010	6.2	0.0233	<0.0000050	0.00114	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	<0.000020	<0.000050	<0.010	<0.0000050	23.8	<0.00050	<0.00010	0.00029	0.281	<0.000050	<0.0010	6.68	0.0221	<0.0000050	0.00113	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	<0.000020	<0.000050	<0.010	<0.0000050	20.9	<0.00050	<0.00010	0.00026	0.277	<0.000050	<0.0010	5.59	0.0243	<0.0000050	0.000948	<0.00050
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	<0.000020	<0.000050	<0.010	<0.0000050	21.5	<0.00050	<0.00010	0.00027	0.292	<0.000050	<0.0010	5.94	0.0258	<0.0000050	0.000968	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	<0.000020	<0.000050	<0.010	<0.0000050	22.1	<0.00050	<0.00010	0.00026	0.265	<0.000050	<0.0010	6.04	0.0263	<0.0000050	0.000886	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	<0.000020	<0.000050	<0.010	<0.0000050	22	<0.00050	<0.00010	0.0003	0.222	<0.000050	<0.0010	5.96	0.0251	<0.0000050	0.000931	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	<0.000020	<0.000050	<0.010	<0.0000050	25.3	<0.00050	<0.00010	0.00026	0.121	<0.000050	<0.0010	6.65	0.0297	<0.0000050	0.000855	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	<0.000020	<0.000050	<0.010	<0.0000050	22.8	<0.00050	<0.00010	0.00027	0.141	<0.000050	<0.0010	6.24	0.0276	<0.0000050	0.000914	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	<0.000020	<0.000050	<0.010	<0.0000050	22	<0.00050	<0.00010	0.00028	0.11	<0.000050	<0.0010	6.34	0.0284	<0.0000050	0.000868	<0.00050
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	<0.000020	<0.000050	<0.010	<0.0000050	20.1	<0.00050	<0.00010	0.00052	0.199	<0.000050	<0.0010	5.32	0.0288	<0.0000050	0.000951	<0.00050
Creek 705	705-05	Surface	Regular	VA23A8158-003	<0.000020	<0.000050	<0.010	<0.0000050	8.68	<0.00050	<0.00010	0.00044	0.105	<0.000050	<0.0010	1.68	0.00291	<0.0000050	0.000408	<0.00050
Creek 705	705-05	Surface	Regular	VA23B0364-002	0.00003	<0.000050	<0.010	<0.0000050	4.21	<0.00050	<0.00010	0.0005	0.106	<0.000050	<0.0010	0.616	0.00341	0.0000083	0.000243	<0.00050
Creek 705	705-05	Surface	Regular	VA23B3687-004	<0.000020	<0.000050	<0.010	<0.0000050	5.54	<0.00050	<0.00010	0.00039	0.096	<0.000050	<0.0010	0.922	0.00472	<0.0000050	0.000631	<0.00050
Creek 705	705-05	Surface	Regular	VA23B7523-003	<0.000020	<0.000050	<0.010	<0.0000050	6.59	<0.00050	<0.00010	0.00045	0.159	<0.000050	<0.0010	0.953	0.00592	<0.0000050	0.000407	<0.00050
Creek 705	705-05	Surface	Regular	VA23B8906-003	<0.000020	<0.000050	<0.010	<0.0000050	6.8	<0.00050	<0.00010	0.00036	0.158	<0.000050	<0.0010	1.06	0.00909	<0.0000050	0.000572	<0.00050
Creek 705	705-05	Surface	Replicate	VA23B8906-004	<0.000020	<0.000050	<0.010	<0.0000050	6.79	<0.00050	<0.00010	0.00033	0.159	<0.000050	<0.0010	1.06	0.00914	<0.0000050	0.000569	<0.00050
Creek 705	705-05	Surface	Regular	VA23C1674-001	<0.000020	<0.000050	<0.010	<0.0000050	7.52	<0.00050	<0.00010	0.00031	0.203	<0.000050	<0.0010	1.27	0.0078	<0.0000050	0.000628	<0.00050
Creek 705	705-05	Surface	Regular	VA23C4014-006	<0.000020	<0.000050	<0.010	<0.0000050	7.16	<0.00050	<0.00010	0.00026	0.173	<0.000050	<0.0010	1.17	0.00678	<0.0000050	0.000574	<0.00050
Creek 705	705-05	Surface	Regular	VA23C7190-010	<0.000020	<0.000050	<0.010	<0.0000050	6.61	<0.00050	<0.00010	0.00029	0.158	<0.000050	<0.0010	1.12	0.0069	<0.0000050	0.000451	<0.00050
Creek 705	705-05	Surface	Replicate	VA23C7190-011	<0.000020	<0.000050	<0.010	<0.0000050	6.6	<0.00050	<0.00010	0.00031	0.163	<0.000050	<0.0010	1.13	0.00688	<0.0000050	0.000435	<0.00050
Creek 705	705-05	Surface	Regular	VA23C9661-004	<0.000020	<0.000050	<0.010	<0.0000050	7.97	<0.00050	<0.00010	<0.00020	0.137	<0.000050	<0.0010	1.16	0.00707	<0.0000050	0.000567	<0.00050
Creek 705	705-05	Surface	Regular	VA24A1833-002	<0.000020	<0.000050	<0.010	<0.0000050	7.41	<0.00050	<0.00010	0.00023	0.155	<0.000050	<0.0010	1.16	0.00744	<0.0000050	0.00064	<0.00050
Creek 705	705-05	Surface	Regular	VA24A3502-001	<0.000020	<0.000050	<0.010	<0.0000050	8.16	<0.00050	<0.00010	0.00027	0.192	<0.000050	<0.0010	1.29	0.0066	<0.0000050	0.000596	<0.00050
Creek 705	705-05	Surface	Regular	VA24A6018-001	0.000022	<0.000050	<0.010	<0.0000050	5.88	<0.00050	<0.00010	0.00059	0.335	<0.000050	<0.0010	1	0.0183	<0.0000050	0.00034	<0.00050
Creek 705	705-10	Surface	Regular	VA23A8158-001	<0.000020	<0.000050	<0.010	<0.0000050	8.42	<0.00050	<0.00010	0.00044	0.111	<0.000050	<0.0010	1.68	0.00341	<0.0000050	0.000394	<0.00050
Creek 705	705-10	Surface	Replicate	VA23A8158-002	<0.000020	<0.000050	<0.010	<0.0000050	8.41	<0.00050	<0.00010	0.00044	0.112	<0.000050	<0.0010	1.63	0.0034	<0.0000050	0.000396	<0.00050
Creek 705	705-10	Surface	Regular	VA23A9638-001	0.000039	<0.000050	<0.010	0.0000102	5.22	<0.00050	<0.00010	0.00095	0.24	0.000051	<0.0010	0.973	0.00738	0.0000117	0.000164	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)														
					Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved	Nickel (Ni)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	0.000032	<0.000050	<0.010	<0.0000050	5.08	<0.00050	<0.00010	0.00072	0.129	<0.000050	<0.0010	0.804	0.00272	0.0000092	0.000224	<0.00050
Creek 705	705-10	Surface	Regular	VA23B0766-009	0.000027	<0.000050	<0.010	<0.0000050	4.4	<0.00050	<0.00010	0.00062	0.076	<0.000050	<0.0010	0.736	0.00183	0.0000077	0.000235	<0.00050
Creek 705	705-10	Surface	Regular	VA23B1379-005	0.00003	<0.000050	<0.010	<0.0000050	5.59	<0.00050	<0.00010	0.00052	0.076	<0.000050	<0.0010	0.983	0.0018	0.0000054	0.00032	<0.00050
Creek 705	705-10	Surface	Regular	VA23B2224-004	<0.000020	<0.000050	<0.010	<0.0000050	6.15	<0.00050	<0.00010	0.00046	0.053	<0.000050	<0.0010	1.13	0.00131	<0.0000050	0.000469	<0.00050
Creek 705	705-10	Surface	Regular	VA23B3687-005	<0.000020	<0.000050	<0.010	<0.0000050	7.56	<0.00050	<0.00010	0.00045	0.034	<0.000050	<0.0010	1.35	0.00199	<0.0000050	0.000503	<0.00050
Creek 705	705-10	Surface	Regular	VA23B7523-002	<0.000020	<0.000050	<0.010	<0.0000050	7.25	<0.00050	<0.00010	0.00057	0.11	<0.000050	<0.0010	1.19	0.00319	0.0000053	0.000378	<0.00050
Creek 705	705-10	Surface	Regular	VA23B8906-002	<0.000020	<0.000050	<0.010	<0.0000050	7.54	<0.00050	<0.00010	0.0004	0.063	<0.000050	<0.0010	1.31	0.0015	<0.0000050	0.000468	<0.00050
Creek 705	705-10	Surface	Regular	VA23C1674-002	<0.000020	<0.000050	<0.010	<0.0000050	8.46	<0.00050	<0.00010	0.00036	0.029	<0.000050	<0.0010	1.63	0.00229	<0.0000050	0.00056	<0.00050
Creek 705	705-10	Surface	Regular	VA23C4014-007	<0.000020	<0.000050	<0.010	<0.0000050	8.53	<0.00050	<0.00010	0.00029	0.035	<0.000050	<0.0010	1.49	0.00097	<0.0000050	0.000531	<0.00050
Creek 705	705-10	Surface	Regular	VA23C4586-005	<0.000020	<0.000050	<0.010	<0.0000050	8.31	<0.00050	<0.00010	0.00029	0.023	<0.000050	<0.0010	1.56	0.00088	<0.0000050	0.000519	<0.00050
Creek 705	705-10	Surface	Regular	VA23C4858-004	<0.000020	<0.000050	<0.010	<0.0000050	9.26	<0.00050	<0.00010	0.0003	0.029	<0.000050	<0.0010	1.58	0.00112	<0.0000050	0.000522	<0.00050
Creek 705	705-10	Surface	Regular	VA23C5894-004	<0.000020	<0.000050	<0.010	<0.0000050	9.67	<0.00050	<0.00010	0.00031	0.023	<0.000050	<0.0010	1.87	0.00099	<0.0000050	0.000487	<0.00050
Creek 705	705-10	Surface	Regular	VA23C6383-004	<0.000020	<0.000050	<0.010	<0.0000050	9.22	<0.00050	<0.00010	0.00026	0.03	<0.000050	<0.0010	1.84	0.00082	<0.0000050	0.000505	<0.00050
Creek 705	705-10	Surface	Replicate	VA23C6383-006	<0.000020	<0.000050	<0.010	<0.0000050	11.8	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.38	<0.00010	<0.0000050	0.000766	<0.00050
Creek 705	705-10	Surface	Regular	VA23C6880-001	<0.000020	<0.000050	<0.010	<0.0000050	8.12	<0.00050	<0.00010	0.00038	0.109	<0.000050	<0.0010	1.46	0.00222	<0.0000050	0.000596	<0.00050
Creek 705	705-10	Surface	Regular	VA23C9661-005	<0.000020	<0.000050	<0.010	<0.0000050	9.02	<0.00050	<0.00010	0.00022	0.051	<0.000050	<0.0010	1.54	0.00088	<0.0000050	0.000521	<0.00050
Creek 705	705-10	Surface	Regular	VA24A1833-001	<0.000020	<0.000050	<0.010	<0.0000050	8.23	<0.00050	<0.00010	0.00032	0.076	<0.000050	<0.0010	1.46	0.00154	<0.0000050	0.000561	<0.00050
Creek 705	705-10	Surface	Regular	VA24A3529-004	<0.000020	<0.000050	<0.010	<0.0000050	9	<0.00050	<0.00010	0.00038	0.116	<0.000050	<0.0010	1.65	0.00171	<0.0000050	0.0005	<0.00050
Creek 705	705-10	Surface	Regular	VA24A6018-002	<0.000020	<0.000050	<0.010	<0.0000050	8	<0.00050	<0.00010	0.00067	0.288	<0.000050	<0.0010	1.46	0.00499	<0.0000050	0.000366	<0.00050
Creek 705	705-10	Surface	Replicate	VA24A6018-003	<0.000020	<0.000050	<0.010	<0.0000050	7.89	<0.00050	<0.00010	0.00067	0.293	<0.000050	<0.0010	1.45	0.00521	<0.0000050	0.000355	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	<0.000020	<0.000050	<0.010	<0.0000050	13.8	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.55	0.00011	<0.0000050	0.00104	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	<0.000020	<0.000050	<0.010	0.000008	11.6	<0.00050	<0.00010	0.00066	0.053	<0.000050	<0.0010	1.2	0.00167	<0.0000050	0.0006	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	<0.000020	<0.000050	<0.010	0.0000136	5.15	<0.00050	<0.00010	0.00069	0.062	<0.000050	<0.0010	0.454	0.00127	0.0000055	0.000179	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	<0.000020	<0.000050	<0.010	0.0000185	3.55	<0.00050	<0.00010	0.00071	0.04	<0.000050	<0.0010	0.313	0.00219	<0.0000050	0.000135	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	<0.000020	<0.000050	<0.010	0.0000139	4.83	<0.00050	<0.00010	0.00053	0.023	<0.000050	<0.0010	0.45	0.00042	<0.0000050	0.000206	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	<0.000020	<0.000050	<0.010	0.0000068	6.11	<0.00050	<0.00010	0.00045	0.012	<0.000050	<0.0010	0.592	0.00022	<0.0000050	0.000295	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	<0.000020	<0.000050	<0.010	0.0000089	7.25	<0.00050	<0.00010	0.00051	0.016	<0.000050	<0.0010	0.712	0.00021	<0.0000050	0.000341	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	<0.000020	<0.000050	<0.010	0.0000086	9.94	<0.00050	<0.00010	0.00046	<0.010	<0.000050	<0.0010	0.928	0.00018	<0.0000050	0.00043	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	<0.000020	<0.000050	<0.010	0.0000078	10.2	<0.00050	<0.00010	0.00035	<0.010	<0.000050	<0.0010	1.04	0.00034	<0.0000050	0.000494	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	<0.000020	<0.000050	<0.010	0.0000064	11.5	<0.00050	<0.00010	0.00025	<0.010	<0.000050	<0.0010	1.2	0.00013	<0.0000050	0.000665	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	<0.000020	<0.000050	<0.010	0.0000068	12.4	<0.00050	<0.00010	0.0002	<0.010	<0.000050	<0.0010	1.17	0.0001	<0.0000050	0.000692	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	<0.000020	<0.000050	<0.010	<0.0000050	11.4	<0.00050	<0.00010	0.0002	<0.010	<0.000050	<0.0010	1.26	0.00011	<0.0000050	0.00071	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	<0.000020	<0.000050	<0.010	0.0000066	11	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.18	0.00024	<0.0000050	0.000647	<0.00050
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	<0.000020	<0.000050	<0.010	<0.0000050	11.4	<0.00050	<0.00010	0.0002	<0.010	<0.000050	<0.0010	1.19	0.00014	<0.0000050	0.000679	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	<0.000020	<0.000050	<0.010	0.0000063	12.2	<0.00050	<0.00010	0.00026	<0.010	<0.000050	<0.0010	1.37	0.00016	<0.0000050	0.000691	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	<0.000020	<0.000050	<0.010	<0.0000050	9.25	<0.00050	<0.00010	0.00026	0.03	<0.000050	<0.0010	1.84	0.00083	<0.0000050	0.000482	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	<0.000020	<0.000050	<0.010	0.000006	10.9	<0.00050	<0.00010	0.00024	<0.010	<0.000050	<0.0010	1.21	0.00014	<0.0000050	0.000682	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	<0.000020	<0.000050	<0.010	<0.0000050	13.2	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.35	<0.00010	<0.0000050	0.000822	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	<0.000020	<0.000050	<0.010	0.0000051	12.9	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.46	<0.00010	<0.0000050	0.000922	<0.00050
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	<0.000020	<0.000050	<0.010	<0.0000050	12.7	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.48	<0.00010	<0.0000050	0.000905	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	<0.000020	<0.000050	<0.010	0.0000064	13.7	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.61	<0.00010	<0.0000050	0.000988	<0.00050
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	<0.000020	<0.000050	<0.010	0.0000066	14.6	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	1.55	<0.00010	<0.0000050	0.000996	<0.00050

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-05	Surface	Regular	VA23A7852-002	<0.050	0.512	0.000072	6.24	<0.000010	3.72	0.0957	1.17	<0.000010	<0.00010	<0.00030	0.000356	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23A9893-002	<0.050	0.736	<0.000050	4.65	0.000016	1.66	0.035	<0.50	<0.000010	<0.00010	0.00784	0.000156	0.00065	0.002
Davidson Creek	DC-05	Surface	Regular	VA23B0222-006	<0.050	0.457	<0.000050	4.48	0.000013	1.46	0.0282	<0.50	<0.000010	<0.00010	0.00491	0.000155	0.00054	0.0012
Davidson Creek	DC-05	Surface	Regular	VA23B0766-010	<0.050	0.29	<0.000050	4.24	<0.000010	1.38	0.0233	<0.50	<0.000010	<0.00010	0.00146	0.000184	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23B1529-005	<0.050	0.289	<0.000050	5.14	<0.000010	1.66	0.0291	<0.50	<0.000010	<0.00010	0.00137	0.000176	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23B2052-005	<0.050	0.308	<0.000050	5.19	<0.000010	1.94	0.0368	<0.50	<0.000010	<0.00010	0.00082	0.000148	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23B4181-003	<0.050	0.355	<0.000050	6.01	<0.000010	2.43	0.0515	<0.50	<0.000010	<0.00010	0.001	0.00016	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23B7293-008	<0.050	1.16	<0.000050	6.07	<0.000010	3.12	0.0779	4.62	<0.000010	<0.00010	0.00123	0.000096	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23B9219-002	<0.050	0.804	0.000054	6.21	<0.000010	3	0.0681	1.73	<0.000010	<0.00010	0.00063	0.000125	0.0005	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C0875-003	<0.050	0.651	<0.000050	6.21	<0.000010	3.12	0.0744	1.1	<0.000010	<0.00010	0.00035	0.000164	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C4014-002	<0.050	0.647	0.000059	6.36	<0.000010	3.06	0.0767	1.04	<0.000010	<0.00010	0.00164	0.000162	0.0005	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C4586-001	<0.050	0.62	0.000063	6.17	<0.000010	3.4	0.0818	1.27	<0.000010	<0.00010	0.00072	0.000199	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Replicate	VA23C4586-002	<0.050	0.619	0.00007	6.07	<0.000010	3.34	0.0796	0.87	<0.000010	<0.00010	0.00075	0.000198	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C4858-003	<0.050	0.655	<0.000050	6.03	<0.000010	3.3	0.0879	0.89	<0.000010	<0.00010	0.00063	0.000209	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C5894-001	<0.050	0.637	0.000073	6.73	<0.000010	3.48	0.0902	1.3	<0.000010	<0.00010	0.00124	0.0002	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C6383-003	<0.050	0.602	0.000054	6.56	<0.000010	3.22	0.0864	0.98	<0.000010	<0.00010	0.00075	0.000228	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C6896-004	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Davidson Creek	DC-05	Surface	Regular	VA23C7190-002	<0.050	0.668	<0.000050	6.16	<0.000010	2.76	0.0646	1.23	<0.000010	<0.00010	0.00182	0.00013	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23D0155-002	<0.050	0.572	0.000055	6.76	<0.000010	3.13	0.0782	1.02	<0.000010	<0.00010	0.00085	0.000171	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A0950-002	<0.050	0.663	0.000059	7.12	<0.000010	4.03	0.118	1.03	<0.000010	<0.00010	<0.00030	0.000469	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A1701-001	<0.050	0.603	0.000076	6.72	<0.000010	3.61	0.0875	1.04	<0.000010	<0.00010	0.00079	0.000312	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A2373-001	<0.050	0.688	0.000095	7.02	<0.000010	4.02	0.114	1.27	<0.000010	<0.00010	0.00032	0.000435	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A3578-001	<0.050	0.69	0.00009	6.75	<0.000010	3.55	0.0951	1.22	<0.000010	<0.00010	0.00061	0.000313	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A3850-003	<0.050	0.618	0.000087	7.21	<0.000010	3.42	0.0911	1.02	<0.000010	<0.00010	0.00042	0.000296	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A4452-001	<0.050	0.592	0.000078	7.01	<0.000010	3.34	0.091	0.87	<0.000010	<0.00010	0.00112	0.000238	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Replicate	VA24A4452-002	<0.050	0.598	0.000093	7.07	<0.000010	3.27	0.0877	1.07	<0.000010	<0.00010	0.00158	0.000247	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA24A5921-003	<0.050	0.82	0.000077	6.83	<0.000010	3.87	0.0988	1.23	<0.000010	<0.00010	0.00036	0.000313	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23A7852-003	<0.050	0.526	0.000089	6.32	<0.000010	3.66	0.0988	1.07	<0.000010	<0.00010	<0.00030	0.000387	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23A9893-003	<0.050	0.719	<0.000050	4.64	0.000016	1.68	0.035	<0.50	<0.000010	<0.00010	0.00745	0.000153	0.00066	0.0018
Davidson Creek	DC-10	Surface	Regular	VA23B4181-004	<0.050	0.349	<0.000050	5.7	<0.000010	2.27	0.0461	<0.50	<0.000010	<0.00010	0.00081	0.000138	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23B7293-007	<0.050	1.09	<0.000050	6.1	<0.000010	3.11	0.077	4.54	<0.000010	<0.00010	0.00095	0.000094	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23B9219-003	<0.050	0.776	<0.000050	6.17	<0.000010	2.93	0.0725	1.92	<0.000010	<0.00010	0.00049	0.000118	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23C2388-003	<0.050	0.625	<0.000050	6.2	<0.000010	3.28	0.0857	1.08	<0.000010	<0.00010	<0.00030	0.000165	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23C4014-003	<0.050	0.646	<0.000050	6.2	<0.000010	3.2	0.081	1.02	<0.000010	<0.00010	0.00107	0.000151	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23C7190-003	<0.050	0.647	<0.000050	6.2	<0.000010	2.86	0.0685	1.32	<0.000010	<0.00010	0.00169	0.000127	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA23D0155-003	<0.050	0.569	0.000051	6.86	<0.000010	3.13	0.079	1.13	<0.000010	<0.00010	0.00075	0.000162	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Replicate	VA23D0155-004	<0.050	0.581	<0.000050	6.95	<0.000010	3.13	0.0797	1.02	<0.000010	<0.00010	0.00076	0.000166	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA24A0618-001	<0.050	0.578	<0.000050	6.42	<0.000010	3.26	0.0982	0.93	<0.000010	<0.00010	0.00047	0.000308	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA24A2373-004	<0.050	0.645	0.000078	7.04	<0.000010	3.81	0.11	1.3	<0.000010	<0.00010	0.00132	0.000399	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Replicate	VA24A2373-005	<0.050	0.637	0.000058	7.05	<0.000010	3.84	0.11	1.34	<0.000010	<0.00010	<0.00030	0.000396	<0.00050	<0.0010
Davidson Creek	DC-10	Surface	Regular	VA24A4786-001	<0.050	0.624	0.000062	7.04	<0.000010	3.76	0.0877	0.96	<0.000010	<0.00010	0.001	0.000261	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23A9076-001	<0.050	0.766	<0.000050	6.04	<0.000010	3.54	0.102	1.08	<0.000010	<0.00010	<0.00030	0.000246	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23A9893-004	<0.050	0.73	0.000088	4.7	0.000016	1.83	0.0386	0.53	<0.000010	<0.00010	0.00737	0.00016	0.00068	0.0018
Davidson Creek	DC-15	Surface	Regular	VA23B4181-005	<0.050	0.421	<0.000050	5.96	<0.000010	2.48	0.0542	<0.50	<0.000010	<0.00010	0.00054	0.000112	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23B7293-006	<0.050	0.782	<0.000050	6.18	<0.000010	3.04	0.0723	3.49	<0.000010	<0.00010	0.00074	0.000083	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Replicate	VA23B7293-011	<0.050	0.804	0.000064	6.04	<0.000010	3.22	0.075	3.49	<0.000010	0.00018	0.00077	0.000077	<0.00050	0.0022
Davidson Creek	DC-15	Surface	Regular	VA23B9219-004	<0.050	0.726	0.000054	6.38	<0.000010	3.21	0.0798	1.44	<0.000010	<0.00010	0.00033	0.000096	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23C2388-004	<0.050	0.66	<0.000050	6.38	<0.000010	3.51	0.0929	1.07	<0.000010	<0.00010	<0.00030	0.00014	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23C4279-006	<0.050	0.708	<0.000050	6.74	<0.000010	3.57	0.0966	0.95	<0.000010	<0.00010	<0.00030	0.000152	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23C7190-004	<0.050	0.616	<0.000050	6.08	<0.000010	3.11	0.0785	1.05	<0.000010	<0.00010	0.00124	0.000124	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA23D0155-005	<0.050	0.591	<0.000050	6.97	<0.000010	3.42	0.0913	1.04	<0.000010	<0.00010	0.0003	0.000165	<0.00050	<0.0010

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Davidson Creek	DC-15	Surface	Regular	VA24A0618-002	<0.050	0.584	<0.000050	6.69	<0.000010	3.37	0.0946	0.89	<0.000010	<0.00010	0.00048	0.000207	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA24A2397-003	<0.050	0.677	<0.000050	6.76	<0.000010	4.04	0.112	0.89	<0.000010	<0.00010	<0.00030	0.0003	<0.00050	<0.0010
Davidson Creek	DC-15	Surface	Regular	VA24A4786-002	<0.050	0.597	0.00006	7.3	<0.000010	3.97	0.0944	0.89	<0.000010	<0.00010	0.00092	0.000236	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23A9207-003	<0.050	0.916	0.000055	5.39	<0.000010	3.21	0.0859	0.7	<0.000010	<0.00010	0.00036	0.000254	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23A9782-004	<0.050	0.848	<0.000050	5.32	0.000011	2.17	0.0489	<0.50	<0.000010	<0.00010	0.00311	0.000146	0.00072	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B0508-005	<0.050	0.451	0.000062	4.51	<0.000010	1.61	0.0307	<0.50	<0.000010	<0.00010	0.00179	0.000156	0.00051	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B1108-005	<0.050	0.353	0.000051	4.46	<0.000010	1.55	0.0313	<0.50	<0.000010	<0.00010	0.00109	0.000173	0.00052	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B1690-002	<0.050	0.398	<0.000050	5.44	<0.000010	2.03	0.0397	<0.50	<0.000010	<0.00010	0.00069	0.000133	0.00051	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B2219-004	<0.050	0.439	0.000059	6.01	<0.000010	2.22	0.0465	<0.50	<0.000010	<0.00010	0.00053	0.000109	0.00055	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B2847-003	<0.050	0.477	<0.000050	6.02	<0.000010	2.5	0.0586	<0.50	<0.000010	<0.00010	<0.00030	0.000106	0.00055	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B7734-005	<0.050	0.692	0.000058	6.37	<0.000010	3.09	0.086	2.27	<0.000010	<0.00010	0.00033	0.000086	0.00056	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23B9723-001	<0.050	0.739	0.000069	6.33	<0.000010	3.33	0.0852	0.99	<0.000010	<0.00010	<0.00030	0.000104	0.00059	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C2546-001	<0.050	0.747	0.00005	6.4	<0.000010	3.6	0.0967	0.95	<0.000010	<0.00010	<0.00030	0.000131	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Replicate	VA23C2546-002	<0.050	0.758	<0.000050	6.35	<0.000010	3.69	0.0975	0.96	<0.000010	<0.00010	<0.00030	0.000129	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C3871-006	<0.050	0.742	<0.000050	6.72	<0.000010	3.77	0.0911	1	<0.000010	<0.00010	<0.00030	0.000137	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C4458-004	<0.050	0.724	<0.000050	6.67	<0.000010	3.72	0.0965	0.76	<0.000010	<0.00010	<0.00030	0.000152	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C5184-002	<0.050	0.785	<0.000050	6.51	<0.000010	4.1	0.101	0.95	<0.000010	<0.00010	<0.00030	0.000169	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Replicate	VA23C5184-003	<0.050	0.761	<0.000050	6.66	<0.000010	3.9	0.0991	0.96	<0.000010	<0.00010	<0.00030	0.000166	<0.00050	0.0025
Davidson Creek	DC-20	Surface	Regular	VA23C5771-005	<0.050	0.58	<0.000050	6.64	<0.000010	3.28	0.0909	0.98	<0.000010	<0.00010	<0.00030	0.000148	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C6498-006	<0.050	0.617	<0.000050	6.46	<0.000010	3.56	0.0926	0.8	<0.000010	<0.00010	<0.00030	0.00017	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA23C9626-004	<0.050	0.582	<0.000050	6.66	<0.000010	3.28	0.0825	1.24	<0.000010	<0.00010	0.00061	0.000154	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Regular	VA24A1649-001	<0.050	0.711	<0.000050	6.66	<0.000010	3.78	0.109	0.94	<0.000010	<0.00010	<0.00030	0.000254	<0.00050	0.0026
Davidson Creek	DC-20	Surface	Regular	VA24A3529-002	<0.050	0.644	<0.000050	6.91	<0.000010	3.91	0.108	1.03	<0.000010	<0.00010	<0.00030	0.000296	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-001	<0.050	0.928	0.000068	6.15	<0.000010	3.12	0.0767	1.01	<0.000010	<0.00010	0.00309	0.000133	<0.00050	<0.0010
Davidson Creek	DC-20	Surface	Replicate	VA24A6440-005	<0.050	0.926	<0.000050	5.97	<0.000010	3.04	0.0786	1.12	<0.000010	<0.00010	0.00191	0.000127	<0.00050	<0.0010
Davidson Creek	DC-05	Surface	Regular	VA23C6896-005	<0.050	0.724	0.000062	6.67	<0.000010	3.29	0.0926	1.34	<0.000010	<0.00010	0.00167	0.000234	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23A8158-006	<0.050	0.191	<0.000050	4.8	<0.000010	2.07	0.0237	<0.50	<0.000010	<0.00010	0.00044	0.000029	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B0766-007	<0.050	0.2	<0.000050	3.54	<0.000010	1.26	0.0153	<0.50	<0.000010	<0.00010	<0.00120	0.000071	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B1379-001	<0.050	0.156	<0.000050	3.3	<0.000010	1.42	0.0161	<0.50	<0.000010	<0.00010	<0.00060	0.000068	<0.00050	<0.0010
Creek 661	661-01	Surface	Replicate	VA23B1379-002	<0.050	0.158	<0.000050	3.3	<0.000010	1.39	0.0165	<0.50	<0.000010	<0.00010	0.00092	0.000069	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B2224-001	<0.050	0.195	<0.000050	3.64	<0.000010	1.55	0.0181	<0.50	<0.000010	<0.00010	0.00057	0.000044	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B2847-004	<0.050	0.188	<0.000050	3.29	<0.000010	1.52	0.0188	<0.50	<0.000010	<0.00010	0.00046	0.000041	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B3687-001	<0.050	0.201	<0.000050	3.79	<0.000010	1.72	0.0234	<0.50	<0.000010	<0.00010	0.00036	0.000037	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B7523-004	<0.050	0.254	<0.000050	3.59	<0.000010	1.84	0.0276	<0.50	<0.000010	<0.00010	0.00046	0.000027	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23B8906-006	<0.050	0.28	<0.000050	4.67	<0.000010	2.07	0.0339	<0.50	<0.000010	<0.00010	<0.00030	0.000026	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C0875-002	<0.050	0.287	<0.000050	4.91	<0.000010	2.29	0.032	<0.50	<0.000010	<0.00010	<0.00030	0.000025	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C4014-004	<0.050	0.337	<0.000050	5.62	<0.000010	2.31	0.0376	<0.50	<0.000010	<0.00010	<0.00030	0.000022	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C4586-003	<0.050	0.296	<0.000050	5.19	<0.000010	2.39	0.0329	<0.50	<0.000010	<0.00010	0.00036	0.000028	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C4858-001	<0.050	0.331	<0.000050	5.21	<0.000010	2.38	0.0374	<0.50	<0.000010	<0.00010	<0.00030	0.000024	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C5894-003	<0.050	0.294	<0.000050	5.48	<0.000010	2.38	0.0419	<0.50	<0.000010	<0.00010	0.00037	0.000027	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C6383-001	<0.050	0.271	<0.000050	5.55	<0.000010	2.2	0.0357	<0.50	<0.000010	<0.00010	0.00037	0.000028	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C7190-008	<0.050	0.293	<0.000050	5.16	<0.000010	2.04	0.0298	<0.50	<0.000010	<0.00010	<0.00030	0.000022	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA23C9661-001	<0.050	0.288	<0.000050	5.23	<0.000010	2.22	0.0349	<0.50	<0.000010	<0.00010	0.00033	0.000023	<0.00050	<0.0010
Creek 661	661-01	Surface	Replicate	VA23C9661-002	<0.050	0.285	<0.000050	5.23	<0.000010	2.22	0.0365	<0.50	<0.000010	<0.00010	<0.00030	0.000018	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA24A1833-003	<0.050	0.216	<0.000050	4.68	<0.000010	1.92	0.0271	<0.50	<0.000010	<0.00010	0.00052	0.000038	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA24A3502-002	<0.050	0.222	<0.000050	4.95	<0.000010	1.96	0.0259	<0.50	<0.000010	<0.00010	0.00056	0.000036	<0.00050	<0.0010
Creek 661	661-01	Surface	Replicate	VA24A3502-003	<0.050	0.223	<0.000050	4.87	<0.000010	1.96	0.0258	<0.50	<0.000010	<0.00010	0.0006	0.000034	<0.00050	<0.0010
Creek 661	661-01	Surface	Regular	VA24A6018-004	<0.050	0.242	<0.000050	5.01	<0.000010	1.76	0.0223	<0.50	<0.000010	<0.00010	0.00037	0.00004	<0.00050	<0.0010
Creek 661	661-04	Surface	Regular	VA23A8158-007	<0.050	0.548	<0.000050	7.65	<0.000010	3.49	0.06	1.18	<0.000010	<0.00010	<0.00030	0.000056	<0.00050	0.003
Creek 661	661-04	Surface	Regular	VA23B0766-008	<0.050	0.455	<0.000050	4.28	0.000013	1.64	0.0253	0.91	<0.000010	<0.00010	0.00118	0.000074	0.00051	0.0086
Creek 661	661-04	Surface	Regular	VA23B1379-004	<0.050	0.448	<0.000050	5	<0.000010	1.94	0.0321	0.72	<0.000010	<0.00010	0.0008	0.000078	0.00064	0.0083

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-04	Surface	Regular	VA23B2224-002	<0.050	0.449	<0.000050	6.24	<0.000010	2.13	0.0334	0.62	<0.000010	<0.00010	0.0006	0.000061	0.00051	0.006
Creek 661	661-04	Surface	Regular	VA23B2847-005	<0.050	0.469	<0.000050	6.56	<0.000010	2.4	0.0403	0.66	<0.000010	<0.00010	0.00033	0.000055	0.00056	0.005
Creek 661	661-04	Surface	Regular	VA23B3687-002	<0.050	0.497	<0.000050	6.99	<0.000010	2.82	0.048	0.51	<0.000010	<0.00010	0.00042	0.00006	0.00058	0.0047
Creek 661	661-04	Surface	Replicate	VA23B3687-003	<0.050	0.49	<0.000050	7.15	<0.000010	2.79	0.0491	0.65	<0.000010	<0.00010	0.00033	0.000059	0.00056	0.0047
Creek 661	661-04	Surface	Regular	VA23B8906-005	<0.050	0.612	<0.000050	7.46	<0.000010	3.41	0.0665	1.01	<0.000010	<0.00010	<0.00030	0.000056	0.00057	0.004
Creek 661	661-04	Surface	Regular	VA23C1991-004	<0.050	0.632	<0.000050	7.77	<0.000010	3.39	0.0689	<0.50	<0.000010	<0.00010	<0.00030	0.000071	0.0005	0.0035
Creek 661	661-04	Surface	Regular	VA23C4014-005	<0.050	0.712	<0.000050	8.03	<0.000010	3.54	0.07	0.81	<0.000010	<0.00010	<0.00030	0.000053	<0.00050	0.0032
Creek 661	661-04	Surface	Regular	VA23C4586-004	<0.050	0.656	<0.000050	7.25	<0.000010	3.7	0.0658	0.9	<0.000010	<0.00010	<0.00030	0.000057	<0.00050	0.0031
Creek 661	661-04	Surface	Regular	VA23C4858-002	<0.050	0.717	<0.000050	7.67	<0.000010	3.64	0.071	0.8	<0.000010	<0.00010	<0.00030	0.000057	<0.00050	0.0031
Creek 661	661-04	Surface	Regular	VA23C5894-002	<0.050	0.597	<0.000050	8.02	<0.000010	3.62	0.0657	1.26	<0.000010	<0.00010	<0.00030	0.000055	<0.00050	0.0039
Creek 661	661-04	Surface	Regular	VA23C6383-002	<0.050	0.563	<0.000050	7.84	<0.000010	3.43	0.064	0.72	<0.000010	<0.00010	<0.00030	0.000061	<0.00050	0.003
Creek 661	661-04	Surface	Regular	VA23C7190-009	<0.050	0.588	<0.000050	7.3	<0.000010	3.28	0.0574	1.38	<0.000010	<0.00010	<0.00030	0.000047	<0.00050	0.0032
Creek 661	661-04	Surface	Regular	VA23C9661-003	<0.050	0.56	<0.000050	7.84	<0.000010	3.48	0.0674	1.29	<0.000010	<0.00010	<0.00030	0.000051	<0.00050	0.0034
Creek 661	661-04	Surface	Regular	VA24A1634-001	<0.050	0.53	<0.000050	8.09	<0.000010	3.4	0.0641	0.78	<0.000010	<0.00010	<0.00030	0.000051	<0.00050	0.0037
Creek 661	661-04	Surface	Regular	VA24A3502-004	<0.050	0.603	<0.000050	8.04	<0.000010	3.58	0.0682	0.93	<0.000010	<0.00010	<0.00030	0.000066	<0.00050	0.0038
Creek 661	661-04	Surface	Regular	VA24A6018-005	<0.050	0.655	<0.000050	7.52	<0.000010	3.25	0.0642	1.1	<0.000010	<0.00010	0.00078	0.000063	0.00061	0.0046
Creek 661	661-05	Surface	Regular	VA23A9322-001	<0.050	0.659	0.000057	8.02	<0.000010	3.45	0.0731	0.58	<0.000010	<0.00010	0.00059	0.000125	0.00155	<0.0010
Creek 661	661-05	Surface	Regular	VA23B0766-005	<0.050	0.466	<0.000050	6.13	<0.000010	2.21	0.0422	<0.50	<0.000010	<0.00010	0.00217	0.000115	0.00142	<0.0010
Creek 661	661-05	Surface	Regular	VA23B4181-001	<0.050	0.448	0.000064	8.08	<0.000010	3.36	0.0678	<0.50	<0.000010	<0.00010	0.00085	0.000106	0.00159	<0.0010
Creek 661	661-05	Surface	Regular	VA23B7293-010	<0.050	0.515	0.000059	7.27	<0.000010	3.36	0.0721	<0.50	<0.000010	<0.00010	0.00066	0.000112	0.00155	<0.0010
Creek 661	661-05	Surface	Regular	VA23B9219-005	0.054	0.545	<0.000050	8.26	<0.000010	3.72	0.0862	<0.50	<0.000010	<0.00010	0.00082	0.000169	0.00164	<0.0010
Creek 661	661-05	Surface	Regular	VA23C1491-002	<0.050	0.581	0.000051	8.63	<0.000010	3.76	0.0912	<0.50	<0.000010	<0.00010	<0.00030	0.000182	0.00162	<0.0010
Creek 661	661-05	Surface	Regular	VA23C4865-004	0.05	0.711	0.000064	9.26	<0.000010	4.07	0.0857	0.54	<0.000010	<0.00010	<0.00030	0.000177	0.00168	<0.0010
Creek 661	661-05	Surface	Replicate	VA23C7190-006	<0.050	0.596	0.00006	8.59	<0.000010	3.7	0.0795	<0.50	<0.000010	<0.00010	0.00044	0.000152	0.00155	<0.0010
Creek 661	661-05	Surface	Regular	VA23C9238-004	<0.050	0.555	0.000066	9.06	<0.000010	3.76	0.0852	<0.50	<0.000010	<0.00010	0.00164	0.000205	0.00162	<0.0010
Creek 661	661-05	Surface	Regular	VA24A0950-003	<0.050	0.607	0.000082	9.42	<0.000010	4.07	0.0859	<0.50	<0.000010	<0.00010	0.00067	0.000161	0.00164	<0.0010
Creek 661	661-05	Surface	Regular	VA24A2397-002	<0.050	0.583	0.000066	8.85	<0.000010	3.95	0.0856	<0.50	<0.000010	<0.00010	0.00057	0.000207	0.00173	<0.0010
Creek 661	661-05	Surface	Regular	VA24A6300-001	<0.050	0.626	0.000066	8.94	<0.000010	3.8	0.0801	<0.50	<0.000010	<0.00010	0.00166	0.000178	0.00171	<0.0010
Creek 661	661-03	Surface	Regular	VA23A8011-002	<0.050	0.342	0.000065	7.05	<0.000010	3.32	0.0551	<0.50	<0.000010	<0.00010	0.00072	0.000044	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23A9531-006	<0.050	0.728	<0.000050	5.45	<0.000010	2.38	0.0356	<0.50	<0.000010	<0.00010	0.00201	0.000037	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B0222-001	<0.050	0.55	0.000052	5.39	<0.000010	2.1	0.0334	<0.50	<0.000010	<0.00010	0.00233	0.000059	<0.00050	<0.0010
Creek 661	661-03	Surface	Replicate	VA23B0222-002	<0.050	0.543	0.000067	5.29	<0.000010	2.23	0.0327	<0.50	<0.000010	<0.00010	0.00226	0.000053	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B0766-004	<0.050	0.426	<0.000050	5.68	<0.000010	2.45	0.0399	<0.50	<0.000010	<0.00010	<0.00090	0.000042	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B1529-001	<0.050	0.307	<0.000050	6.3	<0.000010	2.56	0.0407	<0.50	<0.000010	<0.00010	0.00053	0.000044	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B2052-002	<0.050	0.28	<0.000050	6.22	<0.000010	2.64	0.0466	<0.50	<0.000010	<0.00010	0.00063	0.00005	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B3987-002	<0.050	0.376	0.000066	7.11	<0.000010	3.31	0.0634	<0.50	<0.000010	<0.00010	0.00044	0.000049	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B7293-003	<0.050	0.347	0.000057	7.38	<0.000010	3.22	0.066	<0.50	<0.000010	<0.00010	0.0007	0.000044	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23B9359-002	<0.050	0.467	<0.000050	8.53	<0.000010	4.07	0.0846	<0.50	<0.000010	<0.00010	<0.00030	0.00006	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C1491-001	<0.050	0.631	<0.000050	9.33	<0.000010	4.04	0.0974	<0.50	<0.000010	<0.00010	<0.00030	0.000103	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C3847-004	<0.050	0.753	<0.000050	9.59	<0.000010	4.46	0.0951	<0.50	<0.000010	<0.00010	<0.00030	0.000105	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C4279-004	<0.050	0.713	<0.000050	9.42	<0.000010	4.28	0.0968	<0.50	<0.000010	<0.00010	<0.00030	0.000109	<0.00050	<0.0010
Creek 661	661-03	Surface	Replicate	VA23C4279-005	<0.050	0.712	<0.000050	9.36	<0.000010	4.3	0.0964	<0.50	<0.000010	<0.00010	<0.00030	0.000104	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C4865-003	<0.050	0.759	<0.000050	9.79	<0.000010	4.5	0.0932	<0.50	<0.000010	<0.00010	<0.00030	0.000094	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C5577-001	<0.050	0.424	<0.000050	8.23	<0.000010	3.56	0.0672	<0.50	<0.000010	<0.00010	<0.00030	0.000042	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C6622-002	<0.050	0.483	<0.000050	7.75	<0.000010	3.45	0.0768	<0.50	<0.000010	<0.00010	<0.00030	0.000047	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA23C9238-001	<0.050	0.323	<0.000050	7.64	<0.000010	3.41	0.0632	<0.50	<0.000010	<0.00010	0.00038	0.000046	<0.00050	<0.0010
Creek 661	661-03	Surface	Regular	VA24A0932-002	<0.050	0.565	<0.000050	9.27	<0.000010	4.29	0.082	1.3	<0.000010	<0.00010	0.00123	0.000089	<0.00050	0.0013
Creek 661	661-03	Surface	Replicate	VA24A0932-003	<0.050	0.577	<0.000050	9.22	<0.000010	4.35	0.0818	<0.50	<0.000010	<0.00010	0.00034	0.000062	<0.00050	0.0014
Creek 661	661-03	Surface	Regular	VA24A2975-003	<0.050	0.361	<0.000050	7.81	<0.000010	3.47	0.0646	0.97	<0.000010	<0.00010	0.00066	0.000046	<0.00050	0.002
Creek 661	661-03	Surface	Regular	VA24A5191-002	<0.050	0.522	0.000054	8.67	<0.000010	3.63	0.0796	<0.50	<0.000010	<0.00010	<0.00030	0.000077	<0.00050	0.0018

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 661	661-10	Surface	Regular	VA23A8011-001	<0.050	0.508	0.00006	7.66	<0.000010	3.61	0.0651	0.62	<0.000010	<0.00010	0.00031	0.000131	0.00094	0.0012
Creek 661	661-10	Surface	Replicate	VA23A8011-005	<0.050	0.521	0.000054	7.64	<0.000010	3.53	0.0663	0.61	<0.000010	<0.00010	0.00033	0.000136	0.00095	0.0012
Creek 661	661-10	Surface	Regular	VA23A9531-001	<0.050	0.84	0.000061	5.8	<0.000010	2.46	0.0477	0.86	<0.000010	<0.00010	0.00382	0.000088	0.001	0.004
Creek 661	661-10	Surface	Regular	VA23B0222-003	<0.050	0.489	<0.000050	4.53	0.000017	1.64	0.0252	<0.50	<0.000010	<0.00010	0.0044	0.000097	0.00086	0.0038
Creek 661	661-10	Surface	Regular	VA23B0766-003	<0.050	0.372	<0.000050	4.31	<0.000010	1.64	0.0238	<0.50	<0.000010	<0.00010	0.00119	0.000085	0.00071	0.0039
Creek 661	661-10	Surface	Regular	VA23B1529-002	<0.050	0.353	<0.000050	5.05	<0.000010	2.08	0.0279	<0.50	<0.000010	<0.00010	0.00083	0.000087	0.00078	0.003
Creek 661	661-10	Surface	Regular	VA23B2052-001	<0.050	0.375	0.000053	5.15	<0.000010	2.17	0.0339	0.69	<0.000010	<0.00010	0.00116	0.000083	0.00084	0.0029
Creek 661	661-10	Surface	Regular	VA23B3987-001	<0.050	0.464	0.000071	5.91	<0.000010	2.77	0.047	<0.50	<0.000010	<0.00010	0.00077	0.000076	0.00085	0.0025
Creek 661	661-10	Surface	Regular	VA23B7293-001	<0.050	0.522	<0.000050	6.28	<0.000010	3.14	0.0589	1.33	<0.000010	<0.00010	0.0006	0.000072	0.00084	0.0024
Creek 661	661-10	Surface	Regular	VA23B9359-001	<0.050	0.564	<0.000050	6.54	<0.000010	3.48	0.0687	<0.50	<0.000010	<0.00010	0.00056	0.000089	0.00104	0.0017
Creek 661	661-10	Surface	Regular	VA23C0875-001	<0.050	0.542	0.000059	7.01	<0.000010	3.42	0.0667	<0.50	<0.000010	<0.00010	0.00073	0.000099	0.00089	0.0025
Creek 661	661-10	Surface	Regular	VA23C3847-003	<0.050	0.604	<0.000050	7.81	<0.000010	3.48	0.0661	0.52	<0.000010	<0.00010	0.00051	0.000095	0.00081	0.0019
Creek 661	661-10	Surface	Regular	VA23C4279-003	<0.050	0.603	<0.000050	7.64	<0.000010	3.47	0.0677	0.55	<0.000010	<0.00010	0.00065	0.000096	0.00082	0.0024
Creek 661	661-10	Surface	Regular	VA23C4865-005	<0.050	0.659	0.000052	7.95	<0.000010	3.62	0.0634	0.71	<0.000010	<0.00010	0.00056	0.000087	0.00076	0.0021
Creek 661	661-10	Surface	Regular	VA23C5577-002	<0.050	0.548	<0.000050	7.75	<0.000010	3.51	0.0596	0.84	<0.000010	<0.00010	0.00048	0.000077	0.00062	0.0022
Creek 661	661-10	Surface	Replicate	VA23C5577-003	<0.050	0.545	<0.000050	7.72	<0.000010	3.44	0.0646	0.86	<0.000010	<0.00010	0.00052	0.000077	0.00062	0.0022
Creek 661	661-10	Surface	Regular	VA23C6622-001	<0.050	0.531	<0.000050	7.55	<0.000010	3.29	0.0682	0.69	<0.000010	<0.00010	0.0004	0.000072	0.00052	0.0022
Creek 661	661-10	Surface	Regular	VA23C9238-002	<0.050	0.512	<0.000050	8.06	<0.000010	3.54	0.0675	0.85	<0.000010	<0.00010	0.00076	0.000075	0.00057	0.0019
Creek 661	661-10	Surface	Regular	VA24A0932-001	<0.050	0.563	<0.000050	8.9	<0.000010	3.79	0.07	0.62	<0.000010	<0.00010	0.00052	0.000065	0.00053	0.0023
Creek 661	661-10	Surface	Regular	VA24A2975-001	<0.050	0.56	<0.000050	8.39	<0.000010	3.55	0.0704	0.96	<0.000010	<0.00010	0.00037	0.000088	0.00066	0.0024
Creek 661	661-10	Surface	Regular	VA24A5191-001	<0.050	0.595	<0.000050	8.4	<0.000010	3.43	0.0727	0.62	<0.000010	<0.00010	0.00041	0.000082	0.00066	0.0021
Creek 661	661-20	Surface	Regular	VA23A8011-004	<0.050	0.922	0.000062	7.44	<0.000010	4.52	0.0897	0.74	<0.000010	<0.00010	0.00295	0.000332	0.00083	<0.0010
Creek 661	661-20	Surface	Regular	VA23A9531-002	<0.050	1.08	0.00008	6.12	<0.000010	2.83	0.0574	0.62	<0.000010	<0.00010	0.00384	0.000148	0.001	<0.0010
Creek 661	661-20	Surface	Regular	VA23B3987-003	<0.050	0.848	0.000098	6.52	<0.000010	4.35	0.0885	0.55	<0.000010	<0.00010	0.00035	0.000274	0.00093	<0.0010
Creek 661	661-20	Surface	Regular	VA23B7293-004	<0.050	0.806	<0.000050	6.66	<0.000010	4.22	0.0926	<0.50	<0.000010	<0.00010	0.00187	0.000243	0.00098	<0.0010
Creek 661	661-20	Surface	Regular	VA23C0762-004	<0.050	0.864	0.000066	7.46	<0.000010	4.96	0.105	0.56	<0.000010	<0.00010	0.00032	0.000334	0.00087	<0.0010
Creek 661	661-20	Surface	Regular	VA23C6622-005	<0.050	0.812	<0.000050	7.45	<0.000010	4.78	0.104	0.9	<0.000010	<0.00010	<0.00030	0.000341	0.00052	<0.0010
Creek 661	661-20	Surface	Replicate	VA23C6622-006	<0.050	0.813	<0.000050	7.45	<0.000010	4.75	0.105	0.84	<0.000010	<0.00010	<0.00030	0.000346	0.00052	<0.0010
Creek 661	661-20	Surface	Regular	VA24A2975-002	<0.050	0.826	<0.000050	8.42	<0.000010	4.82	0.101	0.98	<0.000010	<0.00010	<0.00030	0.00039	0.0007	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23A8011-003	<0.050	1.3	0.00007	6.43	<0.000010	4.4	0.104	1.12	<0.000010	<0.00010	<0.00090	0.000134	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23A9531-004	<0.050	1.26	0.000055	4.91	<0.000010	2.44	0.0537	0.9	<0.000010	<0.00010	0.00732	0.000049	0.00062	<0.0010
Chedakuz Creek	CC-03	Surface	Replicate	VA23A9531-005	<0.050	1.28	0.000064	4.94	<0.000010	2.39	0.054	0.79	<0.000010	<0.00010	0.00774	0.00005	0.00065	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B0222-004	<0.050	0.722	0.000065	4.19	<0.000010	2.26	0.0547	0.61	<0.000010	<0.00010	0.0016	0.000038	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B0766-001	<0.050	0.848	0.00006	5.06	<0.000010	3	0.0785	0.73	<0.000010	<0.00010	<0.00060	0.000051	0.00051	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B1529-003	<0.050	0.821	0.000067	5.69	<0.000010	3.15	0.0844	0.67	<0.000010	<0.00010	0.0003	0.000065	0.00051	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B2052-003	<0.050	0.82	0.00005	5.63	<0.000010	3.3	0.0925	1.1	<0.000010	<0.00010	0.00032	0.000082	0.00053	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B3987-004	<0.050	1.07	0.000103	6.41	<0.000010	4.35	0.113	1.99	<0.000010	<0.00010	<0.00030	0.000161	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23B7293-005	<0.050	1.04	0.000054	6.61	<0.000010	4.54	0.119	1.32	<0.000010	<0.00010	<0.00030	0.00015	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C0762-002	<0.050	1.22	0.000072	7.43	<0.000010	5.29	0.128	1.36	<0.000010	<0.00010	<0.00030	0.000213	0.00051	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C1491-003	<0.050	1.29	0.000056	7.41	<0.000010	5.28	0.142	1.29	<0.000010	<0.00010	<0.00030	0.000251	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C3847-001	<0.050	1.32	<0.000050	7.74	<0.000010	5.58	0.134	1.95	<0.000010	<0.00010	<0.00030	0.000261	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C4279-001	<0.050	1.3	<0.000050	7.79	<0.000010	5.64	0.134	1.67	<0.000010	<0.00010	<0.00030	0.000265	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C4865-001	<0.050	1.31	<0.000050	8.2	<0.000010	5.84	0.128	2	<0.000010	<0.00010	<0.00030	0.000245	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C5577-004	<0.050	1.19	<0.000050	7.84	<0.000010	5.48	0.122	1.93	<0.000010	<0.00010	<0.00030	0.000252	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C6622-003	<0.050	1.19	<0.000050	7.35	<0.000010	5.37	0.132	2.21	<0.000010	<0.00010	<0.00030	0.000295	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA23C9238-003	<0.050	1.17	0.000054	8.12	<0.000010	5.68	0.134	2.19	<0.000010	<0.00010	<0.00030	0.000328	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA24A0932-004	<0.050	1.38	0.000074	9.32	<0.000010	6.68	0.132	1.62	<0.000010	<0.00010	<0.00030	0.000311	<0.00050	<0.0010
Chedakuz Creek	CC-03	Surface	Regular	VA24A2972-001	<0.050	1.48	<0.000050	7.73	<0.000010	5.95	0.14	1.92	<0.000010	<0.00010	<0.00030	0.00028	<0.00050	0.0031
Chedakuz Creek	CC-03	Surface	Regular	VA24A5191-003	<0.050	1.37	0.00006	5.03	<0.000010	5.05	0.14	1.26	<0.000010	<0.00010	<0.00030	0.000174	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23A9531-003	<0.050	1.2	0.000072	5.47	<0.000010	2.49	0.0552	0.97	<0.000010	<0.00010	0.00678	0.00008	0.00073	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23B0222-005	<0.050	0.674	0.000064	4.58	<0.000010	2.1	0.0423	<0.50	<0.000010	<0.00010	0.00295	0.000088	0.00072	<0.0010

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-05	Surface	Regular	VA23B0766-002	<0.050	0.699	0.000058	5	<0.000010	2.58	0.059	0.74	<0.000010	<0.00010	0.00069	0.000086	0.00066	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23B1529-004	<0.050	0.795	<0.000050	5.91	<0.000010	3.08	0.0747	0.55	<0.000010	<0.00010	0.00032	0.000084	0.00063	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23B2052-004	<0.050	0.794	0.000088	5.73	<0.000010	3.25	0.0879	1	<0.000010	<0.00010	0.00039	0.000106	0.00065	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C0762-001	<0.050	1.01	0.000084	7.28	<0.000010	5.01	0.12	0.86	<0.000010	<0.00010	<0.00030	0.000276	0.00063	<0.0010
Chedakuz Creek	CC-05	Surface	Replicate	VA23C0762-003	<0.050	1.01	0.000068	7.29	<0.000010	5	0.122	0.88	<0.000010	<0.00010	<0.00030	0.000275	0.00065	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C3847-002	<0.050	1.09	<0.000050	7.69	<0.000010	5.2	0.12	1.23	<0.000010	<0.00010	<0.00030	0.000301	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C4279-002	<0.050	1.05	<0.000050	7.64	<0.000010	5.16	0.118	1.18	<0.000010	<0.00010	<0.00030	0.000297	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C4865-002	<0.050	1.05	<0.000050	7.84	<0.000010	5.42	0.116	1.4	<0.000010	<0.00010	<0.00030	0.000286	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C5577-005	<0.050	0.938	<0.000050	7.61	<0.000010	4.99	0.109	1.25	<0.000010	<0.00010	<0.00030	0.000287	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA23C6622-004	<0.050	0.949	<0.000050	7.22	<0.000010	4.9	0.116	1.37	<0.000010	<0.00010	<0.00030	0.000318	<0.00050	<0.0010
Chedakuz Creek	CC-05	Surface	Regular	VA24A2972-002	<0.050	1.23	<0.000050	8.07	<0.000010	5.44	0.121	1.53	<0.000010	<0.00010	<0.00030	0.000331	<0.00050	0.0028
Chedakuz Creek	CC-10	Surface	Regular	VA23B0508-006	<0.050	0.77	0.000067	4.41	<0.000010	3.1	0.0859	1	<0.000010	<0.00010	<0.00030	0.000089	<0.00050	<0.0010
Chedakuz Creek	CC-10	Surface	Regular	VA23B9219-006	<0.050	0.76	0.00006	2.63	<0.000010	3.53	0.0979	1.38	<0.000010	<0.00010	<0.00030	0.000094	<0.00050	<0.0010
Chedakuz Creek	CC-10	Surface	Regular	VA23C6498-005	<0.050	0.835	0.000077	3.46	<0.000010	3.38	0.0905	1	<0.000010	<0.00010	<0.00030	0.000082	<0.00050	<0.0010
Chedakuz Creek	CC-10	Surface	Regular	VA24A3850-001	<0.050	0.816	0.000077	4.9	<0.000010	3.74	0.104	1.34	<0.000010	<0.00010	<0.00030	0.000098	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23A9207-002	<0.050	0.995	0.000067	5.03	<0.000010	2.86	0.0872	1.58	<0.000010	<0.00010	0.0004	0.000151	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23A9782-002	<0.050	1.31	0.000065	5.54	<0.000010	2.38	0.0694	1.52	<0.000010	<0.00010	0.00146	0.000105	0.00079	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B0508-003	<0.050	0.78	0.000076	4.68	<0.000010	2.46	0.067	1.07	<0.000010	<0.00010	0.00102	0.000108	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Replicate	VA23B0508-007	<0.050	0.793	0.000067	4.68	<0.000010	2.44	0.0656	1.03	<0.000010	<0.00010	0.00122	0.000106	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B1108-004	<0.050	0.738	0.000073	4.5	<0.000010	2.54	0.0718	0.91	<0.000010	<0.00010	0.00069	0.000118	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B1690-003	<0.050	0.758	<0.000050	4.74	<0.000010	2.94	0.0789	1.14	<0.000010	<0.00010	0.00033	0.000096	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B2219-005	<0.050	0.76	<0.000050	5.19	<0.000010	2.99	0.0837	1.07	<0.000010	<0.00010	<0.00030	0.000094	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B2847-002	<0.050	0.822	0.000067	4.48	<0.000010	3.16	0.0912	1.04	<0.000010	<0.00010	<0.00030	0.000111	0.0005	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B7734-006	<0.050	0.8	<0.000050	4.32	<0.000010	3.34	0.1	1.7	<0.000010	<0.00010	<0.00030	0.000097	0.00054	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23B9868-004	<0.050	0.848	<0.000050	4.06	<0.000010	3.46	0.0985	1.06	<0.000010	<0.00010	<0.00030	0.0001	0.00051	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C2546-004	<0.050	0.915	0.000061	4.03	<0.000010	3.68	0.106	1.2	<0.000010	<0.00010	<0.00030	0.000122	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C3871-002	<0.050	0.929	<0.000050	4.55	<0.000010	3.81	0.1	1.26	<0.000010	<0.00010	<0.00030	0.000109	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C4458-002	<0.050	0.896	0.000065	4.36	<0.000010	3.65	0.106	1.01	<0.000010	<0.00010	<0.00030	0.000116	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C5184-004	<0.050	0.962	0.000061	4.7	<0.000010	3.95	0.105	1.24	<0.000010	<0.00010	<0.00030	0.000117	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C5771-003	<0.050	0.894	<0.000050	4.69	<0.000010	3.67	0.106	1.11	<0.000010	<0.00010	<0.00030	0.000122	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C6498-004	<0.050	0.836	<0.000050	4.82	<0.000010	3.57	0.0962	1.08	<0.000010	<0.00010	<0.00030	0.000109	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA23C9626-003	<0.050	0.792	0.000052	5.11	<0.000010	3.39	0.0952	1.38	<0.000010	<0.00010	<0.00030	0.000124	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA24A0751-003	<0.050	0.866	0.000072	6.05	<0.000010	4.07	0.11	1.36	<0.000010	<0.00010	<0.00030	0.000131	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA24A2396-001	<0.050	0.938	0.000068	5.25	<0.000010	3.87	0.109	1.24	<0.000010	<0.00010	<0.00030	0.000133	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Replicate	VA24A2396-002	<0.050	0.927	0.000058	5.23	<0.000010	3.83	0.109	1.43	<0.000010	<0.00010	<0.00030	0.000139	<0.00050	<0.0010
Chedakuz Creek	CC-15	Surface	Regular	VA24A4720-002	<0.050	0.871	<0.000050	5.05	<0.000010	3.98	0.1	1.29	<0.000010	<0.00010	<0.00030	0.000146	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23A9076-002	<0.050	0.96	0.000058	5.04	<0.000010	3.16	0.0936	1.32	<0.000010	<0.00010	0.00032	0.000138	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23A9782-003	<0.050	1.33	0.000092	5.43	<0.000010	2.37	0.0725	1.42	<0.000010	<0.00010	0.00155	0.000103	0.00072	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B0508-004	<0.050	0.796	0.000085	4.6	<0.000010	2.47	0.0664	1.07	<0.000010	<0.00010	<0.00120	0.000103	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B1108-003	<0.050	0.721	0.000065	4.45	<0.000010	2.56	0.074	0.91	<0.000010	<0.00010	0.00052	0.000113	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B1690-004	<0.050	0.771	<0.000050	4.7	<0.000010	2.94	0.0789	1.27	<0.000010	<0.00010	0.00033	0.000096	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B2219-002	<0.050	0.754	0.000075	5.08	<0.000010	2.93	0.0831	1.17	<0.000010	<0.00010	<0.00030	0.000093	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Replicate	VA23B2219-003	<0.050	0.759	0.000058	5.01	<0.000010	2.9	0.0811	1.02	<0.000010	<0.00010	<0.00030	0.000094	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B4330-006	<0.050	0.833	0.000069	4.44	<0.000010	3.28	0.0981	1.07	<0.000010	<0.00010	<0.00030	0.000111	0.00054	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B7734-007	<0.050	0.81	0.000061	4.42	<0.000010	3.47	0.102	1.6	<0.000010	<0.00010	<0.00030	0.0001	0.00052	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23B9868-005	<0.050	0.84	<0.000050	4.27	<0.000010	3.38	0.0996	1.14	<0.000010	<0.00010	<0.00030	0.0001	0.00053	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C2546-003	<0.050	0.904	0.000061	3.9	<0.000010	3.67	0.103	1.16	<0.000010	<0.00010	<0.00030	0.000119	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C3871-003	<0.050	0.912	0.000055	4.51	<0.000010	3.86	0.1	1.21	<0.000010	<0.00010	<0.00030	0.000114	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Replicate	VA23C3871-004	<0.050	0.904	0.000058	4.59	<0.000010	3.76	0.1	1.16	<0.000010	<0.00010	<0.00030	0.000119	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C4458-003	<0.050	0.888	0.000058	4.54	<0.000010	3.76	0.108	1.04	<0.000010	<0.00010	<0.00030	0.000119	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C5184-005	<0.050	0.952	<0.000050	4.84	<0.000010	3.93	0.105	1.19	<0.000010	<0.00010	<0.00030	0.000122	<0.00050	<0.0010

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Chedakuz Creek	CC-20	Surface	Regular	VA23C5771-004	<0.050	0.818	<0.000050	4.79	<0.000010	3.37	0.11	1.48	<0.000010	<0.00010	<0.00030	0.00012	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C6498-003	<0.050	0.855	<0.000050	4.98	<0.000010	3.7	0.0984	1.02	<0.000010	<0.00010	<0.00030	0.000109	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA23C9626-002	<0.050	0.79	<0.000050	5.25	<0.000010	3.41	0.097	1.32	<0.000010	<0.00010	<0.00030	0.000125	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA24A0936-002	<0.050	0.887	0.000054	5.43	<0.000010	3.83	0.101	1.06	<0.000010	<0.00010	<0.00030	0.000101	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Replicate	VA24A0936-003	<0.050	0.894	0.000053	5.56	<0.000010	3.88	0.103	1.08	<0.000010	<0.00010	<0.00030	0.000108	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA24A2974-003	<0.050	0.913	<0.000050	5.37	<0.000010	3.79	0.111	1.44	<0.000010	<0.00010	<0.00030	0.000137	<0.00050	<0.0010
Chedakuz Creek	CC-20	Surface	Regular	VA24A4720-003	<0.050	0.855	0.000064	5.07	<0.000010	4.14	0.0965	1.32	<0.000010	<0.00010	<0.00030	0.000142	<0.00050	<0.0010
Chedakuz Creek	CC-30	Surface	Regular	VA23B0508-001	<0.050	0.858	<0.000050	4.62	<0.000010	2.42	0.0634	1.05	<0.000010	<0.00010	0.00055	0.000084	<0.00050	<0.0010
Chedakuz Creek	CC-30	Surface	Regular	VA23C0393-002	<0.050	0.98	<0.000050	4.22	<0.000010	4.26	0.108	1.36	<0.000010	<0.00010	<0.00030	0.000135	0.00054	<0.0010
Chedakuz Creek	CC-30	Surface	Replicate	VA23C0393-003	<0.050	0.975	0.000057	4.23	<0.000010	4.26	0.107	1.36	<0.000010	<0.00010	<0.00030	0.000135	0.00051	<0.0010
Chedakuz Creek	CC-30	Surface	Regular	VA23C6498-002	<0.050	0.951	<0.000050	5.46	<0.000010	4.53	0.11	0.99	<0.000010	<0.00010	<0.00030	0.00015	<0.00050	<0.0010
Chedakuz Creek	CC-30	Surface	Regular	VA24A2974-002	<0.050	1.02	<0.000050	5.91	<0.000010	4.57	0.122	1.48	<0.000010	<0.00010	0.00035	0.0002	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23A9207-001	<0.050	1.24	<0.000050	4.84	<0.000010	3.52	0.0924	1.42	<0.000010	<0.00010	0.00039	0.000166	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23A9782-001	<0.050	1.56	0.000054	5.52	<0.000010	2.7	0.072	1.52	<0.000010	<0.00010	0.0017	0.000089	0.00067	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B0508-002	<0.050	0.898	<0.000050	4.56	<0.000010	2.41	0.061	0.99	<0.000010	<0.00010	0.00101	0.000078	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B1108-001	<0.050	0.738	0.000071	4.64	<0.000010	2.64	0.068	0.89	<0.000010	<0.00010	0.00045	0.000096	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Replicate	VA23B1108-002	<0.050	0.734	<0.000050	4.61	<0.000010	2.6	0.0685	0.9	<0.000010	<0.00010	0.00039	0.000089	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B1690-001	<0.050	0.764	<0.000050	4.99	<0.000010	3.07	0.0768	1.08	<0.000010	<0.00010	<0.00030	0.000102	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B2219-001	<0.050	0.795	0.00006	5.16	<0.000010	3.25	0.0835	1.06	<0.000010	<0.00010	0.00033	0.00012	0.00052	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B2847-001	<0.050	0.842	0.000072	4.72	<0.000010	3.6	0.0957	0.96	<0.000010	<0.00010	<0.00030	0.000149	0.00057	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23B7523-007	<0.050	0.904	<0.000050	4.75	<0.000010	4.06	0.107	1.95	<0.000010	<0.00010	<0.00030	0.000123	0.00054	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C0393-001	<0.050	1.05	0.000074	4.46	<0.000010	4.63	0.112	1.38	<0.000010	<0.00010	<0.00030	0.000162	0.00053	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C2546-005	<0.050	1.1	0.000064	4.29	<0.000010	5.06	0.124	1.34	<0.000010	<0.00010	<0.00030	0.000223	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C3871-001	<0.050	1.14	<0.000050	5.08	<0.000010	5.45	0.121	1.37	<0.000010	<0.00010	<0.00030	0.000207	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C4458-001	<0.050	1.12	0.000055	5.03	<0.000010	5.25	0.125	1.39	<0.000010	<0.00010	<0.00030	0.000217	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C5184-001	<0.050	1.18	<0.000050	5.2	<0.000010	5.54	0.132	1.38	<0.000010	<0.00010	<0.00030	0.000218	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C5771-001	<0.050	0.955	<0.000050	5.39	<0.000010	4.64	0.119	1.09	<0.000010	<0.00010	<0.00030	0.000194	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Replicate	VA23C5771-002	<0.050	0.982	<0.000050	5.56	<0.000010	4.88	0.12	1.33	<0.000010	<0.00010	<0.00030	0.000191	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C6498-001	<0.050	1.02	<0.000050	5.66	<0.000010	5.17	0.112	1.28	<0.000010	<0.00010	<0.00030	0.000202	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA23C9626-001	<0.050	0.976	<0.000050	5.54	<0.000010	4.82	0.114	1.52	<0.000010	<0.00010	<0.00030	0.000221	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA24A0936-001	<0.050	1.04	<0.000050	6.11	<0.000010	5.19	0.12	1.38	<0.000010	<0.00010	<0.00030	0.000174	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA24A2974-001	<0.050	1.06	<0.000050	5.99	<0.000010	4.87	0.122	1.58	<0.000010	<0.00010	<0.00030	0.000224	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA24A4720-001	<0.050	0.977	<0.000050	5.5	<0.000010	5.28	0.111	1.47	<0.000010	<0.00010	<0.00030	0.000231	<0.00050	<0.0010
Chedakuz Creek	CC-40	Surface	Regular	VA24A6138-001	<0.050	2.47	0.000065	4.7	<0.000010	3.71	0.0982	1.05	<0.000010	<0.00010	0.00042	0.000166	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23A8158-003	<0.050	0.349	<0.000050	4.52	<0.000010	2.46	0.0587	0.52	<0.000010	<0.00010	0.00223	0.000157	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23B0364-002	<0.050	0.31	0.00006	3.66	<0.000010	1.14	0.0302	<0.50	<0.000010	<0.00010	0.00162	0.000246	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23B3687-004	<0.050	0.238	<0.000050	3.53	<0.000010	1.79	0.0414	<0.50	<0.000010	<0.00010	0.00079	0.000193	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23B7523-003	<0.050	0.228	<0.000050	3.87	<0.000010	1.74	0.0526	<0.50	<0.000010	<0.00010	0.00183	0.000226	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23B8906-003	<0.050	0.304	<0.000050	3.66	<0.000010	1.85	0.0538	<0.50	<0.000010	<0.00010	0.00078	0.000162	<0.00050	<0.0010
Creek 705	705-05	Surface	Replicate	VA23B8906-004	<0.050	0.302	<0.000050	3.61	<0.000010	1.85	0.0536	<0.50	<0.000010	<0.00010	0.00074	0.000164	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23C1674-001	<0.050	0.353	<0.000050	3.32	<0.000010	2.1	0.0628	<0.50	<0.000010	<0.00010	0.00056	0.000111	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23C4014-006	<0.050	0.382	<0.000050	3.1	<0.000010	2.1	0.0566	<0.50	<0.000010	<0.00010	0.00042	0.000091	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23C7190-010	<0.050	0.364	<0.000050	3.44	<0.000010	1.91	0.0504	<0.50	<0.000010	<0.00010	0.00121	0.000125	<0.00050	<0.0010
Creek 705	705-05	Surface	Replicate	VA23C7190-011	<0.050	0.36	<0.000050	3.48	<0.000010	1.92	0.0511	<0.50	<0.000010	<0.00010	0.00113	0.000123	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA23C9661-004	<0.050	0.36	<0.000050	3.32	<0.000010	2.1	0.0604	<0.50	<0.000010	<0.00010	0.00048	0.000135	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA24A1833-002	<0.050	0.41	<0.000050	3.16	<0.000010	2.05	0.0594	<0.50	<0.000010	<0.00010	0.00069	0.000137	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA24A3502-001	<0.050	0.423	<0.000050	3.67	<0.000010	2.21	0.0655	<0.50	<0.000010	<0.00010	0.00119	0.000162	<0.00050	<0.0010
Creek 705	705-05	Surface	Regular	VA24A6018-001	<0.050	0.775	<0.000050	4.68	<0.000010	1.85	0.0494	<0.50	<0.000010	<0.00010	0.00631	0.000176	0.00067	<0.0010
Creek 705	705-10	Surface	Regular	VA23A8158-001	<0.050	0.361	0.000056	4.27	<0.000010	2.35	0.0587	0.63	<0.000010	<0.00010	0.00249	0.000162	<0.00050	<0.0010
Creek 705	705-10	Surface	Replicate	VA23A8158-002	<0.050	0.347	<0.000050	4.61	<0.000010	2.44	0.0576	0.56	<0.000010	<0.00010	0.00235	0.000158	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23A9638-001	<0.050	0.654	<0.000050	4.12	<0.000010	1.38	0.0369	<0.50	<0.000010	<0.00010	0.00774	0.000187	0.00067	0.0022

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-1: Surface Water Quality Laboratory Results, April 1, 2023 To March 31, 2024

Watershed	Site	Depth	QAQC	Laboratory ID	Dissolved Metals (cont'd)													
					Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Creek 705	705-10	Surface	Regular	VA23B0364-003	<0.050	0.326	<0.000050	4	<0.000010	1.2	0.0332	<0.50	<0.000010	<0.00010	0.00346	0.000261	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B0766-009	<0.050	0.269	<0.000050	3.7	<0.000010	1.31	0.0316	<0.50	<0.000010	<0.00010	0.00142	0.000252	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B1379-005	<0.050	0.243	<0.000050	3.82	<0.000010	1.52	0.038	<0.50	<0.000010	<0.00010	0.00144	0.000259	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B2224-004	<0.050	0.259	<0.000050	4.26	<0.000010	1.56	0.0412	<0.50	<0.000010	<0.00010	0.00097	0.000203	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B3687-005	<0.050	0.313	<0.000050	4.29	<0.000010	2	0.0521	<0.50	<0.000010	<0.00010	0.00045	0.000163	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B7523-002	<0.050	0.261	<0.000050	4.17	<0.000010	1.85	0.0511	<0.50	<0.000010	<0.00010	0.00142	0.000229	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23B8906-002	<0.050	0.323	<0.000050	4.16	<0.000010	2.02	0.0548	<0.50	<0.000010	<0.00010	0.00063	0.000154	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C1674-002	<0.050	0.365	<0.000050	3.97	<0.000010	2.33	0.0592	0.55	<0.000010	<0.00010	<0.00030	0.000098	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C4014-007	<0.050	0.334	<0.000050	3.71	<0.000010	2.34	0.06	<0.50	<0.000010	<0.00010	<0.00030	0.000085	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C4586-005	<0.050	0.325	<0.000050	3.46	<0.000010	2.4	0.0575	<0.50	<0.000010	<0.00010	<0.00030	0.000089	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C4858-004	<0.050	0.355	<0.000050	3.58	<0.000010	2.44	0.0608	0.51	<0.000010	<0.00010	<0.00030	0.000093	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C5894-004	<0.050	0.321	<0.000050	4.06	<0.000010	2.51	0.066	<0.50	<0.000010	<0.00010	<0.00030	0.00009	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C6383-004	<0.050	0.32	<0.000050	4.08	<0.000010	2.5	0.0648	<0.50	<0.000010	<0.00010	<0.00030	0.000094	<0.00050	<0.0010
Creek 705	705-10	Surface	Replicate	VA23C6383-006	<0.050	0.393	<0.000050	5.34	<0.000010	2.28	0.0532	0.83	<0.000010	<0.00010	<0.00030	0.00007	0.00054	<0.0010
Creek 705	705-10	Surface	Regular	VA23C6880-001	<0.050	0.349	<0.000050	3.96	<0.000010	2.2	0.0554	<0.50	<0.000010	<0.00010	0.00151	0.000114	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA23C9661-005	<0.050	0.34	<0.000050	3.78	<0.000010	2.38	0.063	<0.50	<0.000010	<0.00010	0.00039	0.000116	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA24A1833-001	<0.050	0.392	<0.000050	3.55	<0.000010	2.26	0.0624	<0.50	<0.000010	<0.00010	0.00068	0.000131	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA24A3529-004	<0.050	0.413	<0.000050	4.04	<0.000010	2.41	0.0653	<0.50	<0.000010	<0.00010	0.00169	0.000163	<0.00050	<0.0010
Creek 705	705-10	Surface	Regular	VA24A6018-002	<0.050	0.548	<0.000050	4.76	<0.000010	2.1	0.06	<0.50	<0.000010	<0.00010	0.00859	0.000198	0.00071	<0.0010
Creek 705	705-10	Surface	Replicate	VA24A6018-003	<0.050	0.552	<0.000050	4.81	<0.000010	2.15	0.0586	<0.50	<0.000010	<0.00010	0.0088	0.00019	0.00073	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23A8158-005	<0.050	0.459	0.000072	5.44	<0.000010	2.98	0.0598	1.02	<0.000010	<0.00010	<0.00030	0.000123	0.0005	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23A9638-002	<0.050	0.432	<0.000050	4.93	<0.000010	1.92	0.0498	0.84	<0.000010	<0.00010	0.00178	0.000063	0.00063	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23B0364-004	<0.050	0.326	<0.000050	3.64	<0.000010	0.903	0.0219	<0.50	<0.000010	<0.00010	0.00103	0.000038	<0.00050	0.0019
Fawnie Creek	FC-01	Surface	Regular	VA23B0766-006	<0.050	0.302	<0.000050	2.95	<0.000010	0.793	0.0164	<0.50	<0.000010	<0.00010	0.00074	0.000032	<0.00050	0.0031
Fawnie Creek	FC-01	Surface	Regular	VA23B1379-006	<0.050	0.249	<0.000050	3.58	<0.000010	0.977	0.0228	<0.50	<0.000010	<0.00010	0.00037	0.000038	<0.00050	0.0014
Fawnie Creek	FC-01	Surface	Regular	VA23B2224-003	<0.050	0.285	<0.000050	4.35	<0.000010	1.13	0.025	<0.50	<0.000010	<0.00010	<0.00030	0.000033	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23B4330-001	<0.050	0.332	<0.000050	4.38	<0.000010	1.38	0.0324	<0.50	<0.000010	<0.00010	0.00033	0.000037	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23B7523-001	<0.050	0.374	<0.000050	4.73	<0.000010	1.72	0.0415	<0.50	<0.000010	<0.00010	<0.00030	0.000037	0.0006	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23B8906-001	<0.050	0.416	<0.000050	5.34	<0.000010	1.9	0.0449	0.74	<0.000010	<0.00010	<0.00030	0.000036	0.00062	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C0875-004	<0.050	0.46	<0.000050	5.48	<0.000010	2.37	0.0511	0.64	<0.000010	<0.00010	<0.00030	0.000044	0.00056	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C4014-008	<0.050	0.395	<0.000050	5.37	<0.000010	2.26	0.0512	0.68	<0.000010	<0.00010	<0.00030	0.000044	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C4586-006	<0.050	0.417	<0.000050	5.02	<0.000010	2.41	0.0507	0.8	<0.000010	<0.00010	<0.00030	0.000052	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C4858-005	<0.050	0.425	<0.000050	5.02	<0.000010	2.39	0.0502	0.77	<0.000010	<0.00010	<0.00030	0.000049	0.00054	<0.0010
Fawnie Creek	FC-01	Surface	Replicate	VA23C4858-006	<0.050	0.426	<0.000050	5.17	<0.000010	2.4	0.0503	0.86	<0.000010	<0.00010	<0.00030	0.000048	0.00052	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C5894-005	<0.050	0.39	<0.000050	5.36	<0.000010	2.39	0.0552	0.79	<0.000010	<0.00010	<0.00030	0.000056	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C6383-005	<0.050	0.31	<0.000050	4.06	<0.000010	2.46	0.0656	<0.50	<0.000010	<0.00010	<0.00030	0.000097	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C6880-002	<0.050	0.377	<0.000050	5.16	<0.000010	2.21	0.0479	0.77	<0.000010	<0.00010	<0.00030	0.000049	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA23C9661-006	<0.050	0.41	<0.000050	5.39	<0.000010	2.45	0.0557	1.01	<0.000010	<0.00010	<0.00030	0.000068	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA24A1333-001	<0.050	0.4	<0.000050	5.41	<0.000010	2.59	0.0546	0.78	<0.000010	<0.00010	<0.00030	0.00008	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Replicate	VA24A1333-002	<0.050	0.41	<0.000050	5.53	<0.000010	2.63	0.0559	0.79	<0.000010	<0.00010	<0.00030	0.000084	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA24A3529-003	<0.050	0.454	0.000063	5.54	<0.000010	2.71	0.0617	0.73	<0.000010	<0.00010	<0.00030	0.000107	<0.00050	<0.0010
Fawnie Creek	FC-01	Surface	Regular	VA24A4786-003	<0.050	0.411	0.00008	5.86	<0.000010	3.07	0.0593	0.96	<0.000010	<0.00010	<0.00030	0.00011	0.00053	<0.0010

Notes:

'-' indicates parameter was not analyzed.

'<' indicates value was below the detection limit.

Appendix B-2 Surface Water Field Results, April 1, 2023 to March 31, 2024

Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Davidson Creek	DC-05	11-04-2023	0.15	0.8	7.65	61.2	113.9	-	-	-
Davidson Creek	DC-05	04-05-2023	0.2	1.5	5.41	19.4	35.2	11.34	80.8	-
Davidson Creek	DC-05	09-05-2023	0.3	2.3	7.18	14.9	26.2	13.01	94.8	-
Davidson Creek	DC-05	16-05-2023	0.75	3.9	7.09	13.6	22.8	12.72	96.8	-
Davidson Creek	DC-05	23-05-2023	0.1	4.9	7.34	18.3	29.6	11.85	92.5	-
Davidson Creek	DC-05	29-05-2023	0.3	8.9	7.52	25.6	37	13.2	113.6	-
Davidson Creek	DC-05	20-06-2023	0.2	7.4	7.69	30.2	45.5	13.4	108.9	-
Davidson Creek	DC-05	25-07-2023	0.2	9	-	54.3	78.6	9.53	82.5	1.67
Davidson Creek	DC-05	16-08-2023	0.3	12.1	7.69	54.5	72.3	9.13	85.1	1.15
Davidson Creek	DC-05	04-09-2023	0.2	8.4	7.87	52.3	76.6	10.66	90.9	3.09
Davidson Creek	DC-05	05-10-2023	0.1	7.2	7.6	56.1	84.8	10.59	87.6	-
Davidson Creek	DC-05	12-10-2023	0.2	4.1	7.6	56.7	94.3	11.11	85.2	1.98
Davidson Creek	DC-05	16-10-2023	0.2	5.6	7.72	60	95.2	10.69	84.9	2.14
Davidson Creek	DC-05	25-10-2023	0.2	0.4	6.68	54.8	103.7	14.4	99.1	1.96
Davidson Creek	DC-05	31-10-2023	0.1	0	7.98	52	99.6	12.91	88.3	1.81
Davidson Creek	DC-05	08-11-2023	0.1	1	7.46	41.7	77	12.79	90.1	6.57
Davidson Creek	DC-05	13-12-2023	0.2	0	7.47	45.6	87.2	10.18	69.5	4.05
Davidson Creek	DC-05	14-01-2024	0.1	0	7.87	73.6	140.8	12.33	84.4	3.16
Davidson Creek	DC-05	04-02-2024	0.1	0	7.68	0.068	0.131	12.51	85.7	3.9
Davidson Creek	DC-05	03-03-2024	0.1	0	7.37	0.052	0.1	12.37	84.7	30.9
Davidson Creek	DC-10	11-04-2023	0.1	0.5	7.51	61	114.8	-	-	-
Davidson Creek	DC-10	04-05-2023	0.5	1.8	5.51	20	35.9	11	79.1	-
Davidson Creek	DC-10	20-06-2023	0.2	7.5	7.54	31.4	47.1	12.06	100.5	-
Davidson Creek	DC-10	25-07-2023	0.2	9.1	-	54.4	78.8	9.17	79.7	1.2
Davidson Creek	DC-10	16-08-2023	0.2	12.2	7.48	56	74.1	8.89	82.9	0.7
Davidson Creek	DC-10	19-09-2023	0.2	6.8	8.09	57.8	88.6	11.11	91.1	-
Davidson Creek	DC-10	05-10-2023	0.1	6.7	7.44	57.8	88.7	10.44	85.4	-
Davidson Creek	DC-10	08-11-2023	0.1	0.9	7.42	42.9	79.3	12.54	88	5.74
Davidson Creek	DC-10	13-12-2023	0.3	0	7.37	46.6	89.2	9.48	64.8	3.26
Davidson Creek	DC-10	09-01-2024	0.1	0	7.91	58.7	112.5	14.01	92.7	1.48
Davidson Creek	DC-10	04-02-2024	0.1	0.1	7.55	0.067	0.128	12.34	84.6	2.2
Davidson Creek	DC-10	05-03-2024	0.1	0	7.55	0.055	0.105	12.53	85.7	30.1
Davidson Creek	DC-15	25-04-2023	0.2	0.3	6.76	66.7	126.3	-	-	-
Davidson Creek	DC-15	04-05-2023	0.5	2.3	5.33	24.1	42.5	11.16	81.3	-
Davidson Creek	DC-15	20-06-2023	0.3	6.4	7.77	37.6	58.3	13.19	107.1	-

Notes:

"-" indicates parameter was not measured.

Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Davidson Creek	DC-15	25-07-2023	0.2	9.2	-	54.9	78.9	9.41	81.8	4.05
Davidson Creek	DC-15	16-08-2023	0.2	12.8	7.69	66.2	86.3	8.67	82	0.04
Davidson Creek	DC-15	19-09-2023	0.3	7.3	8.14	67.9	102.6	11.14	92.3	-
Davidson Creek	DC-15	10-10-2023	0.2	5.3	7.69	68.9	110.4	10.9	86.1	1.03
Davidson Creek	DC-15	08-11-2023	0.1	0.7	7.54	51.2	95.4	13.15	91.7	3.28
Davidson Creek	DC-15	13-12-2023	0.3	0	7.5	56.4	107.9	9.63	76.6	1.8
Davidson Creek	DC-15	09-01-2024	0.1	0	8.05	58.5	120.1	14.53	90.9	2.77
Davidson Creek	DC-15	05-02-2024	0.1	0	7.66	0.072	0.137	12.61	86.3	0.2
Davidson Creek	DC-15	05-03-2024	0.1	0	7.6	0.062	0.119	12.68	86.6	13.7
Davidson Creek	DC-20	26-04-2023	0.15	0.7	5.6	64.9	120.6	13.32	93	-
Davidson Creek	DC-20	03-05-2023	0.2	4.3	5.33	34.1	56.4	10.5	80.6	-
Davidson Creek	DC-20	11-05-2023	0.2	3.9	7.31	20.8	34.8	12.74	96.9	-
Davidson Creek	DC-20	17-05-2023	0.5	6.8	7.34	20.9	31.9	11.5	95	-
Davidson Creek	DC-20	24-05-2023	0.2	7.9	7.49	29.6	44	11.88	100	-
Davidson Creek	DC-20	30-05-2023	0.2	10	7.61	39.1	54.7	10.94	97.1	-
Davidson Creek	DC-20	06-06-2023	0.5	8.3	7.73	43.6	62	12.28	104.4	-
Davidson Creek	DC-20	31-07-2023	0.2	11.1	7.72	67.3	91.3	9.27	81.4	-
Davidson Creek	DC-20	22-08-2023	0.3	11.4	7.78	71.9	97.1	9.36	85.8	0.78
Davidson Creek	DC-20	20-09-2023	0.3	8.8	8.03	73.3	106.9	10.74	92.5	-
Davidson Creek	DC-20	04-10-2023	0.1	7.3	7.69	73.9	111.9	10.6	88	-
Davidson Creek	DC-20	11-10-2023	0.1	6.3	7.74	73.2	113.9	10.92	88.3	1.22
Davidson Creek	DC-20	18-10-2023	0.4	5.1	7.75	70	112.9	11.21	88	1.12
Davidson Creek	DC-20	24-10-2023	0.1	0	7.74	56.9	108.8	13.15	90	1.81
Davidson Creek	DC-20	01-11-2023	0.2	0.1	7.65	62.2	118.6	12.94	88.8	0.47
Davidson Creek	DC-20	06-12-2023	0.1	0	7.43	56.2	107.7	12.82	87.6	4
Davidson Creek	DC-20	25-01-2024	0.1	0.2	7.52	0.083	0.154	11.45	80.6	4.84
Davidson Creek	DC-20	18-02-2024	0.1	0.1	7.54	0.069	0.131	12.12	83.5	8.89
Davidson Creek	DC-20	25-03-2024	0.1	0	7.28	49.9	95.5	11.92	81.5	37.1
Creek 661	661-01	14-04-2023	0.2	0.2	6.97	4.8	9.1	12.94	88.7	-
Creek 661	661-01	16-05-2023	0.3	7.4	6.77	10.8	16.2	10.96	91.3	-
Creek 661	661-01	22-05-2023	0.15	7.8	6.47	12.8	19	91.1	10.81	-
Creek 661	661-01	30-05-2023	0.16	7.9	5.93	14.3	21.3	9.88	83.2	-
Creek 661	661-01	06-06-2023	0.2	3.6	8.03	13.4	22.7	11.59	87.5	-
Creek 661	661-01	14-06-2023	0.2	6.4	7.18	16.9	25.1	10	89	-
Creek 661	661-01	27-07-2023	0.2	8.4	7.49	21	30.7	9.05	77.2	0.11

Notes:

"-" indicates parameter was not measured.

Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Creek 661	661-01	15-08-2023	0.15	10.7	7.38	27	37.2	7.86	71.1	0.26
Creek 661	661-01	04-09-2023	0.2	7.1	7.28	25.8	39.3	9.97	81.2	0.17
Creek 661	661-01	05-10-2023	0.1	5.9	7.03	27.8	43.7	9.27	74.1	-
Creek 661	661-01	12-10-2023	0.2	2.8	7.14	24.8	43	10.04	74.1	0.37
Creek 661	661-01	16-10-2023	0.2	5.1	7.23	26	41.9	9.72	76.2	1.99
Creek 661	661-01	25-10-2023	0.1	0.2	7.05	34.2	64.9	9.22	63.6	0.54
Creek 661	661-01	31-10-2023	0.1	0	7.1	22.3	42.5	10.02	68.3	0.14
Creek 661	661-01	09-11-2023	0.1	0.3	7.09	21.2	40.2	11.92	82.2	0.25
Creek 661	661-01	07-12-2023	0.1	0.4	6.405	59.65	112.3	15.155	104.6	1.445
Creek 661	661-01	29-01-2024	0.1	0.1	6.65	0.016	0.031	11.66	79.9	0.42
Creek 661	661-01	19-02-2024	0.1	0	6.43	0.015	0.03	10.13	69.3	0.1
Creek 661	661-01	19-03-2024	0.1	0	6.85	0.029	0.055	10.88	74.4	0.22
Creek 661	661-03	12-04-2023	0.2	0.3	5.75	42.6	80.5	-	-	-
Creek 661	661-03	01-05-2023	0.2	0.1	6.71	27.4	52.4	12.85	94	-
Creek 661	661-03	09-05-2023	0.5	0.3	6.47	19.7	37.3	11.47	79	-
Creek 661	661-03	15-05-2023	0.2	2.2	7.07	28.8	51.1	11.7	85	-
Creek 661	661-03	23-05-2023	0.5	3.6	7.21	31.8	53.9	11.26	85	-
Creek 661	661-03	29-05-2023	0.15	4.8	7.31	36.4	59.4	15.8	122.6	-
Creek 661	661-03	19-06-2023	0.2	4.9	7.35	47	76.4	14.28	110.7	-
Creek 661	661-03	25-07-2023	0.15	6.8	7.5	54.9	84.2	10.02	82	1.93
Creek 661	661-03	17-08-2023	0.05	9.4	7.3	74.4	106	8.28	72.3	0.95
Creek 661	661-03	11-09-2023	0.05	6.9	6.17	89.5	136.8	9.1	74.7	2.22
Creek 661	661-03	03-10-2023	0.1	4.4	7.49	82.9	136.6	9.04	70	-
Creek 661	661-03	10-10-2023	0.05	4.5	7.39	83.7	137.6	9.27	71.5	0.83
Creek 661	661-03	16-10-2023	0.05	5	7.83	82.4	133.4	-	-	0.11
Creek 661	661-03	23-10-2023	0.1	1.3	7.89	57.3	105.3	123.3	87.6	0.01
Creek 661	661-03	02-11-2023	0.1	0	7.25	59.3	113.4	10.79	73.8	0.48
Creek 661	661-03	04-12-2023	0.1	0.1	7.37	46.8	90	13.19	89.8	1.69
Creek 661	661-03	14-01-2024	0.1	0	7.52	26.8	50.8	11.42	78.2	1.82
Creek 661	661-03	12-02-2024	0.1	0.1	7.18	0.048	0.092	11.85	81.3	3.03
Creek 661	661-03	10-03-2024	0.1	0.4	7.48	0.066	0.124	10.8	74.7	1.16
Creek 661	661-04	14-04-2023	0.1	0.3	6.91	48	90.8	12.77	88.1	-
Creek 661	661-04	16-05-2023	0.5	4	6.97	17.7	29.5	12.08	92.2	-
Creek 661	661-04	22-05-2023	0.15	5.2	6.75	23.2	37.4	0	0	-
Creek 661	661-04	31-05-2023	0.15	4.1	6.97	27.2	45.2	11	85	-

Notes:

"-" indicates parameter was not measured.

Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Creek 661	661-04	06-06-2023	0.2	4.6	7.94	28.5	46.8	11.16	86.4	-
Creek 661	661-04	14-06-2023	0.2	6.7	7.57	35.5	54	10	89	-
Creek 661	661-04	14-08-2023	0.1	11.4	7.53	59.3	80	8.92	85.2	0.04
Creek 661	661-04	14-09-2023	0.2	5.3	7.59	50.6	81.1	10.6	83.6	1
Creek 661	661-04	05-10-2023	0.1	6.3	0.04	55.7	86.5	10.28	83.3	-
Creek 661	661-04	12-10-2023	0.1	3.5	7.47	51.3	87	10.81	81.2	0.45
Creek 661	661-04	16-10-2023	0.2	5.7	7.55	54.6	86.7	10.23	86.7	0.74
Creek 661	661-04	31-10-2023	0.1	0	7.55	45.7	87.3	12.28	84	0.33
Creek 661	661-04	09-11-2023	0.1	0.8	7.45	44.3	82.4	12.45	87.1	0.36
Creek 661	661-04	23-01-2024	0.1	0	7.44	0.047	0.09	11.88	81.3	0.8
Creek 661	661-04	19-02-2024	0.1	0	7.45	0.047	0.09	12.02	82.3	0.16
Creek 661	661-04	19-03-2024	0.1	0.1	7.56	0.098	0.188	12.27	84.1	2.6
Creek 661	661-05	27-04-2023	0.15	0.8	5.7	49.5	92.1	11.76	82.2	-
Creek 661	661-05	15-05-2023	0.5	6.4	7.25	29.4	45.4	11.29	91.5	-
Creek 661	661-05	20-06-2023	0.2	6.2	7.7	41.4	64.6	12.23	98.8	-
Creek 661	661-05	25-07-2023	0.2	6.8	-	49	75.1	10.41	85.5	0.89
Creek 661	661-05	16-08-2023	0.2	9.8	7.72	66.1	93.2	66.1	80.9	0.55
Creek 661	661-05	11-09-2023	0.1	7.5	7.73	58.3	89.9	10.18	85	2.35
Creek 661	661-05	16-10-2023	0.1	4.9	7.97	62.3	101.4	-	-	0.68
Creek 661	661-05	08-11-2023	0.1	1.4	7.63	52.3	95.3	11.83	84	40.8
Creek 661	661-05	04-12-2023	0.1	0.6	7.62	54.8	102.7	17.24	119.4	5.38
Creek 661	661-05	14-01-2024	0.1	0	7.65	53.6	102.5	11.62	79.5	1.91
Creek 661	661-05	05-02-2024	0.1	0	7.57	0.055	0.106	12.9	82.7	1.53
Creek 661	661-05	19-03-2024	0.1	1.2	7.73	0.109	0.199	12.04	85.2	475
Creek 661	661-05	24-03-2024	0.1	NA	7.75	0.112	0.215	12.4	85	20.64
Creek 661	661-10	12-04-2023	0.2	0.3	6.06	45	85	-	-	-
Creek 661	661-10	01-05-2023	0.3	0.5	6.42	32.6	61.2	14.33	99.8	-
Creek 661	661-10	09-05-2023	0.5	1.3	6.59	13.8	25.3	11.16	79	-
Creek 661	661-10	15-05-2023	0.3	5.4	7.07	17.6	28.1	11.8	93.4	-
Creek 661	661-10	23-05-2023	0.2	5.9	6.98	21.5	33.9	11.52	92.3	-
Creek 661	661-10	29-05-2023	0.2	7.4	7.38	26.3	39.4	13.05	96.8	-
Creek 661	661-10	19-06-2023	0.2	6.4	7.57	32.7	50.6	24.11	195.4	-
Creek 661	661-10	25-07-2023	0.2	8.6	7.65	47.6	69.4	9.47	81.2	4.4
Creek 661	661-10	17-08-2023	0.3	12.7	7.6	59	77	8.42	79.2	2.25
Creek 661	661-10	04-09-2023	0.2	7	7.37	51.4	78.3	9.82	80.9	3.17

Notes:

"-" indicates parameter was not measured.

Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Creek 661	661-10	03-10-2023	0.2	5.3	7.54	50.4	80.7	10.7	84.5	-
Creek 661	661-10	10-10-2023	0.15	5.9	7.63	52	81.9	10.1	80.9	1.22
Creek 661	661-10	16-10-2023	0.1	6	8.06	50.2	79	-	-	1.69
Creek 661	661-10	23-10-2023	0.1	1	7.8	45.8	84.8	13.55	95	0.57
Creek 661	661-10	02-11-2023	0.1	0.1	7.43	45	85.9	11.81	80.9	1.16
Creek 661	661-10	04-12-2023	0.1	-0.1	7.34	44.5	85.5	13.89	94.9	2.22
Creek 661	661-10	14-01-2024	0.1	0	7.89	43.4	82.8	12.06	82.5	1.43
Creek 661	661-10	12-02-2024	0.1	0.1	7.37	0.047	0.089	12.36	84.7	2.32
Creek 661	661-10	10-03-2024	0.1	0.1	7.08	0.05	0.096	11.42	78.3	0.31
Creek 661	661-20	12-04-2023	0.2	0.9	5.93	70.7	130.9	-	-	-
Creek 661	661-20	01-05-2023	0.2	2.6	6.12	48	83.9	11.43	84.1	-
Creek 661	661-20	19-06-2023	0.1	8.1	8.13	78.7	116.2	11.52	97.7	-
Creek 661	661-20	25-07-2023	0.15	9.6	8.13	88.5	125.7	83.5	9.75	6.49
Creek 661	661-20	31-08-2023	0.3	10.4	8.07	112.3	155.8	10.4	89.6	1.72
Creek 661	661-20	02-11-2023	0.15	0	8.09	80.2	154.5	12.87	88.1	0.17
Creek 661	661-20	12-02-2024	0.1	0.1	7.95	0.08	0.153	12.91	88.4	5.85
Chedakuz Creek	CC-03	12-04-2023	0.2	0.9	6.01	96.1	177.6	-	-	-
Chedakuz Creek	CC-03	01-05-2023	0.15	2.5	6.56	56.9	99.7	11.53	84.5	-
Chedakuz Creek	CC-03	09-05-2023	0.1	8.5	7.03	53.2	77.8	9.33	79.7	-
Chedakuz Creek	CC-03	15-05-2023	0.3	15.3	8.01	95.5	117.1	9.05	90.3	-
Chedakuz Creek	CC-03	23-05-2023	0.1	10.5	8.13	95.6	132.4	10.2	91.5	-
Chedakuz Creek	CC-03	29-05-2023	0.2	13.9	8.18	109.6	139	15.4	149	-
Chedakuz Creek	CC-03	19-06-2023	0.1	9.2	8.3	128.2	183.6	11.72	101.6	-
Chedakuz Creek	CC-03	25-07-2023	0.15	10.3	8.2	142.9	198.6	81.5	9.12	3.33
Chedakuz Creek	CC-03	31-08-2023	0.3	12.2	8.21	175.7	232.6	9.21	85.8	1.51
Chedakuz Creek	CC-03	11-09-2023	0.1	10.5	8.16	173.2	239.6	9.89	88.7	1.36
Chedakuz Creek	CC-03	03-10-2023	0.2	6	8.27	139.7	219.1	9.94	80	-
Chedakuz Creek	CC-03	10-10-2023	0.1	6.1	8.3	153.6	240.1	10.23	82.5	0.6
Chedakuz Creek	CC-03	16-10-2023	0.1	6.3	8.44	151.3	235.3	-	-	3.9
Chedakuz Creek	CC-03	23-10-2023	0.1	0.9	8.07	138	256	15.08	105.8	5.73
Chedakuz Creek	CC-03	02-11-2023	0.15	0	8.09	132	252.6	12.49	85.4	0.38
Chedakuz Creek	CC-03	04-12-2023	0.1	-0.1	7.38	130.2	250.3	17.59	122.2	1.07
Chedakuz Creek	CC-03	14-01-2024	0.1	0	7.95	138.5	265.3	12.38	84.8	0.86
Chedakuz Creek	CC-03	12-02-2024	0.1	0.2	7.96	0.132	0.251	12.67	86.8	1.16
Chedakuz Creek	CC-03	10-03-2024	0.1	0	7.78	0.129	0.246	11.79	80.8	0.2

Notes:

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Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Chedakuz Creek	CC-05	01-05-2023	0.4	2.8	6.04	55.1	95.5	11.29	83.5	-
Chedakuz Creek	CC-05	09-05-2023	0.4	4.1	6.99	33.8	56.2	16.46	125	-
Chedakuz Creek	CC-05	15-05-2023	0.5	12.3	7.92	64.4	85	10.1	94.3	-
Chedakuz Creek	CC-05	23-05-2023	0.2	9.6	8.13	80.5	114	10.5	92.2	-
Chedakuz Creek	CC-05	29-05-2023	0.15	13.9	8.28	98.9	235.5	13.2	96	-
Chedakuz Creek	CC-05	31-08-2023	0.6	11.5	8.39	143.2	193	9.56	88.8	2.05
Chedakuz Creek	CC-05	03-10-2023	0.2	6.1	8.2	126.3	196.7	10.98	88.5	-
Chedakuz Creek	CC-05	10-10-2023	0.1	5.7	8.1	123.9	196.3	11.17	89	0.57
Chedakuz Creek	CC-05	16-10-2023	0.1	6.1	8.44	122.2	191.4	-	-	0.54
Chedakuz Creek	CC-05	23-10-2023	0.15	1.3	7.6	110.2	201.2	21.06	144.5	1.03
Chedakuz Creek	CC-05	02-11-2023	0.1	0	8.12	103.1	197.2	12.58	85.9	0.73
Chedakuz Creek	CC-05	12-02-2024	0.1	0.1	7.96	0.107	0.205	12.88	88.2	1.62
Chedakuz Creek	CC-10	11-05-2023	0.2	10.2	8.41	88.6	124	12.68	96.9	-
Chedakuz Creek	CC-10	16-08-2023	0.5	20.6	8.56	125.1	136.9	8.03	89.8	0.08
Chedakuz Creek	CC-10	01-11-2023	0.2	5	7.8	89.3	144.4	8.92	69.9	0.1
Chedakuz Creek	CC-10	25-02-2024	0.1	1.1	7.83	0.084	0.155	11.16	78.7	1.04
Chedakuz Creek	CC-15	26-04-2023	0.15	5.4	5.5	81.8	130.7	11.7	92.8	-
Chedakuz Creek	CC-15	03-05-2023	0.3	5.7	5.44	56.1	88.8	10.09	80.4	-
Chedakuz Creek	CC-15	11-05-2023	0.5	8.6	7.2	56.3	82	11.26	96.3	-
Chedakuz Creek	CC-15	17-05-2023	2	12	8.05	70.9	94.3	11.35	105.4	-
Chedakuz Creek	CC-15	24-05-2023	0.9	12.7	8.03	82.7	108	10.59	98.5	-
Chedakuz Creek	CC-15	30-05-2023	0.5	10.2	7.72	85	118.7	9.97	89.1	-
Chedakuz Creek	CC-15	06-06-2023	1	13.4	8.03	91.7	117.7	10.65	102.5	-
Chedakuz Creek	CC-15	31-07-2023	0.8	15.9	8.08	102	123.5	8.5	86.4	-
Chedakuz Creek	CC-15	23-08-2023	0.8	13.1	7.69	104.9	135.6	8.14	78.1	1.59
Chedakuz Creek	CC-15	20-09-2023	0.2	11.9	8.14	99.7	132.9	12.1	99	-
Chedakuz Creek	CC-15	04-10-2023	0.3	8.8	7.73	96.2	139.1	9.15	79	-
Chedakuz Creek	CC-15	11-10-2023	0.3	8.1	7.71	93	137.2	9.6	81.7	0.68
Chedakuz Creek	CC-15	18-10-2023	0.5	6.9	7.53	90.4	138.4	8.95	73.5	0.73
Chedakuz Creek	CC-15	24-10-2023	0.5	1.8	7.75	80.5	143.8	11.54	82.9	1.68
Chedakuz Creek	CC-15	01-11-2023	0.2	2.5	7.76	80.8	141.9	11.39	83	2.6
Chedakuz Creek	CC-15	06-12-2023	0.2	0.1	7.6	69.5	132.8	12.42	85	2.04
Chedakuz Creek	CC-15	11-01-2024	0.1	0.2	7.65	78.6	149.5	12.28	84.4	1.53
Chedakuz Creek	CC-15	05-02-2024	0.1	0.2	7.51	0.082	0.157	11.95	82.1	0.24
Chedakuz Creek	CC-15	04-03-2024	0.1	0.2	7.51	0.079	0.151	11.42	78.5	1.38

Notes:

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Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Chedakuz Creek	CC-20	25-04-2023	0.2	4.6	6.5	82.3	134.6	-	-	-
Chedakuz Creek	CC-20	03-05-2023	0.2	5.2	5.37	55.9	89.8	10.22	80.5	-
Chedakuz Creek	CC-20	11-05-2023	0.5	8.1	7.12	55.6	81.8	11.44	96.81	-
Chedakuz Creek	CC-20	17-05-2023	1	11.4	7.96	69.8	94.4	11.4	104.7	-
Chedakuz Creek	CC-20	24-05-2023	0.2	13	7.98	83.4	108.3	10.77	102.2	-
Chedakuz Creek	CC-20	30-05-2023	0.3	10.6	7.79	83.6	115.3	10.21	92	-
Chedakuz Creek	CC-20	21-06-2023	0.2	15.1	8.12	94.2	116.2	9.8	96.4	-
Chedakuz Creek	CC-20	31-07-2023	0.2	16	8.03	104.2	125.8	8.5	86.9	-
Chedakuz Creek	CC-20	23-08-2023	0.2	13.2	7.77	104	134.3	9.09	86.6	1.68
Chedakuz Creek	CC-20	20-09-2023	0.15	13.5	8.18	105.4	134.9	8.54	82	-
Chedakuz Creek	CC-20	04-10-2023	0.1	8.4	7.93	97	142	10.89	93	-
Chedakuz Creek	CC-20	11-10-2023	0.1	8.5	7.82	97.5	142.3	10.76	92	0.53
Chedakuz Creek	CC-20	18-10-2023	0.2	7.6	7.81	94	140.6	11.13	93.2	0
Chedakuz Creek	CC-20	24-10-2023	0.1	1.7	7.83	81.1	146.3	12.41	89.3	0.71
Chedakuz Creek	CC-20	01-11-2023	0.1	3.1	7.85	84.4	145	89.7	120.4	0.03
Chedakuz Creek	CC-20	06-12-2023	0.1	0.1	7.58	74.5	142	12.42	85.2	2.15
Chedakuz Creek	CC-20	15-01-2024	0.1	0	7.95	71.9	135.9	11.64	80.1	-
Chedakuz Creek	CC-20	11-02-2024	0.1	0.3	7.84	0.082	0.155	12.38	85.4	1.57
Chedakuz Creek	CC-20	04-03-2024	0.1	0	7.56	0.079	0.15	12.5	85.6	1.71
Chedakuz Creek	CC-30	11-05-2023	0.2	6.7	7.54	57.4	88.2	11.36	92.9	-
Chedakuz Creek	CC-30	29-08-2023	0.25	15.5	8.12	125.1	152.5	84.6	8.44	1.73
Chedakuz Creek	CC-30	01-11-2023	0.2	0	7.86	88.3	168.7	12.67	86.9	0.68
Chedakuz Creek	CC-30	11-02-2024	0.1	0	7.33	0.092	0.175	9.58	65.6	0.3
Chedakuz Creek	CC-40	26-04-2023	0.2	3.9	5.32	87	145.7	12.98	98.5	-
Chedakuz Creek	CC-40	03-05-2023	0.15	5.7	5.69	64.4	102.1	9.88	78.7	-
Chedakuz Creek	CC-40	11-05-2023	1	7.3	7.55	57.8	87.3	10.96	91	-
Chedakuz Creek	CC-40	17-05-2023	0.5	10.6	7.67	65.1	89.8	10.26	92.3	-
Chedakuz Creek	CC-40	30-05-2023	0.6	11.5	7.98	89.3	120.3	10	92.5	-
Chedakuz Creek	CC-40	06-06-2023	0.3	10	8.09	91.2	127.6	17.17	152.4	-
Chedakuz Creek	CC-40	27-07-2023	0.3	13	-	104.1	134.9	8.52	80.9	4.96
Chedakuz Creek	CC-40	29-08-2023	0.2	15.1	7.88	129	159.2	86.5	8.7	1.44
Chedakuz Creek	CC-40	20-09-2023	0.25	8.6	-	115.1	167.5	11.02	94.6	-
Chedakuz Creek	CC-40	04-10-2023	0.3	7.6	7.99	117.6	176.1	9.39	80.6	-
Chedakuz Creek	CC-40	11-10-2023	0.1	6.5	7.96	113.4	175.4	10.47	85.1	1.64
Chedakuz Creek	CC-40	18-10-2023	0.7	5.5	7.91	109.6	174.8	10.66	84.2	0.5

Notes:

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Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Chedakuz Creek	CC-40	24-10-2023	0.15	0	7.93	90.1	172.3	13.54	92.6	1.6401
Chedakuz Creek	CC-40	01-11-2023	0.1	0	7.81	95.5	182.5	13.02	89.2	1.36
Chedakuz Creek	CC-40	06-12-2023	0.1	0	7.75	92.3	176.7	12.73	87.1	2.03
Chedakuz Creek	CC-40	15-01-2024	0.1	0	7.42	104.4	199.7	8.71	59.7	-
Chedakuz Creek	CC-40	11-02-2024	0.1	0.1	7.37	0.094	0.179	10.15	69.5	0.77
Chedakuz Creek	CC-40	04-03-2024	0.1	0	7.18	0.093	0.177	8.96	61.4	1.76
Creek 705	705-05	13-04-2023	0.2	0.5	5.15	41.2	76	15	108	-
Creek 705	705-05	10-05-2023	0.6	1.4	7.02	14.4	26.4	12.83	91.2	-
Creek 705	705-05	14-06-2023	0.3	10.6	7.42	27.4	37.8	9.5	81	-
Creek 705	705-05	27-07-2023	0.5	9.3	7.2	27.8	39.8	9.16	79.9	0.39
Creek 705	705-05	14-08-2023	0.4	13.5	7.03	36.7	46.9	7.77	75	0.29
Creek 705	705-05	12-09-2023	0.2	9.9	7.13	37.7	52.9	8.32	73.6	2.17
Creek 705	705-05	06-10-2023	0.2	6.3	6.78	34.6	53.8	8.85	72.4	-
Creek 705	705-05	09-11-2023	0.1	0.1	7.08	26.6	50.8	11.92	81.8	0.63
Creek 705	705-05	07-12-2023	0.1	0.5	6.57	49.7	93.4	15.46	107.1	0.95
Creek 705	705-05	29-01-2024	0.1	0	7.19	0.028	0.054	11.28	81.4	0.82
Creek 705	705-05	19-02-2024	0.1	0	7.02	0.03	0.056	11.15	76.4	0.62
Creek 705	705-05	19-03-2024	0.1	0	7.38	0.048	0.092	11.83	81	2.84
Creek 705	705-10	13-04-2023	0.2	0.5	5.34	38.5	72.5	16	112	-
Creek 705	705-10	02-05-2023	0.3	0.1	6.84	18.7	35.7	11.7	80.9	-
Creek 705	705-10	10-05-2023	0.2	1.5	7.24	17	30.8	13.32	95.1	-
Creek 705	705-10	16-05-2023	0.2	4.3	7.21	17.5	29	12.52	96.3	-
Creek 705	705-10	22-05-2023	0.4	6.3	6.21	25.8	40.1	0	0	-
Creek 705	705-10	31-05-2023	0.3	4.5	7.02	28.4	46.6	11.16	86.4	-
Creek 705	705-10	14-06-2023	0.2	10.2	7.38	36.7	51.1	10.8	82	-
Creek 705	705-10	27-07-2023	0.3	8.8	7.52	29.7	43	9.41	80.9	0.91
Creek 705	705-10	14-08-2023	0.3	12.8	7.45	39.5	51.5	8.38	78.8	0.12
Creek 705	705-10	12-09-2023	0.3	9.3	7.55	42.4	60.5	9.65	84	1.9
Creek 705	705-10	06-10-2023	0.2	5.3	7.35	40.3	64.5	8.94	70.5	-
Creek 705	705-10	12-10-2023	0.2	4.5	7.19	38.6	63.5	9.81	75.6	0.09
Creek 705	705-10	17-10-2023	0.3	3.9	7.33	32.3	54.1	9.39	71.3	1.17
Creek 705	705-10	25-10-2023	0.25	0.7	7.39	46.8	87.3	14.27	102.7	0.12
Creek 705	705-10	31-10-2023	0.1	0.2	7.37	37.9	72.1	83	12.08	0.11
Creek 705	705-10	06-11-2023	0.2	0.1	7.33	31.6	60.3	12.47	85.4	0.69
Creek 705	705-10	07-12-2023	0.1	0.2	6.16	62.6	117.4	17.09	122.3	0.84

Notes:

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Appendix B-2: Surface Water Field Results, April 1, 2023 To March 31, 2024

Watershed	Site	Date	Depth	Temperature	pH	Conductivity	Specific Conductivity	Dissolved Oxygen	Dissolved Oxygen Saturation	Turbidity
			m	°C	pH units	µS/cm	µS/cm	mg/L	%	NTU
Creek 705	705-10	29-01-2024	0.1	0	7.44	0.032	0.061	12.48	85.5	0.58
Creek 705	705-10	18-02-2024	0.1	0	7.32	0.033	0.063	12.17	83.3	0.23
Creek 705	705-10	19-03-2024	0.1	0	7.36	0.063	0.121	12.21	83.6	2.9
Fawnie Creek	FC-01	13-04-2023	0.2	0.8	5.25	55.8	104	22.5	157	-
Fawnie Creek	FC-01	02-05-2023	0.15	0.9	6.01	42.9	72.4	11.55	81.1	-
Fawnie Creek	FC-01	10-05-2023	0.3	1.3	7.41	16.5	30.2	13.51	95.8	-
Fawnie Creek	FC-01	15-05-2023	0.5	5.1	7.21	13.5	21.7	12.5	98	-
Fawnie Creek	FC-01	22-05-2023	0.25	5.8	6.28	20.5	32.4	0	0	-
Fawnie Creek	FC-01	31-05-2023	0.25	4.2	6.83	24.6	40.9	11.63	89	-
Fawnie Creek	FC-01	21-06-2023	0.2	7.2	7.73	28.3	42.9	11.93	99	-
Fawnie Creek	FC-01	27-07-2023	0.2	8.5	7.81	38.2	55.8	10.12	86.4	0.08
Fawnie Creek	FC-01	14-08-2023	0.2	12.3	7.73	48.9	64.5	9.26	86.7	0.1
Fawnie Creek	FC-01	04-09-2023	0.2	9.2	7.88	54.9	78.6	9.99	86.9	0.82
Fawnie Creek	FC-01	06-10-2023	0.1	5.5	7.75	49	78	10.9	86.7	-
Fawnie Creek	FC-01	12-10-2023	0.2	4.7	7.65	49.5	80.8	10.86	84.5	0.19
Fawnie Creek	FC-01	17-10-2023	0.2	4	7.78	45.3	75.6	11.55	88.2	0.59
Fawnie Creek	FC-01	25-10-2023	0.1	0.3	7.52	50.8	96.2	16.4	113.3	0.28
Fawnie Creek	FC-01	31-10-2023	0.15	0.6	7.68	44.4	83.4	12.74	88.8	0.15
Fawnie Creek	FC-01	06-11-2023	0.1	1	7.51	42.3	78.2	12.43	87.3	0.13
Fawnie Creek	FC-01	07-12-2023	0.1	0	7.58	44.5	85.3	13.78	94.1	0.61
Fawnie Creek	FC-01	22-01-2024	0.1	0.1	7.76	-	91.2	12.64	86.7	0.28
Fawnie Creek	FC-01	18-02-2024	0.1	0	7.71	0.049	0.093	12.53	85.8	0
Fawnie Creek	FC-01	05-03-2024	0.1	0	7.59	0.05	0.095	12.68	86.8	0.01

Notes:

"-" indicates parameter was not measured.

Appendix B-3 Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

QAQC	Laboratory ID	Date	Physical Tests									Anions and Nutrients									
			pH	Total Suspended Solids	Total Dissolved Solids	Conductivity	Turbidity	Acidity (as $CaCO_3$)	Alkalinity, Total (as $CaCO_3$)	Hardness (as $CaCO_3$)-Total	Hardness (as $CaCO_3$)-Dissolved	Bromide (Br)	Chloride (Cl)	Fluoride (F)	Sulfate (SO_4)	Total Kjeldahl Nitrogen	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Orthophosphate-Dissolved (as P)	Phosphorus (P)-Total
			pH units	mg/L	mg/L	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Field Blank	VA23A7852-006	11-04-2023	5.54	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23A9893-005	04-05-2023	5.49	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B0222-007	09-05-2023	5.46	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B1108-006	17-05-2023	5.92	<3.0	<10	<2.0	<0.10	2.3	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B1379-003	22-05-2023	5.35	<3.0	<10	<2.0	<0.10	2.2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B2219-006	30-05-2023	5.3	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	0.084	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B3035-006	07-06-2023	5.41	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B4330-008	21-06-2023	5.21	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B7293-002	25-07-2023	5.23	<3.0	<10	<2.0	<0.10	2.5	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23B8906-009	15-08-2023	5.35	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C0460-006	29-08-2023	5.24	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C1854-004	13-09-2023	5.41	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C3871-005	04-10-2023	5.49	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C3877-006	04-10-2023	5.36	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C4458-005	11-10-2023	5.39	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C5184-006	20-10-2023	5.53	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C5771-006	24-10-2023	5.6	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C6498-007	01-11-2023	5.54	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA23C9661-007	07-12-2023	5.4	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	0.0076	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA24A1649-004	25-01-2024	5.35	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA24A2373-006	04-02-2024	5.32	<3.0	<10	<2.0	<0.10	2.2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA24A3578-002	20-02-2024	5.47	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA24A4720-004	04-03-2024	5.56	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Field Blank	VA24A6440-006	25-03-2024	5.6	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23A9322-002	28-04-2023	5.56	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23A9893-006	04-05-2023	5.47	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23B1108-007	17-05-2023	5.58	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	-	-	<0.0050	<0.0010	<0.0010	-
Travel Blank	VA23B1690-012	24-05-2023	5.25	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23B2224-005	31-05-2023	5.38	<3.0	<10	<2.0	<0.10	2.4	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23B3035-007	07-06-2023	5.37	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23B4330-009	21-06-2023	5.18	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23B7734-008	31-07-2023	5.12	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C0460-007	29-08-2023	5.18	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C0762-005	31-08-2023	5.35	<3.0	<10	<2.0	<0.10	2.2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C2546-006	20-09-2023	5.51	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C3877-007	04-10-2023	5.31	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C4014-012	06-10-2023	5.42	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C4586-007	14-10-2023	5.4	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C5184-007	20-10-2023	5.45	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	-	<0.0020
Travel Blank	VA23C5894-006	25-10-2023	5.48	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23C7190-012	09-11-2023	5.52	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA23D0165-001	14-12-2023	5.49	<3.0	<10	<2.0	<0.10	2.1	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA24A1701-004	26-01-2024	5.4	<3.0	<10	<2.0	<0.10	<2.0	<1.0	<0.60	<0.60	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA24A4123-001	27-02-2024	5.73	<3.0	<10	<2.0	<0.10	2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020
Travel Blank	VA24A6440-007	25-03-2024	5.51	<3.0	<10	<2.0	<0.10	2.2	<1.0	<0.60	-	<0.050	<0.50	<0.020	<0.30	<0.050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0020

Notes:

'-' indicates parameter was not measured.

'<' indicates value was below the detection limit.

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

QAQC	Laboratory ID	Cyanides			Organic / Inorganic Carbon		Total Metals														
		Cyanide, Strong Acid Diss	Cyanide, Weak Acid Diss	Thiocyanate	Total Organic Carbon	Dissolved Organic Carbon	Aluminum (Al)-Total	Antimony (Sb)-Total	Arsenic (As)-Total	Barium (Ba)-Total	Beryllium (Be)-Total	Bismuth (Bi)-Total	Boron (B)-Total	Cadmium (Cd)-Total	Calcium (Ca)-Total	Chromium (Cr)-Total	Cobalt (Co)-Total	Copper (Cu)-Total	Iron (Fe)-Total	Lead (Pb)-Total	Lithium (Li)-Total
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Field Blank	VA23A7852-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23A9893-005	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B0222-007	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B1108-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B1379-003	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B2219-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B3035-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B4330-008	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B7293-002	<0.0050	<0.0050	<0.50	0.51	0.52	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23B8906-009	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C0460-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C1854-004	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C3871-005	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C3877-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C4458-005	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C5184-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C5771-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C6498-007	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA23C9661-007	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA24A1649-004	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA24A2373-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA24A3578-002	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA24A4720-004	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Field Blank	VA24A6440-006	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23A9322-002	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23A9893-006	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B1108-007	<0.0050	<0.0050	<0.50	-	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B1690-012	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B2224-005	-	-	-	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B3035-007	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B4330-009	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23B7734-008	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C0460-007	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C0762-005	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C2546-006	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C3877-007	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C4014-012	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C4586-007	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C5184-007	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C5894-006	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23C7190-012	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA23D0165-001	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA24A1701-004	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA24A4123-001	<0.0050	<0.0050	<0.50	<0.50	-	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010
Travel Blank	VA24A6440-007	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010

Notes:

'-' indicates parameter was not measured.

'<' indicates value was below the detection limit.

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

QAQC	Laboratory ID	Total Metals (cont'd)																	
		Magnesium (Mg)-Total	Manganese (Mn)-Total	Mercury (Hg)-Total	Molybdenum (Mo)-Total	Nickel (Ni)-Total	Phosphorus (P)-Total	Potassium (K)-Total	Selenium (Se)-Total	Silicon (Si)-Total	Silver (Ag)-Total	Sodium (Na)-Total	Strontium (Sr)-Total	Sulfur (S)-Total	Thallium (Tl)-Total	Tin (Sn)-Total	Titanium (Ti)-Total	Uranium (U)-Total	Vanadium (V)-Total	Zinc (Zn)-Total
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Field Blank	VA23A7852-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23A9893-005	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B0222-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B1108-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B1379-003	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B2219-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B3035-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B4330-008	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B7293-002	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23B8906-009	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C0460-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C1854-004	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C3871-005	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C3877-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C4458-005	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C5184-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C5771-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C6498-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA23C9661-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA24A1649-004	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA24A2373-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA24A3578-002	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA24A4720-004	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Field Blank	VA24A6440-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23A9322-002	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23A9893-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B1108-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B1690-012	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B2224-005	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B3035-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B4330-009	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23B7734-008	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C0460-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C0762-005	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C2546-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C3877-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C4014-012	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C4586-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C5184-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C5894-006	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23C7190-012	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA23D0165-001	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA24A1701-004	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA24A4123-001	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030
Travel Blank	VA24A6440-007	<0.100	<0.00010	<0.0000050	<0.000050	<0.00050	<0.050	<0.100	<0.000050	<0.10	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0030

Notes:

'-' indicates parameter was not measured.

'<' indicates value was below the detection limit.

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

QAQC	Laboratory ID	Dissolved Metals																		
		Aluminum (Al)-Dissolved	Antimony (Sb)-Dissolved	Arsenic (As)-Dissolved	Barium (Ba)-Dissolved	Beryllium (Be)-Dissolved	Bismuth (Bi)-Dissolved	Boron (B)-Dissolved	Cadmium (Cd)-Dissolved	Calcium (Ca)-Dissolved	Chromium (Cr)-Dissolved	Cobalt (Co)-Dissolved	Copper (Cu)-Dissolved	Iron (Fe)-Dissolved	Lead (Pb)-Dissolved	Lithium (Li)-Dissolved	Magnesium (Mg)-Dissolved	Manganese (Mn)-Dissolved	Mercury (Hg)-Dissolved	Molybdenum (Mo)-Dissolved
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Field Blank	VA23A7852-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23A9893-005	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B0222-007	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B1108-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B1379-003	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B2219-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B3035-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B4330-008	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23B7293-002	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	0.000083
Field Blank	VA23B8906-009	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C0460-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C1854-004	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C3871-005	0.0012	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C3877-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C4458-005	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C5184-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C5771-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C6498-007	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA23C9661-007	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA24A1649-004	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA24A2373-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA24A3578-002	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA24A4720-004	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Field Blank	VA24A6440-006	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Travel Blank	VA23A9322-002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23A9893-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B1108-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B1690-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B2224-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B3035-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B4330-009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B7734-008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C0460-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C0762-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C2546-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C3877-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C4014-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C4586-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C5184-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C5894-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C7190-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23D0165-001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA24A1701-004	<0.0010	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.00050	<0.00010	<0.00020	<0.010	<0.000050	<0.0010	<0.100	<0.00010	<0.0000050	<0.000050
Travel Blank	VA24A4123-001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA24A6440-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

'-' indicates parameter was not measured.

'<' indicates value was below the detection limit.

Appendix B-3: Surface Water Quality Field and Travel Blank Laboratory Results, April 1, 2023 to March 31, 2024

QAQC	Laboratory ID	Dissolved Metals (cont'd)														
		Nickel (Ni)-Dissolved	Phosphorus (P)-Dissolved	Potassium (K)-Dissolved	Selenium (Se)-Dissolved	Silicon (Si)-Dissolved	Silver (Ag)-Dissolved	Sodium (Na)-Dissolved	Strontium (Sr)-Dissolved	Sulfur (S)-Dissolved	Thallium (Tl)-Dissolved	Tin (Sn)-Dissolved	Titanium (Ti)-Dissolved	Uranium (U)-Dissolved	Vanadium (V)-Dissolved	Zinc (Zn)-Dissolved
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Field Blank	VA23A7852-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23A9893-005	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B0222-007	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B1108-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B1379-003	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B2219-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B3035-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B4330-008	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B7293-002	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23B8906-009	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C0460-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C1854-004	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C3871-005	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C3877-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C4458-005	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C5184-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C5771-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C6498-007	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA23C9661-007	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA24A1649-004	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA24A2373-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA24A3578-002	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA24A4720-004	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Field Blank	VA24A6440-006	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Travel Blank	VA23A9322-002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23A9893-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B1108-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B1690-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B2224-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B3035-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B4330-009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23B7734-008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C0460-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C0762-005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C2546-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C3877-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C4014-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C4586-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C5184-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C5894-006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23C7190-012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA23D0165-001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA24A1701-004	<0.00050	<0.050	<0.100	<0.000050	<0.050	<0.000010	<0.050	<0.00020	<0.50	<0.000010	<0.00010	<0.00030	<0.000010	<0.00050	<0.0010
Travel Blank	VA24A4123-001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travel Blank	VA24A6440-007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

'-' indicates parameter was not measured.

'<' indicates value was below the detection limit.

Appendix B-4 Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	Units	2023-04-12				2023-04-13				2023-05-01				2023-05-09			
			661-10				705-10				CC-03				661-03			
			Surface				Surface				Surface				Surface			
			Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	pH units	7.79	7.82	0.1	0.38%	7.69	7.68	0.1	0.13%	7.64	7.66	0.1	0.26%	7.22	7.21	0.1	0.14%
	Total Suspended Solids	mg/L	<3.0	<3.0	3	-	<3.0	<3.0	3	-	21.7	19.5	3	10.68%	3.4	7	3	-
	Total Dissolved Solids	mg/L	73	64	13	-	56	54	13	-	91	92	13	1.09%	78	71	10	9.40%
	Conductivity	µS/cm	92.9	98.1	2	5.45%	67.7	65.5	2	3.30%	97.2	98.3	2	1.13%	43.2	42.4	2	1.87%
	Turbidity	NTU	0.39	0.34	0.1	-	0.87	0.9	0.1	3.39%	7.18	8.31	0.1	14.59%	0.72	0.97	0.1	29.59%
	Acidity (as $CaCO_3$)	mg/L	<2.0	2.2	2	-	2.3	2.2	2	-	2.5	2.3	2	-	2.7	2.6	2	-
	Alkalinity, Total (as $CaCO_3$)	mg/L	45.3	44.7	1	1.33%	32	32.7	1	2.16%	45.7	46.9	1	2.59%	16.7	16.9	1	1.19%
	Hardness (as $CaCO_3$)-Total	mg/L	37.6	37.4	0.6	0.53%	27.7	28	0.6	1.08%	47.1	46.3	0.6	1.71%	20.3	20.5	0.6	0.98%
	Hardness (as $CaCO_3$)-Dissolved	mg/L	36.3	36.3	0.6	0%	27.9	27.7	0.6	0.72%	45.4	45.1	0.6	0.66%	20.7	20.6	0.6	0.48%
Anions and Nutrients	Bromide (Br)	mg/L	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	mg/L	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	0.54	0.57	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	mg/L	0.053	0.051	0.02	-	0.028	0.031	0.02	-	0.044	0.043	0.02	-	0.039	0.04	0.02	-
	Sulfate (SO_4)	mg/L	2.23	2.2	0.3	1.35%	1.83	1.73	0.3	5.62%	2.92	2.9	0.3	0.69%	0.43	0.44	0.3	-
	Total Kjeldahl Nitrogen	mg/L	0.065	0.069	0.05	-	0.191	0.194	0.05	-	0.584	0.587	0.05	0.51%	0.497	0.517	0.05	3.94%
	Ammonia, Total (as N)	mg/L	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	0.0271	0.0258	0.005	4.91%	<0.0050	0.0052	0.005	-
	Nitrate (as N)	mg/L	0.0255	0.026	0.005	1.94%	0.0333	0.0289	0.005	14.15%	0.0465	0.0489	0.005	5.03%	0.005	<0.0050	0.005	-
	Nitrite (as N)	mg/L	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	0.0012	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	mg/L	0.0189	0.0171	0.001	10%	<0.0010	<0.0010	0.001	-	0.0066	0.0069	0.001	4.44%	0.0016	<0.0010	0.001	-
	Phosphorus (P)-Total	mg/L	0.0223	0.0226	0.002	1.34%	0.0061	0.0064	0.002	-	0.0602	0.0608	0.002	0.99%	0.0209	0.0208	0.002	0.48%
Cyanides	Cyanide, Strong Acid Diss	mg/L	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	mg/L	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	mg/L	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	0.71	0.54	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	mg/L	2.72	2.56	0.5	6.06%	7.89	8.14	0.5	3.12%	15.5	15.6	0.5	0.64%	23.6	22.6	0.5	4.33%
	Dissolved Organic Carbon	mg/L	2.85	2.78	0.5	2.49%	8.07	7.95	0.5	1.50%	15.1	15.1	0.5	0%	22.4	22.6	0.5	0.89%
Total Metals	Aluminum (Al)-Total	mg/L	0.0406	0.037	0.003	9.28%	0.106	0.106	0.003	0%	0.535	0.522	0.003	2.46%	0.25	0.237	0.003	5.34%
	Antimony (Sb)-Total	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00012	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	mg/L	0.00097	0.00094	0.0001	3.14%	0.00022	0.00019	0.0001	-	0.00066	0.00067	0.0001	1.50%	0.0003	0.00032	0.0001	-
	Barium (Ba)-Total	mg/L	0.0045	0.00444	0.0001	1.34%	0.00976	0.00954	0.0001	2.28%	0.0104	0.00989	0.0001	5.03%	0.00493	0.00475	0.0001	3.72%
	Beryllium (Be)-Total	mg/L	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	0.000024	0.000023	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	mg/L	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	mg/L	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	mg/L	0.0000065	0.0000056	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000095	0.0000055	0.000005	-	0.0000064	<0.0000050	0.000005	-
	Calcium (Ca)-Total	mg/L	10.7	10.6	0.05	0.94%	8.37	8.53	0.05	1.89%	12.7	12.7	0.05	0%	5.45	5.48	0.05	0.55%
	Chromium (Cr)-Total	mg/L	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00068	0.0007	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Total	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00025	0.00025	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	mg/L	<0.00050	<0.00050	0.0005	-	0.00054	<0.00050	0.0005	-	0.00106	0.00114	0.0005	-	0.00094	0.00096	0.0005	-
	Iron (Fe)-Total	mg/L	0.088	0.086	0.01	2.30%	0.143	0.146	0.01	2.08%	0.812	0.787	0.01	3.13%	0.212	0.205	0.01	3.36%
	Lead (Pb)-Total	mg/L	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000122	0.00011	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Total	mg/L	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	mg/L	2.64	2.65	0.1	0.38%	1.66	1.64	0.1	1.21%	3.74	3.55	0.1	5.21%	1.63	1.65	0.1	1.22%
	Manganese (Mn)-Total	mg/L	0.00751	0.00704	0.0001	6.46%	0.00442	0.00437	0.0001	1.14%	0.114	0.106	0.0001	7.27%	0.0148	0.0119	0.0001	21.72%
	Mercury (Hg)-Total	mg/L	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000054	0.0000053	0.000005	-	0.0000101	0.0000094	0.000005	-
	Molybdenum (Mo)-Total	mg/L	0.000657	0.000678	0.00005	3.15%	0.000423	0.000388	0.00005	8.63%	0.0005	0.000492	0.00005	1.61%	0.00015	0.000156	0.00005	-
	Nickel (Ni)-Total	mg/L	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00091	0.0009	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	mg/L	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	0.077	0.083	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	mg/L	0.521	0.517	0.1	0.77%	0.371	0.35	0.1	-	1.32	1.3	0.1	1.53%	0.491	0.506	0.1	-
	Selenium (Se)-Total	mg/L	0.000055	0.000067	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000076	0.00008	0.00005	-	0.00009	<0.000050	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	Units	2023-04-12				2023-04-13				2023-05-01				2023-05-09			
			661-10				705-10				CC-03				661-03			
			Surface				Surface				Surface				Surface			
			Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	mg/L	7.64	7.66	0.1	0.26%	4.4	4.52	0.1	2.69%	5.5	5.66	0.1	2.87%	5.31	5.28	0.1	0.57%
	Silver (Ag)-Total	mg/L	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000012	0.00001	0.00001	-
	Sodium (Na)-Total	mg/L	3.54	3.56	0.05	0.56%	2.46	2.45	0.05	0.41%	2.44	2.43	0.05	0.41%	2.38	2.28	0.05	4.29%
	Strontium (Sr)-Total	mg/L	0.0657	0.0677	0.0002	3%	0.057	0.0574	0.0002	0.70%	0.057	0.0551	0.0002	3.39%	0.0339	0.0335	0.0002	1.19%
	Sulfur (S)-Total	mg/L	0.7	0.58	0.5	-	0.58	0.65	0.5	-	1.08	1.1	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Total	mg/L	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	mg/L	0.00066	0.00068	0.0003	-	0.00316	0.00298	0.0003	5.86%	0.0191	0.0203	0.0003	6.09%	0.00342	0.00324	0.0003	5.41%
	Uranium (U)-Total	mg/L	0.000139	0.000138	0.00001	0.72%	0.00016	0.000162	0.00001	1.24%	0.000078	0.000073	0.00001	6.62%	0.000073	0.000067	0.00001	8.57%
	Vanadium (V)-Total	mg/L	0.00108	0.00105	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00152	0.0015	0.0005	-	0.00075	0.00073	0.0005	-
	Zinc (Zn)-Total	mg/L	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	mg/L	0.0239	0.0234	0.001	2.11%	0.0712	0.0691	0.001	2.99%	0.18	0.202	0.001	11.52%	0.188	0.187	0.001	0.53%
	Antimony (Sb)-Dissolved	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	mg/L	0.00083	0.00086	0.0001	3.55%	0.00017	0.00018	0.0001	-	0.00045	0.00044	0.0001	-	0.00026	0.00029	0.0001	-
	Barium (Ba)-Dissolved	mg/L	0.00434	0.00439	0.0001	1.15%	0.0093	0.00905	0.0001	2.72%	0.00612	0.00618	0.0001	0.98%	0.00443	0.00443	0.0001	0%
	Beryllium (Be)-Dissolved	mg/L	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	mg/L	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	mg/L	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	mg/L	0.0000061	0.0000062	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000067	0.0000055	0.000005	-
	Calcium (Ca)-Dissolved	mg/L	10.4	10.4	0.05	0%	8.42	8.41	0.05	0.12%	12.4	12.4	0.05	0%	5.68	5.67	0.05	0.18%
	Chromium (Cr)-Dissolved	mg/L	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	mg/L	<0.00020	<0.00020	0.0002	-	0.00044	0.00044	0.0002	-	0.00064	0.00067	0.0002	-	0.00085	0.00089	0.0002	-
	Iron (Fe)-Dissolved	mg/L	0.055	0.055	0.01	0%	0.111	0.112	0.01	0.90%	0.25	0.259	0.01	3.54%	0.139	0.136	0.01	2.18%
	Lead (Pb)-Dissolved	mg/L	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	mg/L	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	mg/L	2.5	2.52	0.1	0.80%	1.68	1.63	0.1	3.02%	3.52	3.44	0.1	2.30%	1.58	1.57	0.1	0.63%
	Manganese (Mn)-Dissolved	mg/L	0.00544	0.00561	0.0001	3.08%	0.00341	0.0034	0.0001	0.29%	0.02	0.0206	0.0001	2.96%	0.00426	0.00418	0.0001	1.90%
	Mercury (Hg)-Dissolved	mg/L	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000095	0.000008	0.000005	-
	Molybdenum (Mo)-Dissolved	mg/L	0.000626	0.00065	0.00005	3.76%	0.000394	0.000396	0.00005	0.51%	0.000483	0.000484	0.00005	0.21%	0.000149	0.000151	0.00005	-
	Nickel (Ni)-Dissolved	mg/L	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.0005	0.00058	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	mg/L	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	mg/L	0.508	0.521	0.1	2.53%	0.361	0.347	0.1	-	1.26	1.28	0.1	1.57%	0.55	0.543	0.1	1.28%
	Selenium (Se)-Dissolved	mg/L	0.00006	0.000054	0.00005	-	0.000056	<0.000050	0.00005	-	0.000055	0.000064	0.00005	-	0.000052	0.000067	0.00005	-
	Silicon (Si)-Dissolved	mg/L	7.66	7.64	0.05	0.26%	4.27	4.61	0.05	7.66%	4.91	4.94	0.05	0.61%	5.39	5.29	0.05	1.87%
	Silver (Ag)-Dissolved	mg/L	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	mg/L	3.61	3.53	0.05	2.24%	2.35	2.44	0.05	3.76%	2.44	2.39	0.05	2.07%	2.1	2.23	0.05	6%
	Strontium (Sr)-Dissolved	mg/L	0.0651	0.0663	0.0002	1.83%	0.0587	0.0576	0.0002	1.89%	0.0537	0.054	0.0002	0.56%	0.0334	0.0327	0.0002	2.12%
	Sulfur (S)-Dissolved	mg/L	0.62	0.61	0.5	-	0.63	0.56	0.5	-	0.9	0.79	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Dissolved	mg/L	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	mg/L	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	mg/L	0.00031	0.00033	0.0003	-	0.00249	0.00235	0.0003	5.79%	0.00732	0.00774	0.0003	5.58%	0.00233	0.00226	0.0003	3.05%
	Uranium (U)-Dissolved	mg/L	0.000131	0.000136	0.00001	3.75%	0.000162	0.000158	0.00001	2.50%	0.000049	0.00005	0.00001	-	0.000059	0.000053	0.00001	10.71%
	Vanadium (V)-Dissolved	mg/L	0.00094	0.00095	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00062	0.00065	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	mg/L	0.0012	0.0012	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-05-11				2023-05-17				2023-05-22				2023-05-30			
		CC-15				CC-40				661-01				CC-20			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	7.84	7.85	0.1	0.13%	7.82	7.82	0.1	0%	6.92	6.91	0.1	0.14%	7.93	7.97	0.1	0.50%
	Total Suspended Solids	15.3	13.7	3	-	17	17.6	3	3.47%	<3.0	<3.0	3	-	3.7	<3.0	3	-
	Total Dissolved Solids	88	89	13	1.13%	75	73	13	2.70%	40	38	10	-	73	78	13	6.62%
	Conductivity	98.2	99.2	2	1.01%	97.4	96.4	2	1.03%	19.1	19	2	0.52%	121	124	2	2.45%
	Turbidity	3.76	3.79	0.1	0.79%	4.36	4.76	0.1	8.77%	0.4	0.38	0.1	-	1.51	1.17	0.1	25.37%
	Acidity (as $CaCO_3$)	<2.0	2	2	-	2	2.1	2	-	3	2.9	2	-	<2.0	<2.0	2	-
	Alkalinity, Total (as $CaCO_3$)	48.5	47.6	1	1.87%	48.3	47.9	1	0.83%	7.4	7.3	1	1.36%	63.7	65.7	1	3.09%
	Hardness (as $CaCO_3$)-Total	45.2	44.6	0.6	1.34%	49	47.4	0.6	3.32%	7.51	7.52	0.6	0.13%	57.5	57.9	0.6	0.69%
	Hardness (as $CaCO_3$)-Dissolved	45.6	44.9	0.6	1.55%	44.5	44.4	0.6	0.22%	7.28	7.27	0.6	0.14%	57.2	57	0.6	0.35%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.05	0.051	0.02	-	0.042	0.042	0.02	-	0.027	0.023	0.02	-	0.05	0.048	0.02	-
	Sulfate (SO_4)	3.34	3.38	0.3	1.19%	2.76	2.14	0.3	25.31%	<0.30	<0.30	0.3	-	2.77	2.77	0.3	0%
	Total Kjeldahl Nitrogen	0.351	0.347	0.05	1.15%	0.486	0.431	0.05	12%	0.272	0.258	0.05	5.28%	0.28	0.26	0.05	7.41%
	Ammonia, Total (as N)	0.006	0.0061	0.005	-	0.0082	0.0071	0.005	-	<0.0050	0.0051	0.005	-	0.0062	0.0061	0.005	-
	Nitrate (as N)	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	0.0012	0.001	0.001	-	0.0018	0.0019	0.001	-	<0.0010	<0.0010	0.001	-	0.0016	0.0014	0.001	-
	Phosphorus (P)-Total	0.0306	0.0343	0.002	11.40%	0.0315	0.0321	0.002	1.89%	0.0092	0.009	0.002	-	0.0187	0.0196	0.002	4.70%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	0.5	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	12	11.2	0.5	6.90%	11.3	11.1	0.5	1.79%	10.6	10.4	0.5	1.90%	8.47	8.59	0.5	1.41%
	Dissolved Organic Carbon	12	11.4	0.5	5.13%	9.87	11.6	0.5	16.12%	10.8	10.4	0.5	3.77%	8.9	9.35	0.5	4.93%
Total Metals	Aluminum (Al)-Total	0.257	0.261	0.003	1.54%	0.267	0.27	0.003	1.12%	0.145	0.143	0.003	1.39%	0.051	0.0517	0.003	1.36%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00068	0.00073	0.0001	7.09%	0.00066	0.00068	0.0001	2.99%	0.00064	0.00062	0.0001	3.17%	0.00061	0.00063	0.0001	3.23%
	Barium (Ba)-Total	0.00856	0.00848	0.0001	0.94%	0.00907	0.00916	0.0001	0.99%	0.00241	0.00248	0.0001	2.86%	0.00696	0.00684	0.0001	1.74%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	0.000025	0.00002	-	0.000026	0.000027	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	0.0000052	0.000005	0.000005	-	0.0000062	0.0000055	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Total	13	12.9	0.05	0.77%	14.4	13.8	0.05	4.26%	2.17	2.18	0.05	0.46%	16.2	16.5	0.05	1.83%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Total	0.00011	0.00012	0.0001	-	0.00016	0.00016	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	0.00079	0.00081	0.0005	-	0.00087	0.00089	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Iron (Fe)-Total	0.331	0.333	0.01	0.60%	0.522	0.522	0.01	0%	0.15	0.149	0.01	0.67%	0.121	0.118	0.01	2.51%
	Lead (Pb)-Total	0.000085	0.0001	0.00005	-	0.00009	0.000086	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	3.09	3.02	0.1	2.29%	3.16	3.14	0.1	0.63%	0.507	0.505	0.1	0.40%	4.14	4.06	0.1	1.95%
	Manganese (Mn)-Total	0.02	0.0198	0.0001	1.01%	0.049	0.048	0.0001	2.06%	0.00814	0.00838	0.0001	2.91%	0.0179	0.0177	0.0001	1.12%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Total	0.000553	0.000527	0.00005	4.81%	0.000529	0.000521	0.00005	1.52%	0.000117	0.000108	0.00005	-	0.00091	0.000915	0.00005	0.55%
	Nickel (Ni)-Total	0.00062	0.00052	0.0005	-	0.00058	0.00061	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	<0.050	0.05	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	0.841	0.829	0.1	1.44%	0.755	0.75	0.1	0.66%	0.185	0.191	0.1	-	0.802	0.812	0.1	1.24%
	Selenium (Se)-Total	0.000074	0.000088	0.00005	-	0.000054	0.000094	0.00005	-	0.000052	0.000054	0.00005	-	0.00009	0.00007	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-05-11				2023-05-17				2023-05-22				2023-05-30			
		CC-15				CC-40				661-01				CC-20			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	4.9	4.85	0.1	1.03%	5.19	5.18	0.1	0.19%	3.38	3.48	0.1	2.92%	5.13	5.44	0.1	5.87%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Total	2.55	2.56	0.05	0.39%	2.74	2.83	0.05	3.23%	1.43	1.4	0.05	2.12%	3.23	3.27	0.05	1.23%
	Strontium (Sr)-Total	0.0711	0.0713	0.0002	0.28%	0.0721	0.0729	0.0002	1.10%	0.0173	0.0179	0.0002	3.41%	0.0889	0.0891	0.0002	0.22%
	Sulfur (S)-Total	1.06	1.07	0.5	-	0.8	0.95	0.5	-	<0.50	<0.50	0.5	-	1.33	1.32	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.0108	0.0156	0.0003	36.36%	0.0108	0.0111	0.0003	2.74%	0.00106	0.00105	0.0003	-	0.00206	0.00194	0.0003	6%
	Uranium (U)-Total	0.000134	0.000136	0.00001	1.48%	0.000113	0.000103	0.00001	9.26%	0.000074	0.000069	0.00001	6.99%	0.000108	0.000107	0.00001	0.93%
	Vanadium (V)-Total	0.00102	0.00111	0.0005	-	0.0012	0.0012	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00063	0.00062	0.0005	-
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0572	0.0575	0.001	0.52%	0.0249	0.0225	0.001	10.13%	0.13	0.132	0.001	1.53%	0.0098	0.0081	0.001	18.99%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00052	0.00053	0.0001	1.90%	0.00049	0.00048	0.0001	-	0.00055	0.00057	0.0001	3.57%	0.00056	0.00059	0.0001	5.22%
	Barium (Ba)-Dissolved	0.00678	0.00665	0.0001	1.94%	0.00696	0.00698	0.0001	0.29%	0.00201	0.00214	0.0001	6.27%	0.0061	0.00623	0.0001	2.11%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	0.000024	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	13.3	13.2	0.05	0.75%	12.9	12.9	0.05	0%	2.04	2.05	0.05	0.49%	16.4	16.4	0.05	0%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00059	0.00056	0.0002	-	0.00058	0.00058	0.0002	-	0.00036	0.00036	0.0002	-	0.00038	0.00036	0.0002	-
	Iron (Fe)-Dissolved	0.091	0.091	0.01	0%	0.108	0.103	0.01	4.74%	0.112	0.122	0.01	8.55%	0.051	0.05	0.01	1.98%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	3.02	2.91	0.1	3.71%	2.99	2.96	0.1	1.01%	0.53	0.523	0.1	1.33%	3.94	3.89	0.1	1.28%
	Manganese (Mn)-Dissolved	0.00792	0.00772	0.0001	2.56%	0.0157	0.0155	0.0001	1.28%	0.00335	0.00347	0.0001	3.52%	0.0117	0.0117	0.0001	0%
	Mercury (Hg)-Dissolved	0.0000073	0.0000055	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000051	0.0000052	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000538	0.000524	0.00005	2.64%	0.000506	0.000553	0.00005	8.88%	0.000103	0.000103	0.00005	-	0.000573	0.000626	0.00005	8.84%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.78	0.793	0.1	1.65%	0.738	0.734	0.1	0.54%	0.156	0.158	0.1	-	0.754	0.759	0.1	0.66%
	Selenium (Se)-Dissolved	0.000076	0.000067	0.00005	-	0.000071	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000075	0.000058	0.00005	-
	Silicon (Si)-Dissolved	4.68	4.68	0.05	0%	4.64	4.61	0.05	0.65%	3.3	3.3	0.05	0%	5.08	5.01	0.05	1.39%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	2.46	2.44	0.05	0.82%	2.64	2.6	0.05	1.53%	1.42	1.39	0.05	2.14%	2.93	2.9	0.05	1.03%
	Strontium (Sr)-Dissolved	0.067	0.0656	0.0002	2.11%	0.068	0.0685	0.0002	0.73%	0.0161	0.0165	0.0002	2.45%	0.0831	0.0811	0.0002	2.44%
	Sulfur (S)-Dissolved	1.07	1.03	0.5	-	0.89	0.9	0.5	-	<0.50	<0.50	0.5	-	1.17	1.02	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	0.00102	0.00122	0.0003	-	0.00045	0.00039	0.0003	-	<0.00060	0.00092	0.0006, 0.0003	-	<0.00030	<0.00030	0.0003	-
	Uranium (U)-Dissolved	0.000108	0.000106	0.00001	1.87%	0.000096	0.000089	0.00001	7.57%	0.000068	0.000069	0.00001	1.46%	0.000093	0.000094	0.00001	1.07%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-06-14				2023-07-25				2023-08-14				2023-08-29			
		661-04				DC-15				705-05				CC-30			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	7.09	7.13	0.1	0.56%	7.59	7.57	0.1	0.26%	7.38	7.42	0.1	0.54%	8.12	8.12	0.1	0%
	Total Suspended Solids	<3.0	<3.0	3	-	9.4	9.6	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-
	Total Dissolved Solids	61	59	13	-	84	83	13	1.20%	30	36	10	-	100	96	13	4.08%
	Conductivity	58	57.6	2	0.69%	84.2	83.8	2	0.48%	47.2	46.9	2	0.64%	152	152	2	0%
	Turbidity	0.28	0.28	0.1	-	2.45	1.94	0.1	23.23%	0.68	0.66	0.1	2.99%	1.04	1	0.1	3.92%
	Acidity (as $CaCO_3$)	<2.0	2	2	-	2	2.1	2	-	2.2	2.1	2	-	<2.0	<2.0	2	-
	Alkalinity, Total (as $CaCO_3$)	30.1	30.3	1	0.66%	27.9	27.3	1	2.17%	23.4	23.3	1	0.43%	76.8	76.3	1	0.65%
	Hardness (as $CaCO_3$)-Total	24	23.9	0.6	0.42%	35.2	34.4	0.6	2.30%	20.8	20.9	0.6	0.48%	71.2	69.7	0.6	2.13%
	Hardness (as $CaCO_3$)-Dissolved	24.2	24.1	0.6	0.41%	34.7	34.9	0.6	0.57%	21.3	21.3	0.6	0%	71.2	69.5	0.6	2.42%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	1.49	1.53	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.04	0.04	0.02	-	0.036	0.036	0.02	-	0.025	0.024	0.02	-	0.062	0.06	0.02	-
	Sulfate (SO_4)	1.58	1.61	0.3	1.88%	9.21	9.33	0.3	1.29%	0.95	0.92	0.3	-	3.26	3.25	0.3	0.31%
	Total Kjeldahl Nitrogen	0.125	0.12	0.05	-	0.259	0.234	0.05	-	0.232	0.247	0.05	-	0.212	0.254	0.05	-
	Ammonia, Total (as N)	<0.0050	<0.0050	0.005	-	0.0068	0.0108	0.005	-	<0.0050	<0.0050	0.005	-	0.0059	0.0057	0.005	-
	Nitrate (as N)	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	0.0086	0.008	0.001	7.23%	0.0029	0.0021	0.001	-	<0.0010	<0.0010	0.001	-	0.0031	0.0036	0.001	-
	Phosphorus (P)-Total	0.0163	0.0161	0.002	1.23%	0.0259	0.0247	0.002	4.74%	0.0098	0.0095	0.002	-	0.0107	0.0182	0.002	51.90%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	5.35	5.05	0.5	5.77%	9.76	8.15	0.5	17.98%	8.64	8.6	0.5	0.46%	6.35	7.12	0.5	11.43%
	Dissolved Organic Carbon	5.15	5.16	0.5	0.19%	8.46	9.79	0.5	14.58%	8.28	8.75	0.5	5.52%	6.62	7.22	0.5	8.67%
Total Metals	Aluminum (Al)-Total	0.0546	0.054	0.003	1.10%	0.22	0.224	0.003	1.80%	0.0665	0.0672	0.003	1.05%	0.0174	0.0297	0.003	52.23%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00113	0.00113	0.0001	0%	0.0008	0.00084	0.0001	4.88%	0.00034	0.00037	0.0001	-	0.00082	0.00083	0.0001	1.21%
	Barium (Ba)-Total	0.00384	0.00381	0.0001	0.78%	0.0108	0.0111	0.0001	2.74%	0.00822	0.00819	0.0001	0.37%	0.00842	0.00862	0.0001	2.35%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	0.000021	<0.000020	0.00002	-	0.000025	0.000025	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	0.0000189	0.000018	0.000005	-	0.0000109	0.0000201	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Total	6.91	6.9	0.05	0.14%	10.6	10.3	0.05	2.87%	6.59	6.64	0.05	0.76%	20.6	20	0.05	2.96%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	0.00014	0.00015	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	0.0006	0.00102	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Iron (Fe)-Total	0.052	0.053	0.01	1.90%	0.264	0.261	0.01	1.14%	0.206	0.203	0.01	1.47%	0.279	0.289	0.01	3.52%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	0.000106	0.000139	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	1.64	1.62	0.1	1.23%	2.13	2.1	0.1	1.42%	1.06	1.06	0.1	0%	4.8	4.8	0.1	0%
	Manganese (Mn)-Total	0.00438	0.00447	0.0001	2.03%	0.0344	0.0342	0.0001	0.58%	0.0118	0.0129	0.0001	8.91%	0.0292	0.0275	0.0001	6%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	0.0000052	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Total	0.000481	0.00045	0.00005	6.66%	0.00071	0.000472	0.00005	40.27%	0.000613	0.000622	0.00005	1.46%	0.00102	0.000986	0.00005	3.39%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	0.485	0.492	0.1	-	0.836	0.841	0.1	0.60%	0.292	0.291	0.1	-	1.02	1.02	0.1	0%
	Selenium (Se)-Total	<0.000050	<0.000050	0.00005	-	0.000065	0.000065	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000058	<0.000050	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-06-14				2023-07-25				2023-08-14				2023-08-29			
		661-04				DC-15				705-05				CC-30			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	7.1	7.11	0.1	0.14%	6.44	6.39	0.1	0.78%	3.71	3.65	0.1	1.63%	4.15	4.13	0.1	0.48%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Total	2.65	2.64	0.05	0.38%	3.22	3.15	0.05	2.20%	1.84	1.84	0.05	0%	4.21	4.33	0.05	2.81%
	Strontium (Sr)-Total	0.0479	0.0473	0.0002	1.26%	0.0741	0.0745	0.0002	0.54%	0.055	0.0548	0.0002	0.36%	0.111	0.107	0.0002	3.67%
	Sulfur (S)-Total	0.62	0.67	0.5	-	3.6	3.6	0.5	0%	<0.50	<0.50	0.5	-	1.18	1.16	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00088	0.00074	0.0003	-	0.00612	0.00608	0.0003	0.66%	0.00114	0.00127	0.0003	-	0.00066	<0.00180	0.0003, 0.0018	-
	Uranium (U)-Total	0.000059	0.000061	0.00001	3.33%	0.000131	0.00013	0.00001	0.77%	0.000175	0.000185	0.00001	5.56%	0.00014	0.000134	0.00001	4.38%
	Vanadium (V)-Total	0.00063	0.00064	0.0005	-	0.00094	0.00091	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00064	0.00066	0.0005	-
	Zinc (Zn)-Total	0.0053	0.0051	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0414	0.0414	0.001	0%	0.0432	0.0414	0.001	4.26%	0.0468	0.0465	0.001	0.64%	0.0035	0.0036	0.001	-
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00107	0.00107	0.0001	0%	0.0006	0.00058	0.0001	3.39%	0.0003	0.00032	0.0001	-	0.00072	0.00077	0.0001	6.71%
	Barium (Ba)-Dissolved	0.00395	0.00381	0.0001	3.61%	0.00793	0.00832	0.0001	4.80%	0.00808	0.00771	0.0001	4.69%	0.00857	0.00834	0.0001	2.72%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	0.0000155	0.0000132	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	7.02	7.03	0.05	0.14%	10.5	10.5	0.05	0%	6.8	6.79	0.05	0.15%	20.6	20.2	0.05	1.96%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00029	0.00027	0.0002	-	0.00041	0.00047	0.0002	-	0.00036	0.00033	0.0002	-	0.00037	0.00034	0.0002	-
	Iron (Fe)-Dissolved	0.035	0.035	0.01	-	0.058	0.059	0.01	1.71%	0.158	0.159	0.01	0.63%	0.209	0.208	0.01	0.48%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	1.62	1.6	0.1	1.24%	2.06	2.1	0.1	1.92%	1.06	1.06	0.1	0%	4.79	4.64	0.1	3.18%
	Manganese (Mn)-Dissolved	0.00236	0.00237	0.0001	0.42%	0.00488	0.005	0.0001	2.43%	0.00909	0.00914	0.0001	0.55%	0.0215	0.0212	0.0001	1.41%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000504	0.000475	0.00005	5.92%	0.000515	0.000449	0.00005	13.69%	0.000572	0.000569	0.00005	0.53%	0.000961	0.000975	0.00005	1.45%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.497	0.49	0.1	-	0.782	0.804	0.1	2.77%	0.304	0.302	0.1	-	0.98	0.975	0.1	0.51%
	Selenium (Se)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	0.000064	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	0.000057	0.00005	-
	Silicon (Si)-Dissolved	6.99	7.15	0.05	2.26%	6.18	6.04	0.05	2.29%	3.66	3.61	0.05	1.38%	4.22	4.23	0.05	0.24%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	2.82	2.79	0.05	1.07%	3.04	3.22	0.05	5.75%	1.85	1.85	0.05	0%	4.26	4.26	0.05	0%
	Strontium (Sr)-Dissolved	0.048	0.0491	0.0002	2.27%	0.0723	0.075	0.0002	3.67%	0.0538	0.0536	0.0002	0.37%	0.108	0.107	0.0002	0.93%
	Sulfur (S)-Dissolved	0.51	0.65	0.5	-	3.49	3.49	0.5	0%	<0.50	<0.50	0.5	-	1.36	1.36	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	0.00018	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	0.00042	0.00033	0.0003	-	0.00074	0.00077	0.0003	-	0.00078	0.00074	0.0003	-	<0.00030	<0.00030	0.0003	-
	Uranium (U)-Dissolved	0.00006	0.000059	0.00001	1.68%	0.000083	0.000077	0.00001	7.50%	0.000162	0.000164	0.00001	1.23%	0.000135	0.000135	0.00001	0%
	Vanadium (V)-Dissolved	0.00058	0.00056	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00054	0.00051	0.0005	-
	Zinc (Zn)-Dissolved	0.0047	0.0047	0.001	-	<0.0010	0.0022	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-08-31				2023-09-20				2023-10-04				2023-10-10			
		CC-05				DC-20				CC-20				661-03			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	8.23	8.25	0.1	0.24%	8.04	8.05	0.1	0.12%	8.02	8.04	0.1	0.25%	7.86	7.87	0.1	0.13%
	Total Suspended Solids	<3.0	<3.0	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-	8	8.6	3	-
	Total Dissolved Solids	128	118	13	8.13%	69	68	13	1.46%	90	84	13	6.90%	98	94	13	4.17%
	Conductivity	195	194	2	0.51%	108	108	2	0%	142	143	2	0.70%	136	135	2	0.74%
	Turbidity	0.53	0.62	0.1	15.65%	0.6	0.61	0.1	1.65%	1.01	0.95	0.1	6.12%	0.87	0.88	0.1	1.14%
	Acidity (as $CaCO_3$)	<2.0	<2.0	2	-	<2.0	<2.0	2	-	<2.0	<2.0	2	-	<2.0	2.6	2	-
	Alkalinity, Total (as $CaCO_3$)	106	107	1	0.94%	56	56.2	1	0.36%	73.1	72.6	1	0.69%	73	73.4	1	0.55%
	Hardness (as $CaCO_3$)-Total	92.6	94.6	0.6	2.14%	50.8	51.5	0.6	1.37%	70.6	71.6	0.6	1.41%	63.2	64.2	0.6	1.57%
	Hardness (as $CaCO_3$)-Dissolved	92.2	94.3	0.6	2.25%	50.8	50.7	0.6	0.20%	66.6	66.3	0.6	0.45%	61.7	61.6	0.6	0.16%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.064	0.066	0.02	-	0.046	0.045	0.02	-	0.06	0.06	0.02	-	0.058	0.063	0.02	-
	Sulfate (SO_4)	2.51	2.51	0.3	0%	2.32	2.28	0.3	1.74%	3.39	3.4	0.3	0.29%	1.28	1.26	0.3	-
	Total Kjeldahl Nitrogen	0.196	0.195	0.05	-	0.081	0.081	0.05	-	0.208	0.208	0.05	-	0.281	0.384	0.05	30.98%
	Ammonia, Total (as N)	0.0136	0.0128	0.005	-	<0.0050	<0.0050	0.005	-	0.0055	0.0067	0.005	-	0.0071	0.0099	0.005	-
	Nitrate (as N)	0.0334	0.0326	0.005	2.42%	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	0.0089	0.005	0.005	-
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	0.0171	0.0178	0.001	4.01%	0.0032	0.0037	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Phosphorus (P)-Total	0.0294	0.0324	0.002	9.71%	0.0104	0.0106	0.002	1.90%	0.0118	0.0119	0.002	0.84%	0.0109	0.013	0.002	17.57%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<5.00	<5.00	5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	6.04	5.06	0.5	17.66%	5.03	4.43	0.5	12.68%	6.08	6.18	0.5	1.63%	3.57	3.65	0.5	2.22%
	Dissolved Organic Carbon	5.47	5.79	0.5	5.68%	3.57	3.45	0.5	3.42%	6.49	6.27	0.5	3.45%	2.96	2.54	0.5	15.27%
Total Metals	Aluminum (Al)-Total	0.0353	0.134	0.003	116.60%	0.0228	0.022	0.003	3.57%	0.0142	0.0143	0.003	-	0.0267	0.0385	0.003	36.20%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00096	0.00098	0.0001	2.06%	0.00068	0.0007	0.0001	2.90%	0.00064	0.00064	0.0001	0%	0.00028	0.00032	0.0001	-
	Barium (Ba)-Total	0.00771	0.00794	0.0001	2.94%	0.00916	0.00869	0.0001	5.27%	0.00841	0.00773	0.0001	8.43%	0.00834	0.00902	0.0001	7.83%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Total	25.4	26.1	0.05	2.72%	14.8	14.9	0.05	0.67%	19.8	20.4	0.05	2.99%	16.8	17.1	0.05	1.77%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.0006	<0.00050	0.0005	-
	Cobalt (Co)-Total	<0.00010	0.00013	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	0.00077	0.0005	-
	Iron (Fe)-Total	0.154	0.149	0.01	3.30%	0.282	0.279	0.01	1.07%	0.221	0.216	0.01	2.29%	0.111	0.16	0.01	36.16%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	0.000063	0.00005	-
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	7.09	7.15	0.1	0.84%	3.36	3.47	0.1	3.22%	5.15	5.02	0.1	2.56%	5.16	5.23	0.1	1.35%
	Manganese (Mn)-Total	0.0208	0.0162	0.0001	24.86%	0.0224	0.0217	0.0001	3.17%	0.0234	0.0232	0.0001	0.86%	0.0288	0.0408	0.0001	34.48%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Total	0.00111	0.00115	0.00005	3.54%	0.000823	0.000814	0.00005	1.10%	0.000748	0.000752	0.00005	0.53%	0.000363	0.000362	0.00005	0.28%
	Nickel (Ni)-Total	0.00058	0.00053	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	1	1	0.1	0%	0.685	0.686	0.1	0.15%	0.906	0.89	0.1	1.78%	0.708	0.765	0.1	7.74%
	Selenium (Se)-Total	0.000074	0.000076	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	0.000061	0.00005	-	<0.000050	<0.000050	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-08-31				2023-09-20				2023-10-04				2023-10-10			
		CC-05				DC-20				CC-20				661-03			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	7.02	7.17	0.1	2.11%	6.14	6.29	0.1	2.41%	4.67	4.6	0.1	1.51%	9.63	9.75	0.1	1.24%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Total	4.7	4.73	0.05	0.64%	3.43	3.48	0.05	1.45%	4.01	3.9	0.05	2.78%	4.38	4.49	0.05	2.48%
	Strontium (Sr)-Total	0.118	0.122	0.0002	3.33%	0.0943	0.0933	0.0002	1.07%	0.104	0.104	0.0002	0%	0.0958	0.0973	0.0002	1.55%
	Sulfur (S)-Total	0.79	0.89	0.5	-	0.61	0.53	0.5	-	1.38	1.2	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.0015	0.00275	0.0003	58.82%	0.00091	0.00093	0.0003	-	0.00036	0.00039	0.0003	-	0.00061	0.00072	0.0003	-
	Uranium (U)-Total	0.000279	0.00027	0.00001	3.28%	0.000132	0.000131	0.00001	0.76%	0.000113	0.00011	0.00001	2.69%	0.000118	0.000125	0.00001	5.76%
	Vanadium (V)-Total	0.00077	0.00077	0.0005	-	0.0005	0.0005	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	0.0048	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0091	0.0088	0.001	3.35%	0.009	0.009	0.001	0%	0.004	0.0042	0.001	-	0.0101	0.0099	0.001	2%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.0009	0.00092	0.0001	2.20%	0.00065	0.00066	0.0001	1.53%	0.0006	0.00061	0.0001	1.65%	0.00025	0.00024	0.0001	-
	Barium (Ba)-Dissolved	0.00725	0.0073	0.0001	0.69%	0.00901	0.00932	0.0001	3.38%	0.00788	0.00775	0.0001	1.66%	0.00814	0.00823	0.0001	1.10%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	24.9	25.8	0.05	3.55%	14.9	14.9	0.05	0%	19	19.1	0.05	0.52%	16.4	16.3	0.05	0.61%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00021	0.00023	0.0002	-	0.00026	0.00026	0.0002	-	0.00036	0.00034	0.0002	-	<0.00020	<0.00020	0.0002	-
	Iron (Fe)-Dissolved	0.097	0.097	0.01	0%	0.213	0.216	0.01	1.40%	0.138	0.139	0.01	0.72%	0.06	0.06	0.01	0%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	7.28	7.25	0.1	0.41%	3.3	3.28	0.1	0.61%	4.65	4.52	0.1	2.84%	5.05	5.08	0.1	0.59%
	Manganese (Mn)-Dissolved	0.00577	0.00567	0.0001	1.75%	0.0172	0.0174	0.0001	1.16%	0.0203	0.02	0.0001	1.49%	0.0267	0.0263	0.0001	1.51%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.0011	0.00107	0.00005	2.76%	0.000775	0.000768	0.00005	0.91%	0.000743	0.00072	0.00005	3.14%	0.00107	0.000352	0.00005	100.98%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	1.01	1.01	0.1	0%	0.747	0.758	0.1	1.46%	0.912	0.904	0.1	0.88%	0.713	0.712	0.1	0.14%
	Selenium (Se)-Dissolved	0.000084	0.000068	0.00005	-	0.00005	<0.000050	0.00005	-	0.000055	0.000058	0.00005	-	<0.000050	<0.000050	0.00005	-
	Silicon (Si)-Dissolved	7.28	7.29	0.05	0.14%	6.4	6.35	0.05	0.78%	4.51	4.59	0.05	1.76%	9.42	9.36	0.05	0.64%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	5.01	5	0.05	0.20%	3.6	3.69	0.05	2.47%	3.86	3.76	0.05	2.62%	4.28	4.3	0.05	0.47%
	Strontium (Sr)-Dissolved	0.12	0.122	0.0002	1.65%	0.0967	0.0975	0.0002	0.82%	0.1	0.1	0.0002	0%	0.0968	0.0964	0.0002	0.41%
	Sulfur (S)-Dissolved	0.86	0.88	0.5	-	0.95	0.96	0.5	-	1.21	1.16	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-
	Uranium (U)-Dissolved	0.000276	0.000275	0.00001	0.36%	0.000131	0.000129	0.00001	1.54%	0.000114	0.000119	0.00001	4.29%	0.000109	0.000104	0.00001	4.69%
	Vanadium (V)-Dissolved	0.00063	0.00065	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-10-14				2023-10-17				2023-10-20				2023-10-23			
		DC-05				FC-01				DC-20				661-10			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	7.73	7.72	0.1	0.13%	7.8	7.81	0.1	0.13%	7.81	7.81	0.1	0%	7.67	7.66	0.1	0.13%
	Total Suspended Solids	<3.0	<3.0	3	-	<3.0	<3.0	3	-	10	<3.0	3	-	<3.0	<3.0	3	-
	Total Dissolved Solids	63	67	13	-	56	54	13	-	75	81	13	7.69%	72	71	13	1.40%
	Conductivity	91.6	92.7	2	1.19%	75.9	76.1	2	0.26%	111	112	2	0.90%	79.4	79.3	2	0.13%
	Turbidity	2.14	2.21	0.1	3.22%	0.11	0.13	0.1	-	3.04	0.74	0.1	121.69%	0.78	0.77	0.1	1.29%
	Acidity (as $CaCO_3$)	2.2	2.1	2	-	2	2	2	-	<2.0	<2.0	2	-	<2.0	<2.0	2	-
	Alkalinity, Total (as $CaCO_3$)	45.6	45.2	1	0.88%	37.7	37.8	1	0.26%	56.4	56.4	1	0%	38.1	38.2	1	0.26%
	Hardness (as $CaCO_3$)-Total	40.3	39.9	0.6	1%	32.4	33.6	0.6	3.64%	52.8	52.2	0.6	1.14%	34.9	33.8	0.6	3.20%
	Hardness (as $CaCO_3$)-Dissolved	40.2	39	0.6	3.03%	32.3	33.4	0.6	3.35%	54.5	52.8	0.6	3.17%	35.7	35.4	0.6	0.84%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	0.56	0.55	0.5	-	<0.50	<0.50	0.5	-	0.5	0.5	0.5	-	0.8	0.8	0.5	-
	Fluoride (F)	0.041	0.04	0.02	-	0.022	0.022	0.02	-	0.047	0.045	0.02	-	0.038	0.039	0.02	-
	Sulfate (SO_4)	2.77	2.75	0.3	0.72%	2.45	2.44	0.3	0.41%	2.79	2.8	0.3	0.36%	2.1	2.09	0.3	0.48%
	Total Kjeldahl Nitrogen	0.079	0.086	0.05	-	<0.050	<0.050	0.05	-	0.095	0.096	0.05	-	0.13	0.155	0.05	-
	Ammonia, Total (as N)	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrate (as N)	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	0.0038	<0.0010	0.001	-	0.0011	<0.0010	0.001	-	0.0022	0.003	0.001	-	0.0075	0.0073	0.001	2.70%
	Phosphorus (P)-Total	0.0097	0.0103	0.002	-	0.0062	0.0057	0.002	-	0.0096	0.01	0.002	-	0.0147	0.0159	0.002	7.84%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	4.72	4.51	0.5	4.55%	1.42	1.63	0.5	-	3.67	3.92	0.5	6.59%	5.14	5.58	0.5	8.21%
	Dissolved Organic Carbon	5.39	4.43	0.5	19.55%	1.67	1.6	0.5	-	3.76	3.45	0.5	8.60%	5.27	6	0.5	12.95%
Total Metals	Aluminum (Al)-Total	0.13	0.0959	0.003	30.19%	0.0262	0.014	0.003	-	0.0266	0.0212	0.003	22.59%	0.0408	0.0346	0.003	16.45%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00071	0.00072	0.0001	1.40%	0.00089	0.00087	0.0001	2.27%	0.00064	0.00066	0.0001	3.08%	0.00094	0.00098	0.0001	4.17%
	Barium (Ba)-Total	0.0093	0.00893	0.0001	4.06%	0.00404	0.00393	0.0001	2.76%	0.0094	0.00908	0.0001	3.46%	0.00446	0.00454	0.0001	1.78%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	0.0000059	0.0000051	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000133	0.0000127	0.000005	-
	Calcium (Ca)-Total	12.2	12.1	0.05	0.82%	11	11.5	0.05	4.44%	14.9	14.7	0.05	1.35%	9.79	9.3	0.05	5.13%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	0.00055	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Iron (Fe)-Total	0.157	0.135	0.01	15.07%	0.013	<0.010	0.01	-	0.278	0.266	0.01	4.41%	0.196	0.187	0.01	4.70%
	Lead (Pb)-Total	0.000061	0.000061	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	2.38	2.36	0.1	0.84%	1.19	1.2	0.1	0.84%	3.8	3.77	0.1	0.79%	2.53	2.57	0.1	1.57%
	Manganese (Mn)-Total	0.00499	0.00481	0.0001	3.67%	0.00059	0.00036	0.0001	-	0.0241	0.0196	0.0001	20.59%	0.00886	0.00746	0.0001	17.16%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Total	0.000808	0.000774	0.00005	4.30%	0.000715	0.000736	0.00005	2.89%	0.000827	0.00082	0.00005	0.85%	0.000576	0.000553	0.00005	4.07%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	0.634	0.608	0.1	4.19%	0.394	0.382	0.1	-	0.71	0.698	0.1	1.70%	0.512	0.511	0.1	0.20%
	Selenium (Se)-Total	0.000075	0.00006	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	0.000051	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-10-14				2023-10-17				2023-10-20				2023-10-23			
		DC-05				FC-01				DC-20				661-10			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	6.56	6.28	0.1	4.36%	5.14	5.06	0.1	1.57%	6.51	6.58	0.1	1.07%	7.55	7.36	0.1	2.55%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Total	3.28	3.25	0.05	0.92%	2.29	2.25	0.05	1.76%	3.88	3.81	0.05	1.82%	3.57	3.57	0.05	0%
	Strontium (Sr)-Total	0.0861	0.0846	0.0002	1.76%	0.0503	0.0506	0.0002	0.59%	0.101	0.0995	0.0002	1.50%	0.0665	0.0658	0.0002	1.06%
	Sulfur (S)-Total	0.54	<0.50	0.5	-	0.77	0.75	0.5	-	0.91	0.99	0.5	-	0.77	0.82	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00332	0.00245	0.0003	30.16%	0.00067	0.0009	0.0003	-	0.00096	0.00063	0.0003	-	0.0009	0.00078	0.0003	-
	Uranium (U)-Total	0.000209	0.000208	0.00001	0.48%	0.000054	0.000044	0.00001	-	0.000152	0.000146	0.00001	4.03%	0.000086	0.000082	0.00001	4.76%
	Vanadium (V)-Total	0.00054	0.00054	0.0005	-	0.00055	0.00056	0.0005	-	0.00051	<0.00050	0.0005	-	0.00067	0.00067	0.0005	-
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0293	0.0328	0.001	11.27%	0.0102	0.0099	0.001	2.99%	0.008	0.0089	0.001	10.65%	0.0267	0.0264	0.001	1.13%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00068	0.00062	0.0001	9.23%	0.00083	0.00086	0.0001	3.55%	0.00059	0.00059	0.0001	0%	0.0009	0.00084	0.0001	6.90%
	Barium (Ba)-Dissolved	0.00851	0.0083	0.0001	2.50%	0.00432	0.00408	0.0001	5.71%	0.00936	0.00922	0.0001	1.51%	0.00452	0.00457	0.0001	1.10%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	0.0000066	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000114	0.0000139	0.000005	-
	Calcium (Ca)-Dissolved	12	11.6	0.05	3.39%	11	11.4	0.05	3.57%	15.3	14.8	0.05	3.32%	10.2	10.2	0.05	0%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00026	0.00026	0.0002	-	<0.00020	0.0002	0.0002	-	0.00023	0.00023	0.0002	-	0.00026	0.00026	0.0002	-
	Iron (Fe)-Dissolved	0.059	0.06	0.01	1.68%	<0.010	<0.010	0.01	-	0.192	0.197	0.01	2.57%	0.156	0.156	0.01	0%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	2.48	2.44	0.1	1.63%	1.18	1.19	0.1	0.84%	3.96	3.85	0.1	2.82%	2.48	2.42	0.1	2.45%
	Manganese (Mn)-Dissolved	0.00283	0.00277	0.0001	2.14%	0.00024	0.00014	0.0001	-	0.0207	0.0205	0.0001	0.97%	0.00593	0.00593	0.0001	0%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000777	0.000803	0.00005	3.29%	0.000647	0.000679	0.00005	4.83%	0.000792	0.000809	0.00005	2.12%	0.000557	0.000555	0.00005	0.36%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.62	0.619	0.1	0.16%	0.425	0.426	0.1	-	0.785	0.761	0.1	3.10%	0.548	0.545	0.1	0.55%
	Selenium (Se)-Dissolved	0.000063	0.00007	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Silicon (Si)-Dissolved	6.17	6.07	0.05	1.63%	5.02	5.17	0.05	2.94%	6.51	6.66	0.05	2.28%	7.75	7.72	0.05	0.39%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	3.4	3.34	0.05	1.78%	2.39	2.4	0.05	0.42%	4.1	3.9	0.05	5%	3.51	3.44	0.05	2.01%
	Strontium (Sr)-Dissolved	0.0818	0.0796	0.0002	2.73%	0.0502	0.0503	0.0002	0.20%	0.101	0.0991	0.0002	1.90%	0.0596	0.0646	0.0002	8.05%
	Sulfur (S)-Dissolved	1.27	0.87	0.5	-	0.77	0.86	0.5	-	0.95	0.96	0.5	-	0.84	0.86	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	0.00072	0.00075	0.0003	-	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	0.00048	0.00052	0.0003	-
	Uranium (U)-Dissolved	0.000199	0.000198	0.00001	0.50%	0.000049	0.000048	0.00001	-	0.000169	0.000166	0.00001	1.79%	0.000077	0.000077	0.00001	0%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	0.00054	0.00052	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00062	0.00062	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	0.0025	0.001	-	0.0022	0.0022	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-10-24				2023-10-31				2023-11-02				2023-11-08			
		CC-40				705-10				661-20				661-05			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	8.11	8.11	0.1	0%	7.58	7.75	0.1	2.22%	8.09	8.09	0.1	0%	7.78	7.79	0.1	0.13%
	Total Suspended Solids	<3.0	<3.0	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-	4.8	<3.0	3	-
	Total Dissolved Solids	96	95	13	1.05%	44	46	13	-	86	97	13	12.02%	100	115	13	13.95%
	Conductivity	172	173	2	0.58%	72	84.6	2	16.09%	156	156	2	0%	95.8	96.5	2	0.73%
	Turbidity	1.83	1.9	0.1	3.75%	0.13	<0.10	0.1	-	0.63	0.63	0.1	0%	45.5	44.9	0.1	1.33%
	Acidity (as $CaCO_3$)	<2.0	<2.0	2	-	2.1	<2.0	2	-	<2.0	<2.0	2	-	<2.0	<2.0	2	-
	Alkalinity, Total (as $CaCO_3$)	87.1	86.9	1	0.23%	36.1	41.5	1	13.92%	82.9	82.3	1	0.73%	48.7	49.2	1	1.02%
	Hardness (as $CaCO_3$)-Total	75	75.3	0.6	0.40%	31.1	35.6	0.6	13.49%	71.6	70.4	0.6	1.69%	45.7	45.5	0.6	0.44%
	Hardness (as $CaCO_3$)-Dissolved	75.2	78.1	0.6	3.78%	30.6	35.1	0.6	13.70%	72.6	73.1	0.6	0.69%	41.4	41.6	0.6	0.48%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.06	0.06	0.02	-	0.022	<0.020	0.02	-	0.058	0.057	0.02	-	0.055	0.054	0.02	-
	Sulfate (SO_4)	3.66	3.62	0.3	1.10%	1.36	2.61	0.3	-	2.16	2.16	0.3	0%	1.04	1.03	0.3	-
	Total Kjeldahl Nitrogen	0.181	0.193	0.05	-	0.124	<0.050	0.05	-	0.068	0.062	0.05	-	0.128	0.126	0.05	-
	Ammonia, Total (as N)	<0.0050	0.0068	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrate (as N)	<0.0050	<0.0050	0.005	-	0.0343	0.0128	0.005	-	0.0203	0.0202	0.005	-	0.0347	0.0352	0.005	1.43%
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	0.0044	0.0044	0.001	-	<0.0010	0.0021	0.001	-	0.0191	0.0183	0.001	4.28%	0.037	0.0362	0.001	2.19%
	Phosphorus (P)-Total	0.0165	0.0191	0.002	14.61%	0.0034	0.0048	0.002	-	0.0232	0.0232	0.002	0%	0.0893	0.0915	0.002	2.43%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	5.6	5.54	0.5	1.08%	5.31	1.46	0.5	-	2.66	2.58	0.5	3.05%	4.49	4.58	0.5	1.98%
	Dissolved Organic Carbon	5.97	5.63	0.5	5.86%	5.16	1.47	0.5	-	2.59	2.57	0.5	0.78%	4.02	3.88	0.5	3.54%
Total Metals	Aluminum (Al)-Total	0.0445	0.0717	0.003	46.82%	0.0209	0.0097	0.003	-	0.0234	0.0213	0.003	9.40%	3.39	2.71	0.003	22.30%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00018	0.00017	0.0001	-
	Arsenic (As)-Total	0.0008	0.00084	0.0001	4.88%	0.00017	0.00073	0.0001	-	0.00099	0.00094	0.0001	5.18%	0.00296	0.00287	0.0001	3.09%
	Barium (Ba)-Total	0.00865	0.009	0.0001	3.97%	0.00918	0.0041	0.0001	76.51%	0.00722	0.00707	0.0001	2.10%	0.0309	0.0273	0.0001	12.37%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	0.000122	0.000112	0.00002	8.55%
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	0.0000055	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000209	0.000019	0.000005	-
	Calcium (Ca)-Total	21.1	21.3	0.05	0.94%	9.51	12.1	0.05	23.97%	19	18.7	0.05	1.59%	12.4	12.5	0.05	0.80%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00287	0.00258	0.0005	10.64%
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00088	0.00084	0.0001	4.65%
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00291	0.00279	0.0005	4.21%
	Iron (Fe)-Total	0.457	0.508	0.01	10.57%	0.036	<0.010	0.01	-	0.151	0.147	0.01	2.68%	2.68	2.52	0.01	6.15%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.0016	0.00154	0.00005	3.82%
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	0.0015	0.0013	0.001	-
	Magnesium (Mg)-Total	5.42	5.38	0.1	0.74%	1.78	1.3	0.1	31.17%	5.86	5.77	0.1	1.55%	3.59	3.46	0.1	3.69%
	Manganese (Mn)-Total	0.0368	0.0506	0.0001	31.58%	0.00116	0.00014	0.0001	-	0.00871	0.00814	0.0001	6.77%	0.0681	0.0659	0.0001	3.28%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.000013	0.0000132	0.000005	-
	Molybdenum (Mo)-Total	0.000998	0.00103	0.00005	3.16%	0.00049	0.000765	0.00005	43.82%	0.00101	0.001	0.00005	1%	0.000818	0.0008	0.00005	2.22%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.0021	0.00203	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	0.088	0.093	0.05	-
	Potassium (K)-Total	0.971	0.969	0.1	0.21%	0.314	0.377	0.1	-	0.788	0.776	0.1	1.53%	1.37	1.19	0.1	14.06%
	Selenium (Se)-Total	0.000056	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000067	0.00006	0.00005	-	0.000077	0.000064	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-10-24				2023-10-31				2023-11-02				2023-11-08			
		CC-40				705-10				661-20				661-05			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	5.4	5.38	0.1	0.37%	4.09	5.57	0.1	30.64%	8.01	7.97	0.1	0.50%	15.1	14	0.1	7.56%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000026	0.000025	0.00001	-
	Sodium (Na)-Total	4.85	4.8	0.05	1.04%	2.56	2.28	0.05	11.57%	4.84	4.78	0.05	1.25%	3.95	3.65	0.05	7.89%
	Strontium (Sr)-Total	0.113	0.117	0.0002	3.48%	0.0656	0.0535	0.0002	20.32%	0.102	0.102	0.0002	0%	0.0851	0.0836	0.0002	1.78%
	Sulfur (S)-Total	1.26	1.33	0.5	-	0.51	0.86	0.5	-	0.98	0.94	0.5	-	<0.50	0.52	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000042	0.000034	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00208	0.00354	0.0003	51.96%	0.00036	<0.00030	0.0003	-	0.00095	0.00084	0.0003	-	0.0749	0.0592	0.0003	23.42%
	Uranium (U)-Total	0.000219	0.000228	0.00001	4.03%	0.000092	0.00006	0.00001	42.11%	0.00041	0.000412	0.00001	0.49%	0.000301	0.000261	0.00001	14.23%
	Vanadium (V)-Total	0.00055	0.00062	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00066	0.00068	0.0005	-	0.00624	0.00566	0.0005	9.75%
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	0.0103	0.0095	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0034	0.0038	0.001	-	0.0167	0.0066	0.001	86.70%	0.0058	0.006	0.001	3.39%	0.0143	0.0149	0.001	4.11%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00067	0.00067	0.0001	0%	0.00015	0.00074	0.0001	-	0.00087	0.00087	0.0001	0%	0.00111	0.00112	0.0001	0.90%
	Barium (Ba)-Dissolved	0.00785	0.00805	0.0001	2.52%	0.009	0.00408	0.0001	75.23%	0.00688	0.00704	0.0001	2.30%	0.00461	0.00465	0.0001	0.86%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	20.9	21.5	0.05	2.83%	9.22	11.8	0.05	24.55%	19.5	19.8	0.05	1.53%	11.9	12	0.05	0.84%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00073	0.00066	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00026	0.00027	0.0002	-	0.00026	<0.00020	0.0002	-	<0.00020	<0.00020	0.0002	-	0.00023	0.00024	0.0002	-
	Iron (Fe)-Dissolved	0.277	0.292	0.01	5.27%	0.03	<0.010	0.01	-	0.098	0.098	0.01	0%	0.029	0.029	0.01	-
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	5.59	5.94	0.1	6.07%	1.84	1.38	0.1	28.57%	5.81	5.75	0.1	1.04%	2.85	2.82	0.1	1.06%
	Manganese (Mn)-Dissolved	0.0243	0.0258	0.0001	5.99%	0.00082	<0.00010	0.0001	-	0.00381	0.00374	0.0001	1.85%	0.0028	0.00304	0.0001	8.22%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000948	0.000968	0.00005	2.09%	0.000505	0.000766	0.00005	41.07%	0.000898	0.000887	0.00005	1.23%	0.000774	0.000745	0.00005	3.82%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.955	0.982	0.1	2.79%	0.32	0.393	0.1	-	0.812	0.813	0.1	0.12%	0.613	0.596	0.1	2.81%
	Selenium (Se)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000078	0.00006	0.00005	-
	Silicon (Si)-Dissolved	5.39	5.56	0.05	3.11%	4.08	5.34	0.05	26.75%	7.45	7.45	0.05	0%	8.65	8.59	0.05	0.70%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	4.64	4.88	0.05	5.04%	2.5	2.28	0.05	9.21%	4.78	4.75	0.05	0.63%	3.8	3.7	0.05	2.67%
	Strontium (Sr)-Dissolved	0.119	0.12	0.0002	0.84%	0.0648	0.0532	0.0002	19.66%	0.104	0.105	0.0002	0.96%	0.0782	0.0795	0.0002	1.65%
	Sulfur (S)-Dissolved	1.09	1.33	0.5	-	<0.50	0.83	0.5	-	0.9	0.84	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	<0.00030	0.00044	0.0003	-
	Uranium (U)-Dissolved	0.000194	0.000191	0.00001	1.56%	0.000094	0.00007	0.00001	29.27%	0.000341	0.000346	0.00001	1.46%	0.000142	0.000152	0.00001	6.80%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	0.00054	0.0005	-	0.00052	0.00052	0.0005	-	0.00155	0.00155	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-11-09				2023-12-07				2023-12-15				2024-01-14			
		705-05				661-01				DC-10				661-03			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	7.36	7.35	0.1	0.14%	7.44	7.46	0.1	0.27%	7.87	7.87	0.1	0%	7.7	7.58	0.1	1.57%
	Total Suspended Solids	<3.0	<3.0	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-	9.2	8.8	3	-
	Total Dissolved Solids	56	53	13	-	42	40	10	-	61	61	13	-	94	94	13	0%
	Conductivity	49.8	49.9	2	0.20%	43.3	42.5	2	1.86%	88.4	90	2	1.79%	131	132	2	0.76%
	Turbidity	0.68	0.66	0.1	2.99%	0.3	0.31	0.1	-	2.3	2.37	0.1	3%	1.9	1.29	0.1	38.24%
	Acidity (as $CaCO_3$)	<2.0	<2.0	2	-	2.4	2.3	2	-	<2.0	<2.0	2	-	4.1	4.3	2	-
	Alkalinity, Total (as $CaCO_3$)	24.7	24.2	1	2.04%	22.3	22.2	1	0.45%	42.3	42.4	1	0.24%	64.2	62.3	1	3%
	Hardness (as $CaCO_3$)-Total	22.7	22.5	0.6	0.88%	16.5	16.8	0.6	1.80%	37.8	38.3	0.6	1.31%	59	58.8	0.6	0.34%
	Hardness (as $CaCO_3$)-Dissolved	21.1	21.1	0.6	0%	17.6	17.4	0.6	1.14%	36.2	37	0.6	2.19%	58.4	57.7	0.6	1.21%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	0.58	0.58	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.025	0.021	0.02	-	0.031	0.03	0.02	-	0.036	0.036	0.02	-	0.045	0.049	0.02	-
	Sulfate (SO_4)	0.94	0.95	0.3	-	0.46	0.46	0.3	-	3.21	3.19	0.3	0.63%	3.88	5.09	0.3	26.98%
	Total Kjeldahl Nitrogen	0.203	0.193	0.05	-	0.082	0.085	0.05	-	0.071	0.072	0.05	-	0.423	0.376	0.05	11.76%
	Ammonia, Total (as N)	<0.0050	<0.0050	0.005	-	0.006	0.0061	0.005	-	<0.0050	<0.0050	0.005	-	0.0092	0.0089	0.005	-
	Nitrate (as N)	<0.0050	<0.0050	0.005	-	0.071	0.0738	0.005	3.87%	0.0424	0.042	0.005	0.95%	0.0571	0.0586	0.005	2.59%
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	0.0019	0.001	-
	Orthophosphate-Dissolved (as P)	0.0012	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	0.0044	0.0045	0.001	-	<0.0010	<0.0010	0.001	-
	Phosphorus (P)-Total	0.0087	0.009	0.002	-	0.0051	0.005	0.002	-	0.011	0.0112	0.002	1.80%	0.0376	0.0337	0.002	10.94%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	7.74	8.16	0.5	5.28%	3.38	3.91	0.5	14.54%	3.67	3.78	0.5	2.95%	8.57	7.34	0.5	15.46%
	Dissolved Organic Carbon	7.7	7.84	0.5	1.80%	3.75	3.38	0.5	10.38%	3.48	3.62	0.5	3.94%	4.14	4.33	0.5	4.49%
Total Metals	Aluminum (Al)-Total	0.0682	0.081	0.003	17.16%	0.0376	0.0349	0.003	7.45%	0.16	0.152	0.003	5.13%	1.29	1.72	0.003	28.57%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00025	0.00025	0.0001	-	0.00041	0.00044	0.0001	-	0.00068	0.00068	0.0001	0%	0.00088	0.00105	0.0001	17.62%
	Barium (Ba)-Total	0.00615	0.00616	0.0001	0.16%	0.00314	0.0031	0.0001	1.28%	0.0091	0.00909	0.0001	0.11%	0.0185	0.022	0.0001	17.28%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	0.00006	0.000077	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.000029	0.0000332	0.000005	13.50%
	Calcium (Ca)-Total	7.18	7.11	0.05	0.98%	4.55	4.69	0.05	3.03%	11.3	11.4	0.05	0.88%	15.5	15.5	0.05	0%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00064	0.00068	0.0005	-	0.00149	0.00184	0.0005	-
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00032	0.00041	0.0001	-
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00167	0.00208	0.0005	-
	Iron (Fe)-Total	0.205	0.201	0.01	1.97%	0.127	0.125	0.01	1.59%	0.173	0.167	0.01	3.53%	1.14	1.46	0.01	24.62%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000079	0.000066	0.00005	-	0.000305	0.000471	0.00005	42.78%
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	1.16	1.16	0.1	0%	1.25	1.23	0.1	1.61%	2.34	2.38	0.1	1.69%	4.93	4.88	0.1	1.02%
	Manganese (Mn)-Total	0.00984	0.00875	0.0001	11.73%	0.0255	0.0234	0.0001	8.59%	0.00473	0.00468	0.0001	1.06%	0.153	0.198	0.0001	25.64%
	Mercury (Hg)-Total	<0.0000050	0.000006	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	0.0000081	0.0000118	0.000005	-
	Molybdenum (Mo)-Total	0.000471	0.000523	0.00005	10.46%	0.000228	0.000226	0.00005	-	0.00074	0.000723	0.00005	2.32%	0.000356	0.000379	0.00005	6.26%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00092	0.00113	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	0.08	0.087	0.05	-
	Potassium (K)-Total	0.341	0.334	0.1	-	0.27	0.263	0.1	-	0.619	0.622	0.1	0.48%	0.641	0.662	0.1	3.22%
	Selenium (Se)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000069	0.000067	0.00005	-	0.000084	0.000107	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2023-11-09				2023-12-07				2023-12-15				2024-01-14			
		705-05				661-01				DC-10				661-03			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	3.68	3.64	0.1	1.09%	5.45	5.37	0.1	1.48%	7.34	7.21	0.1	1.79%	11	11.3	0.1	2.69%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000035	0.000051	0.00001	-
	Sodium (Na)-Total	1.97	1.98	0.05	0.51%	2.24	2.24	0.05	0%	3.21	3.22	0.05	0.31%	4.38	4.16	0.05	5.15%
	Strontium (Sr)-Total	0.0541	0.0542	0.0002	0.18%	0.0347	0.0346	0.0002	0.29%	0.0834	0.0836	0.0002	0.24%	0.0868	0.0953	0.0002	9.34%
	Sulfur (S)-Total	0.54	0.56	0.5	-	<0.50	<0.50	0.5	-	1.16	1.06	0.5	-	<0.50	<0.50	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	0.00001	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00149	0.00151	0.0003	-	0.00052	0.00047	0.0003	-	0.00392	0.00366	0.0003	6.86%	0.0237	0.0316	0.0003	28.57%
	Uranium (U)-Total	0.000129	0.000132	0.00001	2.30%	0.00002	0.000022	0.00001	-	0.00019	0.00019	0.00001	0%	0.000487	0.000638	0.00001	26.84%
	Vanadium (V)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00058	0.00057	0.0005	-	0.00206	0.00264	0.0005	-
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	0.0066	0.0076	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0498	0.0518	0.001	3.94%	0.0313	0.0305	0.001	2.59%	0.0267	0.0296	0.001	10.30%	0.0728	0.0247	0.001	98.67%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00023	0.00025	0.0001	-	0.00038	0.00037	0.0001	-	0.00053	0.00053	0.0001	0%	0.00029	0.00027	0.0001	-
	Barium (Ba)-Dissolved	0.00594	0.00594	0.0001	0%	0.003	0.003	0.0001	0%	0.00754	0.0077	0.0001	2.10%	0.00853	0.00752	0.0001	12.59%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	6.61	6.6	0.05	0.15%	5.02	4.94	0.05	1.61%	10.8	11	0.05	1.83%	15.5	15.3	0.05	1.30%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00029	0.00031	0.0002	-	<0.00020	<0.00020	0.0002	-	0.00022	0.00021	0.0002	-	0.00031	0.00025	0.0002	-
	Iron (Fe)-Dissolved	0.158	0.163	0.01	3.12%	0.1	0.097	0.01	3.05%	0.047	0.05	0.01	-	0.128	0.077	0.01	49.76%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	1.12	1.13	0.1	0.89%	1.22	1.22	0.1	0%	2.25	2.31	0.1	2.63%	4.78	4.73	0.1	1.05%
	Manganese (Mn)-Dissolved	0.0069	0.00688	0.0001	0.29%	0.0203	0.0202	0.0001	0.49%	0.00159	0.00163	0.0001	2.48%	0.0352	0.027	0.0001	26.37%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000451	0.000435	0.00005	3.61%	0.00022	0.000216	0.00005	-	0.000678	0.000686	0.00005	1.17%	0.000248	0.00027	0.00005	-
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.364	0.36	0.1	-	0.288	0.285	0.1	-	0.569	0.581	0.1	2.09%	0.565	0.577	0.1	2.10%
	Selenium (Se)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000051	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Silicon (Si)-Dissolved	3.44	3.48	0.05	1.16%	5.23	5.23	0.05	0%	6.86	6.95	0.05	1.30%	9.27	9.22	0.05	0.54%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	1.91	1.92	0.05	0.52%	2.22	2.22	0.05	0%	3.13	3.13	0.05	0%	4.29	4.35	0.05	1.39%
	Strontium (Sr)-Dissolved	0.0504	0.0511	0.0002	1.38%	0.0349	0.0365	0.0002	4.48%	0.079	0.0797	0.0002	0.88%	0.082	0.0818	0.0002	0.24%
	Sulfur (S)-Dissolved	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	1.13	1.02	0.5	-	1.3	<0.50	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	0.00121	0.00113	0.0003	-	0.00033	<0.00030	0.0003	-	0.00075	0.00076	0.0003	-	0.00123	0.00034	0.0003	-
	Uranium (U)-Dissolved	0.000125	0.000123	0.00001	1.61%	0.000023	0.000018	0.00001	-	0.000162	0.000166	0.00001	2.44%	0.000089	0.000062	0.00001	35.76%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	0.0013	0.0014	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2024-01-15				2024-01-22				2024-02-04				2024-02-05			
		CC-20				FC-01				DC-10				CC-15			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	8.01	8	0.1	0.12%	7.86	7.87	0.1	0.13%	7.96	7.96	0.1	0%	7.88	7.89	0.1	0.13%
	Total Suspended Solids	<3.0	<3.0	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-	<3.0	<3.0	3	-
	Total Dissolved Solids	89	94	13	5.46%	57	63	13	-	88	87	13	1.14%	103	96	13	7.04%
	Conductivity	160	160	2	0%	90.7	90.8	2	0.11%	130	130	2	0%	158	157	2	0.63%
	Turbidity	0.78	0.67	0.1	15.17%	<0.10	<0.10	0.1	-	1.34	1.33	0.1	0.75%	0.54	0.6	0.1	10.53%
	Acidity (as $CaCO_3$)	<2.0	<2.0	2	-	<2.0	<2.0	2	-	<2.0	<2.0	2	-	<2.0	<2.0	2	-
	Alkalinity, Total (as $CaCO_3$)	77.6	78.4	1	1.03%	44	44.3	1	0.68%	62.3	62.8	1	0.80%	80	77.9	1	2.66%
	Hardness (as $CaCO_3$)-Total	71.9	71.6	0.6	0.42%	38.8	38.6	0.6	0.52%	53.9	54.3	0.6	0.74%	72.6	72.4	0.6	0.28%
	Hardness (as $CaCO_3$)-Dissolved	74.7	75.3	0.6	0.80%	38.2	37.8	0.6	1.05%	57.2	57	0.6	0.35%	71.1	70.9	0.6	0.28%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
	Fluoride (F)	0.062	0.061	0.02	-	0.025	0.025	0.02	-	0.043	0.042	0.02	-	0.059	0.056	0.02	-
	Sulfate (SO_4)	3.9	3.92	0.3	0.51%	2.84	2.83	0.3	0.35%	3.95	3.96	0.3	0.25%	3.93	3.93	0.3	0%
	Total Kjeldahl Nitrogen	0.25	0.238	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	0.234	0.247	0.05	-
	Ammonia, Total (as N)	0.0057	0.0062	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	0.0084	0.0083	0.005	-
	Nitrate (as N)	0.0802	0.0771	0.005	3.94%	0.0876	0.0885	0.005	1.02%	0.0696	0.0706	0.005	1.43%	0.0765	0.0748	0.005	2.25%
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	0.0014	0.0017	0.001	-
	Orthophosphate-Dissolved (as P)	0.0041	0.005	0.001	-	0.0058	0.0055	0.001	5.31%	0.0049	0.0059	0.001	-	0.0097	0.0096	0.001	1.04%
	Phosphorus (P)-Total	0.0201	0.0206	0.002	2.46%	0.0079	0.0079	0.002	-	0.01	0.0102	0.002	1.98%	0.0242	0.0243	0.002	0.41%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	7.31	6.9	0.5	5.77%	0.69	0.66	0.5	-	2	2.17	0.5	-	6.38	6.56	0.5	2.78%
	Dissolved Organic Carbon	6.88	6.81	0.5	1.02%	0.87	0.78	0.5	-	1.88	1.88	0.5	-	6.58	6.61	0.5	0.45%
Total Metals	Aluminum (Al)-Total	0.0116	0.0123	0.003	-	0.0069	0.0323	0.003	-	0.0971	0.102	0.003	4.92%	0.009	0.0102	0.003	-
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Total	0.00054	0.00058	0.0001	7.14%	0.00096	0.00094	0.0001	2.11%	0.00058	0.00056	0.0001	3.51%	0.0006	0.00061	0.0001	1.65%
	Barium (Ba)-Total	0.00754	0.0074	0.0001	1.87%	0.00449	0.0043	0.0001	4.32%	0.0108	0.0108	0.0001	0%	0.0078	0.00784	0.0001	0.51%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Total	20.6	20.2	0.05	1.96%	13	13	0.05	0%	15.8	16	0.05	1.26%	20.8	20.7	0.05	0.48%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Iron (Fe)-Total	0.095	0.096	0.01	1.05%	<0.010	<0.010	0.01	-	0.072	0.072	0.01	0%	0.11	0.112	0.01	1.80%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Total	4.97	5.13	0.1	3.17%	1.53	1.49	0.1	2.65%	3.51	3.48	0.1	0.86%	5.03	5.02	0.1	0.20%
	Manganese (Mn)-Total	0.0162	0.0165	0.0001	1.83%	<0.00010	0.00012	0.0001	-	0.00261	0.0025	0.0001	4.31%	0.0192	0.0198	0.0001	3.08%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Total	0.000683	0.000666	0.00005	2.52%	0.000946	0.000966	0.00005	2.09%	0.000975	0.000949	0.00005	2.70%	0.000711	0.000724	0.00005	1.81%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Total	0.861	0.88	0.1	2.18%	0.415	0.41	0.1	-	0.648	0.637	0.1	1.71%	0.925	0.93	0.1	0.54%
	Selenium (Se)-Total	0.00006	0.000076	0.00005	-	0.000062	<0.000050	0.00005	-	0.000077	0.00008	0.00005	-	0.000076	0.000071	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2024-01-15				2024-01-22				2024-02-04				2024-02-05			
		CC-20				FC-01				DC-10				CC-15			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	5.35	5.57	0.1	4.03%	5.71	5.6	0.1	1.95%	6.63	6.68	0.1	0.75%	5.31	5.35	0.1	0.75%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Total	3.79	3.82	0.05	0.79%	2.68	2.66	0.05	0.75%	3.77	3.75	0.05	0.53%	3.85	3.8	0.05	1.31%
	Strontium (Sr)-Total	0.111	0.109	0.0002	1.82%	0.0572	0.0589	0.0002	2.93%	0.113	0.114	0.0002	0.88%	0.111	0.11	0.0002	0.90%
	Sulfur (S)-Total	0.95	1.11	0.5	-	0.82	0.74	0.5	-	1.08	1.2	0.5	-	1.42	1.31	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00057	0.00065	0.0003	-	<0.00030	<0.00030	0.0003	-	0.00208	0.00215	0.0003	3.31%	0.00037	0.00047	0.0003	-
	Uranium (U)-Total	0.000117	0.000123	0.00001	5%	0.000084	0.000084	0.00001	0%	0.000457	0.00046	0.00001	0.65%	0.000138	0.000139	0.00001	0.72%
	Vanadium (V)-Total	<0.00050	<0.00050	0.0005	-	0.00052	0.00054	0.0005	-	0.00051	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-	<0.0030	<0.0030	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.002	0.0023	0.001	-	0.0048	0.0053	0.001	-	0.0645	0.0135	0.001	130.77%	0.0021	0.0028	0.001	-
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00053	0.0005	0.0001	5.83%	0.0009	0.0009	0.0001	0%	0.00052	0.0005	0.0001	3.92%	0.00057	0.00056	0.0001	1.77%
	Barium (Ba)-Dissolved	0.00718	0.00739	0.0001	2.88%	0.00424	0.00434	0.0001	2.33%	0.0103	0.00973	0.0001	5.69%	0.00764	0.00752	0.0001	1.58%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	0.0000051	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	21.4	21.7	0.05	1.39%	12.9	12.7	0.05	1.56%	17	17.1	0.05	0.59%	20.2	20.2	0.05	0%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	0.00033	0.00033	0.0002	-	<0.00020	<0.00020	0.0002	-	<0.00020	<0.00020	0.0002	-	0.0003	0.0003	0.0002	-
	Iron (Fe)-Dissolved	0.051	0.051	0.01	0%	<0.010	<0.010	0.01	-	0.044	0.015	0.01	-	0.076	0.075	0.01	1.32%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	5.16	5.13	0.1	0.58%	1.46	1.48	0.1	1.36%	3.58	3.47	0.1	3.12%	5.02	4.98	0.1	0.80%
	Manganese (Mn)-Dissolved	0.0128	0.0126	0.0001	1.57%	<0.00010	<0.00010	0.0001	-	0.00176	0.00094	0.0001	60.74%	0.018	0.0173	0.0001	3.97%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000632	0.000624	0.00005	1.27%	0.000922	0.000905	0.00005	1.86%	0.00096	0.000993	0.00005	3.38%	0.000725	0.000744	0.00005	2.59%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.887	0.894	0.1	0.79%	0.4	0.41	0.1	-	0.645	0.637	0.1	1.25%	0.938	0.927	0.1	1.18%
	Selenium (Se)-Dissolved	0.000054	0.000053	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000078	0.000058	0.00005	-	0.000068	0.000058	0.00005	-
	Silicon (Si)-Dissolved	5.43	5.56	0.05	2.37%	5.41	5.53	0.05	2.19%	7.04	7.05	0.05	0.14%	5.25	5.23	0.05	0.38%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	3.83	3.88	0.05	1.30%	2.59	2.63	0.05	1.53%	3.81	3.84	0.05	0.78%	3.87	3.83	0.05	1.04%
	Strontium (Sr)-Dissolved	0.101	0.103	0.0002	1.96%	0.0546	0.0559	0.0002	2.35%	0.11	0.11	0.0002	0%	0.109	0.109	0.0002	0%
	Sulfur (S)-Dissolved	1.06	1.08	0.5	-	0.78	0.79	0.5	-	1.3	1.34	0.5	-	1.24	1.43	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	<0.00030	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-	0.00132	<0.00030	0.0003	-	<0.00030	<0.00030	0.0003	-
	Uranium (U)-Dissolved	0.000101	0.000108	0.00001	6.70%	0.00008	0.000084	0.00001	4.88%	0.000399	0.000396	0.00001	0.75%	0.000133	0.000139	0.00001	4.41%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2024-02-19				2024-03-03				2024-03-19				2024-03-25			
		661-01				DC-05				705-10				DC-20			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Physical Tests	pH	7.36	7.36	0.1	0%	7.91	7.92	0.1	0.13%	7.65	7.63	0.1	0.26%	7.75	7.72	0.1	0.39%
	Total Suspended Solids	<3.0	<3.0	3	-	4.3	3.9	3	-	<3.0	<3.0	3	-	5.1	4.5	3	-
	Total Dissolved Solids	30	30	10	-	100	94	13	6.19%	51	52	13	-	102	100	13	1.98%
	Conductivity	30.9	31.8	2	2.87%	102	103	2	0.98%	58.1	58.1	2	0%	94.8	95.1	2	0.32%
	Turbidity	0.35	0.36	0.1	-	36	34.2	0.1	5.13%	3.07	3.43	0.1	11.08%	42.5	40.9	0.1	3.84%
	Acidity (as $CaCO_3$)	2.5	2.4	2	-	<2.0	<2.0	2	-	3.2	3.3	2	-	2.5	2.5	2	-
	Alkalinity, Total (as $CaCO_3$)	14.1	14.6	1	3.48%	52	51.9	1	0.19%	27.9	27.1	1	2.91%	43.4	43.4	1	0%
	Hardness (as $CaCO_3$)-Total	11.4	11.6	0.6	1.74%	48.8	47.8	0.6	2.07%	27.4	27.2	0.6	0.73%	42.3	44.8	0.6	5.74%
	Hardness (as $CaCO_3$)-Dissolved	11.6	11.7	0.6	0.86%	43.5	45	0.6	3.39%	26	25.7	0.6	1.16%	40	39.6	0.6	1.01%
Anions and Nutrients	Bromide (Br)	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Chloride (Cl)	<0.50	<0.50	0.5	-	0.52	0.52	0.5	-	<0.50	<0.50	0.5	-	1.33	1.3	0.5	-
	Fluoride (F)	<0.020	<0.020	0.02	-	0.045	0.044	0.02	-	0.022	0.023	0.02	-	0.031	0.04	0.02	-
	Sulfate (SO_4)	0.45	0.44	0.3	-	3.39	3.37	0.3	0.59%	1.27	1.28	0.3	-	3.96	3.92	0.3	1.02%
	Total Kjeldahl Nitrogen	0.111	0.138	0.05	-	0.11	0.108	0.05	-	0.386	0.397	0.05	2.81%	0.264	0.26	0.05	1.53%
	Ammonia, Total (as N)	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	0.0052	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Nitrate (as N)	0.0298	0.0306	0.005	2.65%	0.0417	0.0416	0.005	0.24%	0.0256	0.0273	0.005	6.43%	0.067	0.0634	0.005	5.52%
	Nitrite (as N)	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Orthophosphate-Dissolved (as P)	<0.0010	<0.0010	0.001	-	0.0076	0.0071	0.001	6.80%	0.0033	0.0016	0.001	-	0.0038	0.0038	0.001	-
	Phosphorus (P)-Total	0.0045	0.0042	0.002	-	0.043	0.0426	0.002	0.93%	0.0268	0.0278	0.002	3.66%	0.0607	0.0596	0.002	1.83%
Cyanides	Cyanide, Strong Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Cyanide, Weak Acid Diss	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-	<0.0050	<0.0050	0.005	-
	Thiocyanate	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-	<0.50	<0.50	0.5	-
Organic / Inorganic Carbon	Total Organic Carbon	4.93	4.26	0.5	14.58%	3.42	3.72	0.5	8.40%	13.8	14.1	0.5	2.15%	6.7	6.6	0.5	1.50%
	Dissolved Organic Carbon	4.7	4.17	0.5	11.95%	4.6	4.55	0.5	1.09%	13.5	13.3	0.5	1.49%	5.79	6.9	0.5	17.49%
Total Metals	Aluminum (Al)-Total	0.0787	0.0756	0.003	4.02%	2.17	2.48	0.003	13.33%	0.392	0.403	0.003	2.77%	2.1	2.12	0.003	0.95%
	Antimony (Sb)-Total	<0.00010	<0.00010	0.0001	-	0.00013	0.00013	0.0001	-	<0.00010	<0.00010	0.0001	-	0.00012	0.00014	0.0001	-
	Arsenic (As)-Total	0.00037	0.00035	0.0001	-	0.00177	0.00185	0.0001	4.42%	0.00036	0.00032	0.0001	-	0.0021	0.00209	0.0001	0.48%
	Barium (Ba)-Total	0.00292	0.00294	0.0001	0.68%	0.0264	0.0274	0.0001	3.72%	0.0124	0.0131	0.0001	5.49%	0.0264	0.027	0.0001	2.25%
	Beryllium (Be)-Total	<0.000020	<0.000020	0.00002	-	0.000076	0.000085	0.00002	-	0.000022	0.000021	0.00002	-	0.000081	0.00009	0.00002	-
	Bismuth (Bi)-Total	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Total	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Total	<0.0000050	<0.0000050	0.000005	-	0.0000212	0.000018	0.000005	-	0.0000067	0.0000076	0.000005	-	0.0000226	0.0000179	0.000005	-
	Calcium (Ca)-Total	3.21	3.26	0.05	1.55%	14	14	0.05	0%	8.48	8.33	0.05	1.78%	11.5	12.4	0.05	7.53%
	Chromium (Cr)-Total	<0.00050	<0.00050	0.0005	-	0.00146	0.00154	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00154	0.00154	0.0005	-
	Cobalt (Co)-Total	<0.00010	<0.00010	0.0001	-	0.0006	0.00061	0.0001	1.65%	0.0001	0.0001	0.0001	-	0.00063	0.00066	0.0001	4.65%
	Copper (Cu)-Total	<0.00050	<0.00050	0.0005	-	0.00224	0.00232	0.0005	-	0.00081	0.00082	0.0005	-	0.00252	0.00252	0.0005	0%
	Iron (Fe)-Total	0.113	0.096	0.01	16.27%	1.7	1.81	0.01	6.27%	0.443	0.456	0.01	2.89%	2.08	2.09	0.01	0.48%
	Lead (Pb)-Total	<0.000050	<0.000050	0.00005	-	0.000956	0.000972	0.00005	1.66%	0.000071	0.000069	0.00005	-	0.00116	0.00119	0.00005	2.55%
	Lithium (Li)-Total	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	0.001	0.001	-
	Magnesium (Mg)-Total	0.83	0.851	0.1	2.50%	3.35	3.13	0.1	6.79%	1.52	1.55	0.1	1.95%	3.31	3.35	0.1	1.20%
	Manganese (Mn)-Total	0.0323	0.0288	0.0001	11.46%	0.0444	0.0441	0.0001	0.68%	0.00896	0.0091	0.0001	1.55%	0.0702	0.0698	0.0001	0.57%
	Mercury (Hg)-Total	<0.0000050	<0.0000050	0.000005	-	<0.0000050	0.0000061	0.000005	-	0.0000073	0.0000058	0.000005	-	0.0000085	0.0000072	0.000005	-
	Molybdenum (Mo)-Total	0.000089	0.00009	0.00005	-	0.000809	0.000778	0.00005	3.91%	0.000395	0.000429	0.00005	8.25%	0.000722	0.000741	0.00005	2.60%
	Nickel (Ni)-Total	<0.00050	<0.00050	0.0005	-	0.00134	0.0014	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00151	0.0015	0.0005	-
	Phosphorus (P)-Total	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	0.064	0.085	0.05	-
	Potassium (K)-Total	0.211	0.219	0.1	-	1.14	1.2	0.1	5.13%	0.563	0.584	0.1	3.66%	1.27	1.28	0.1	0.78%
	Selenium (Se)-Total	<0.000050	<0.000050	0.00005	-	0.000094	0.000074	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000077	0.000111	0.00005	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix B-4: Surface Water Quality Relative Percent Difference Results, April 1, 2023 to March 31, 2024

Class	Parameter	2024-02-19				2024-03-03				2024-03-19				2024-03-25			
		661-01				DC-05				705-10				DC-20			
		Surface				Surface				Surface				Surface			
		Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD	Regular	Replicate	DL	RPD
Total Metals (cont'd)	Silicon (Si)-Total	4.75	4.71	0.1	0.85%	10.8	11.5	0.1	6.28%	5.15	5.25	0.1	1.92%	9.82	9.91	0.1	0.91%
	Silver (Ag)-Total	<0.000010	<0.000010	0.00001	-	0.000017	0.00002	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000021	0.000023	0.00001	-
	Sodium (Na)-Total	2.09	2.11	0.05	0.95%	3.84	4.07	0.05	5.82%	2.21	2.24	0.05	1.35%	3.46	3.48	0.05	0.58%
	Strontium (Sr)-Total	0.0259	0.0272	0.0002	4.90%	0.0864	0.0878	0.0002	1.61%	0.0643	0.0661	0.0002	2.76%	0.0771	0.078	0.0002	1.16%
	Sulfur (S)-Total	<0.50	<0.50	0.5	-	1.06	0.75	0.5	-	<0.50	<0.50	0.5	-	1.22	1.17	0.5	-
	Thallium (Tl)-Total	<0.000010	<0.000010	0.00001	-	0.000024	0.000028	0.00001	-	<0.000010	<0.000010	0.00001	-	0.000022	0.000024	0.00001	-
	Tin (Sn)-Total	<0.00010	<0.00010	0.0001	-	0.00014	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Total	0.00092	0.00087	0.0003	-	0.051	0.0594	0.0003	15.22%	0.011	0.0116	0.0003	5.31%	0.0465	0.0468	0.0003	0.64%
	Uranium (U)-Total	0.000032	0.000033	0.00001	-	0.000353	0.000358	0.00001	1.41%	0.00021	0.000199	0.00001	5.38%	0.00024	0.000243	0.00001	1.24%
	Vanadium (V)-Total	<0.00050	<0.00050	0.0005	-	0.00347	0.00373	0.0005	7.22%	0.00108	0.00109	0.0005	-	0.00384	0.00389	0.0005	1.29%
	Zinc (Zn)-Total	<0.0030	<0.0030	0.003	-	0.0078	0.0076	0.003	-	<0.0030	<0.0030	0.003	-	0.0082	0.008	0.003	-
Dissolved Metals	Aluminum (Al)-Dissolved	0.0623	0.0645	0.001	3.47%	0.0269	0.0326	0.001	19.16%	0.248	0.256	0.001	3.17%	0.0781	0.053	0.001	38.29%
	Antimony (Sb)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Arsenic (As)-Dissolved	0.00027	0.00029	0.0001	-	0.00058	0.00059	0.0001	1.71%	0.00023	0.00024	0.0001	-	0.00054	0.00048	0.0001	-
	Barium (Ba)-Dissolved	0.00295	0.00306	0.0001	3.66%	0.00751	0.00748	0.0001	0.40%	0.0109	0.0109	0.0001	0%	0.00826	0.00783	0.0001	5.34%
	Beryllium (Be)-Dissolved	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-	<0.000020	<0.000020	0.00002	-
	Bismuth (Bi)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Boron (B)-Dissolved	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-	<0.010	<0.010	0.01	-
	Cadmium (Cd)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Calcium (Ca)-Dissolved	3.22	3.28	0.05	1.85%	13.2	13.9	0.05	5.17%	8	7.89	0.05	1.38%	11.8	11.7	0.05	0.85%
	Chromium (Cr)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Cobalt (Co)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Copper (Cu)-Dissolved	<0.00020	<0.00020	0.0002	-	0.00032	0.00032	0.0002	-	0.00067	0.00067	0.0002	-	0.00047	0.00045	0.0002	-
	Iron (Fe)-Dissolved	0.081	0.081	0.01	0%	0.045	0.049	0.01	-	0.288	0.293	0.01	1.72%	0.1	0.08	0.01	22.22%
	Lead (Pb)-Dissolved	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-	<0.000050	<0.000050	0.00005	-
	Lithium (Li)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-
	Magnesium (Mg)-Dissolved	0.861	0.863	0.1	0.23%	2.56	2.51	0.1	1.97%	1.46	1.45	0.1	0.69%	2.56	2.53	0.1	1.18%
	Manganese (Mn)-Dissolved	0.0268	0.0269	0.0001	0.37%	0.00445	0.00416	0.0001	6.74%	0.00499	0.00521	0.0001	4.31%	0.0169	0.0165	0.0001	2.40%
	Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-	<0.0000050	<0.0000050	0.000005	-
	Molybdenum (Mo)-Dissolved	0.000101	0.000112	0.00005	-	0.000839	0.000823	0.00005	1.93%	0.000366	0.000355	0.00005	3.05%	0.000656	0.000677	0.00005	3.15%
	Nickel (Ni)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-
	Phosphorus (P)-Dissolved	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-	<0.050	<0.050	0.05	-
	Potassium (K)-Dissolved	0.222	0.223	0.1	-	0.592	0.598	0.1	1.01%	0.548	0.552	0.1	0.73%	0.928	0.926	0.1	0.22%
	Selenium (Se)-Dissolved	<0.000050	<0.000050	0.00005	-	0.000078	0.000093	0.00005	-	<0.000050	<0.000050	0.00005	-	0.000068	<0.000050	0.00005	-
	Silicon (Si)-Dissolved	4.95	4.87	0.05	1.63%	7.01	7.07	0.05	0.85%	4.76	4.81	0.05	1.04%	6.15	5.97	0.05	2.97%
	Silver (Ag)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Sodium (Na)-Dissolved	1.96	1.96	0.05	0%	3.34	3.27	0.05	2.12%	2.1	2.15	0.05	2.35%	3.12	3.04	0.05	2.60%
	Strontium (Sr)-Dissolved	0.0259	0.0258	0.0002	0.39%	0.091	0.0877	0.0002	3.69%	0.06	0.0586	0.0002	2.36%	0.0767	0.0786	0.0002	2.45%
	Sulfur (S)-Dissolved	<0.50	<0.50	0.5	-	0.87	1.07	0.5	-	<0.50	<0.50	0.5	-	1.01	1.12	0.5	-
	Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-	<0.000010	<0.000010	0.00001	-
	Tin (Sn)-Dissolved	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-	<0.00010	<0.00010	0.0001	-
	Titanium (Ti)-Dissolved	0.00056	0.0006	0.0003	-	0.00112	0.00158	0.0003	-	0.00859	0.0088	0.0003	2.42%	0.00309	0.00191	0.0003	47.20%
	Uranium (U)-Dissolved	0.000036	0.000034	0.00001	-	0.000238	0.000247	0.00001	3.71%	0.000198	0.00019	0.00001	4.12%	0.000133	0.000127	0.00001	4.62%
	Vanadium (V)-Dissolved	<0.00050	<0.00050	0.0005	-	<0.00050	<0.00050	0.0005	-	0.00071	0.00073	0.0005	-	<0.00050	<0.00050	0.0005	-
	Zinc (Zn)-Dissolved	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-	<0.0010	<0.0010	0.001	-

Notes:
DL = Detection Limit.
RPD = Relative Percent Difference.
"<" value is below the detection limit.
"-" indicates RPD was not computed because one or both concentrations were less than 5 times the detection limit.

Appendix C Monthly Mean Surface Water Quality Graphs, Blackwater Gold Project Streams, 2016 to March 31, 2024

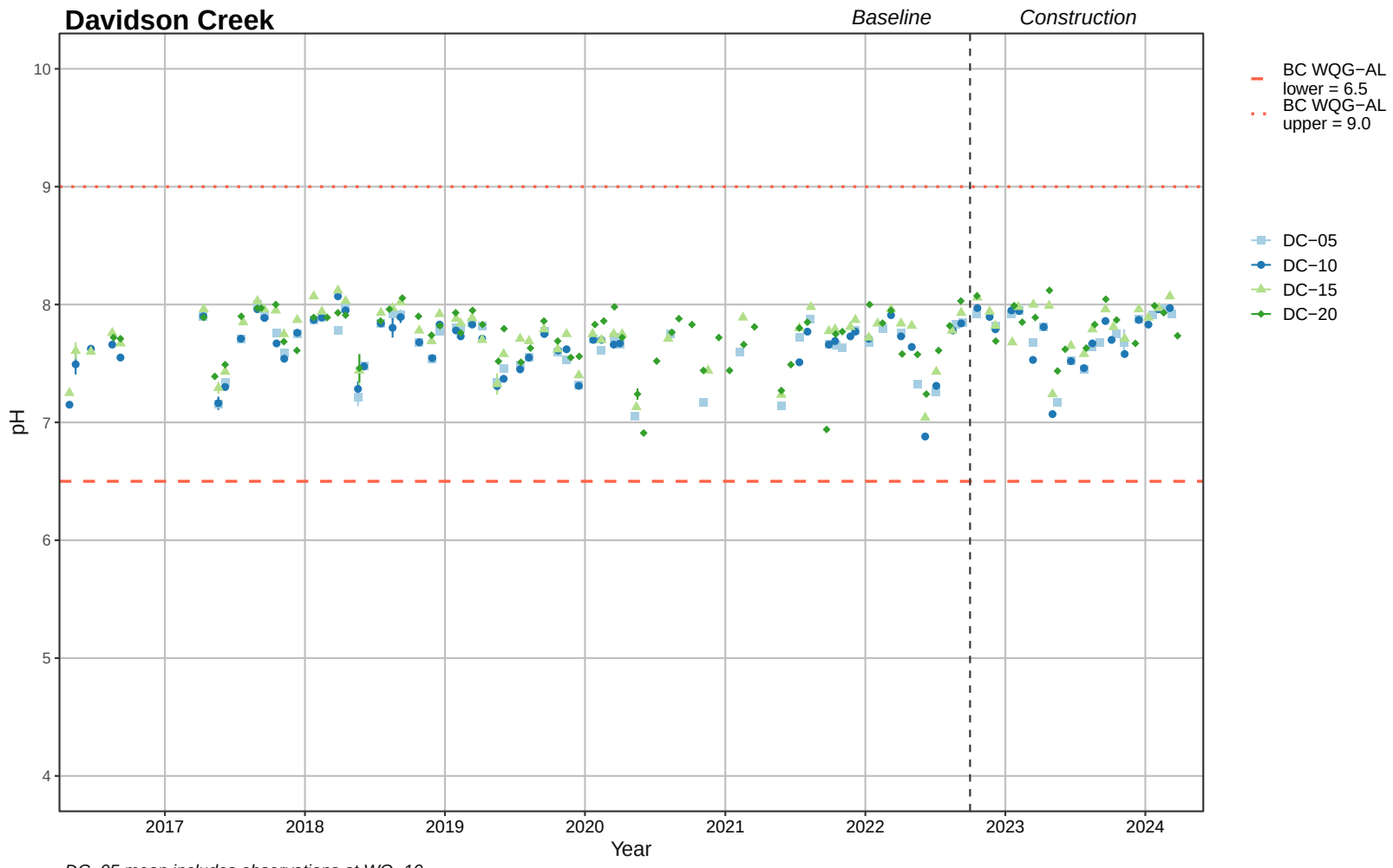
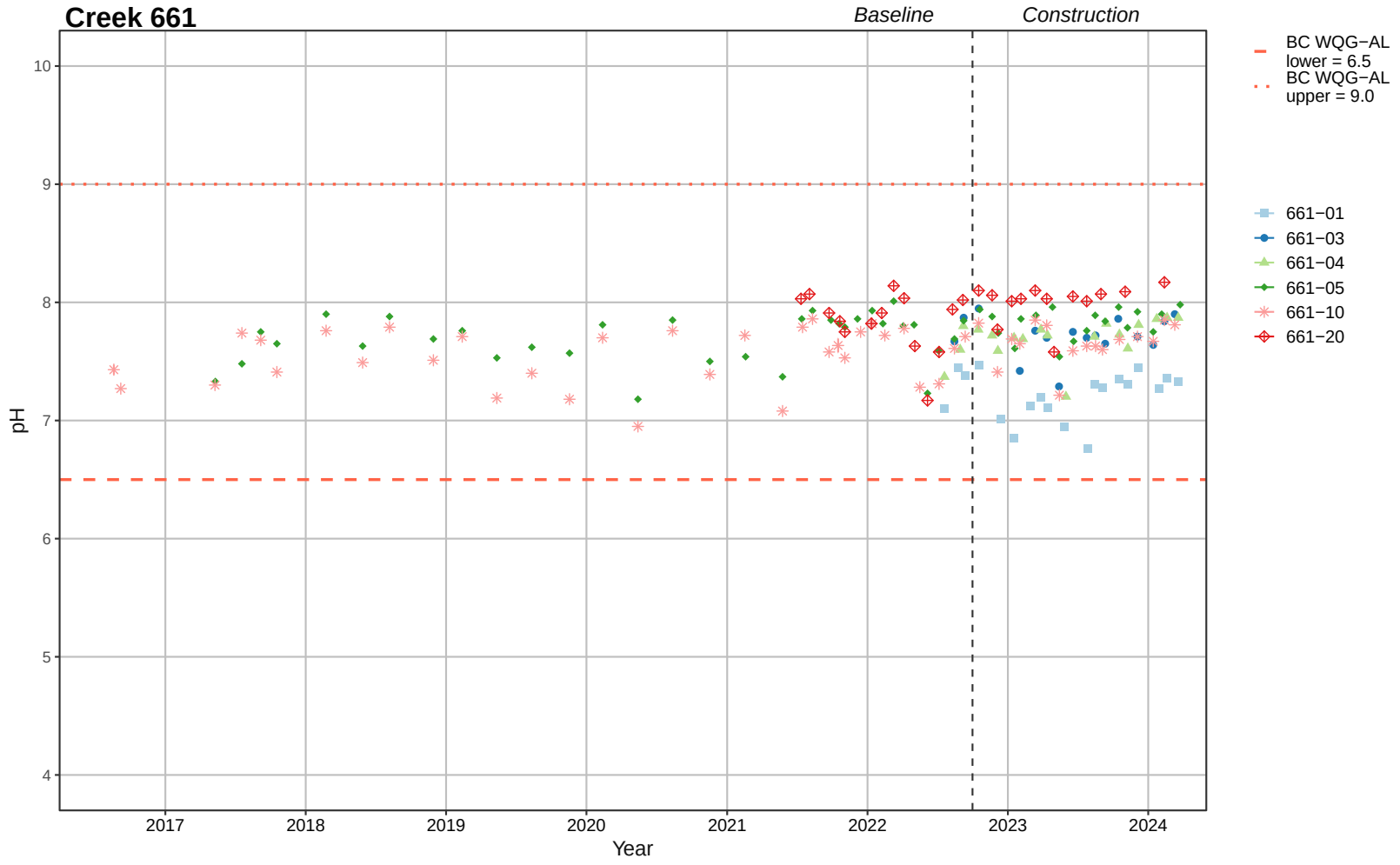
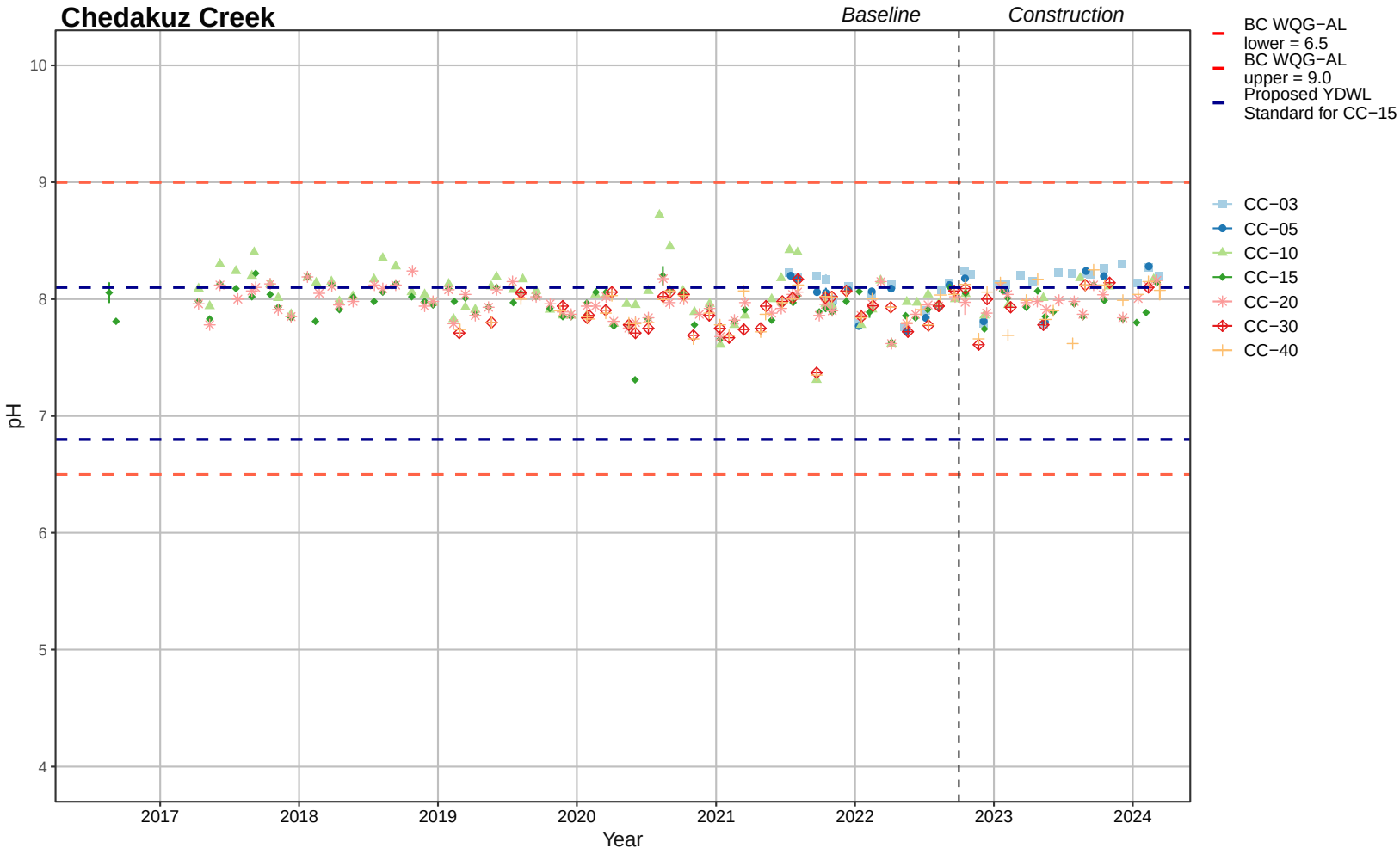


Figure C.1.a: Monthly Mean pH Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.

Figure C.1.b: Monthly Mean pH Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Proposed YDWL Standard for CC−15 is 6.8 to 8.1 pH units.

Figure C.1.c: Monthly Mean pH Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

Error bars represent standard error of the mean.

Figure C.1.d: Monthly Mean pH Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

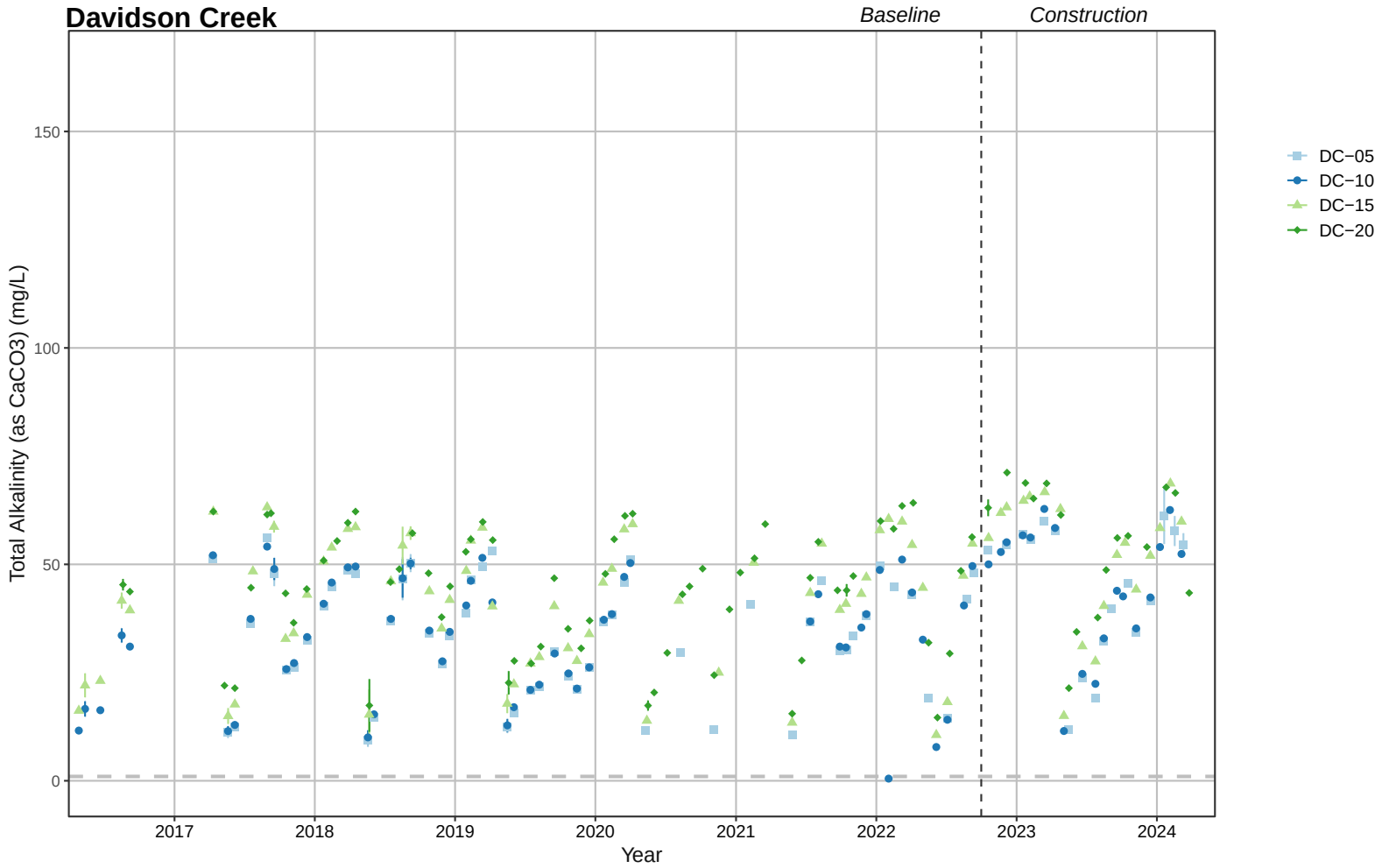
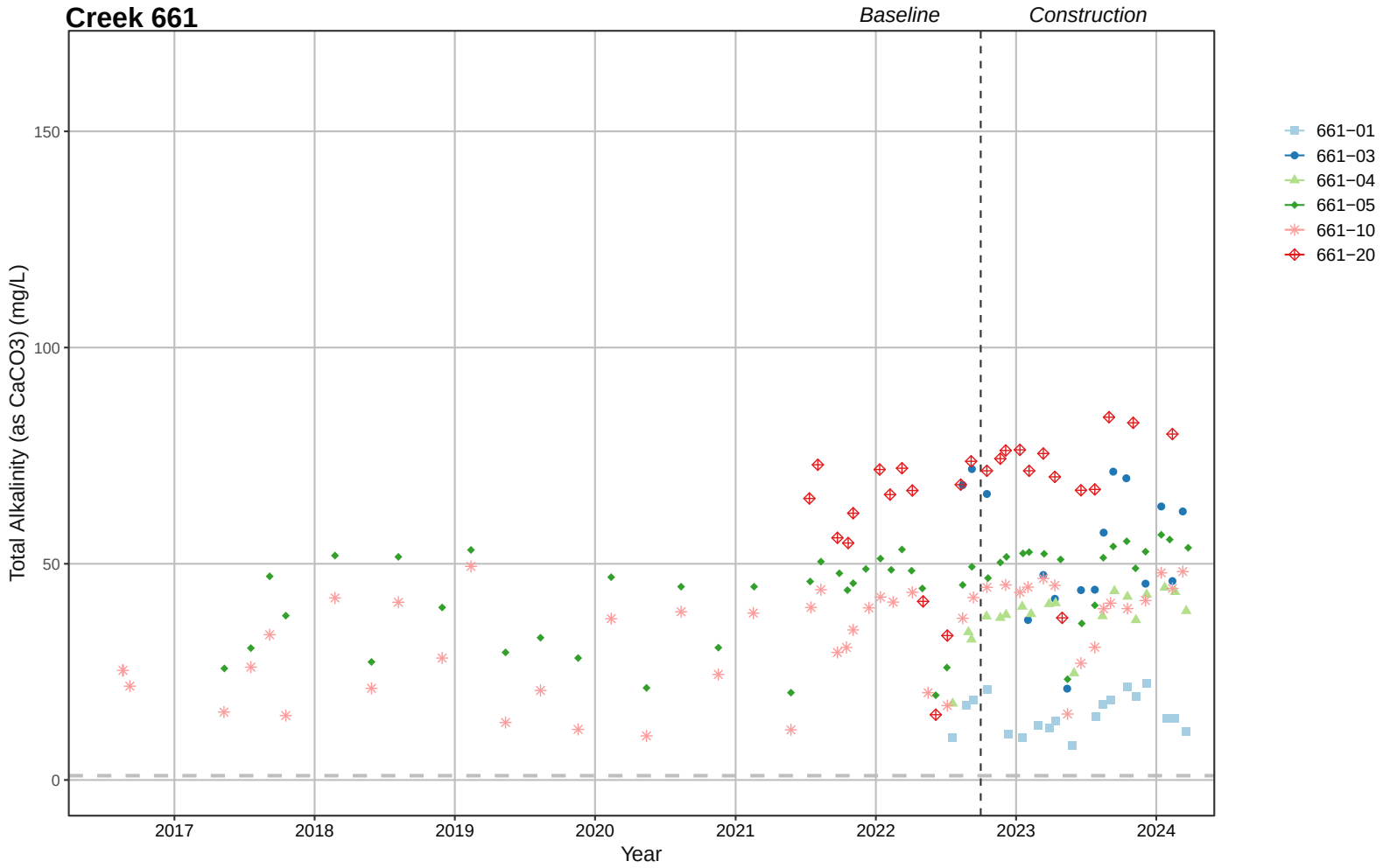
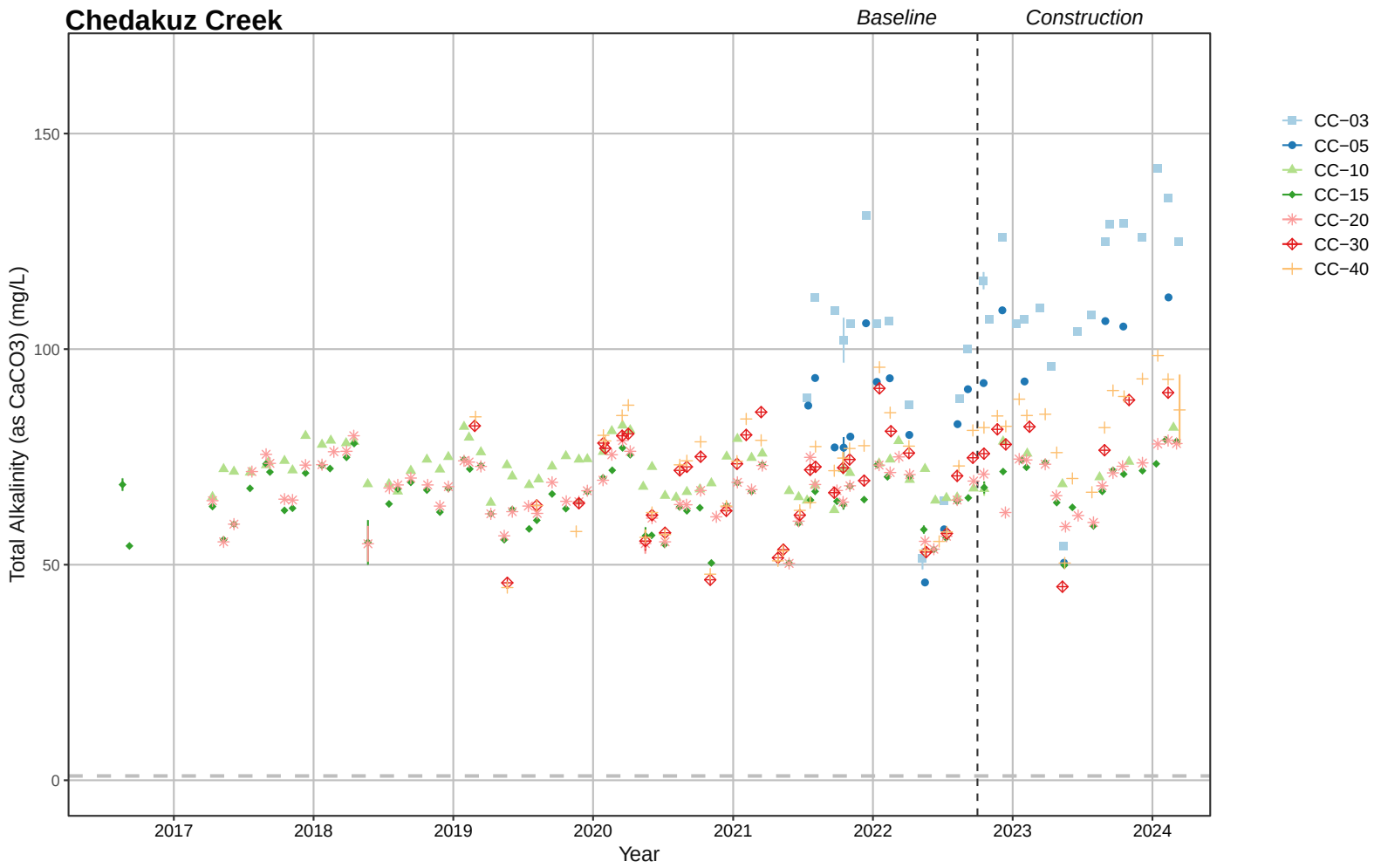


Figure C.2.a: Monthly Mean Alkalinity Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



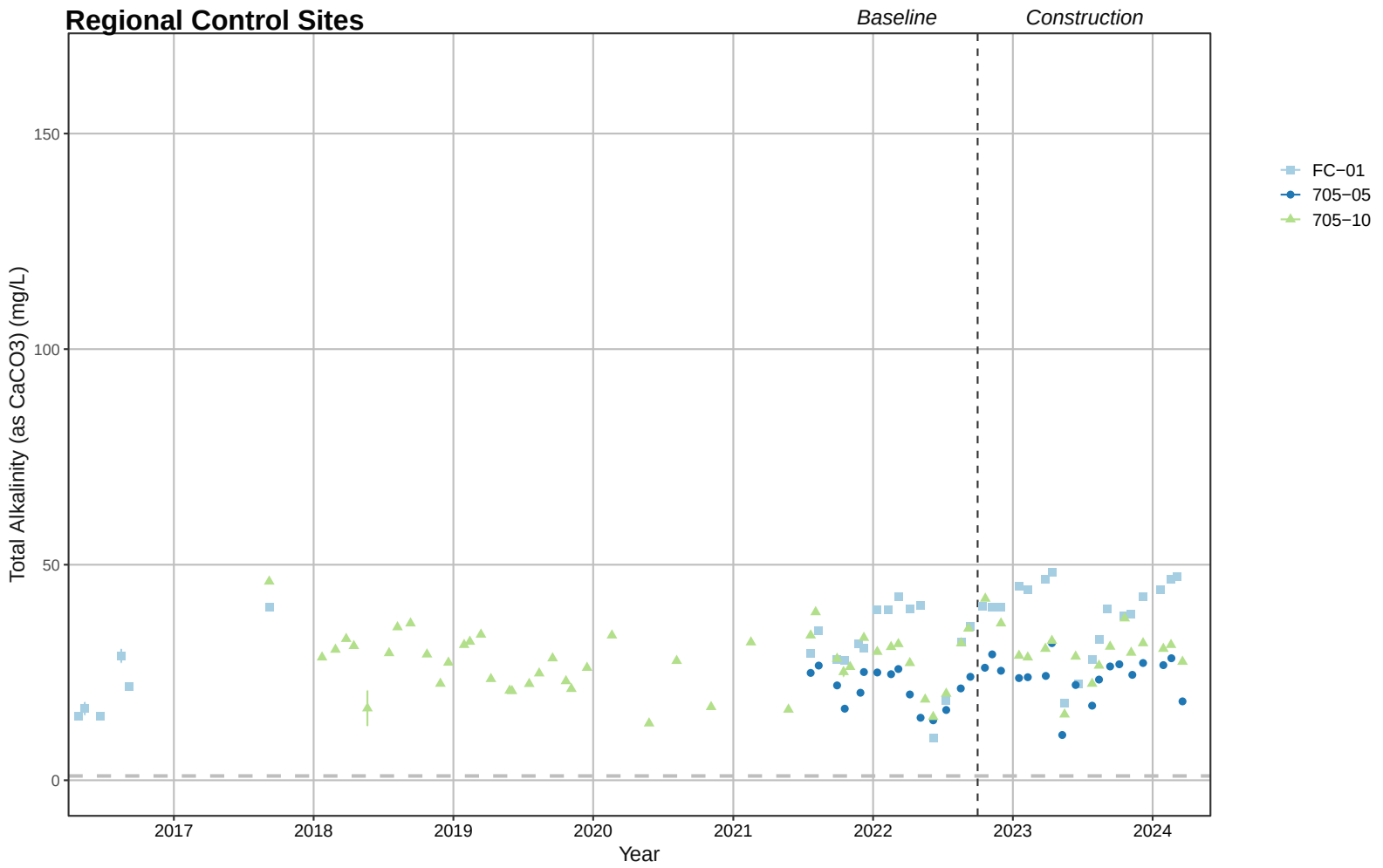
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.2.b: Monthly Mean Alkalinity Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.2.c: Monthly Mean Alkalinity Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.2.d: Monthly Mean Alkalinity Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

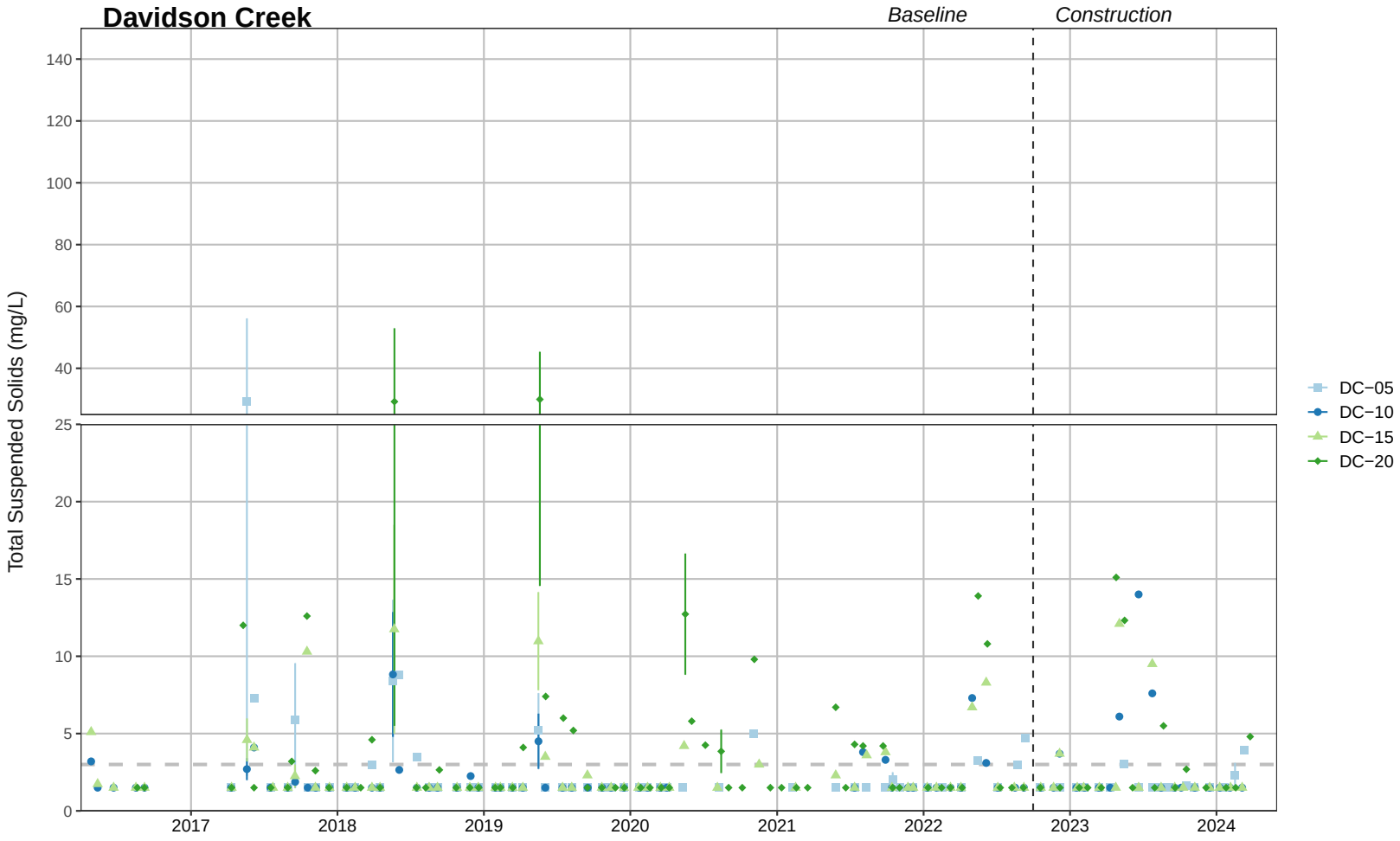
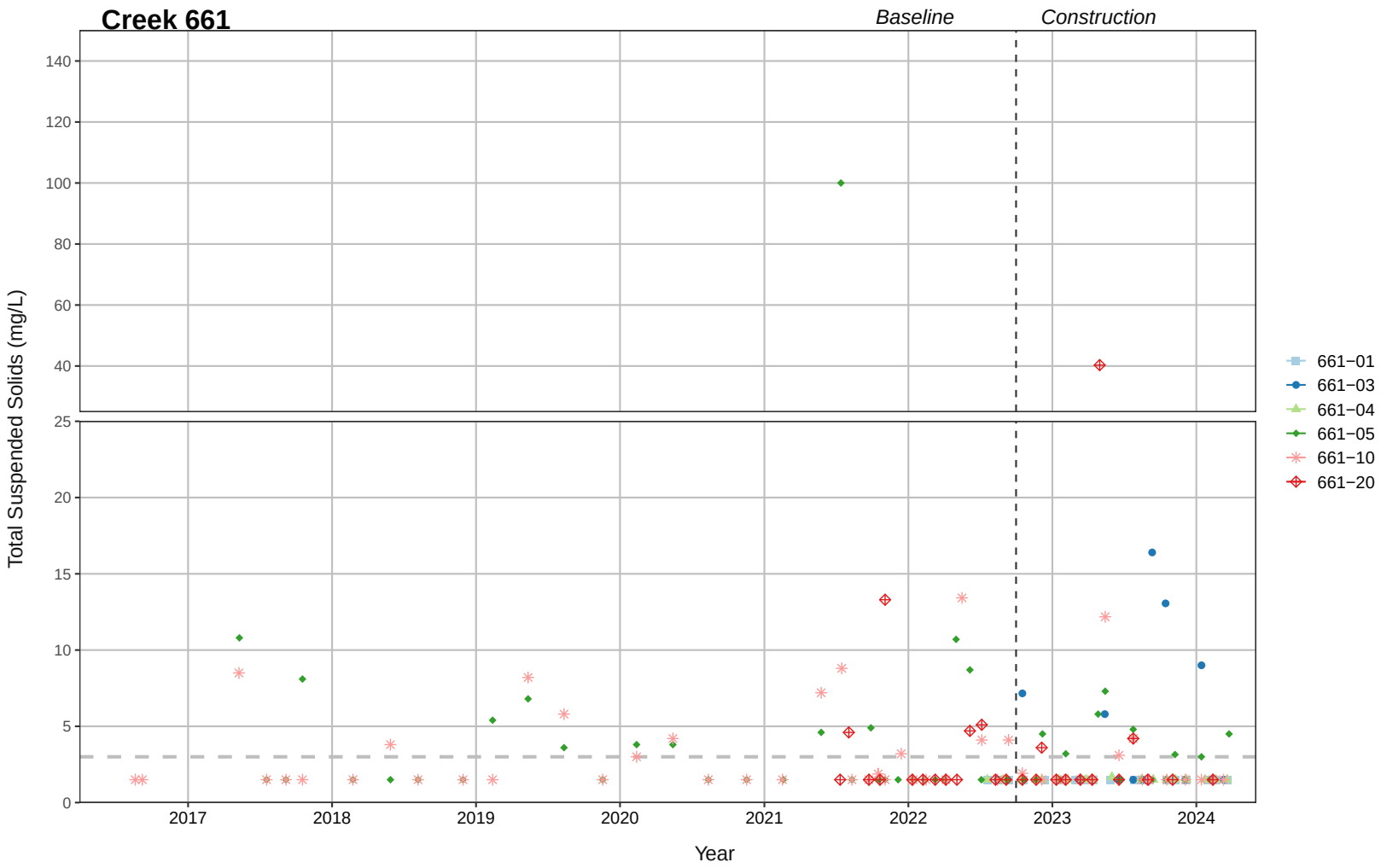


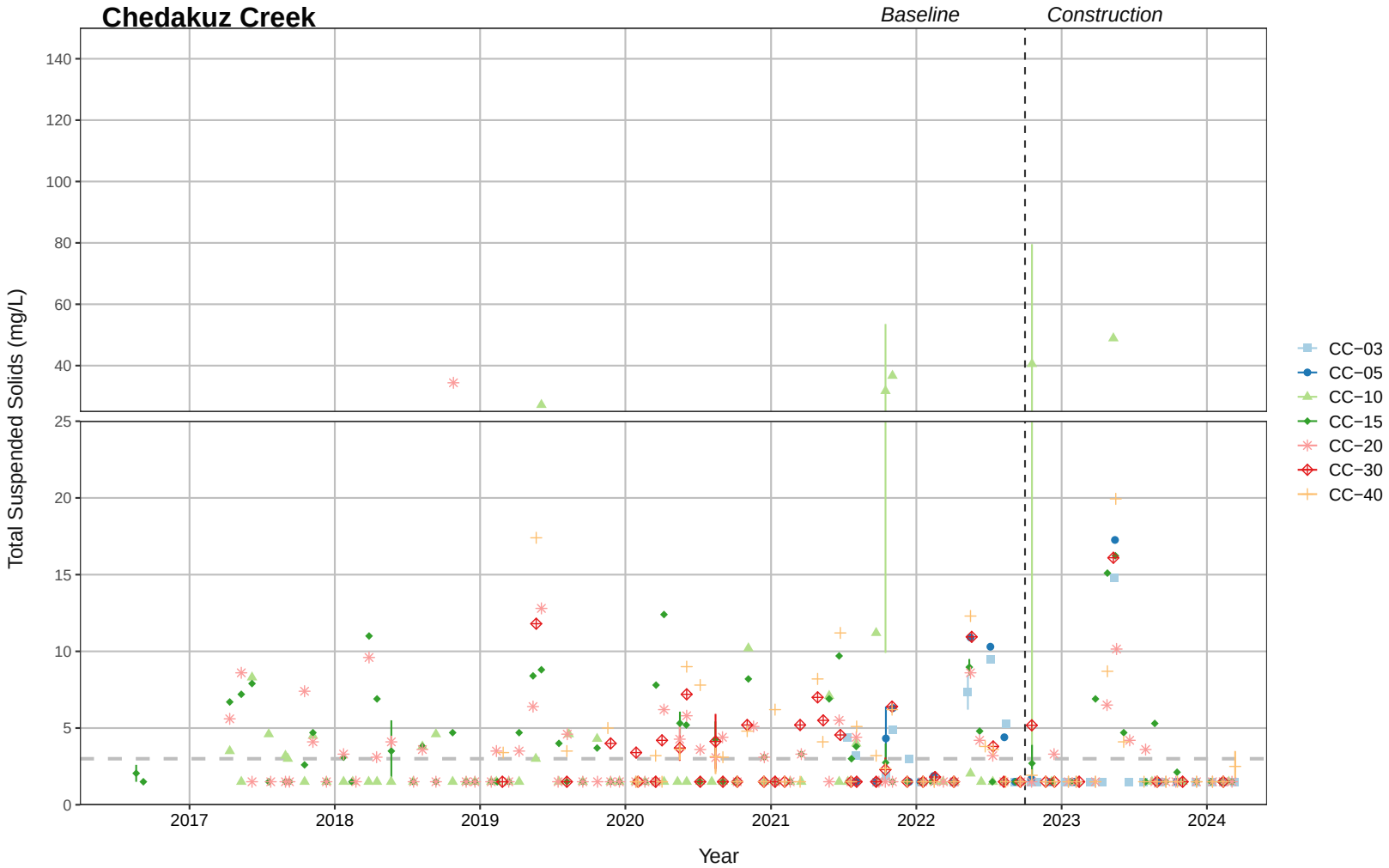
Figure C.3.a: Monthly Mean Total Suspended Solids Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Water quality guidelines for suspended solids are dependent on background levels.

Figure C.3.b: Monthly Mean Total Suspended Solids Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
Proposed YDWL Standard for CC−15 is the BC WQG−AL.

Water quality guidelines for suspended solids are dependent on background levels.

Figure C.3.c: Monthly Mean Total Suspended Solids Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

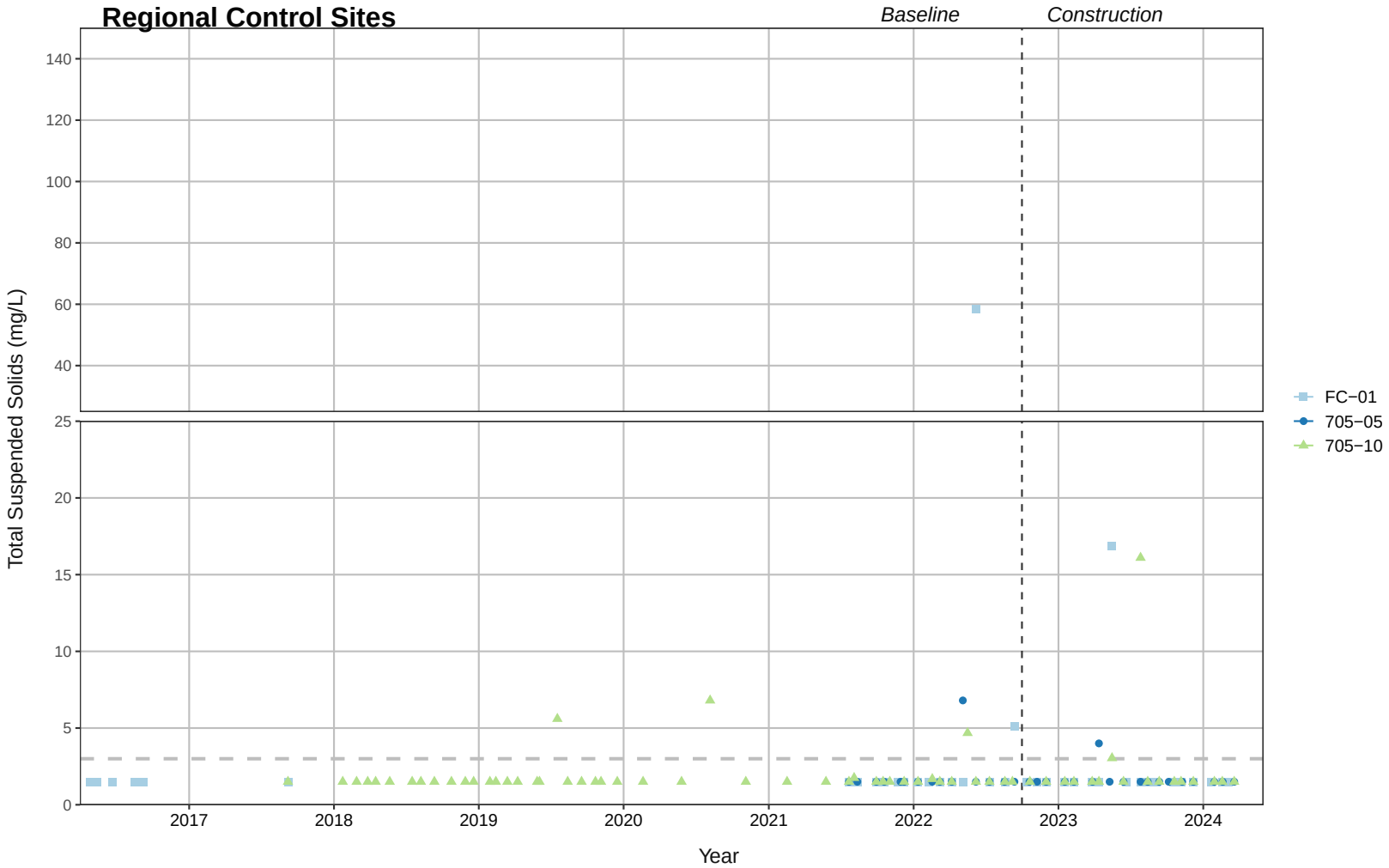
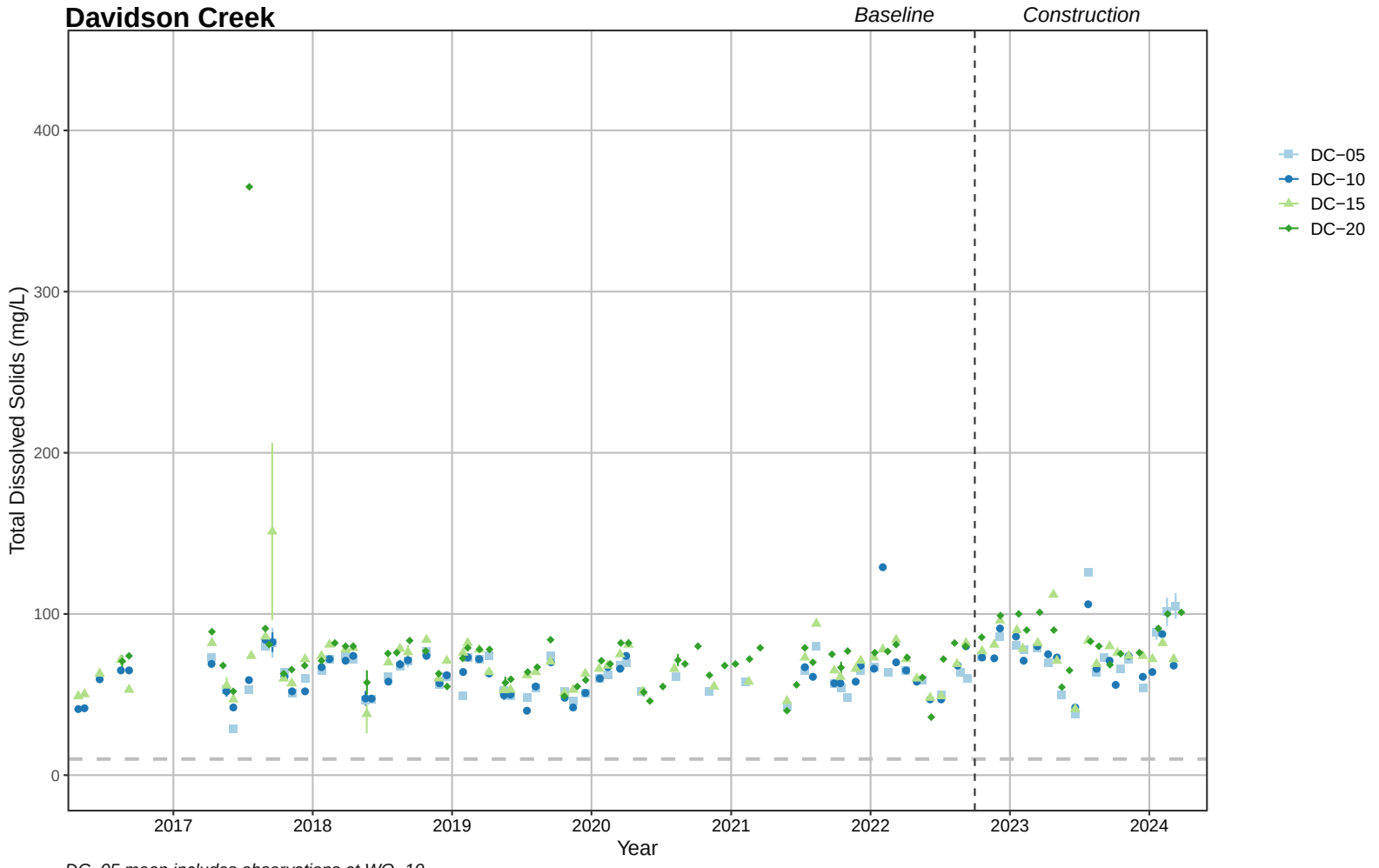


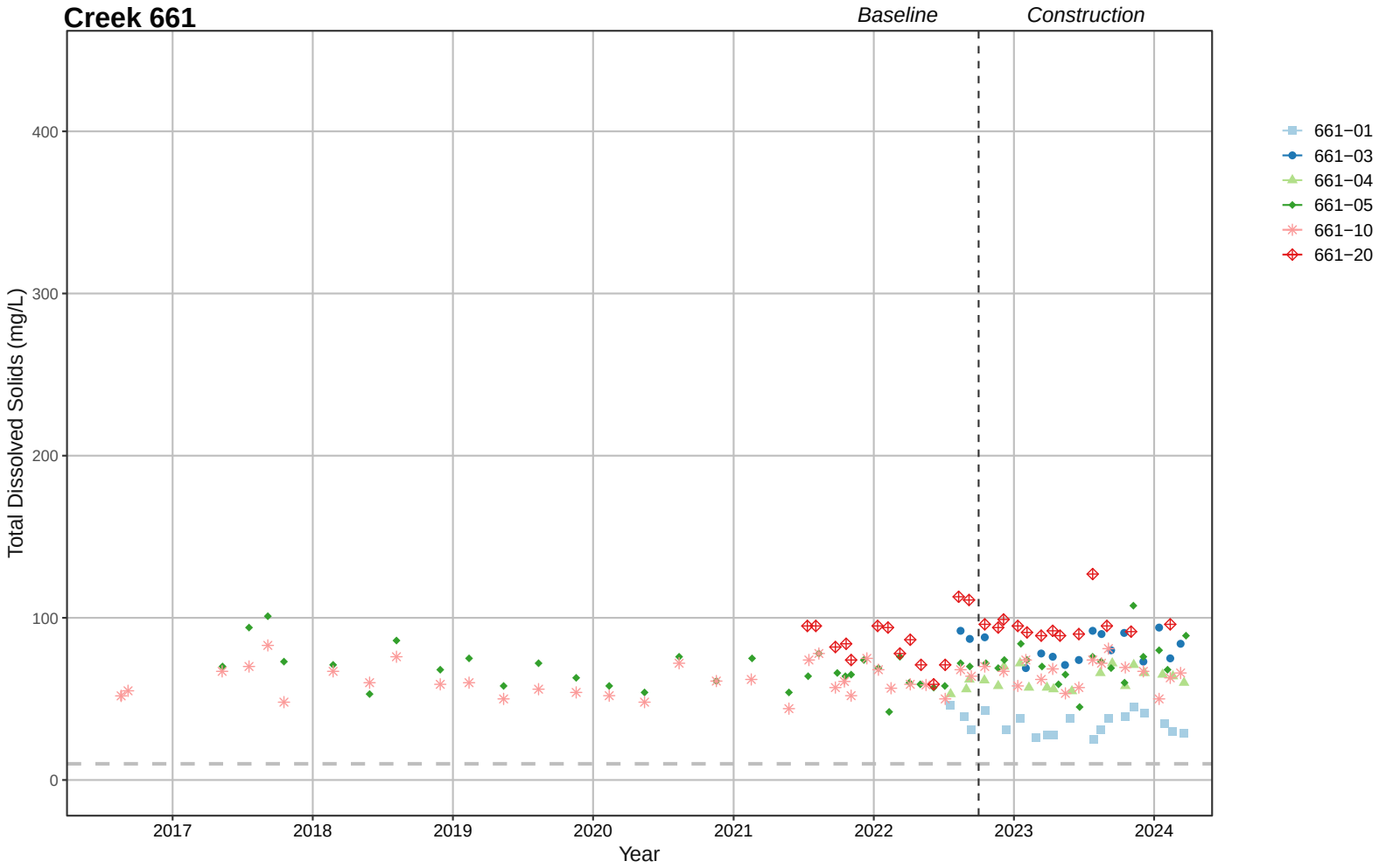
Figure C.3.d: Monthly Mean Total Suspended Solids Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

No aquatic life guideline is available for this parameter. A benchmark of 500 mg/L will be used as identified in the effects assessment for the Joint MA/EMA Application (BW Gold 2022).
The CCME livestock WQG for TDS is 3,000 mg/L.

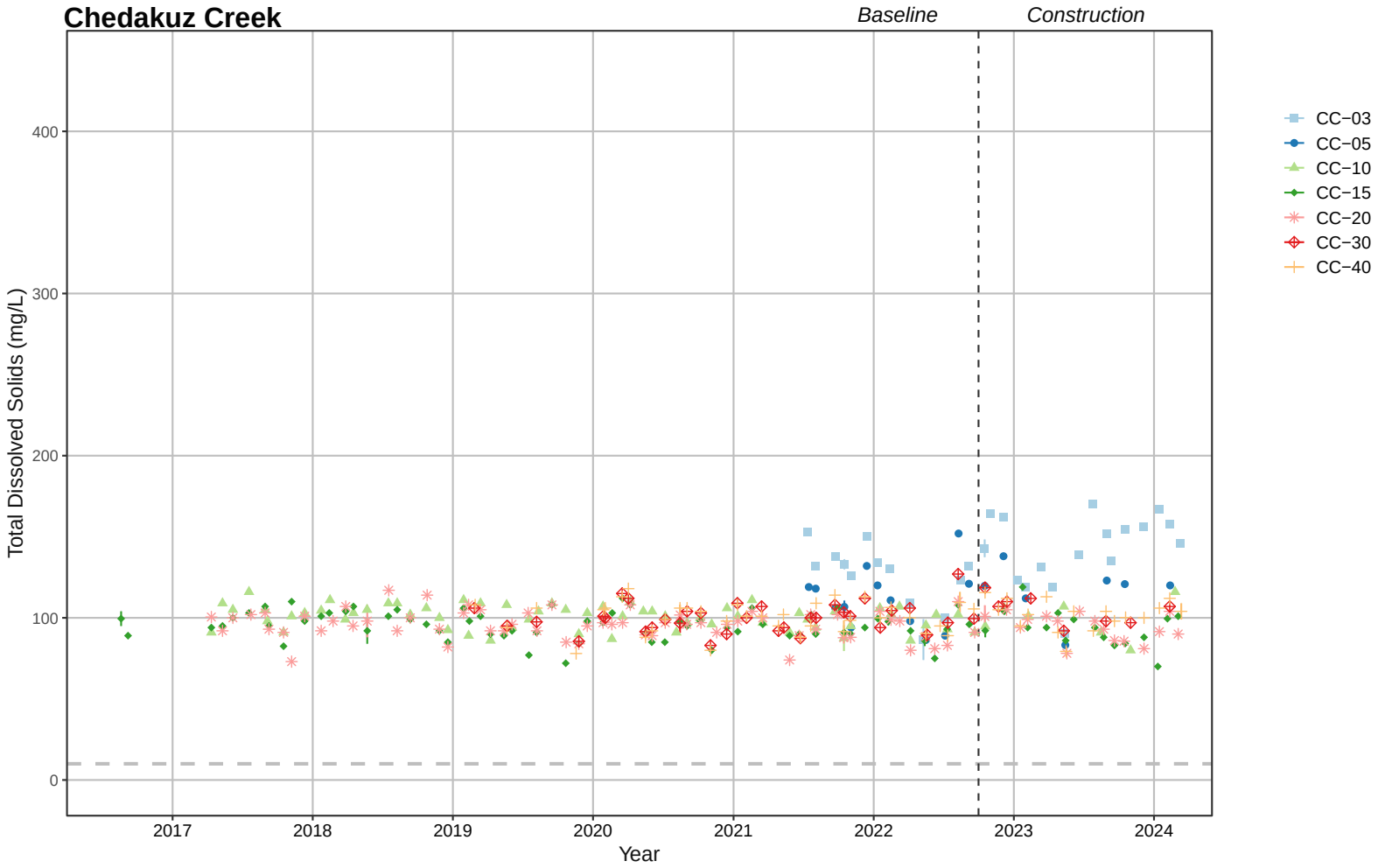
Figure C.4.a: Monthly Mean Total Dissolved Solids Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

No aquatic life guideline is available for this parameter. A benchmark of 500 mg/L will be used as identified in the effects assessment for the Joint MA/EMA Application (BW Gold 2022).
The CCME livestock WQG for TDS is 3,000 mg/L.

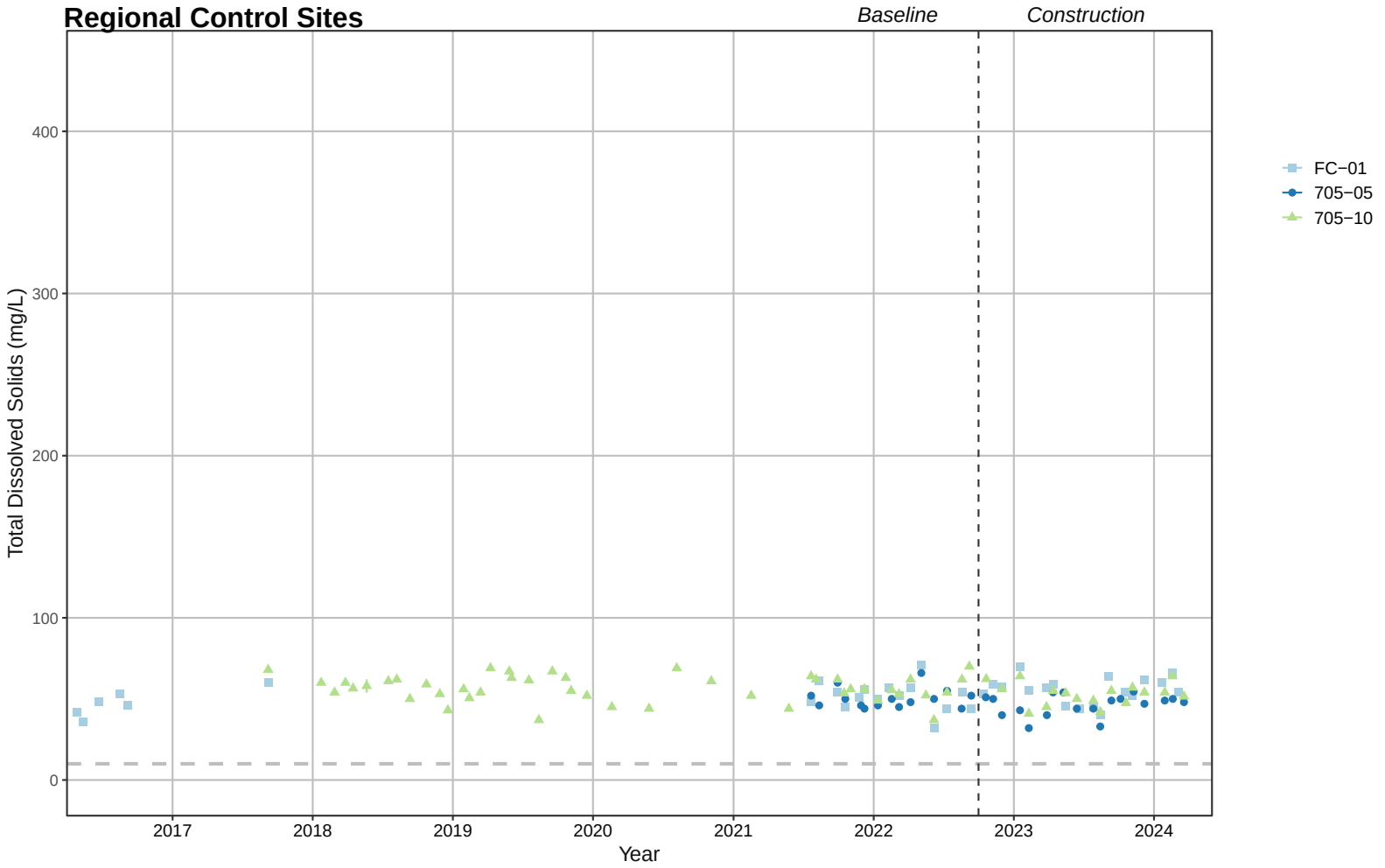
Figure C.4.b: Monthly Mean Total Dissolved Solids Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

No aquatic life guideline is available for this parameter. A benchmark of 500 mg/L will be used as identified in the effects assessment for the Joint MA/EMA Application (BW Gold 2022).
The CCME livestock WQG for TDS is 3,000 mg/L.

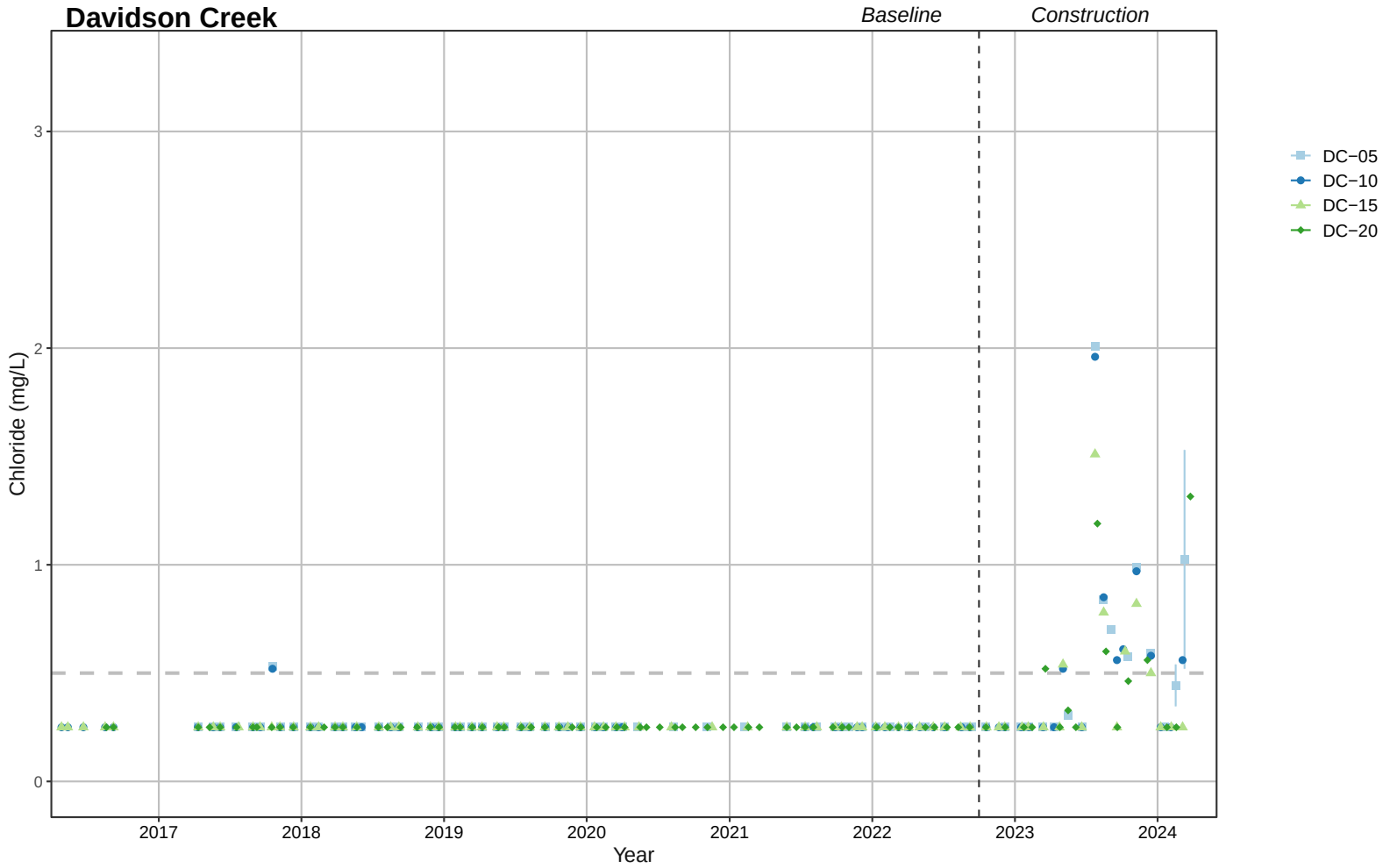
Figure C.4.c: Monthly Mean Total Dissolved Solids Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

No aquatic life guideline is available for this parameter. A benchmark of 500 mg/L will be used as identified in the effects assessment for the Joint MA/EMA Application (BW Gold 2022).
The CCME livestock WQG for TDS is 3,000 mg/L.

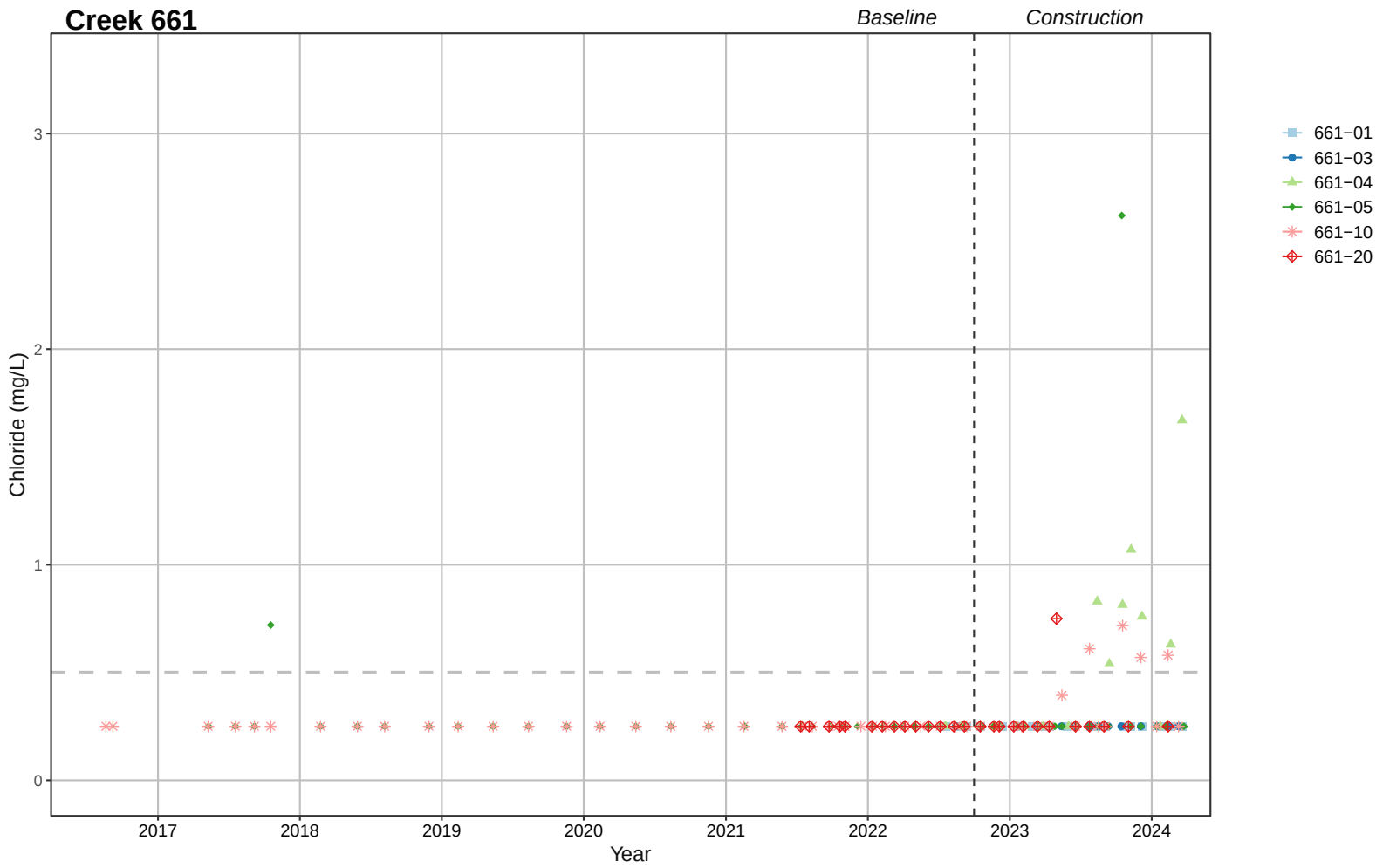
Figure C.4.d: Monthly Mean Total Dissolved Solids Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for chloride is 150 mg/L.
The CCME livestock WQG for chloride is 3,000 mg/L.
Proposed YDWL Standard for DC−05 is 120 mg/L.

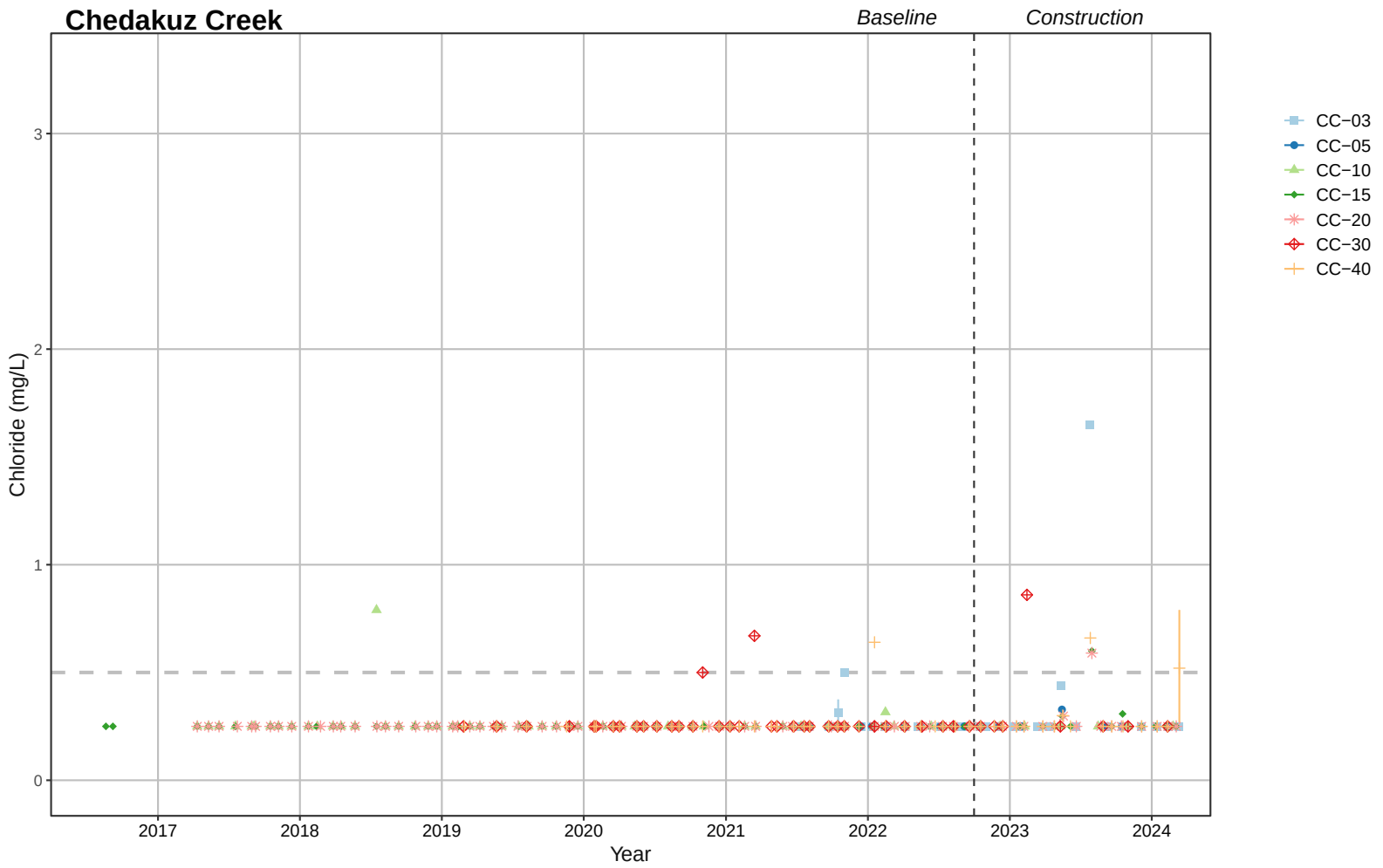
Figure C.5.a: Monthly Mean Chloride Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for chloride is 150 mg/L.
The CCME livestock WQG for chloride is 3,000 mg/L.

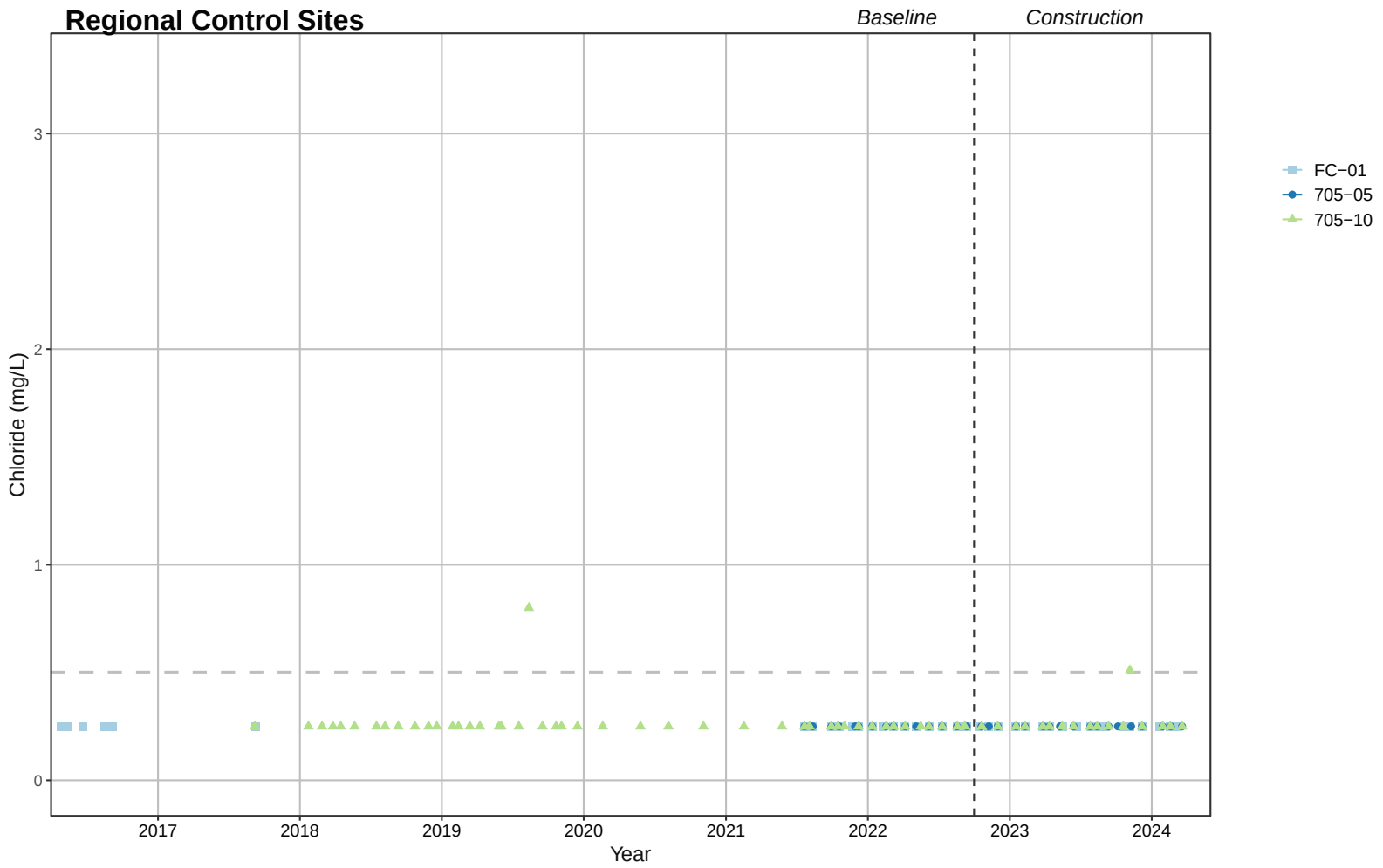
Figure C.5.b: Monthly Mean Chloride Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for chloride is 150 mg/L.
The CCME livestock WQG for chloride is 3,000 mg/L.
Proposed YDWL Standard for CC−15 is 60 mg/L.

Figure C.5.c: Monthly Mean Chloride Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for chloride is 150 mg/L.
The CCME livestock WQG for chloride is 3,000 mg/L.

Figure C.5.d: Monthly Mean Chloride Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

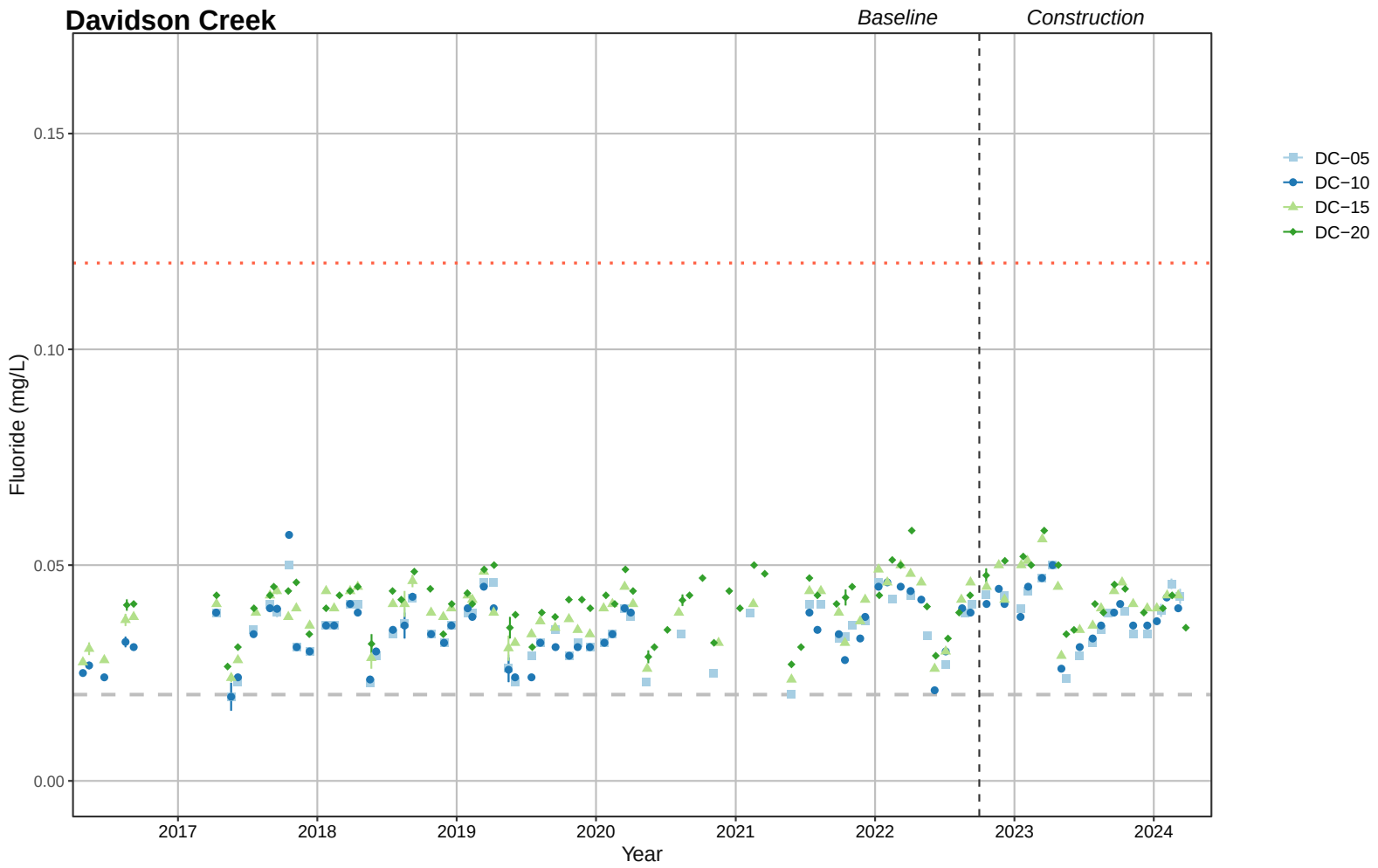
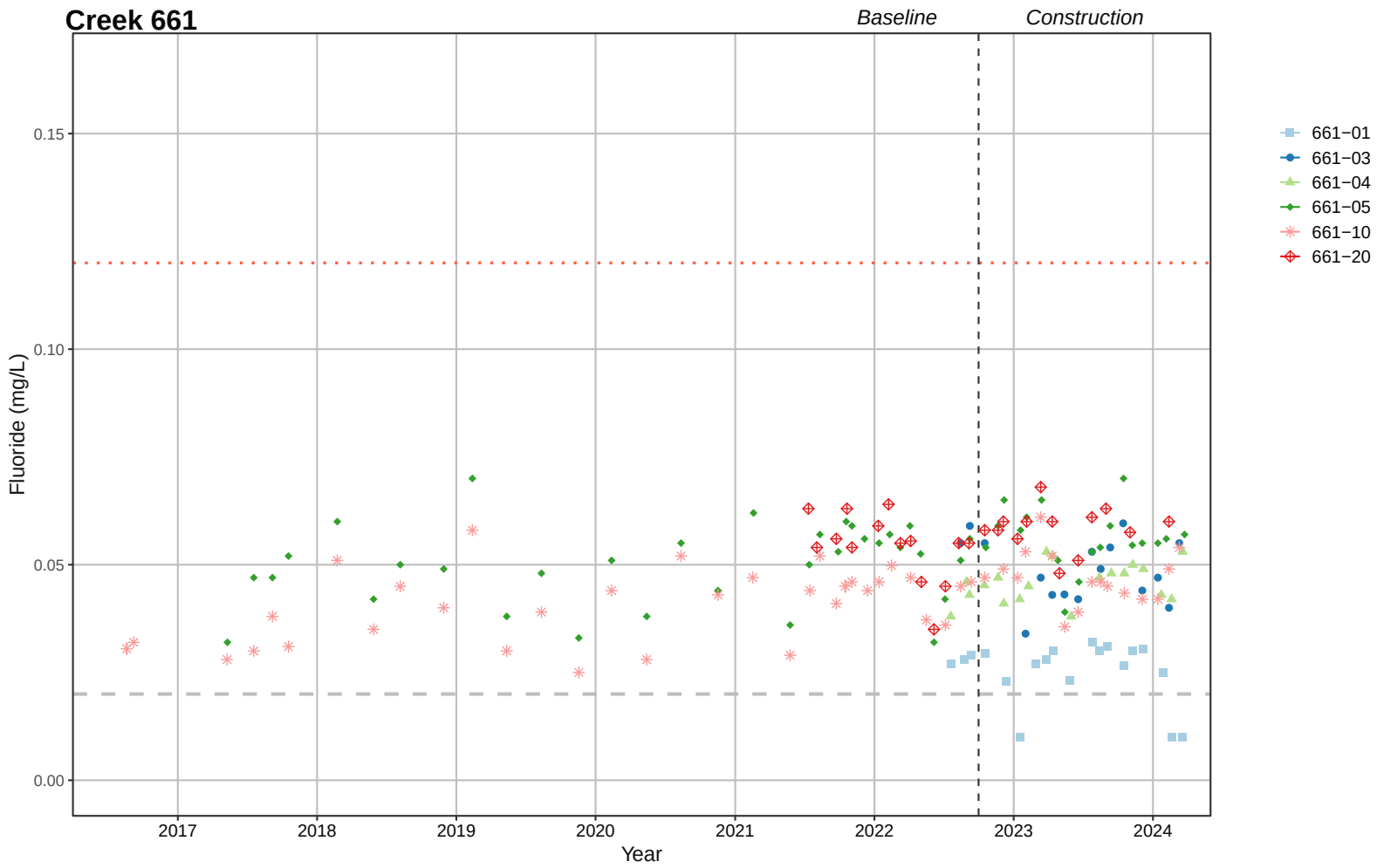


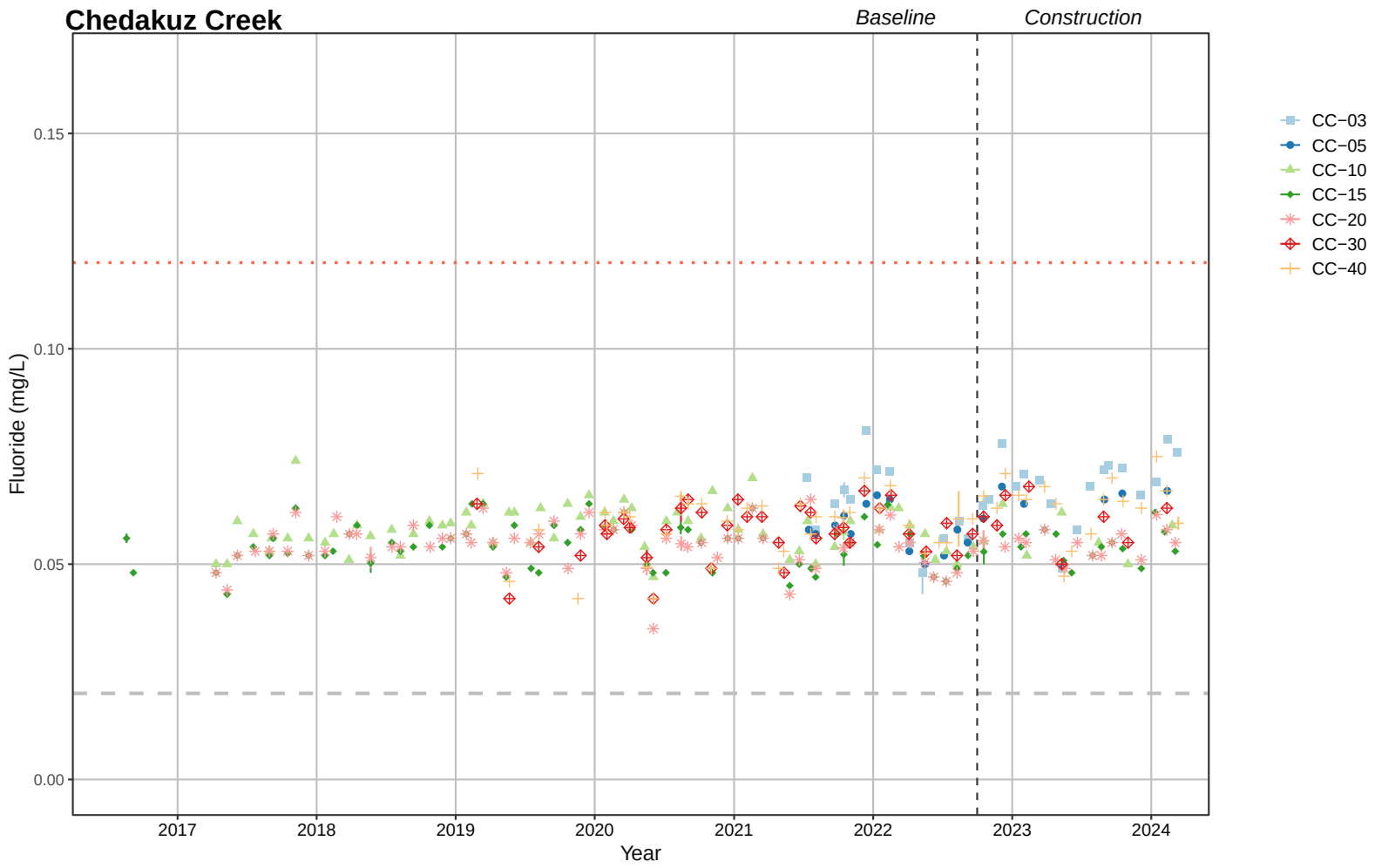
Figure C.6.a: Monthly Mean Fluoride Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME interim WQG−AL = 0.12 mg/L.

Figure C.6.b: Monthly Mean Fluoride Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

CCME interim WQG−AL = 0.12 mg/L.
Proposed YDWL Standard for fluoride at CC−15 is 0.53 mg/L.

Figure C.6.c: Monthly Mean Fluoride Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME interim WQG−AL = 0.12 mg/L.

Figure C.6.d: Monthly Mean Fluoride Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

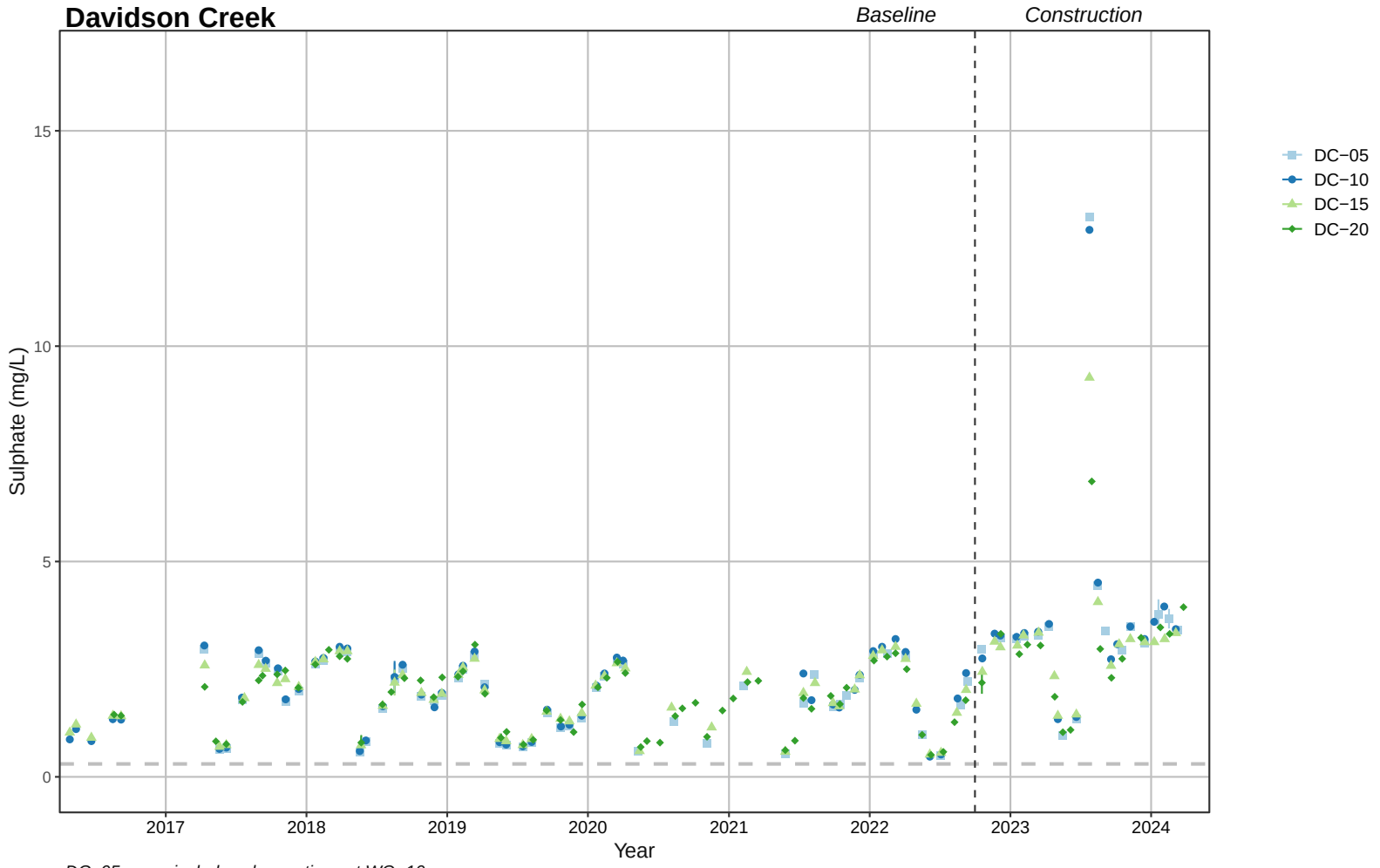


Figure C.7.a: Monthly Mean Sulphate Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024

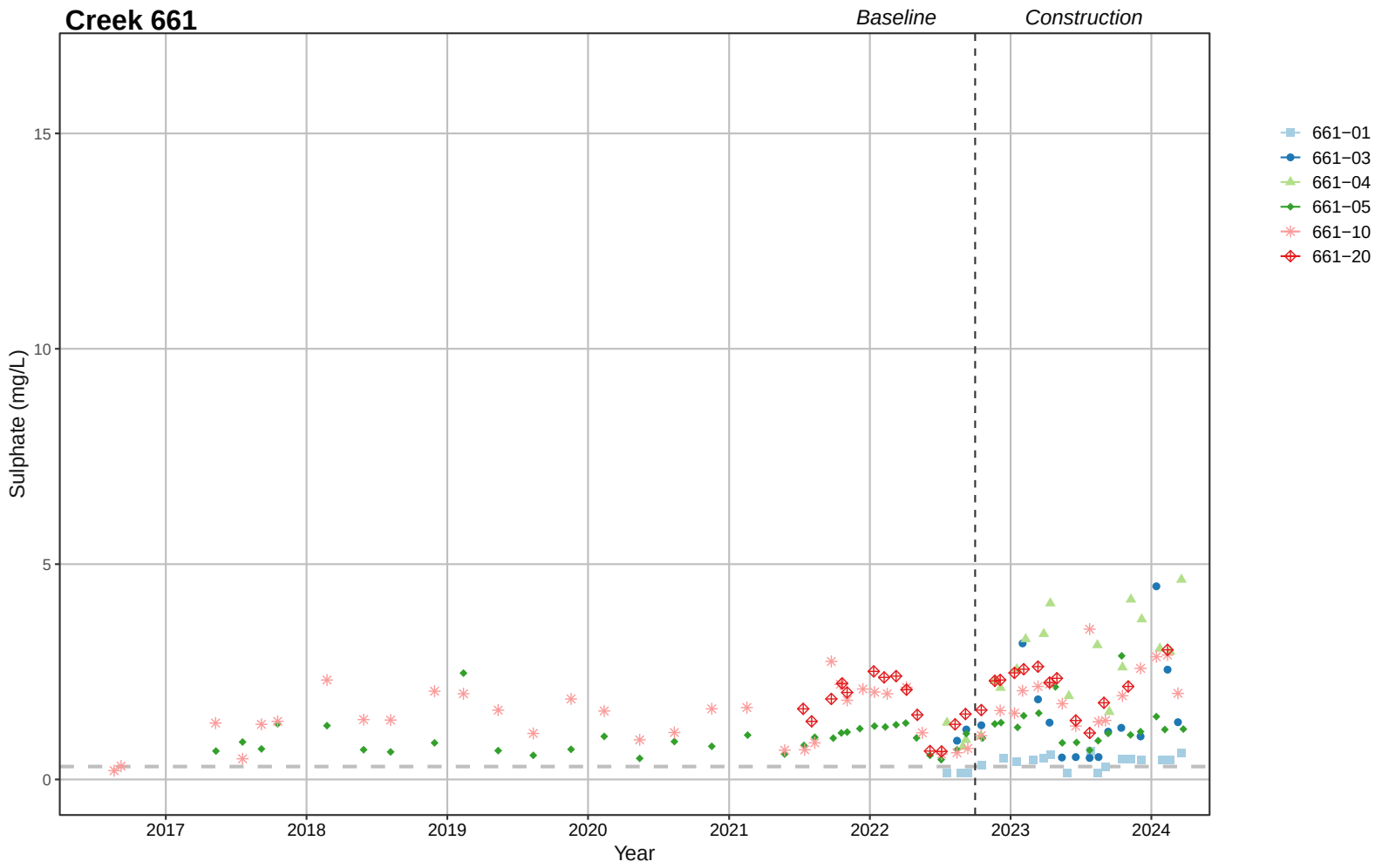
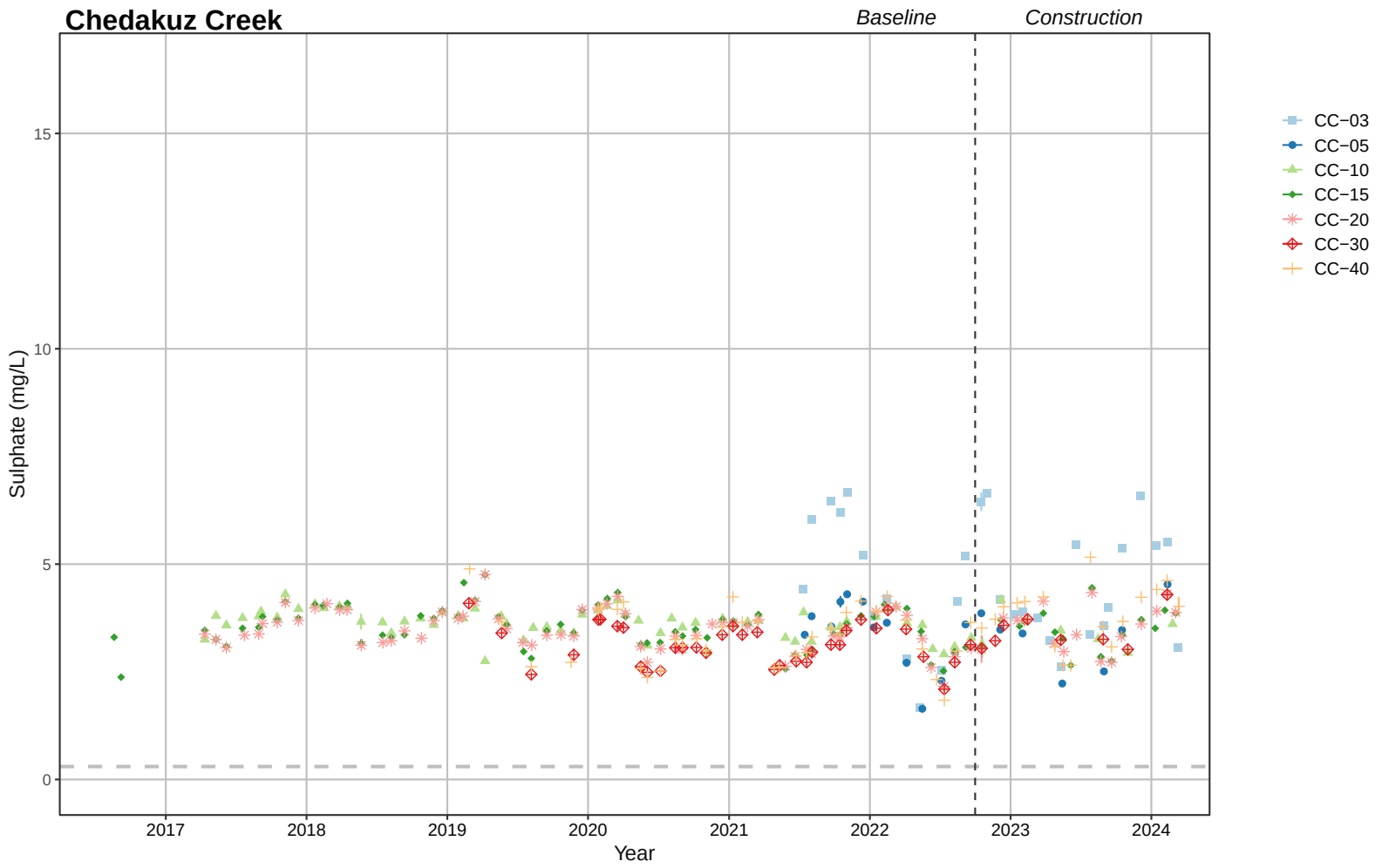


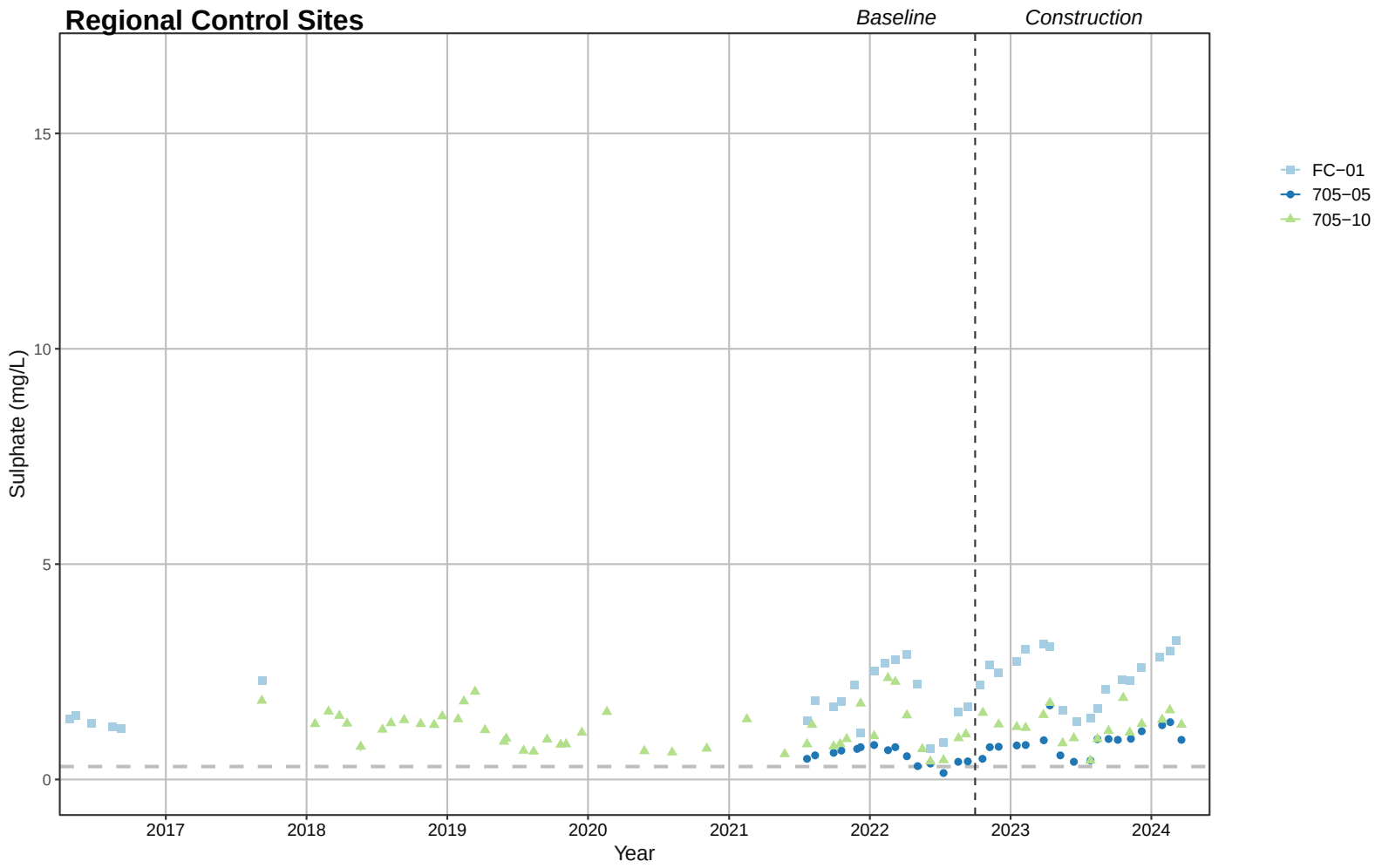
Figure C.7.b: Monthly Mean Sulphate Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

The BC long−term WQG−AL for sulphate is hardness dependent.
The lowest long−term guideline value is 128 mg/L.
The CCME livestock WQG for sulphate is 1,000 mg/L.
Proposed YDWL Standard for sulphate at CC−15 is 111 mg/L.

Figure C.7.c: Monthly Mean Sulphate Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

The BC long−term WQG−AL for sulphate is hardness dependent.
The lowest long−term guideline value is 128 mg/L.
The CCME livestock WQG for sulphate is 1,000 mg/L.

Figure C.7.d: Monthly Mean Sulphate Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

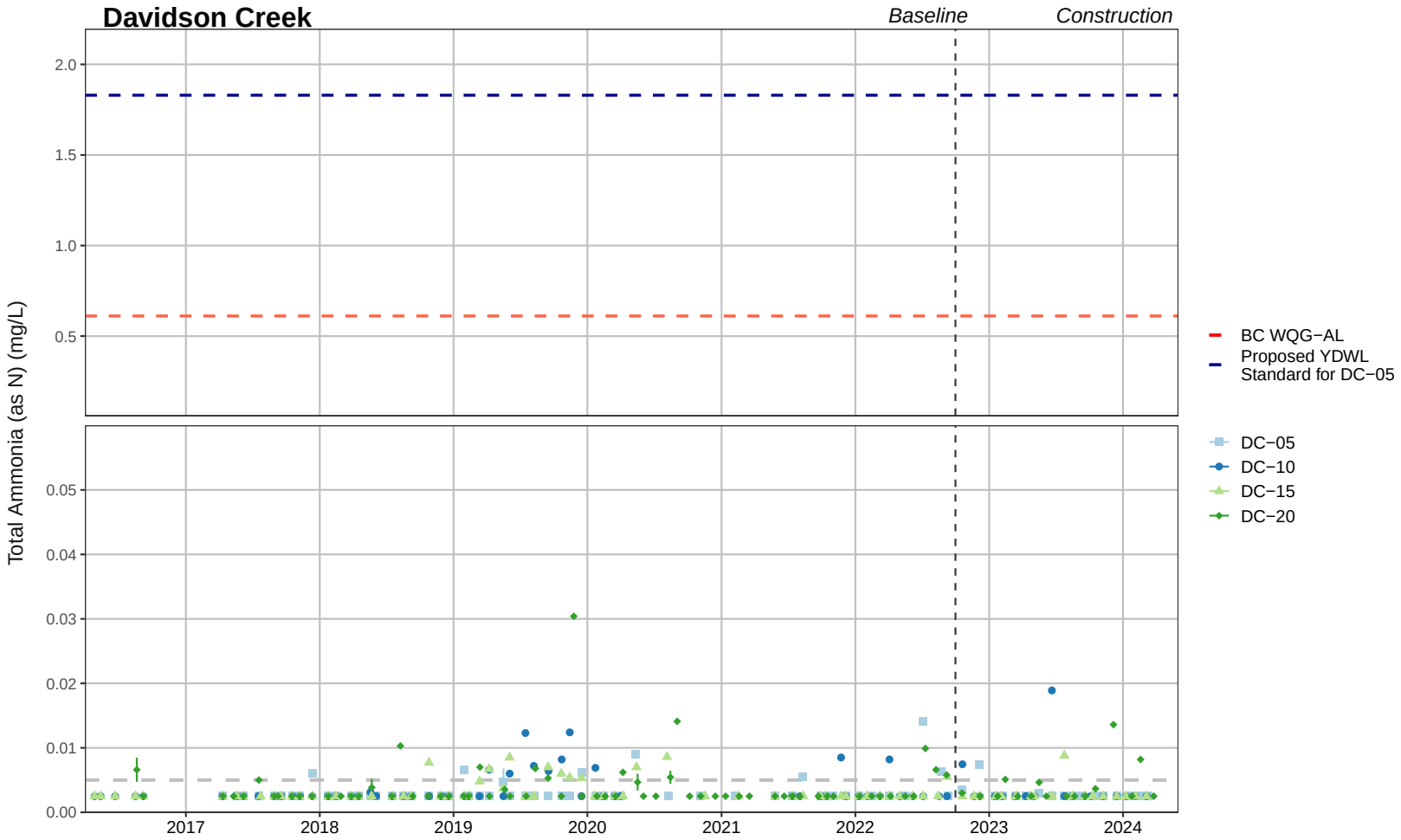
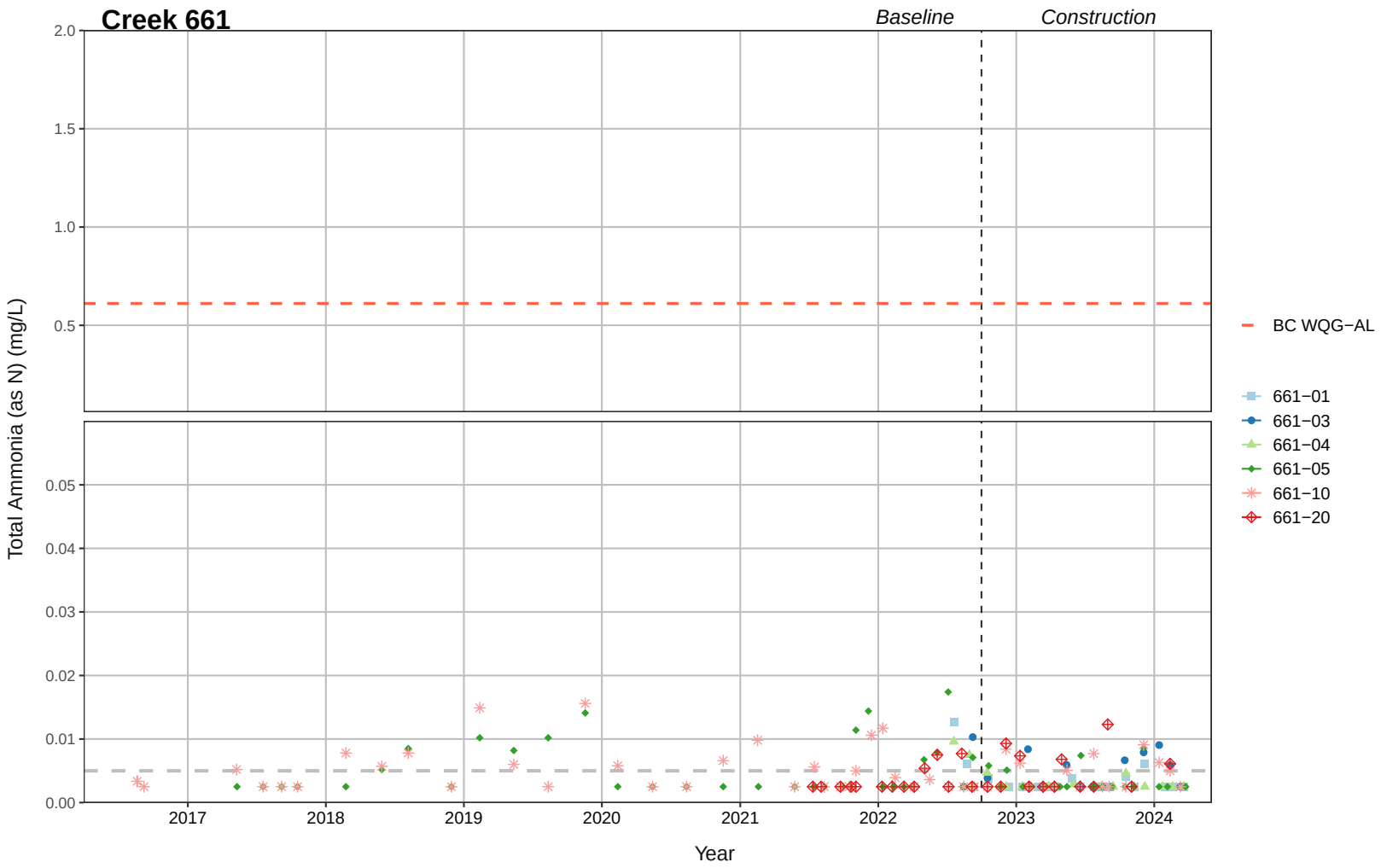
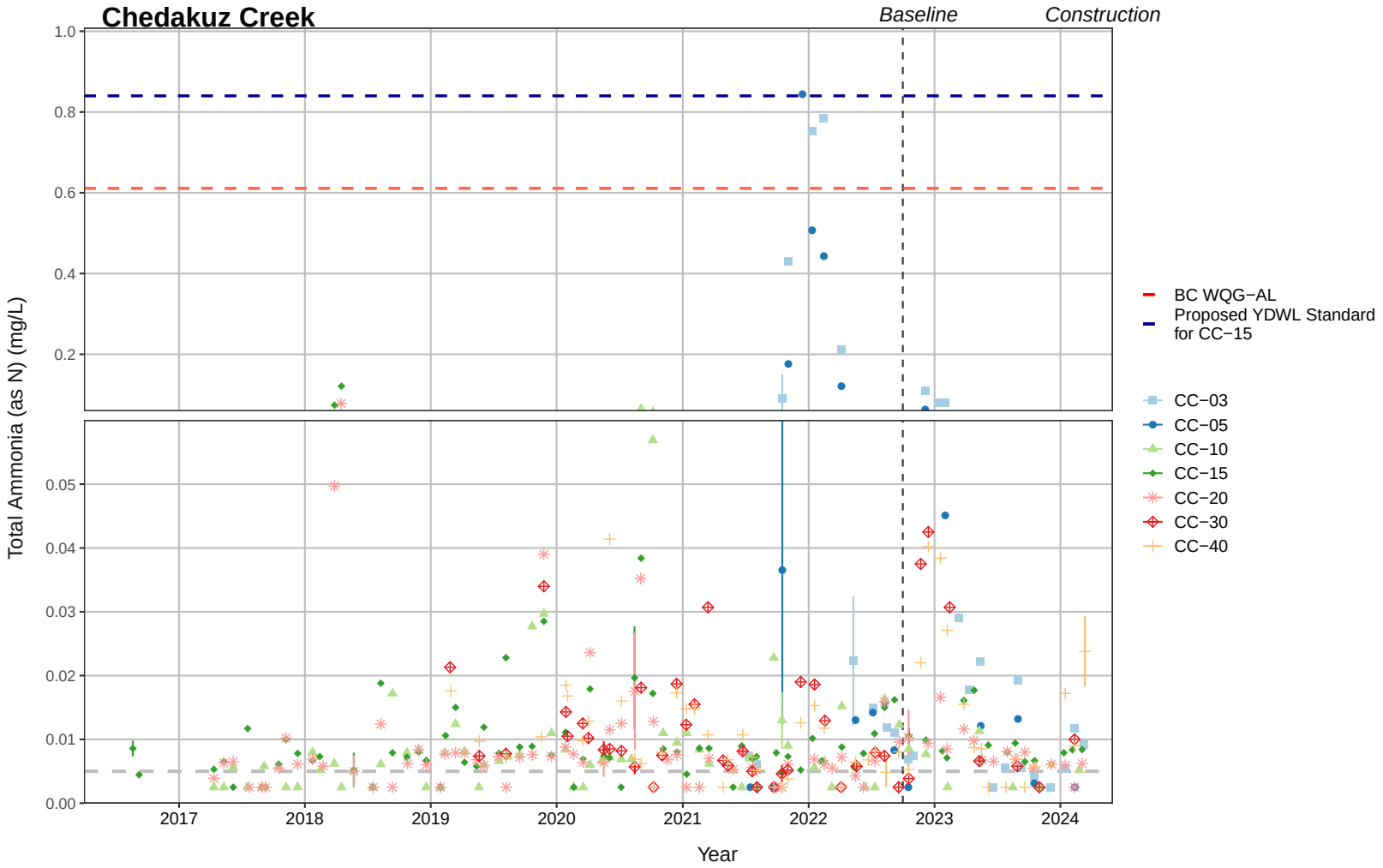


Figure C.8.a: Monthly Mean Total Ammonia-N Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



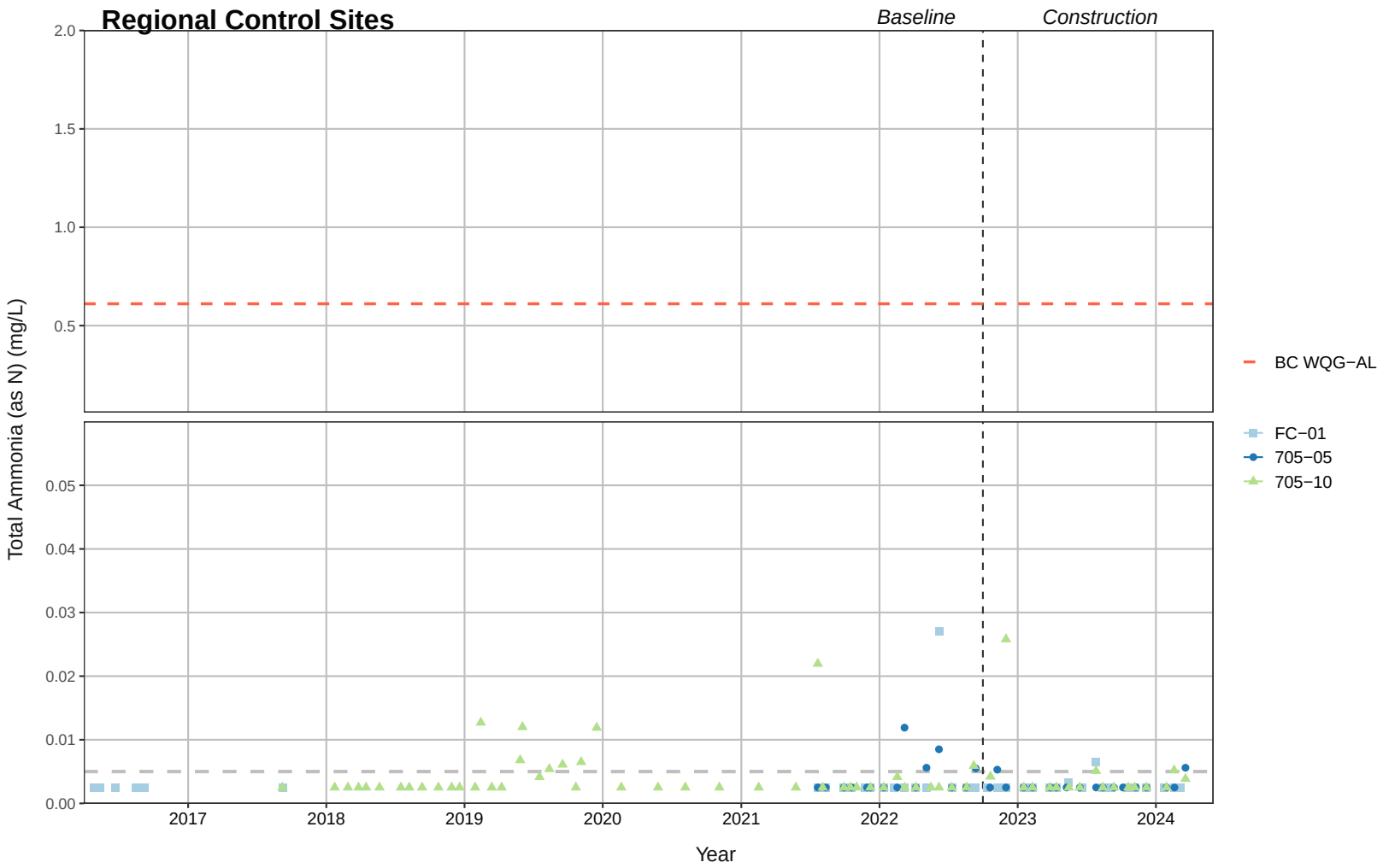
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
Minimum pH and temperature dependent BC WQG−AL long−term guideline for total ammonia−N is 0.611 mg/L.

Figure C.8.b: Monthly Mean Total Ammonia-N Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
Minimum pH and temperature dependent BC WQG−AL long−term guideline for total ammonia−N is 0.611 mg/L.
Proposed YDWL Standard for ammonia−N at CC−15 is 0.84 mg/L.

Figure C.8.c: Monthly Mean Total Ammonia-N Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
Minimum pH and temperature dependent BC WQG−AL long−term guideline for total ammonia−N is 0.611 mg/L.

Figure C.8.d: Monthly Mean Total Ammonia-N Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

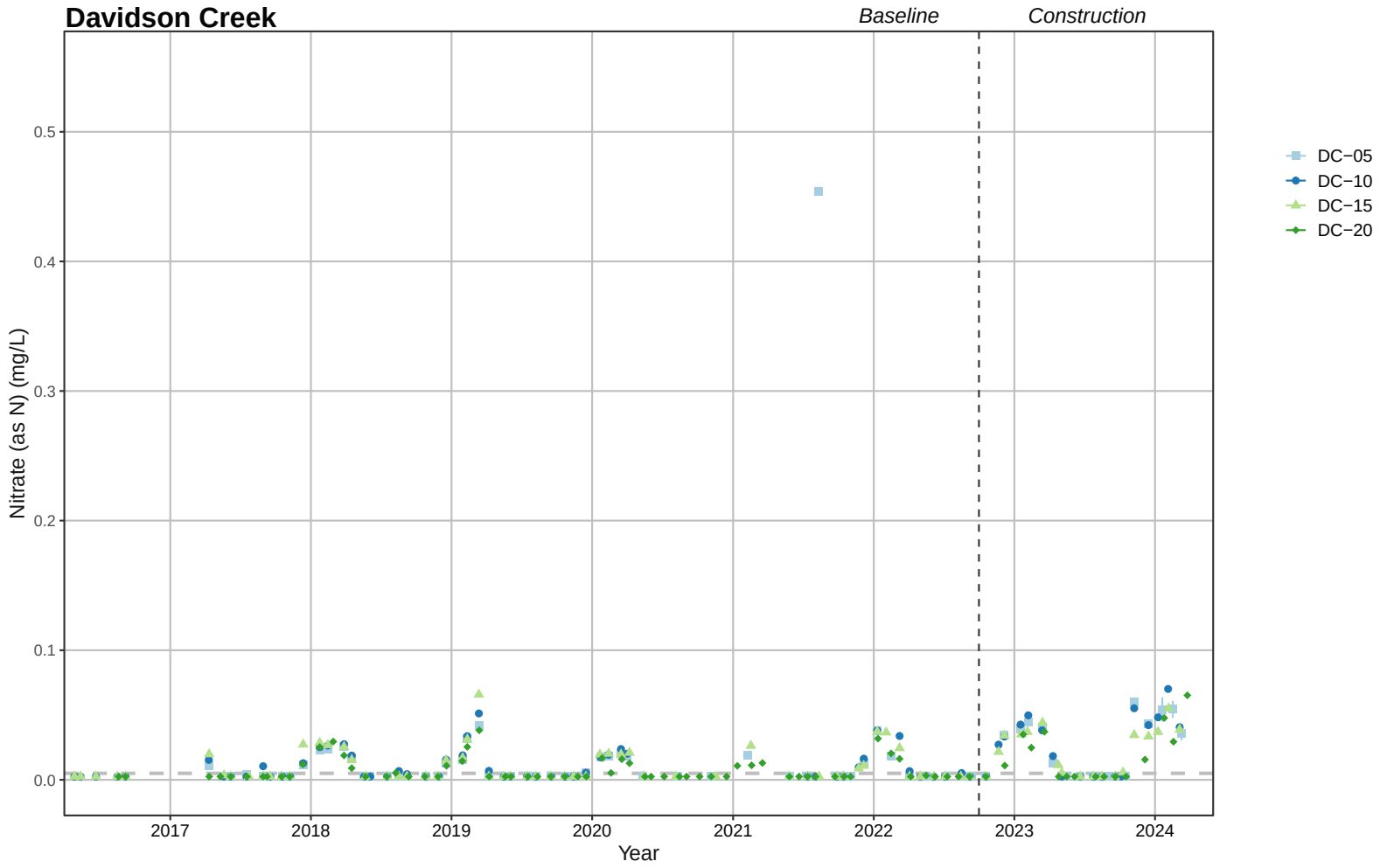
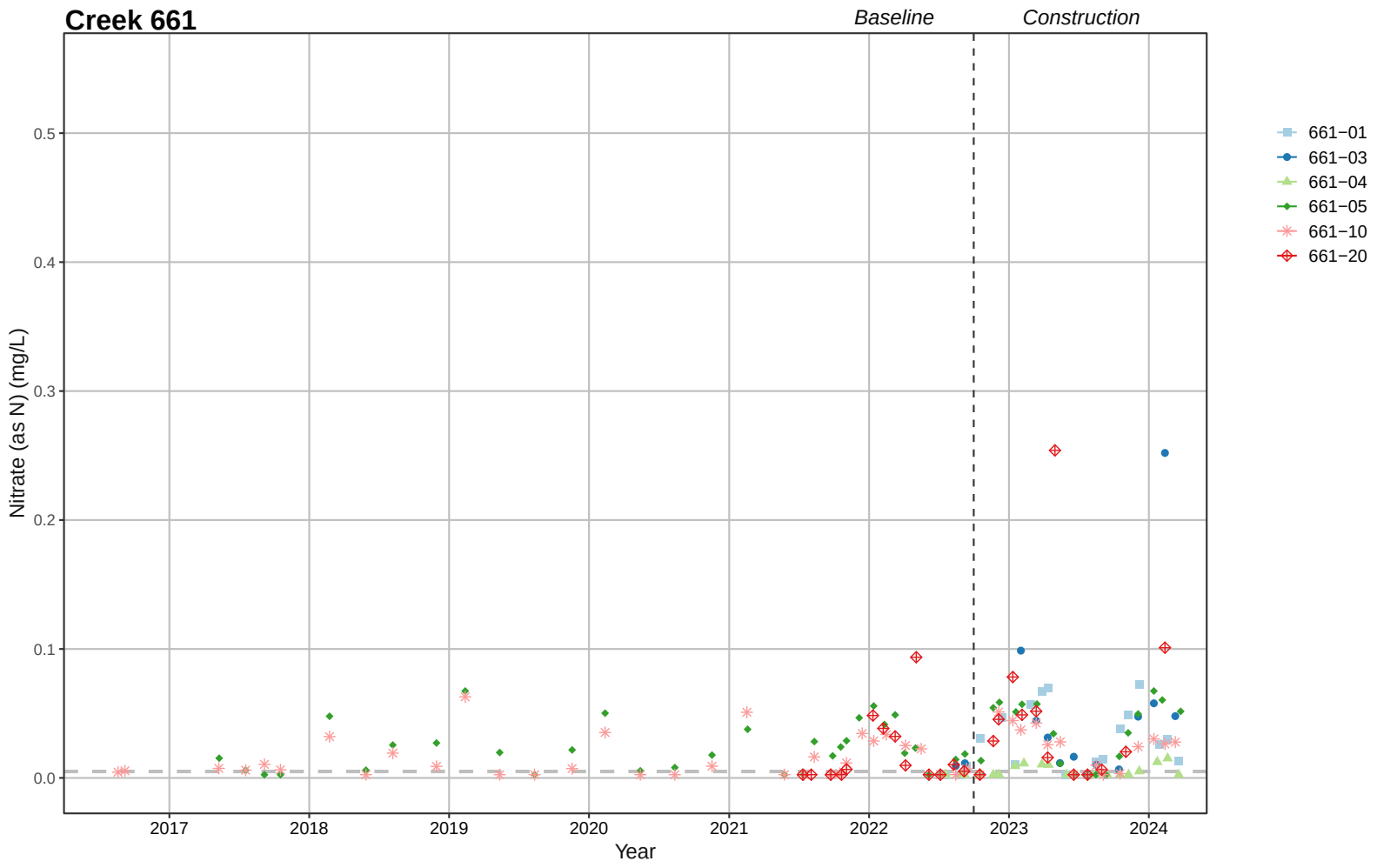


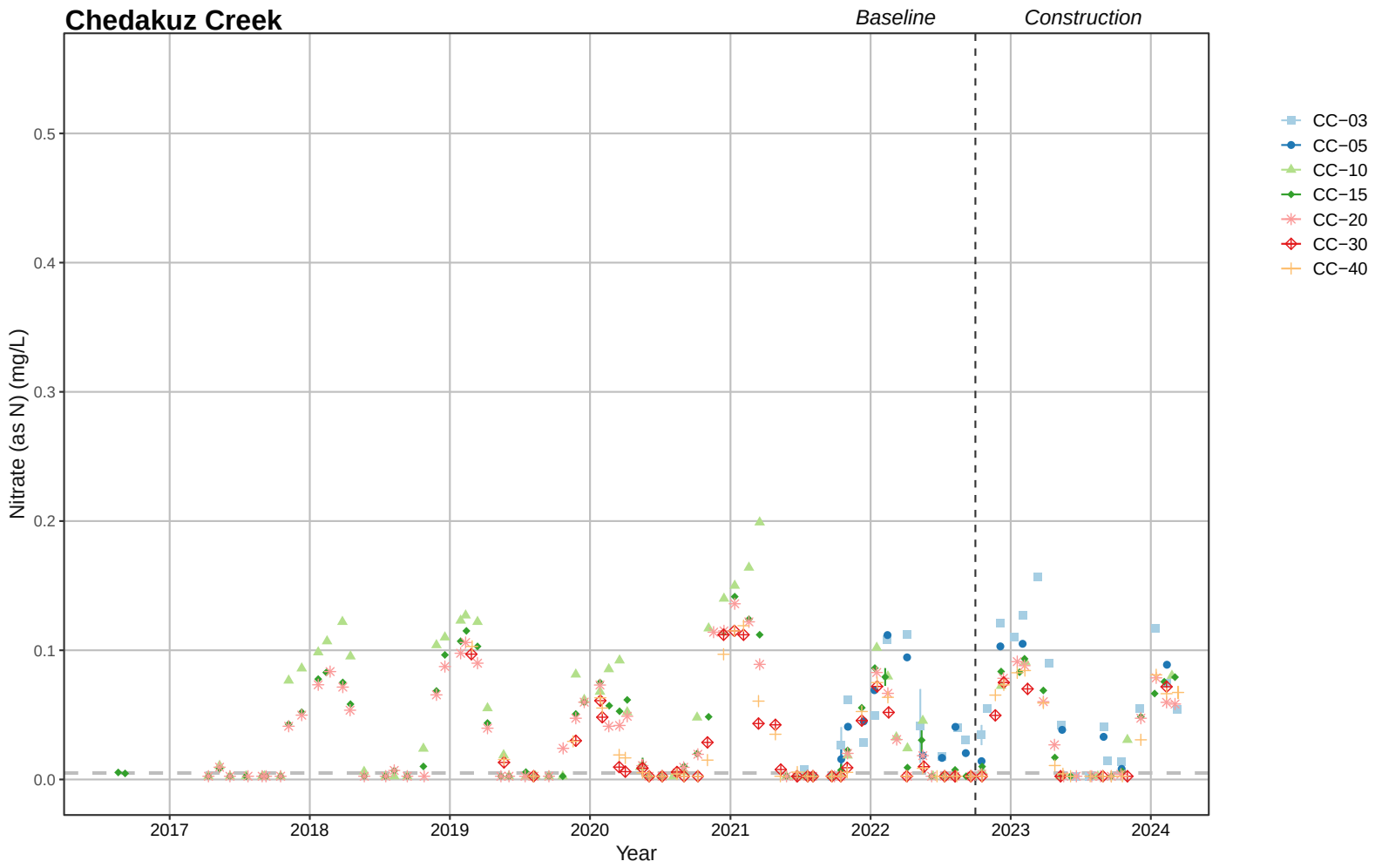
Figure C.9.a: Monthly Mean Nitrate-N Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrate−N is 3 mg/L.

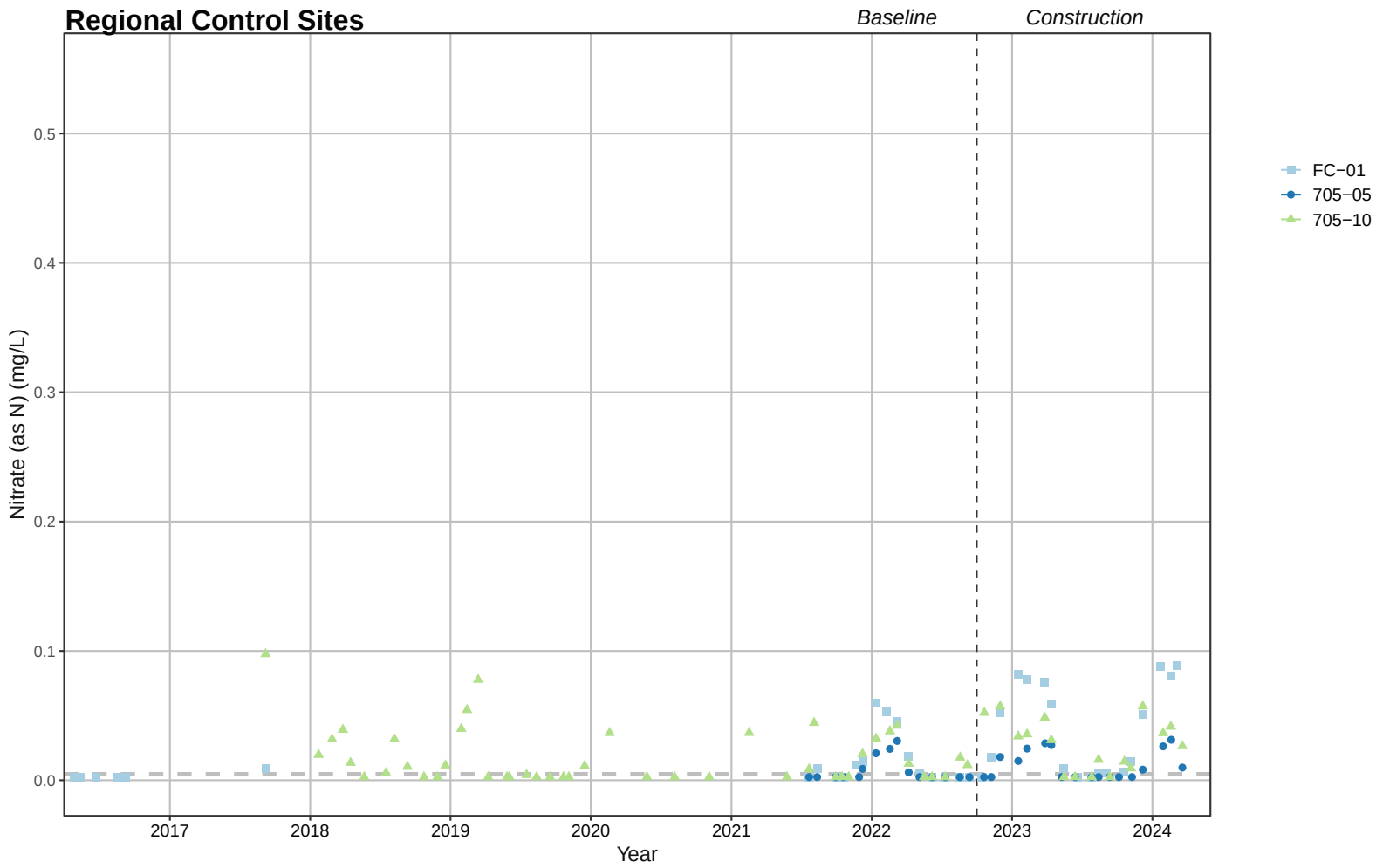
Figure C.9.b: Monthly Mean Nitrate-N Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrate−N is 3 mg/L.
Proposed YDWL Standard for nitrate−N at CC−15 is 1.5 mg/L.

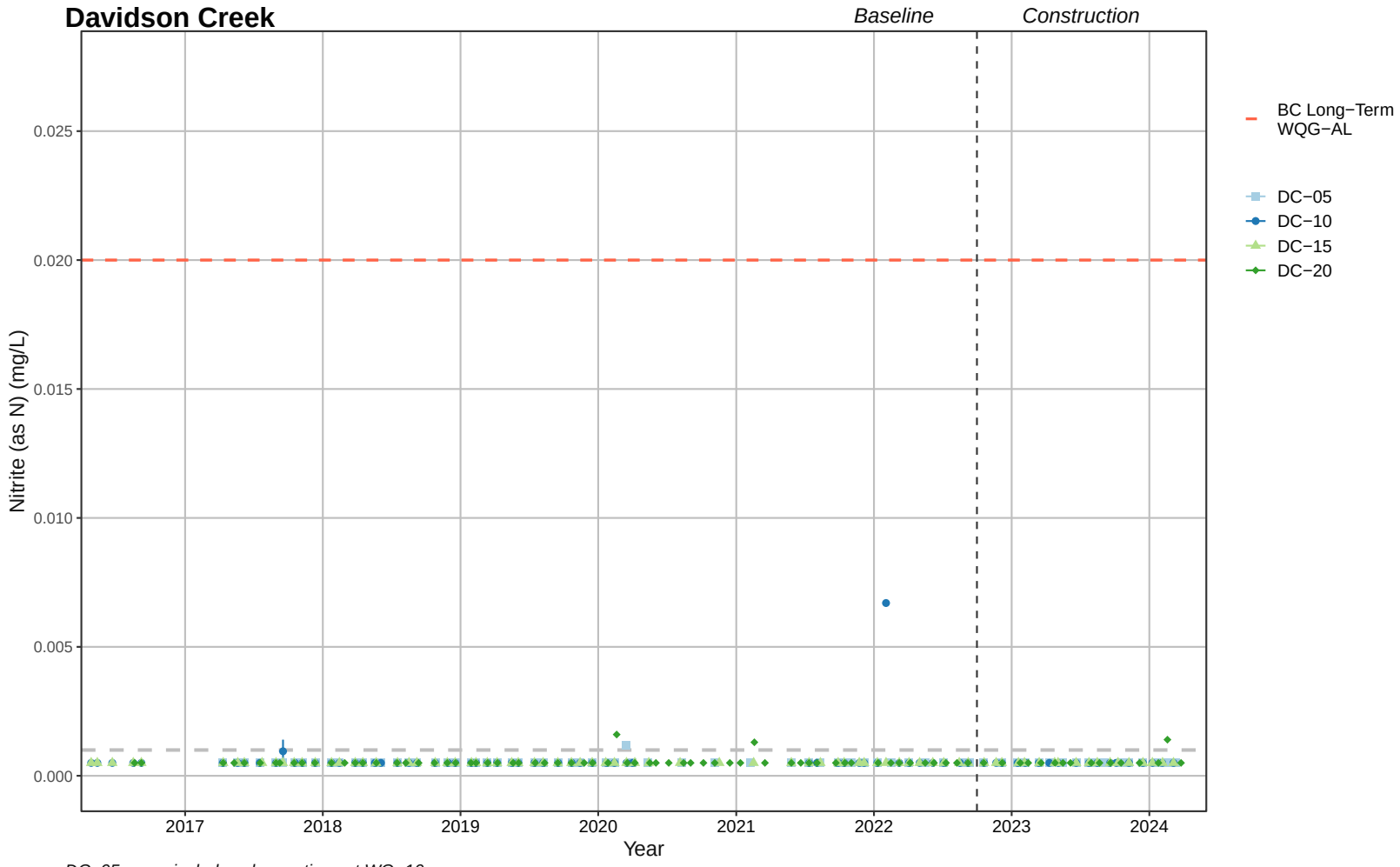
Figure C.9.c: Monthly Mean Nitrate-N Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrate−N is 3 mg/L.

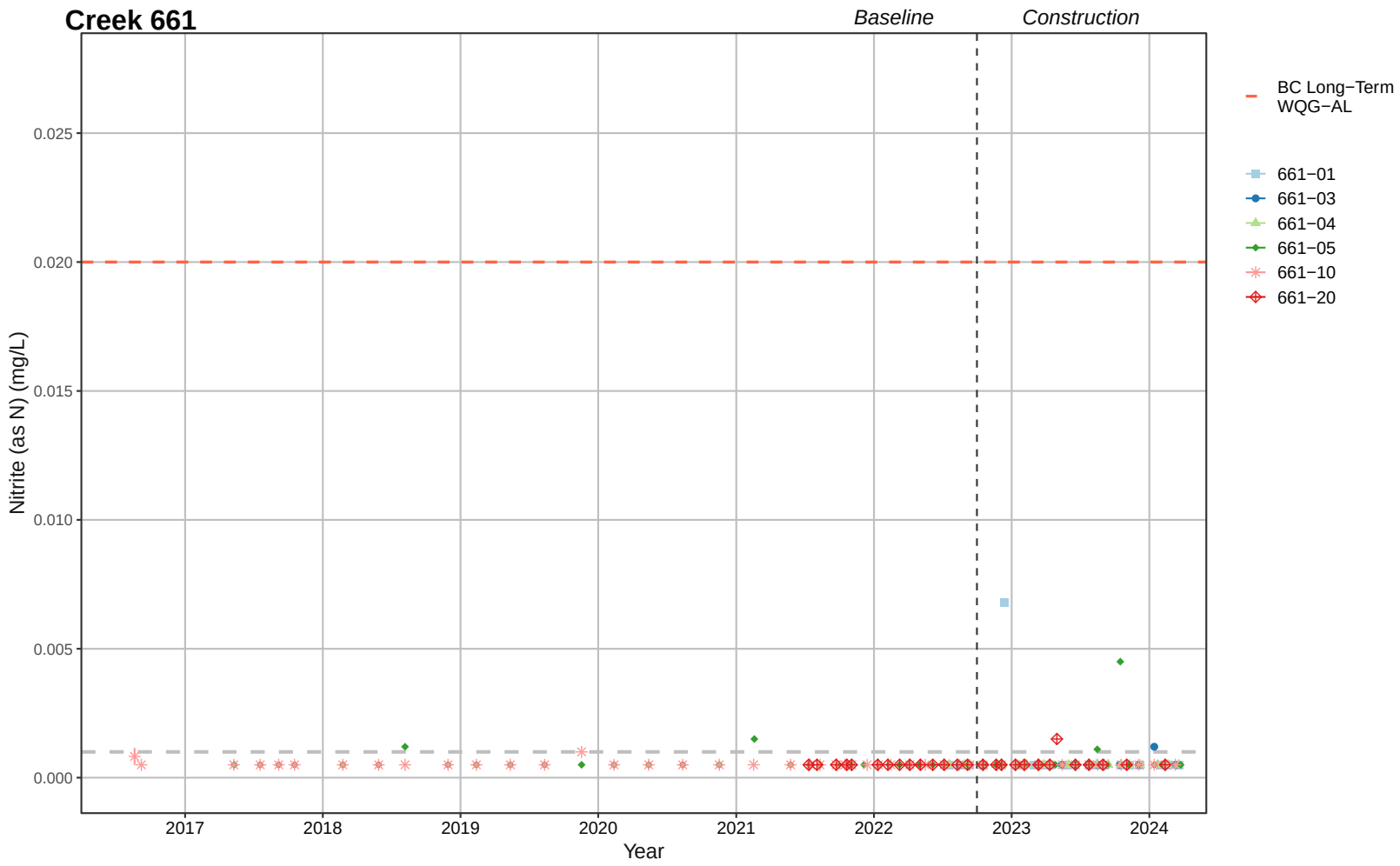
Figure C.9.d: Monthly Mean Nitrate-N Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrite−N is chloride dependent.
Proposed YDWL Standard for nitrite−N at DC−05 is 0.02 mg/L.

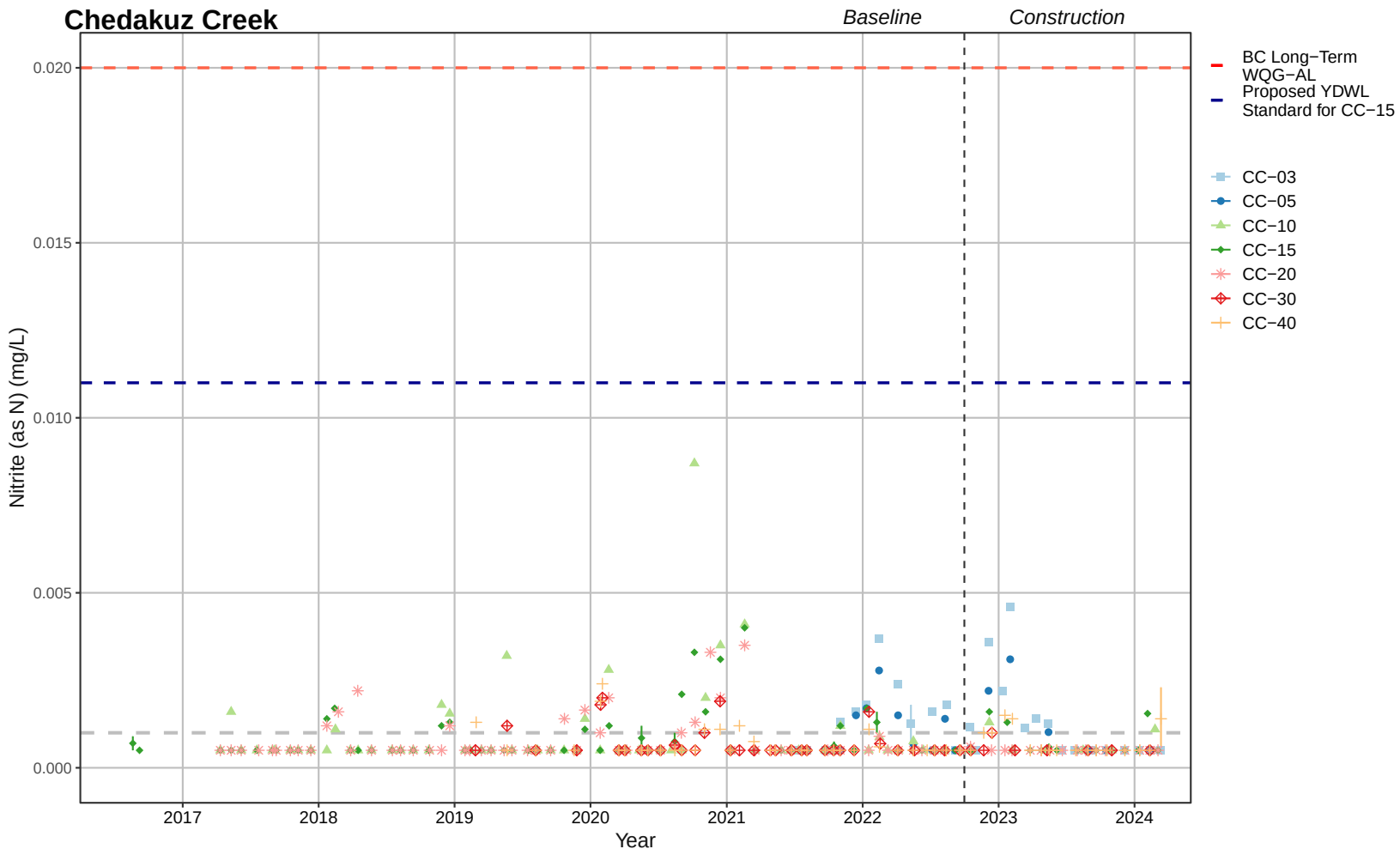
Figure C.10.a: Monthly Mean Nitrite-N Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrite−N is chloride dependent.

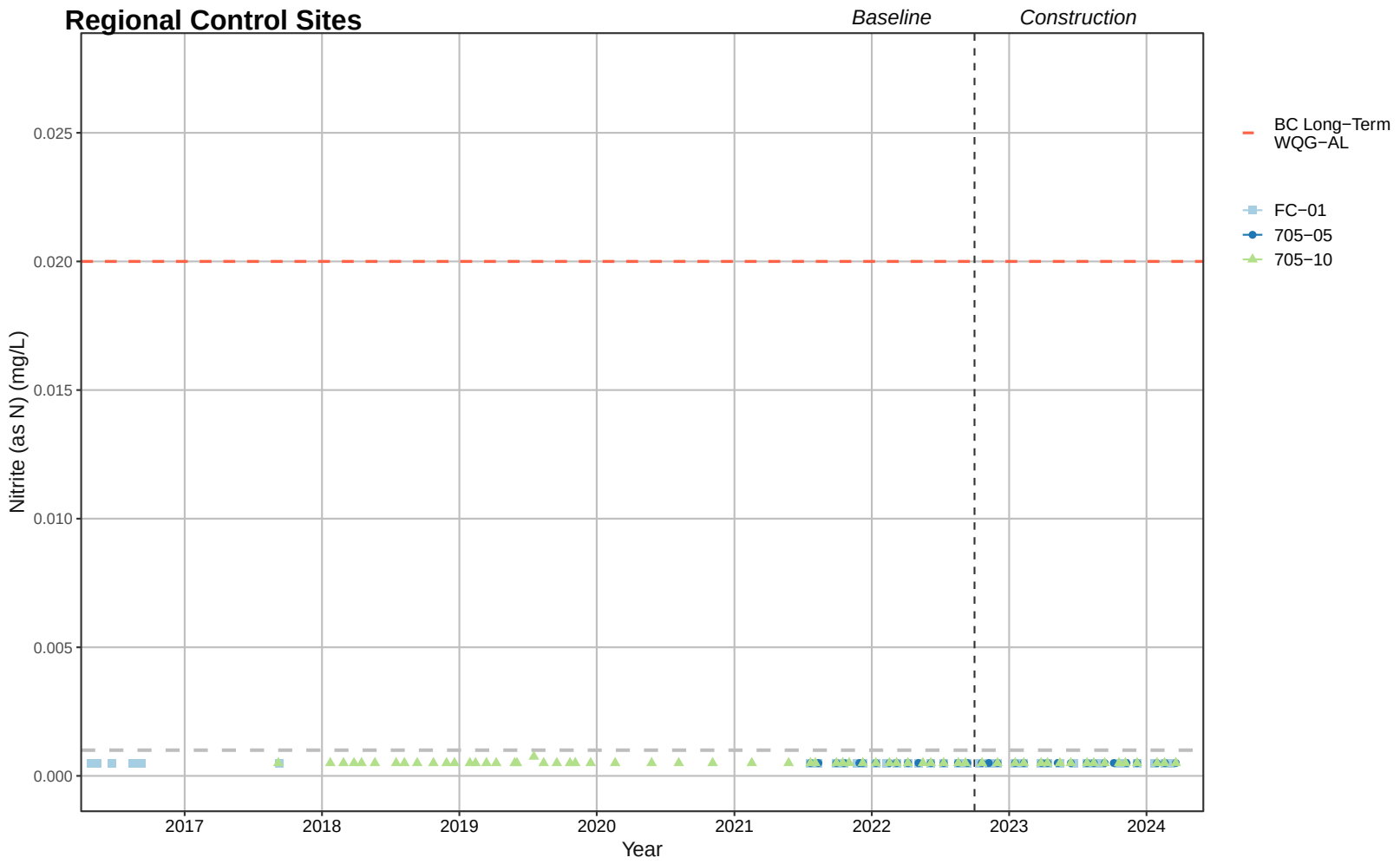
Figure C.10.b: Monthly Mean Nitrite-N Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for nitrite−N is chloride dependent.
Proposed YDWL Standard for nitrite−N at CC−15 is 0.011 mg/L.

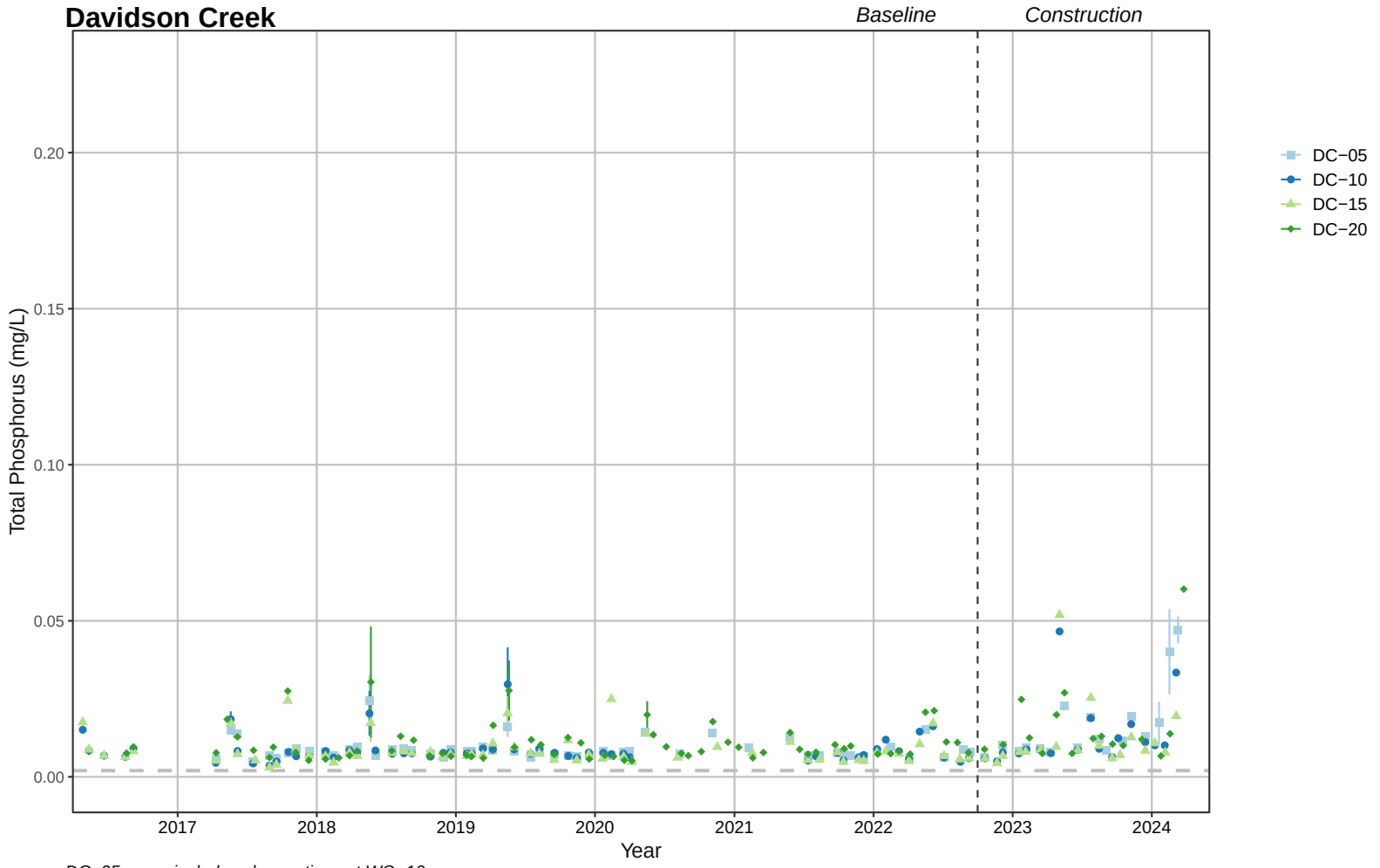
Figure C.10.c: Monthly Mean Nitrite-N Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

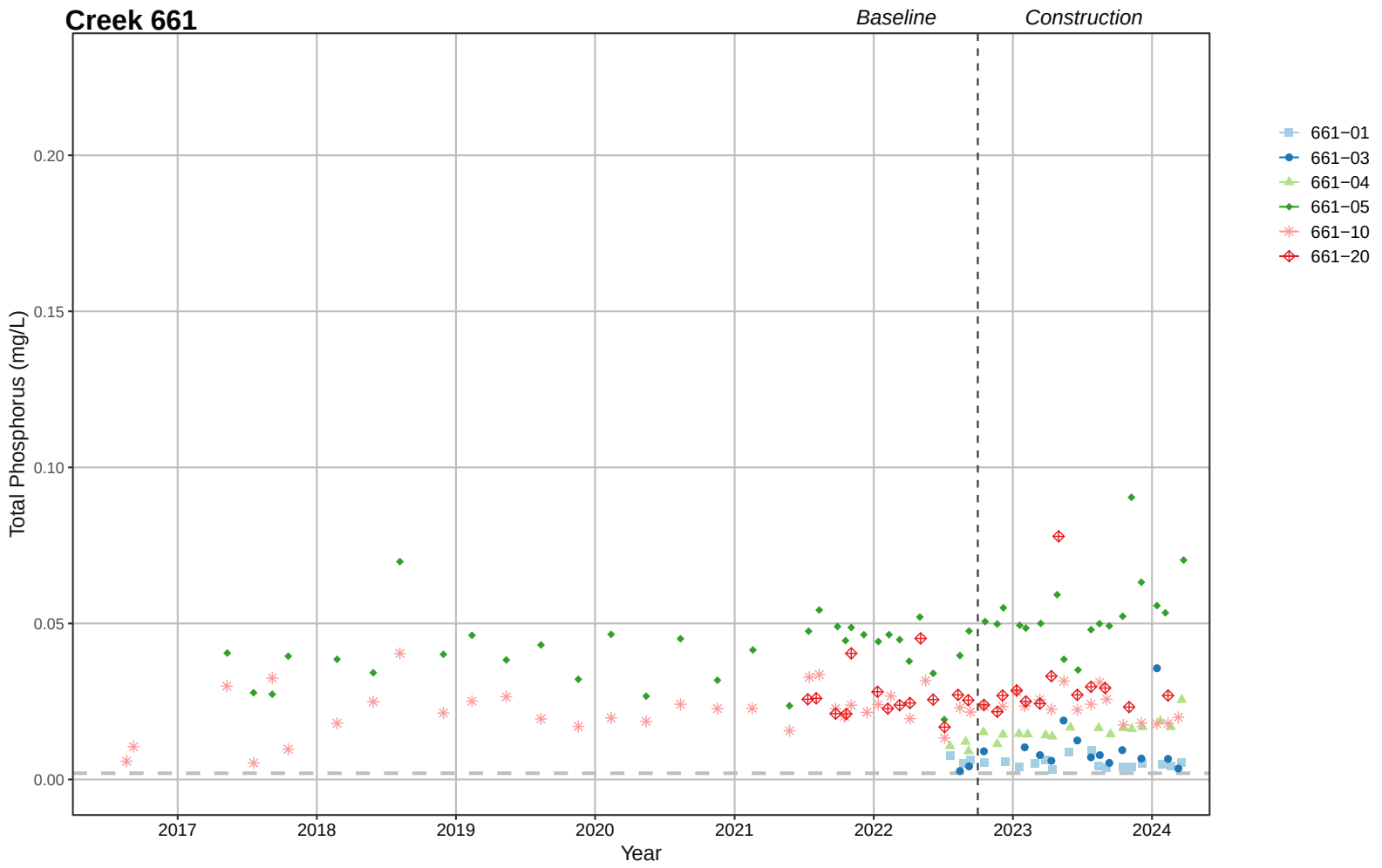
BC WQG−AL long−term guideline for nitrite−N is chloride dependent.

Figure C.10.d: Monthly Mean Nitrite-N Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



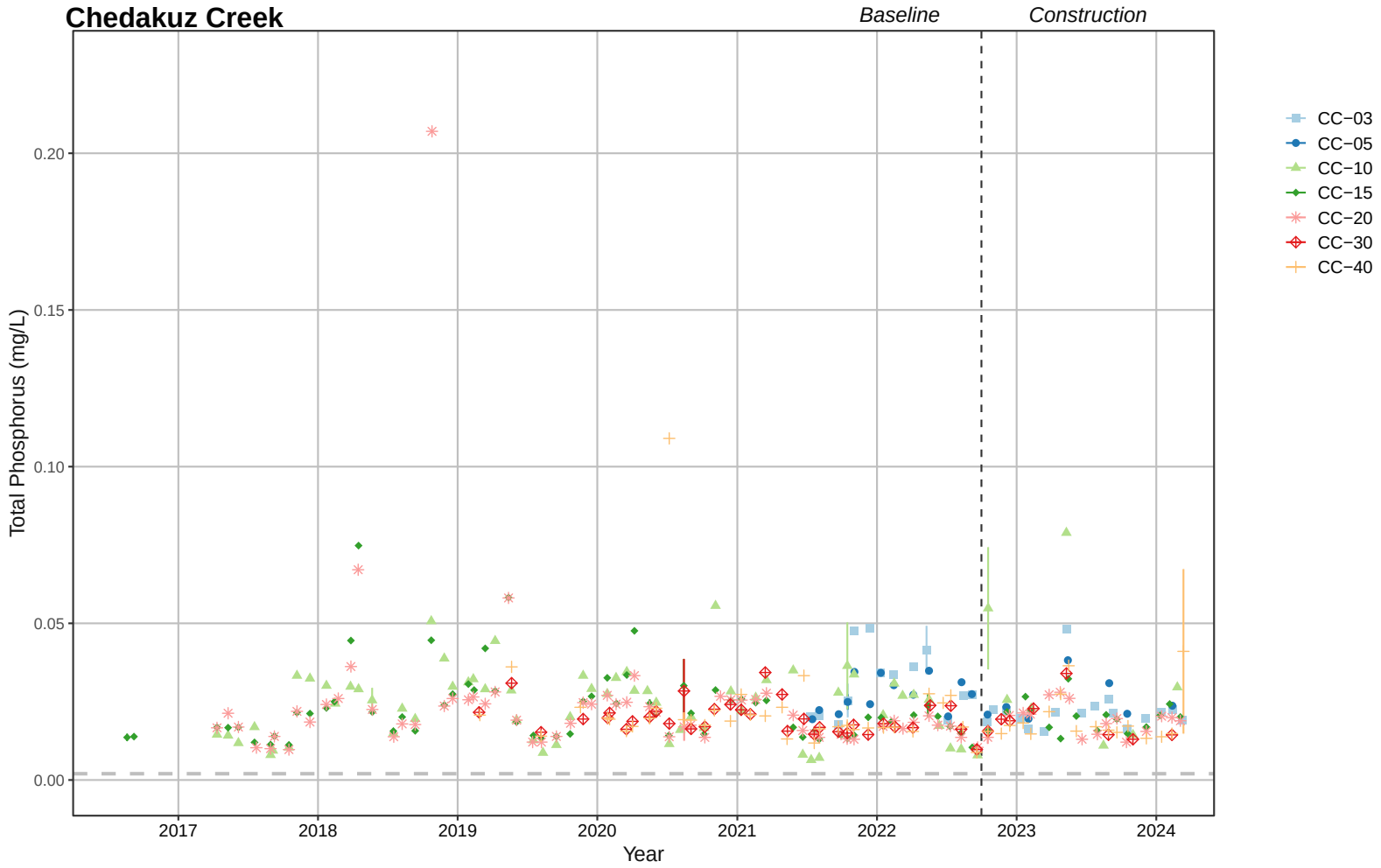
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.11.a: Monthly Mean Total Phophorus Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



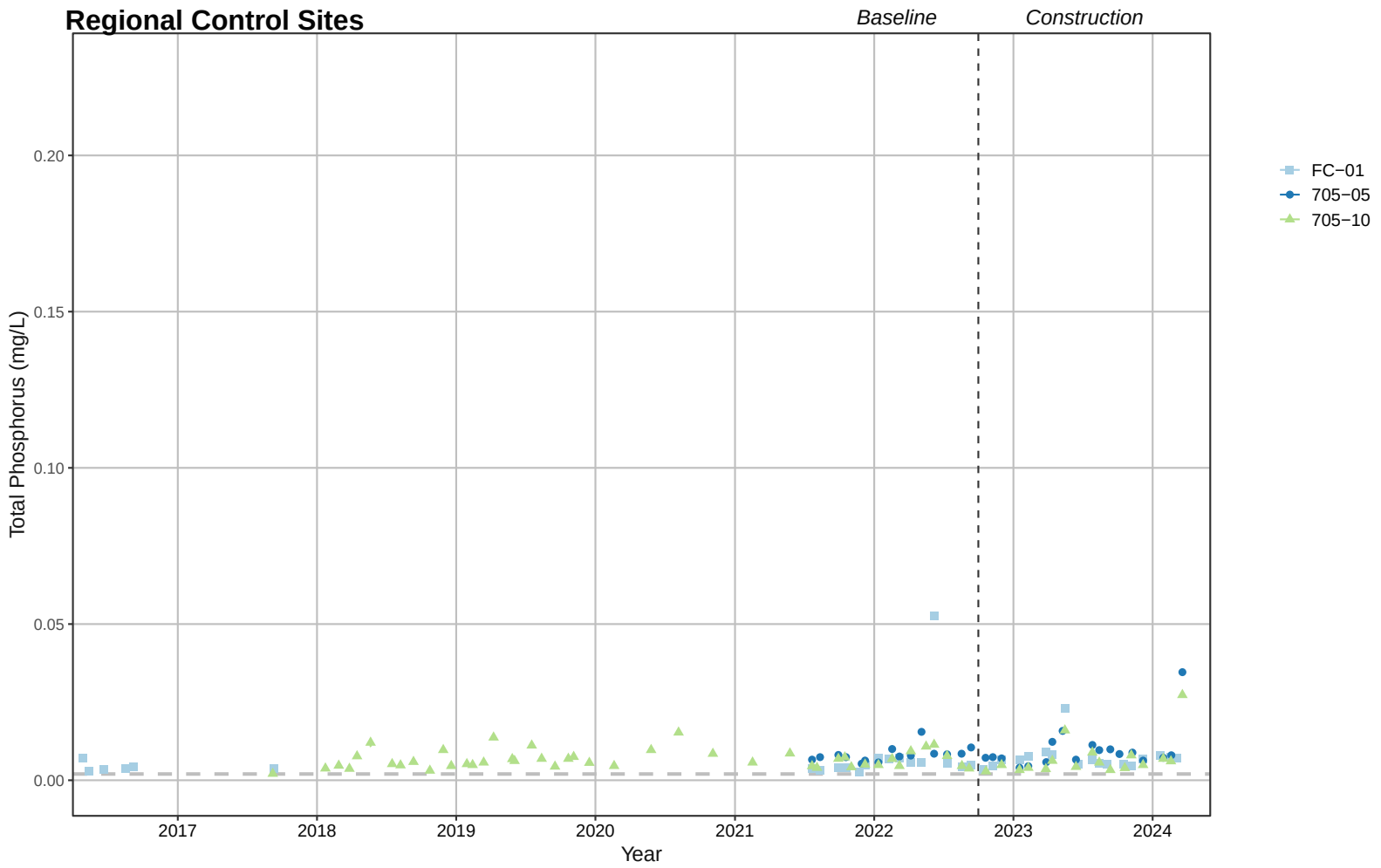
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.11.b: Monthly Mean Total Phophorus Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.11.c: Monthly Mean Total Phophorus Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.11.d: Monthly Mean Total Phophorus Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

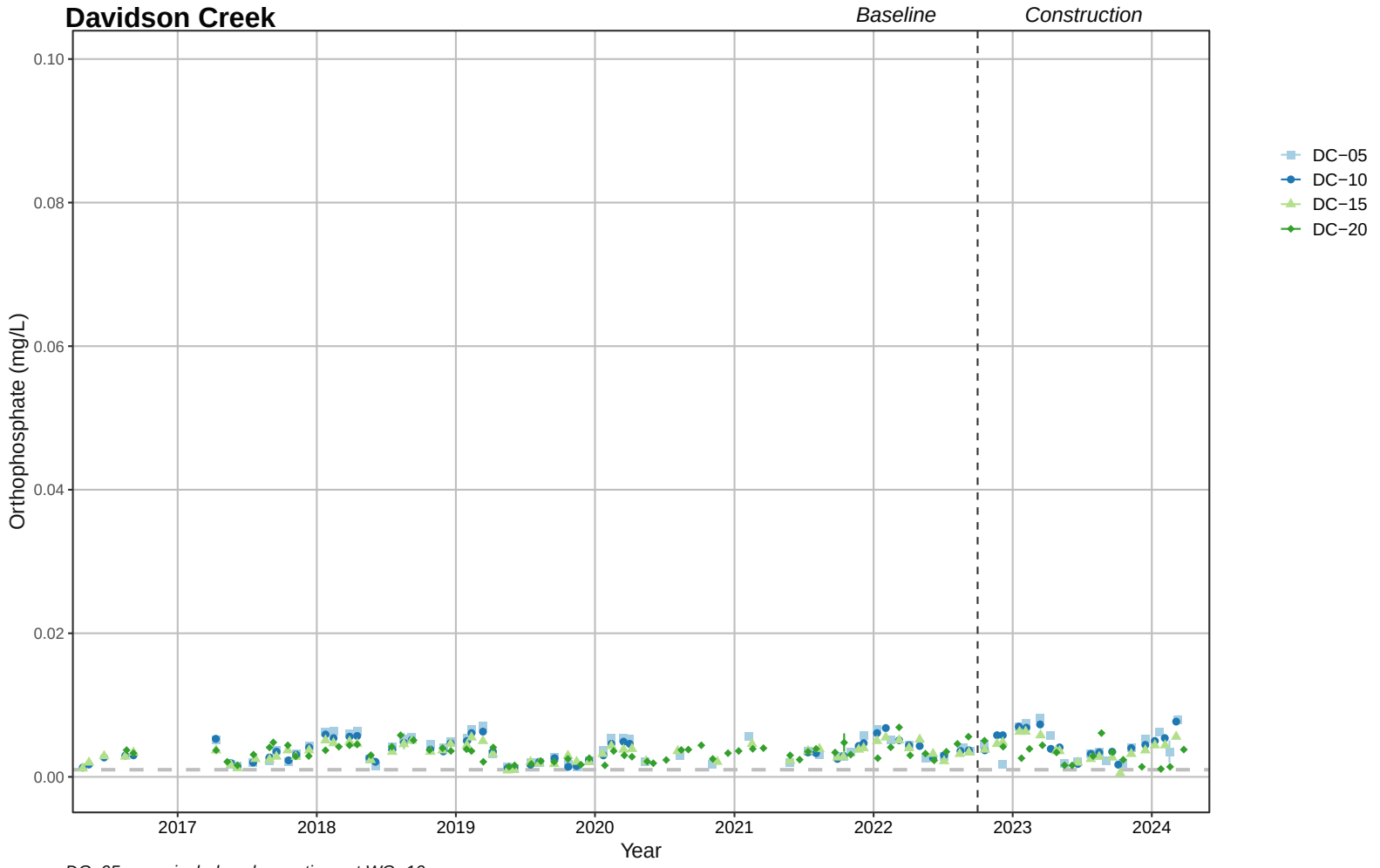
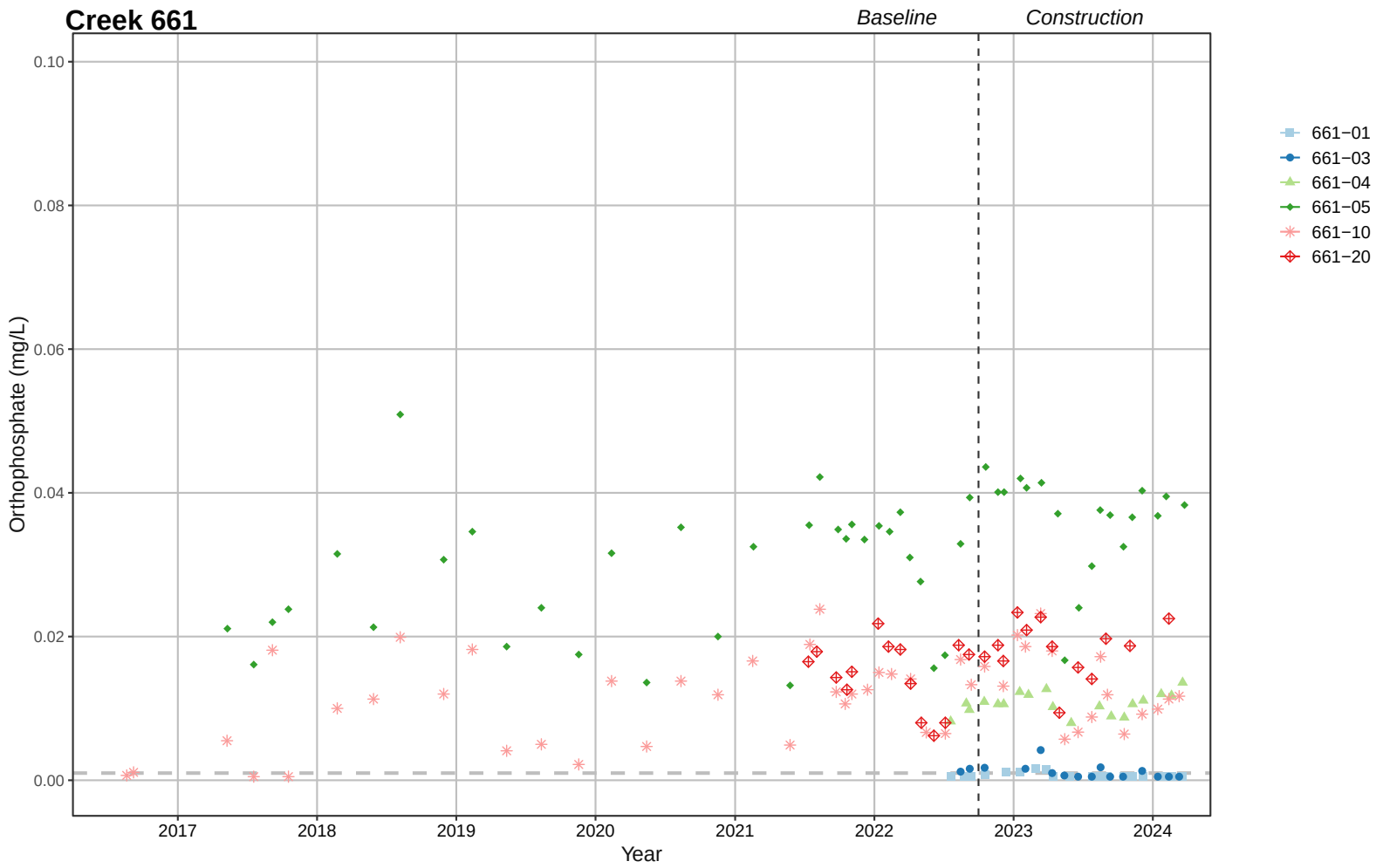
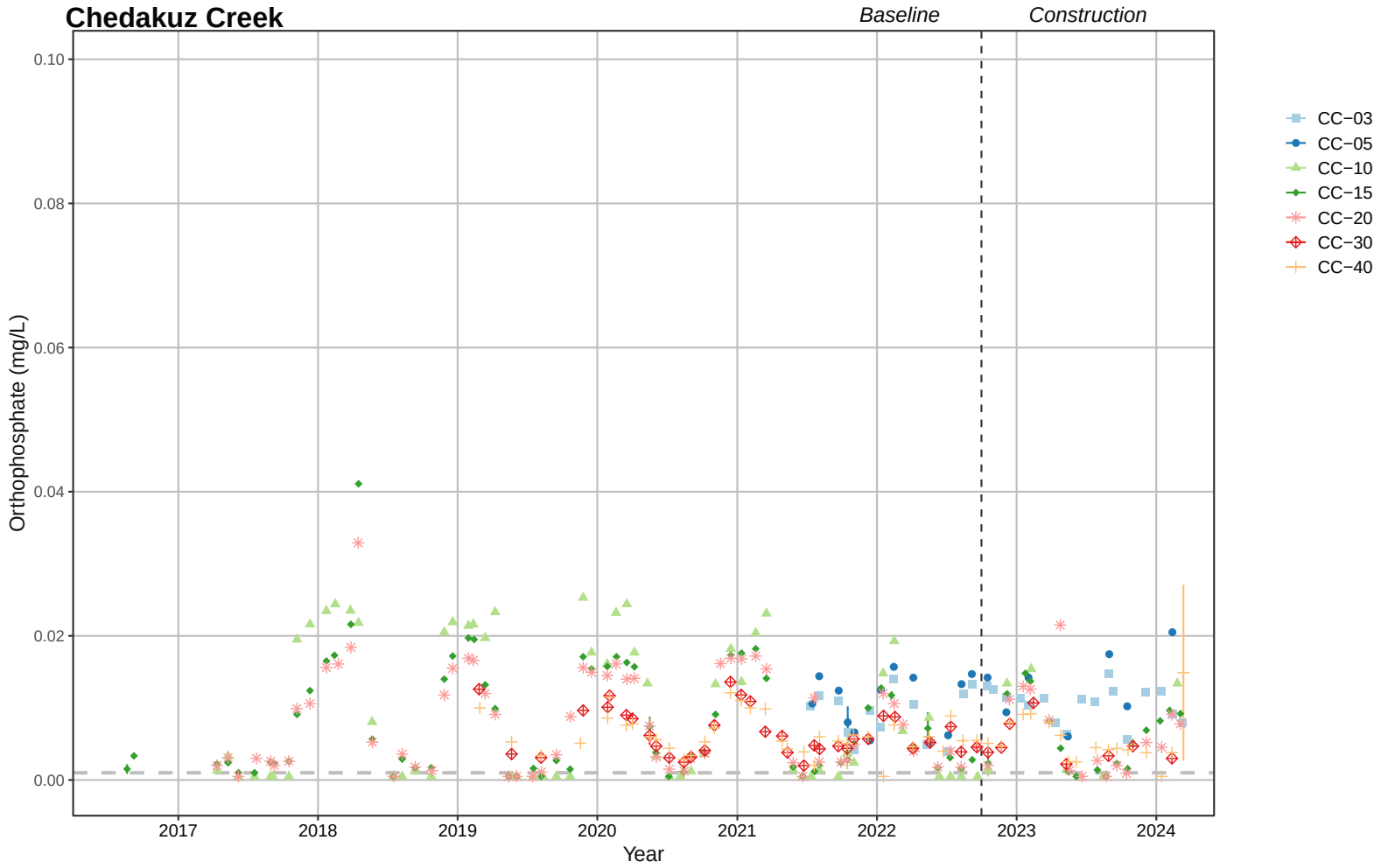


Figure C.12.a: Monthly Mean Orthophosphate Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



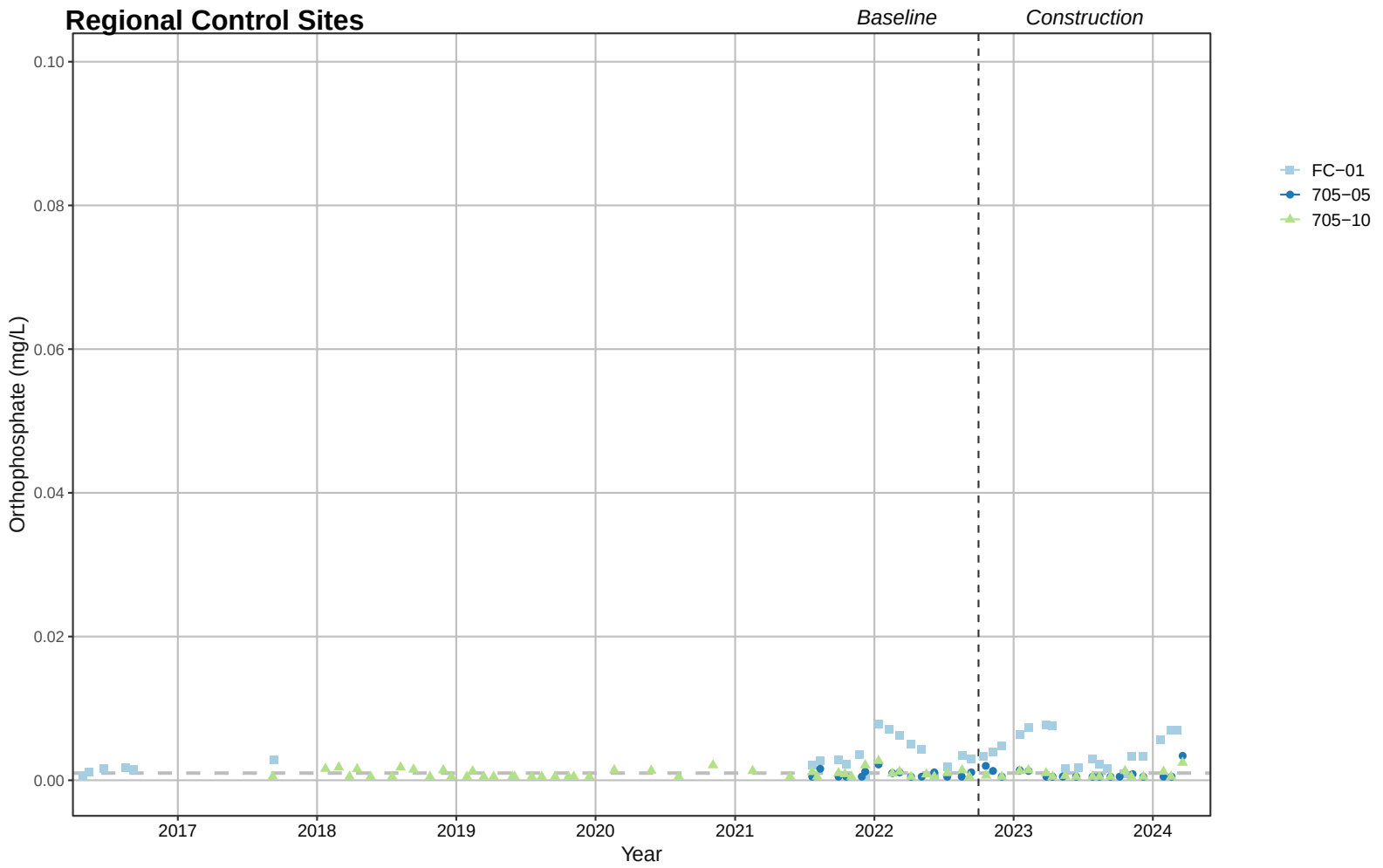
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.12.b: Monthly Mean Orthophosphate Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.12.c: Monthly Mean Orthophosphate Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.12.d: Monthly Mean Orthophosphate Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

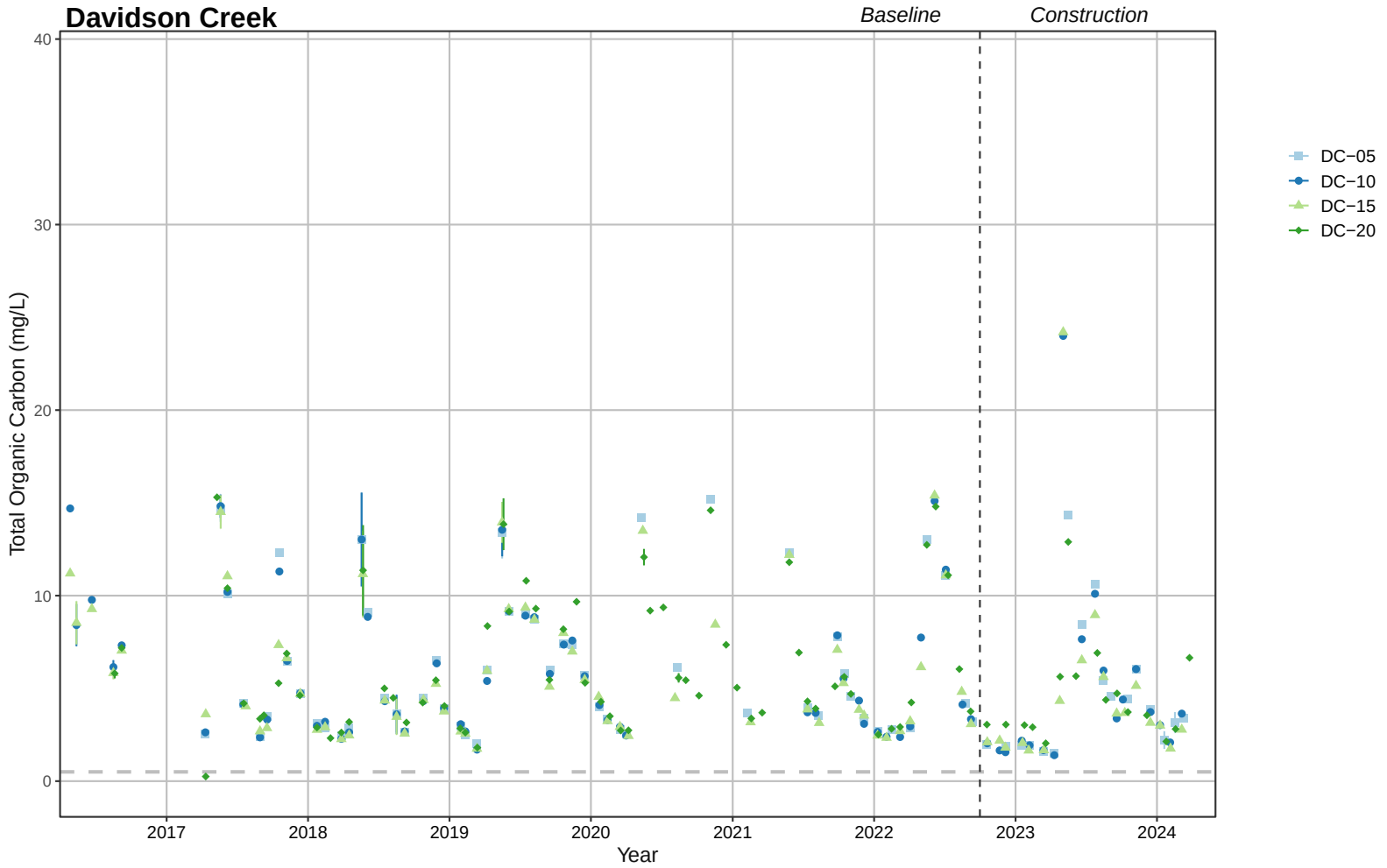
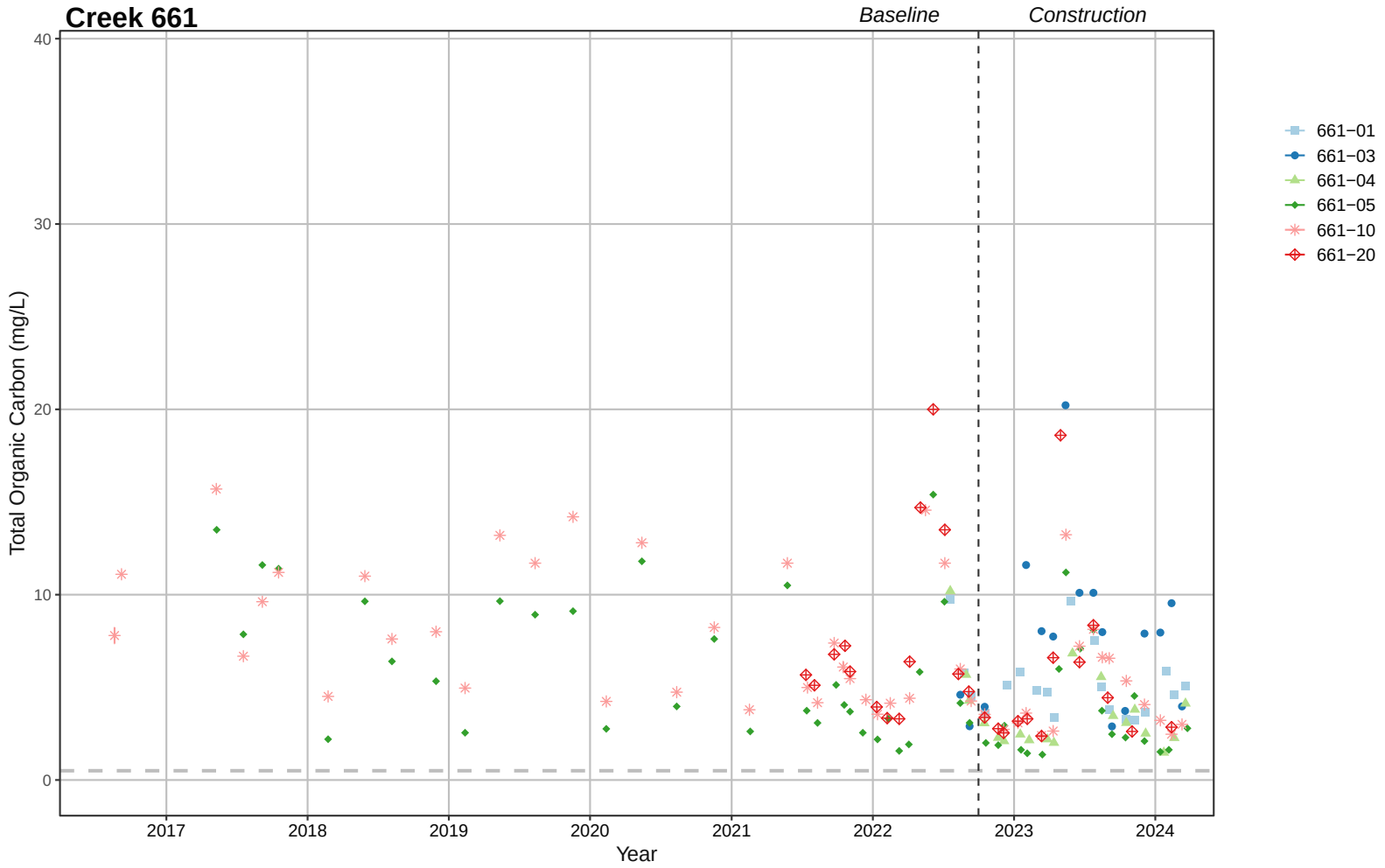
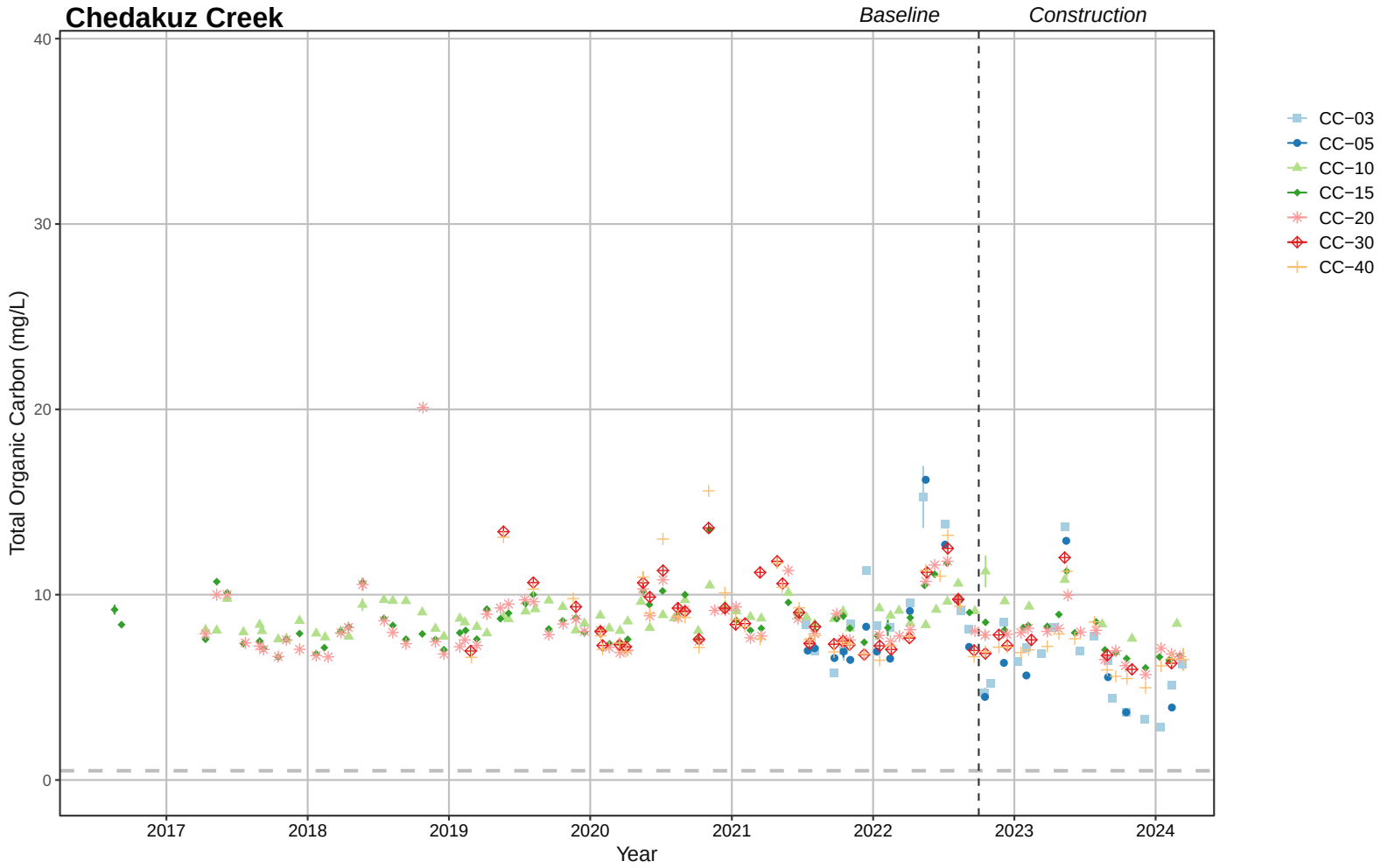


Figure C.13.a: Monthly Mean TOC Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



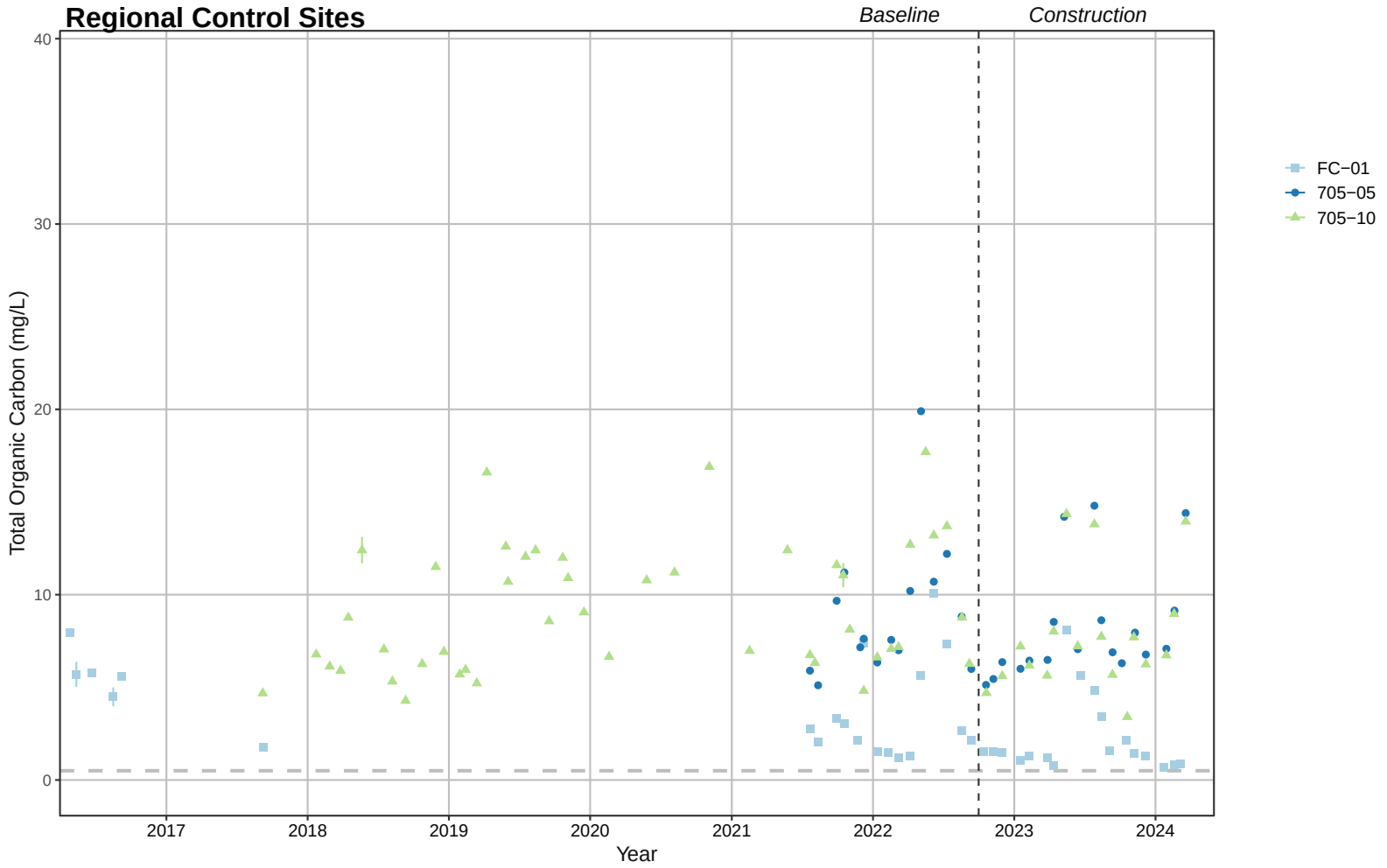
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.13.b: Monthly Mean TOC Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.13.c: Monthly Mean TOC Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.13.d: Monthly Mean TOC Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

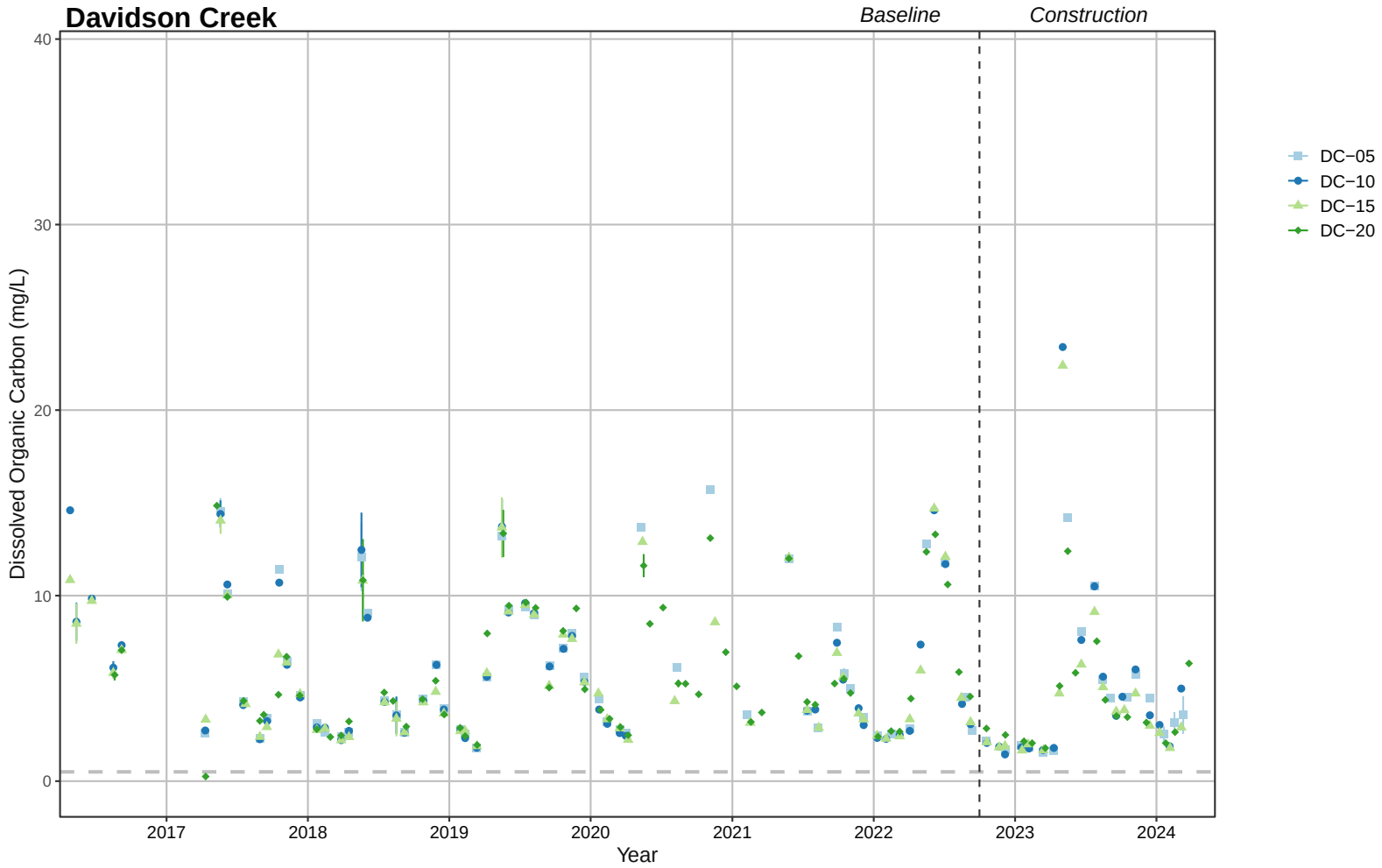
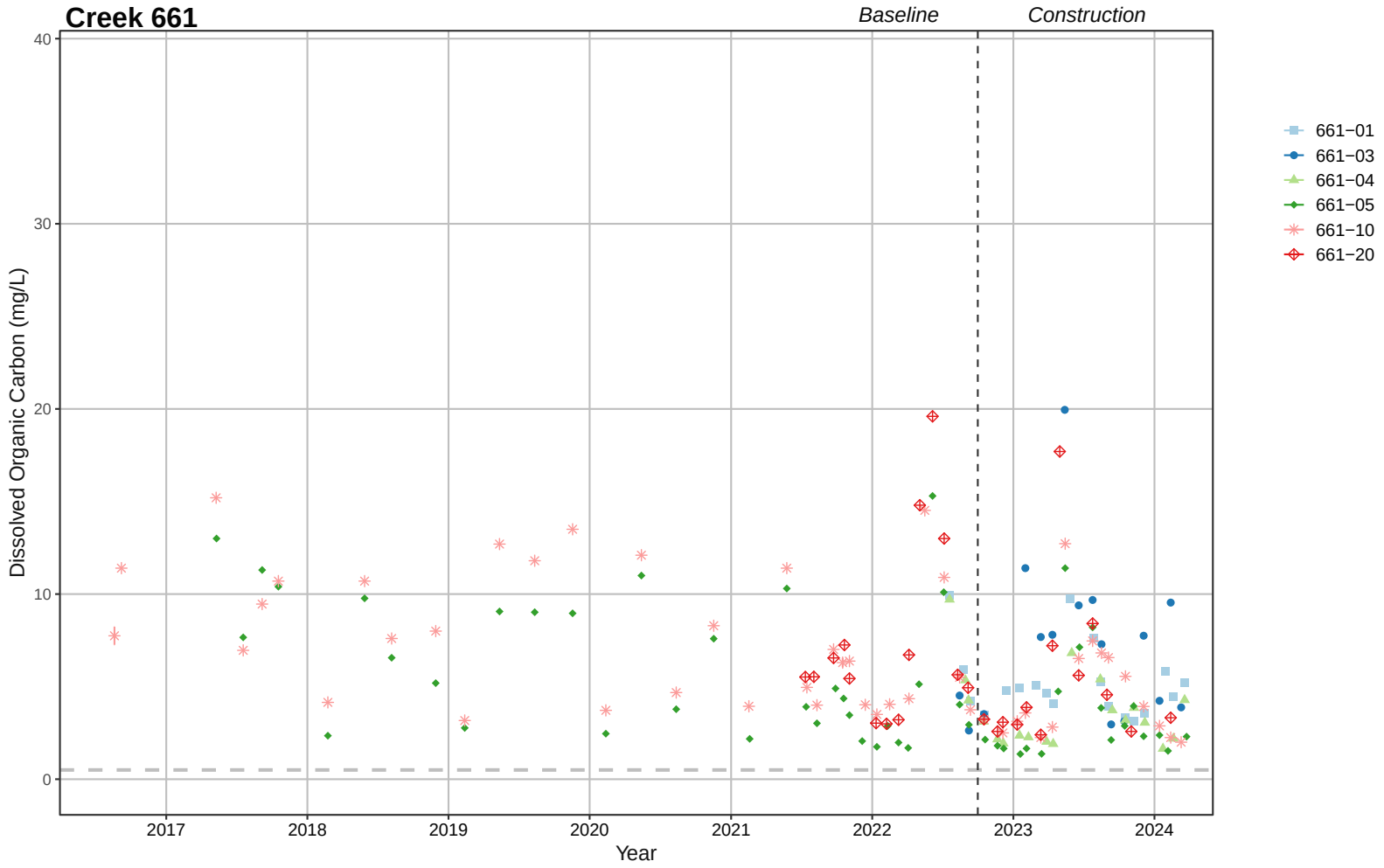
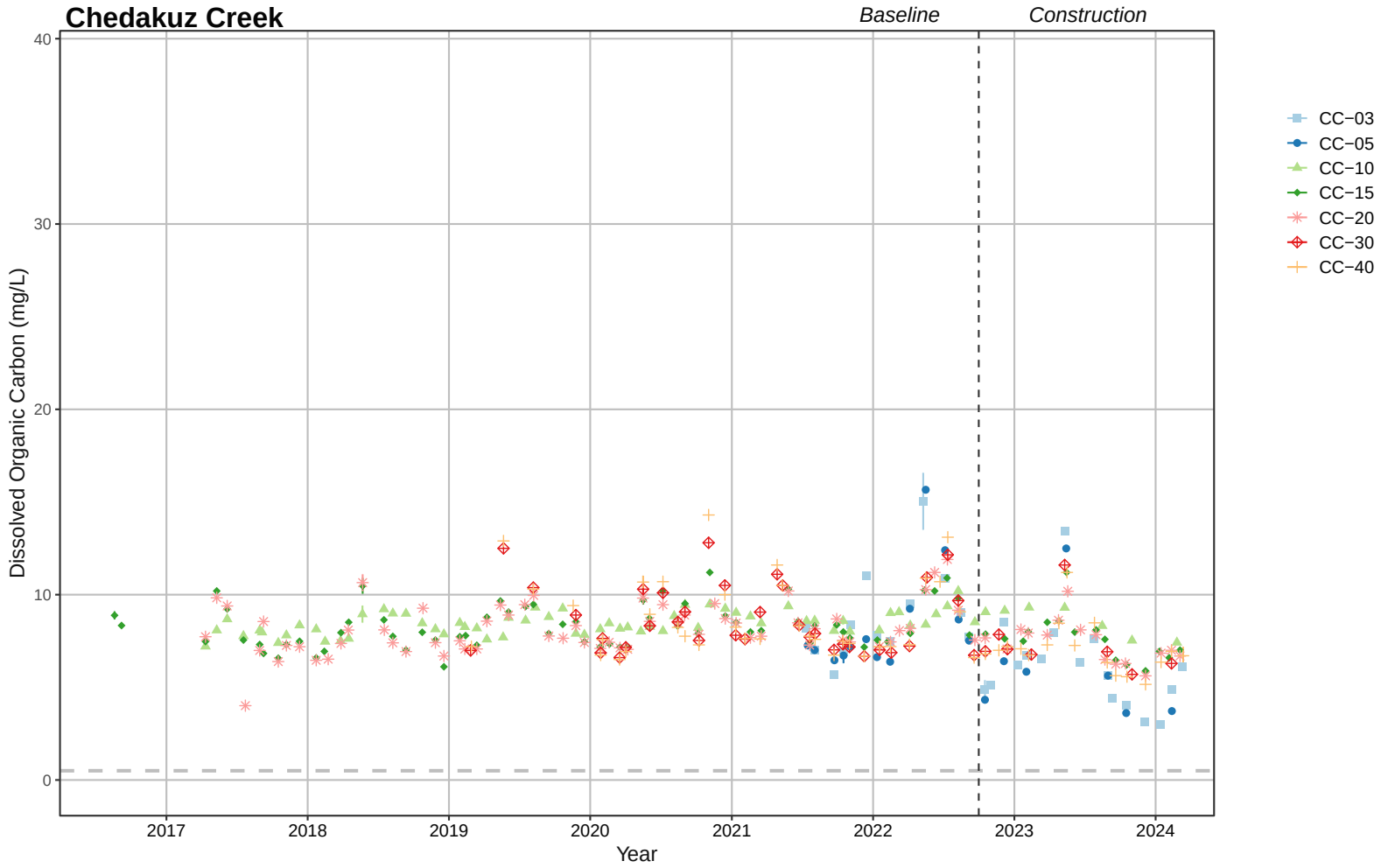


Figure C.14.a: Monthly Mean DOC Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



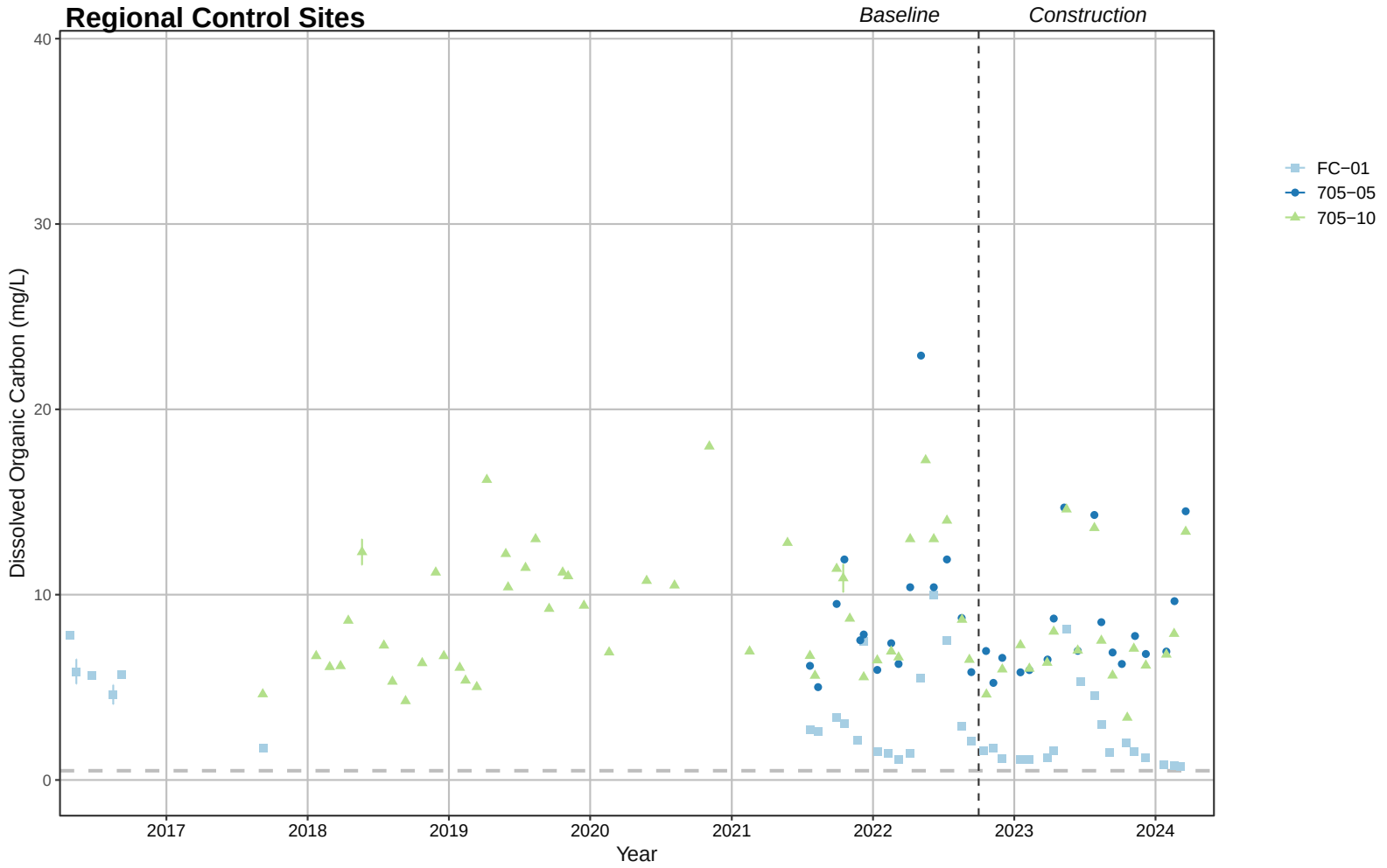
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.14.b: Monthly Mean DOC Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.14.c: Monthly Mean DOC Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.14.d: Monthly Mean DOC Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

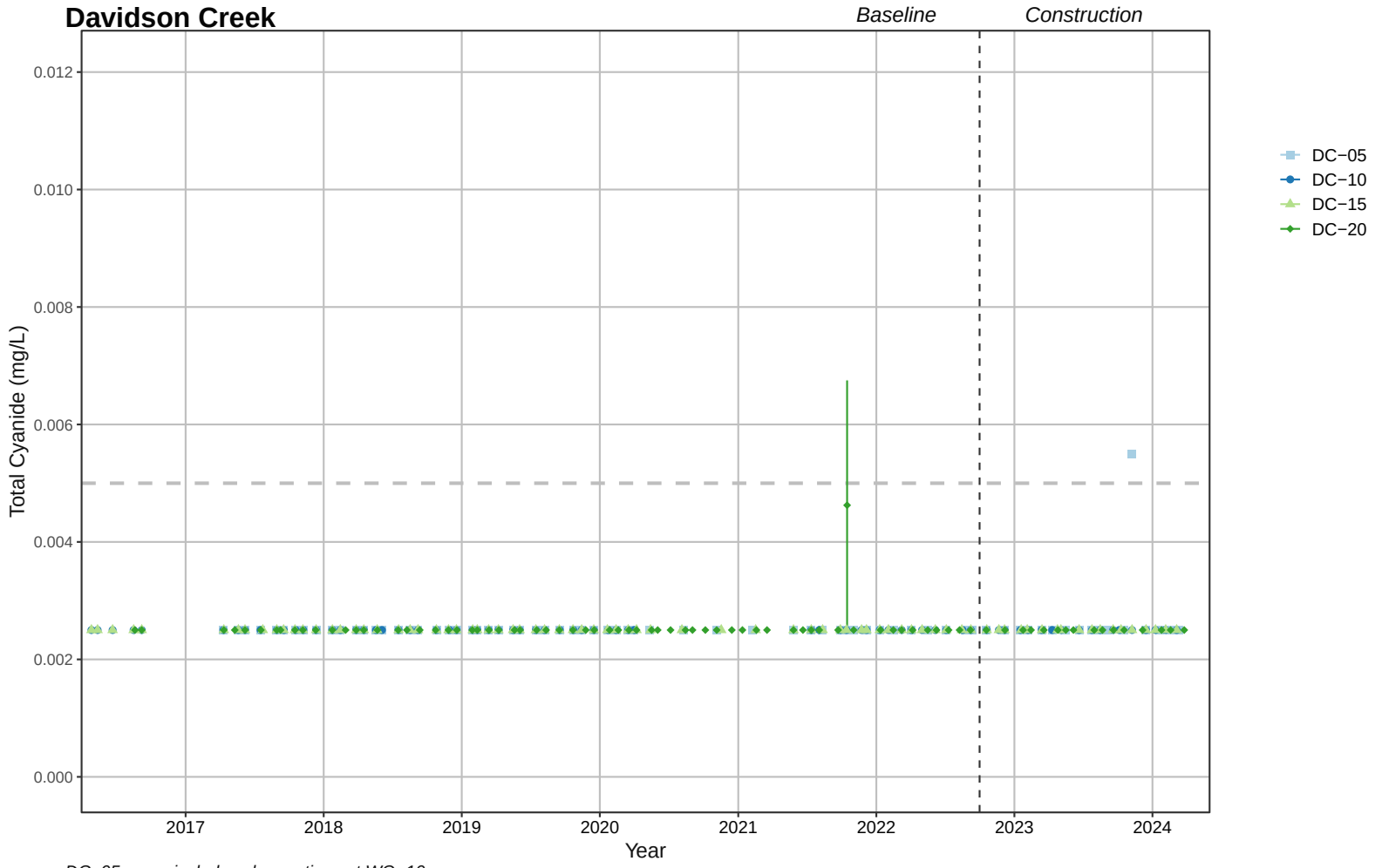
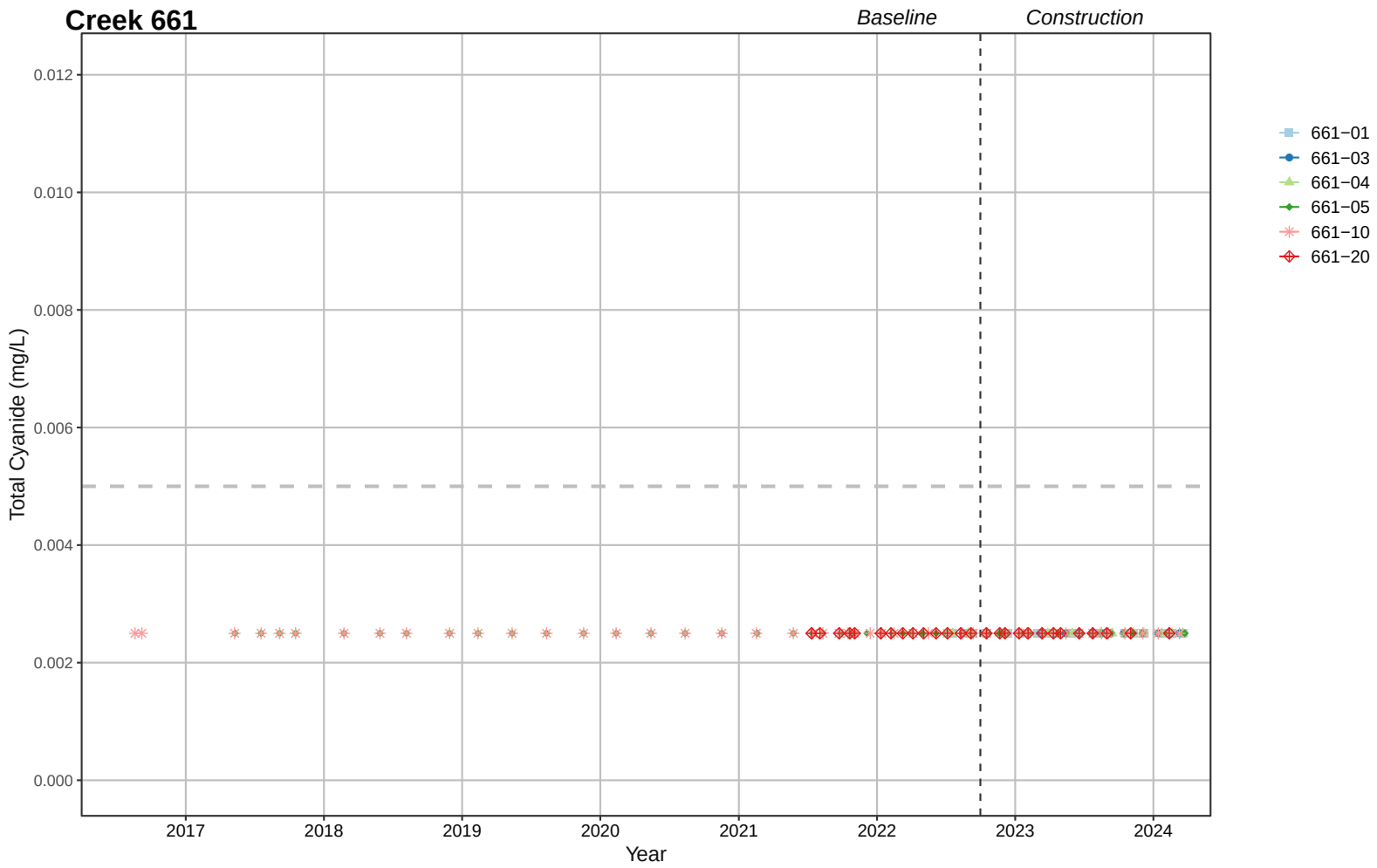
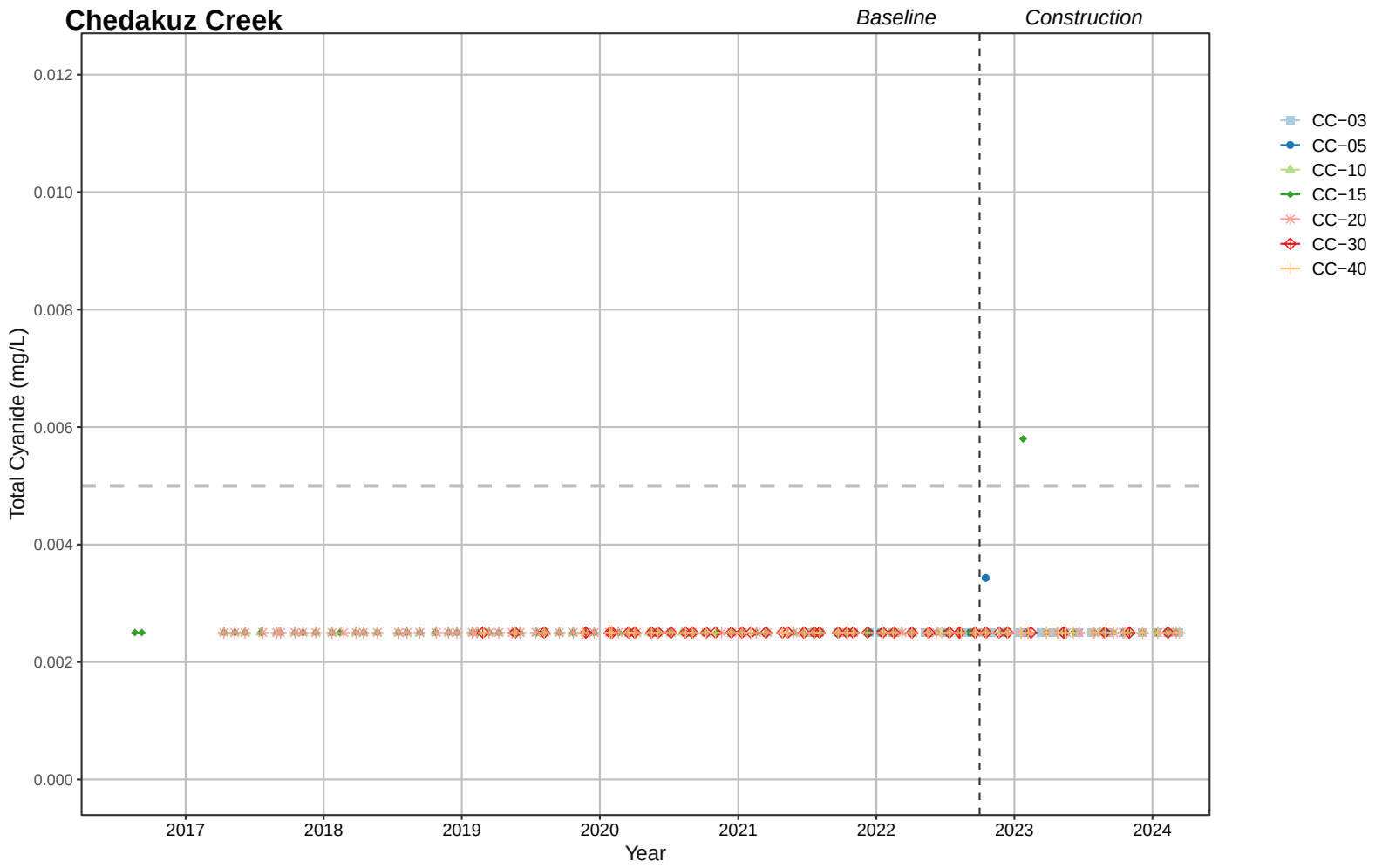


Figure C.15.a: Monthly Mean Total Cyanide Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

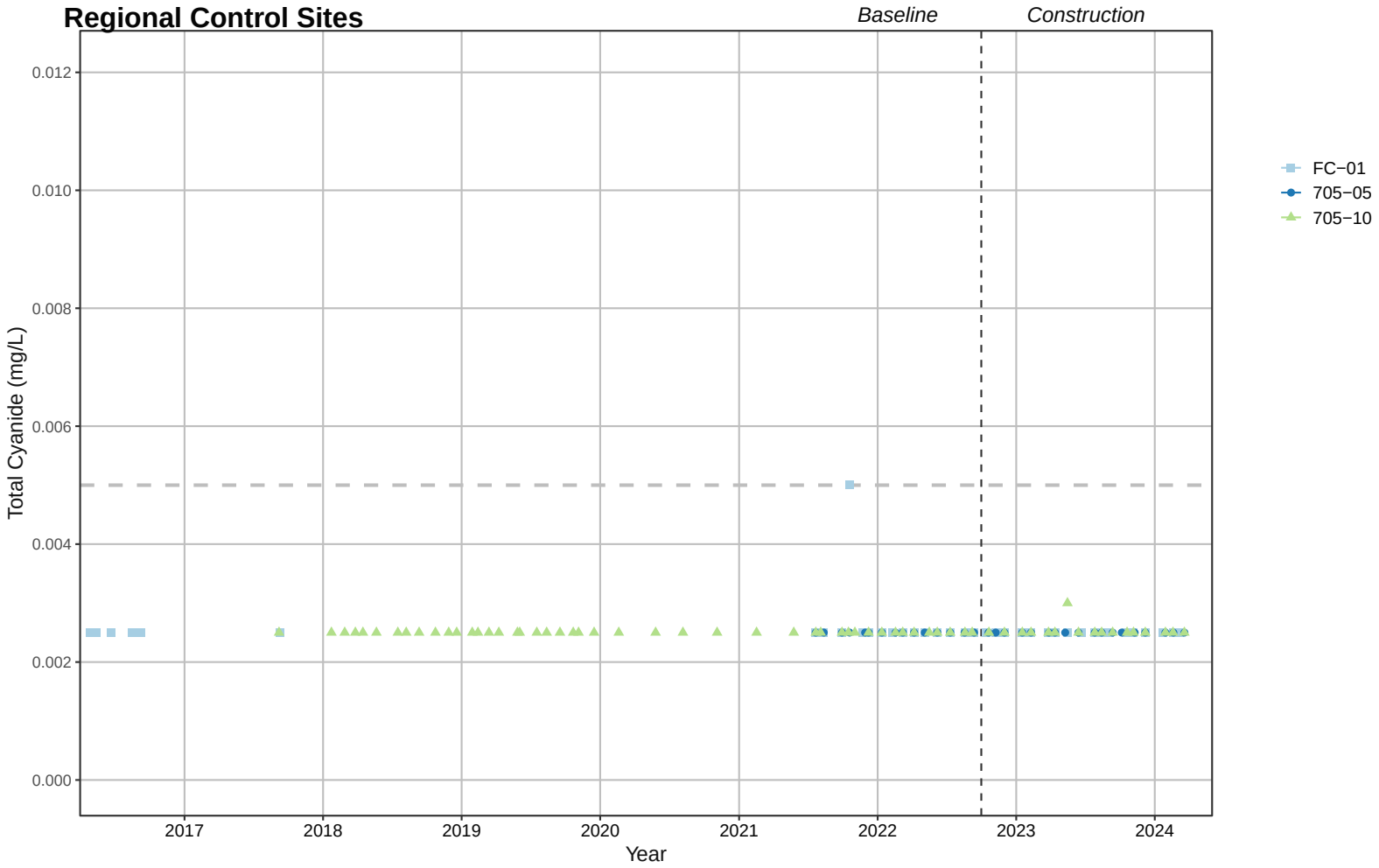
Figure C.15.b: Monthly Mean Total Cyanide Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

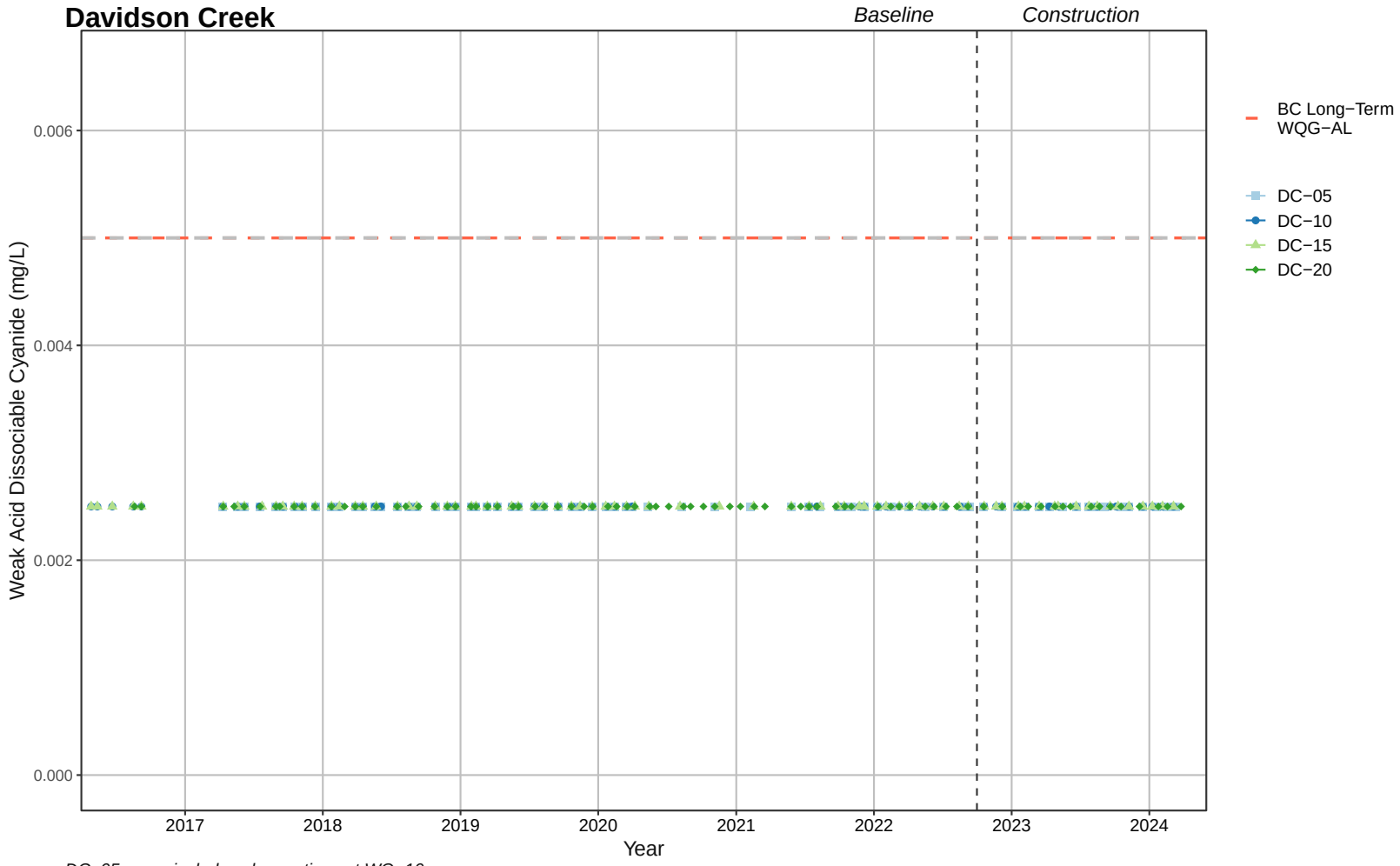
Proposed YDWL Standard for total cyanide at CC−15 is 0.1 mg/L.

Figure C.15.c: Monthly Mean Total Cyanide Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

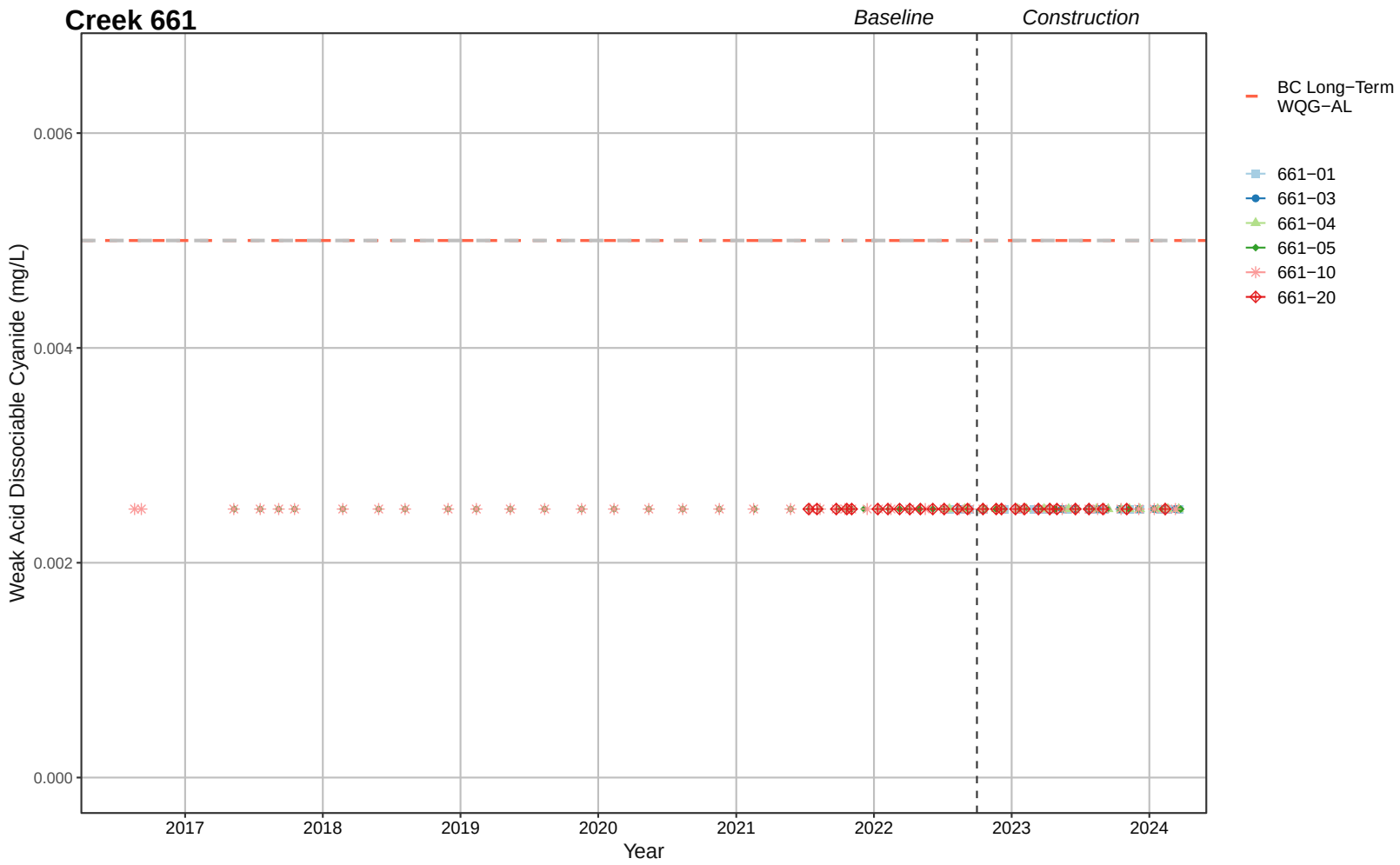
Figure C.15.d: Monthly Mean Total Cyanide Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC long−term WQG−AL for cyanide, weak acid dissociable is 0.005 mg/L.

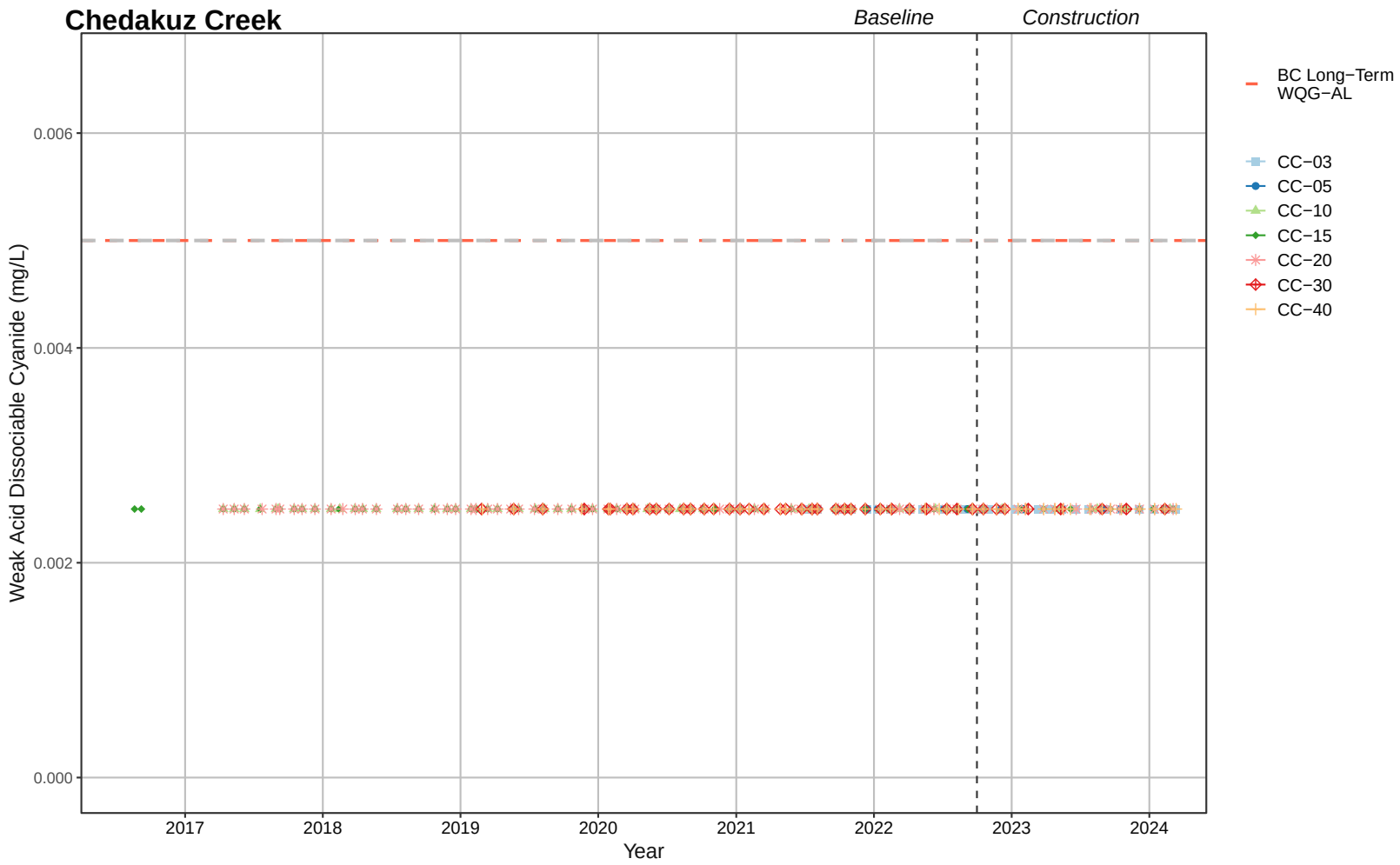
Proposed YDWL Standard for cyanide, weak acid dissociable is 0.005 mg/L.

Figure C.16.a: Monthly Mean Weak Acid Dissociable Cyanide Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC long−term WQG−AL for cyanide, weak acid dissociable is 0.005 mg/L.

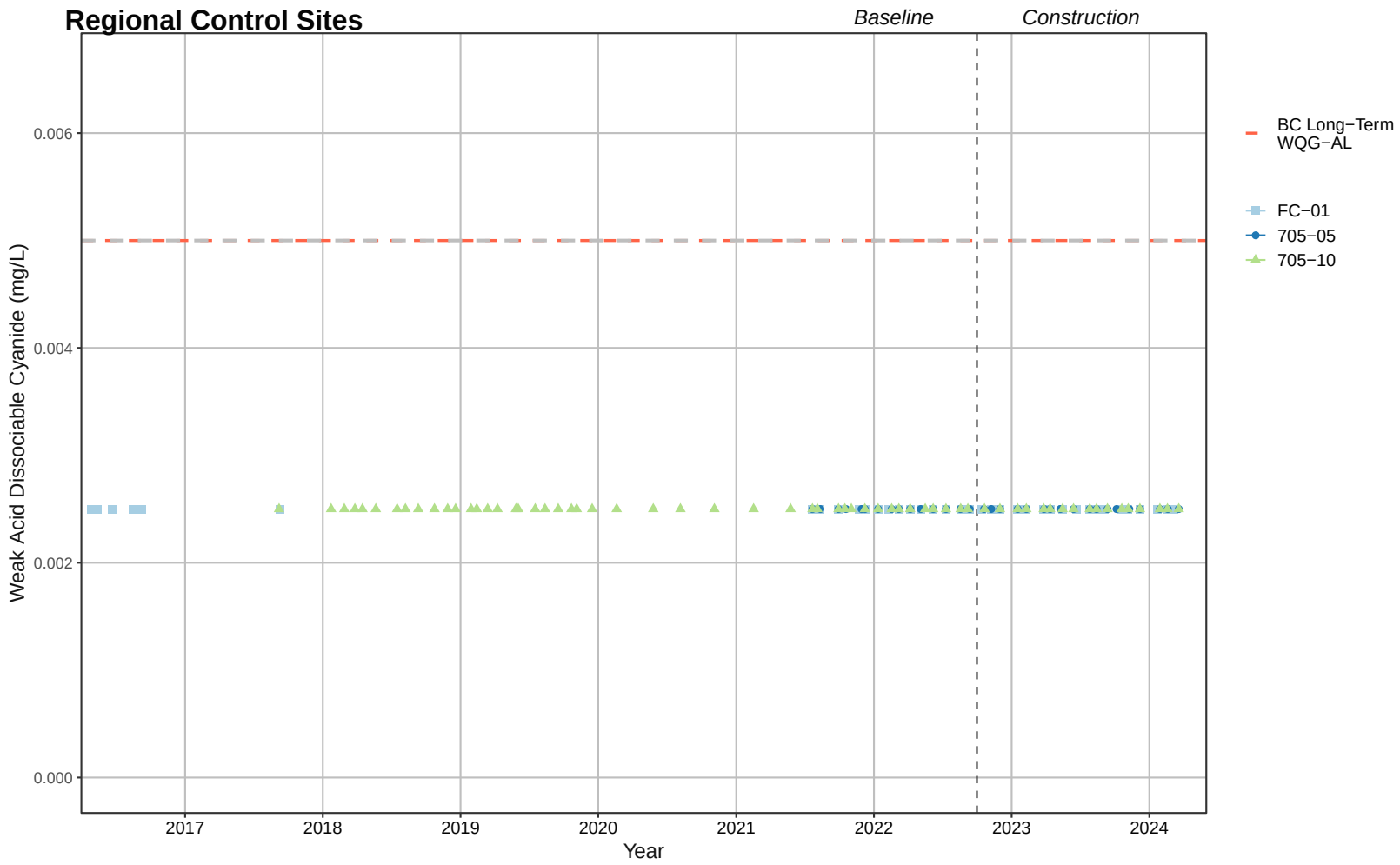
Figure C.16.b: Monthly Mean Weak Acid Dissociable Cyanide Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC long−term WQG−AL for cyanide, weak acid dissociable is 0.005 mg/L.

Proposed YDWL Standard for cyanide, weak acid dissociable is 0.005 mg/L.

Figure C.16.c: Monthly Mean Weak Acid Dissociable Cyanide Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC long−term WQG−AL for cyanide, weak acid dissociable is 0.005 mg/L.

Figure C.16.d: Monthly Mean Weak Acid Dissociable Cyanide Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

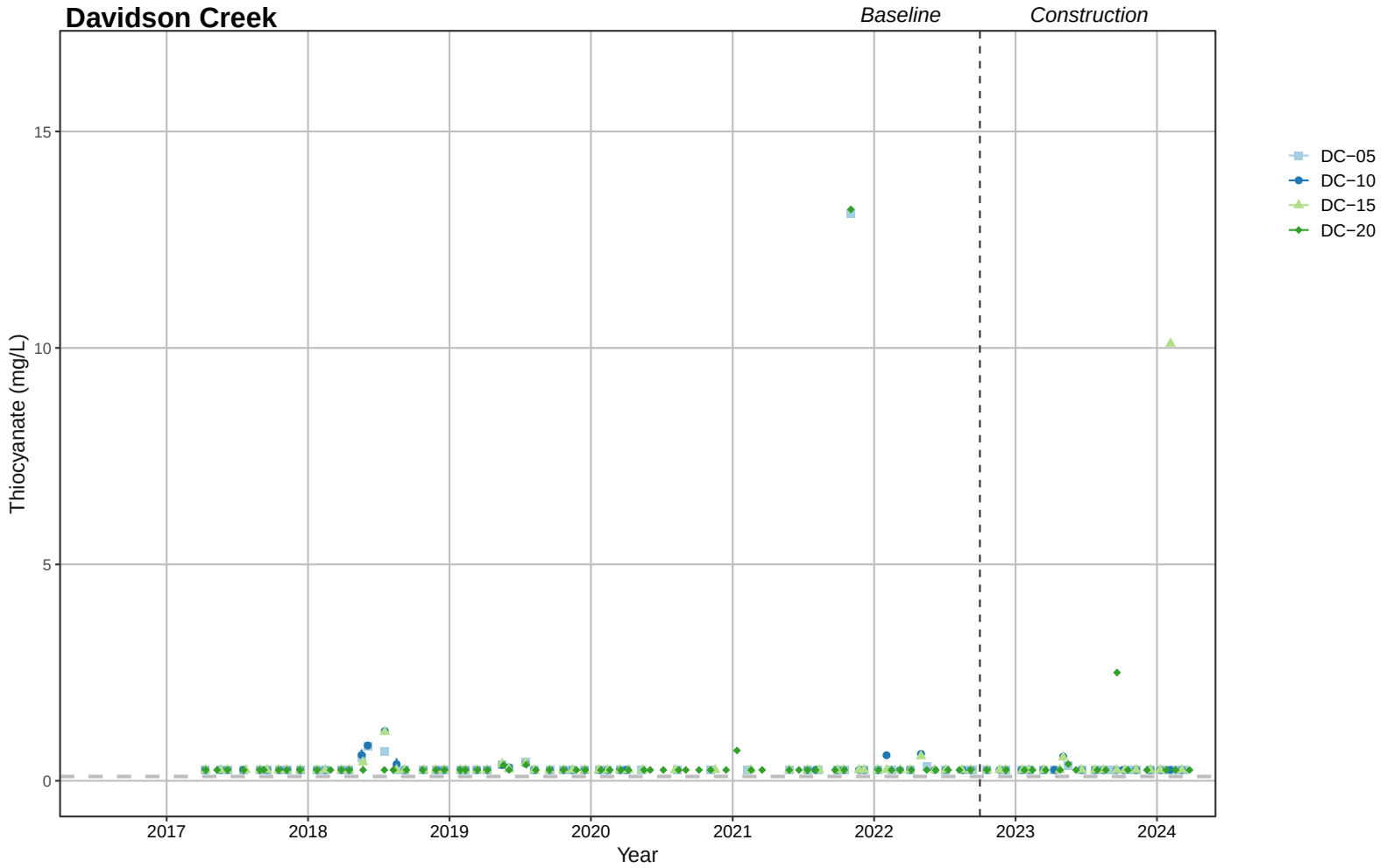
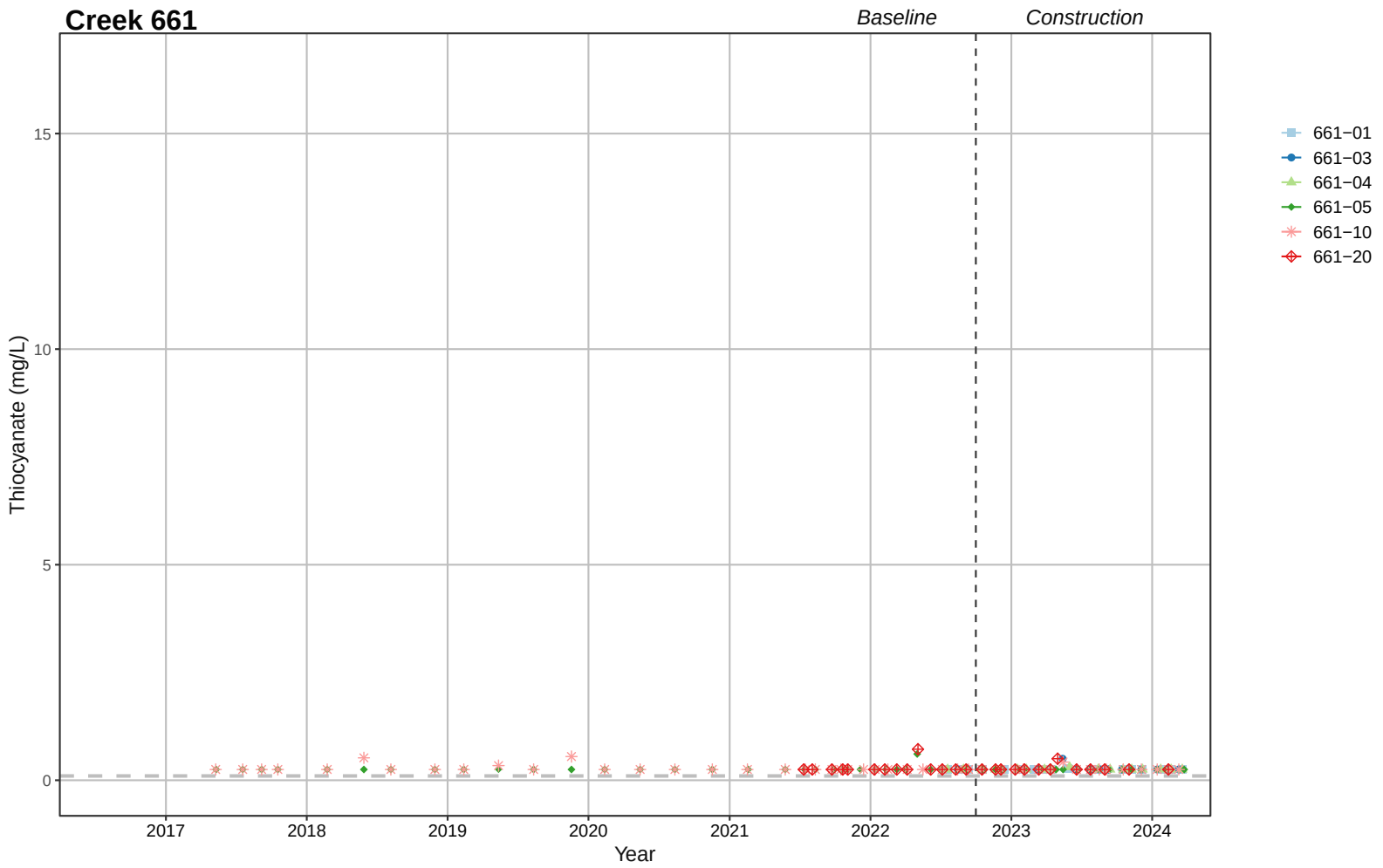
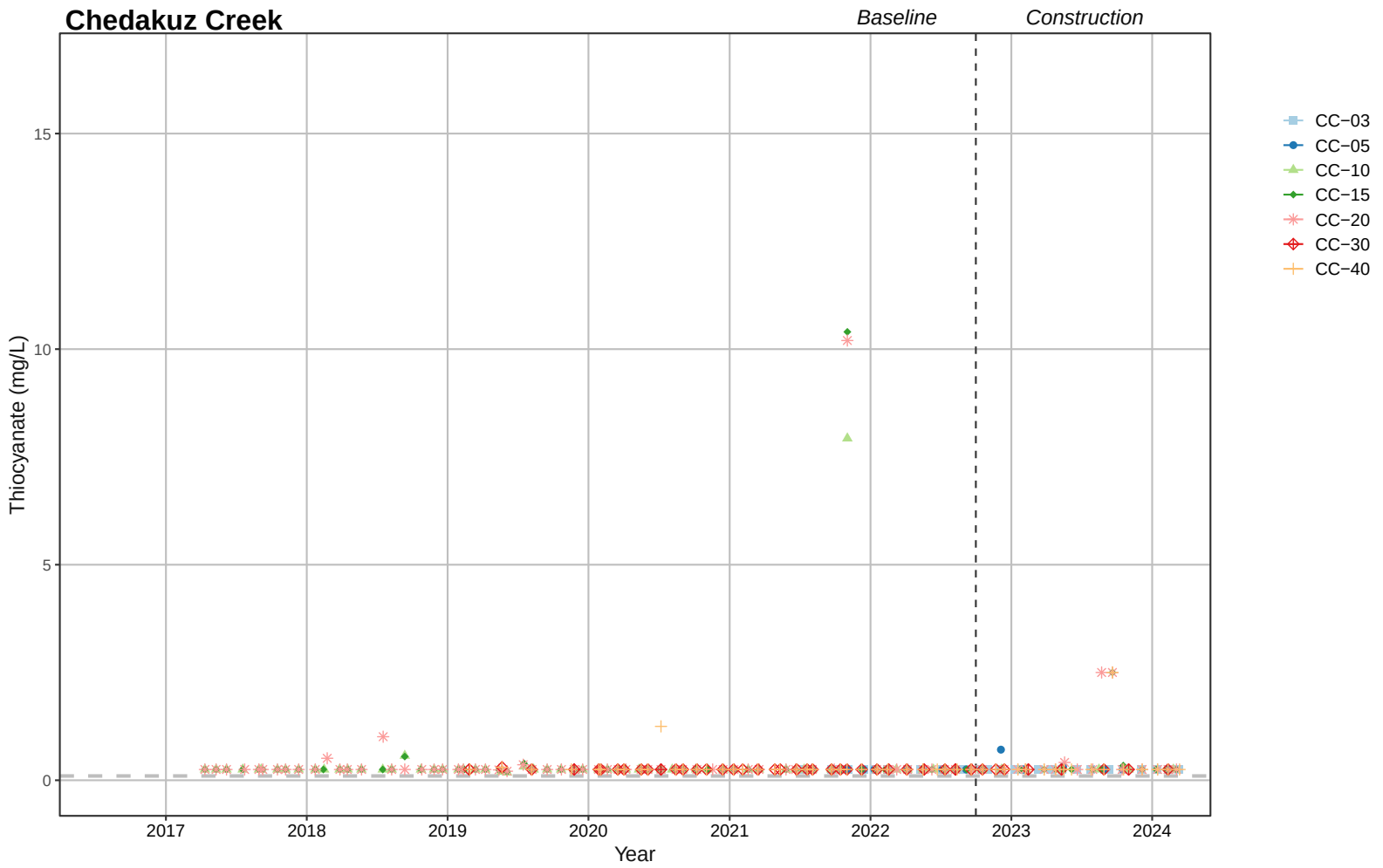


Figure C.17.a: Monthly Mean Thiocyanate (mg/L) Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



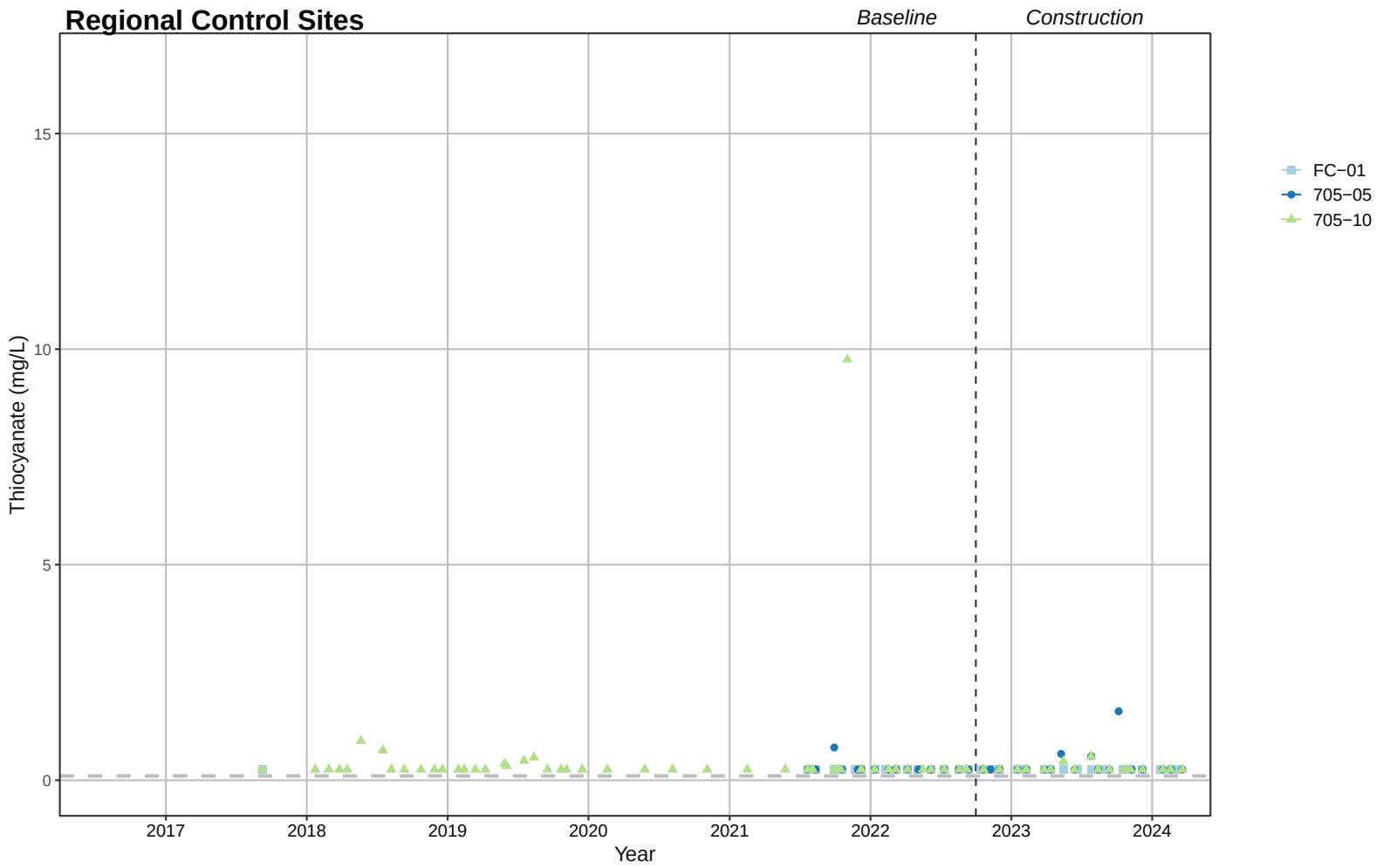
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.17.b: Monthly Mean Thiocyanate (mg/L) Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.17.c: Monthly Mean Thiocyanate (mg/L) Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.17.d: Monthly Mean Thiocyanate (mg/L) Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

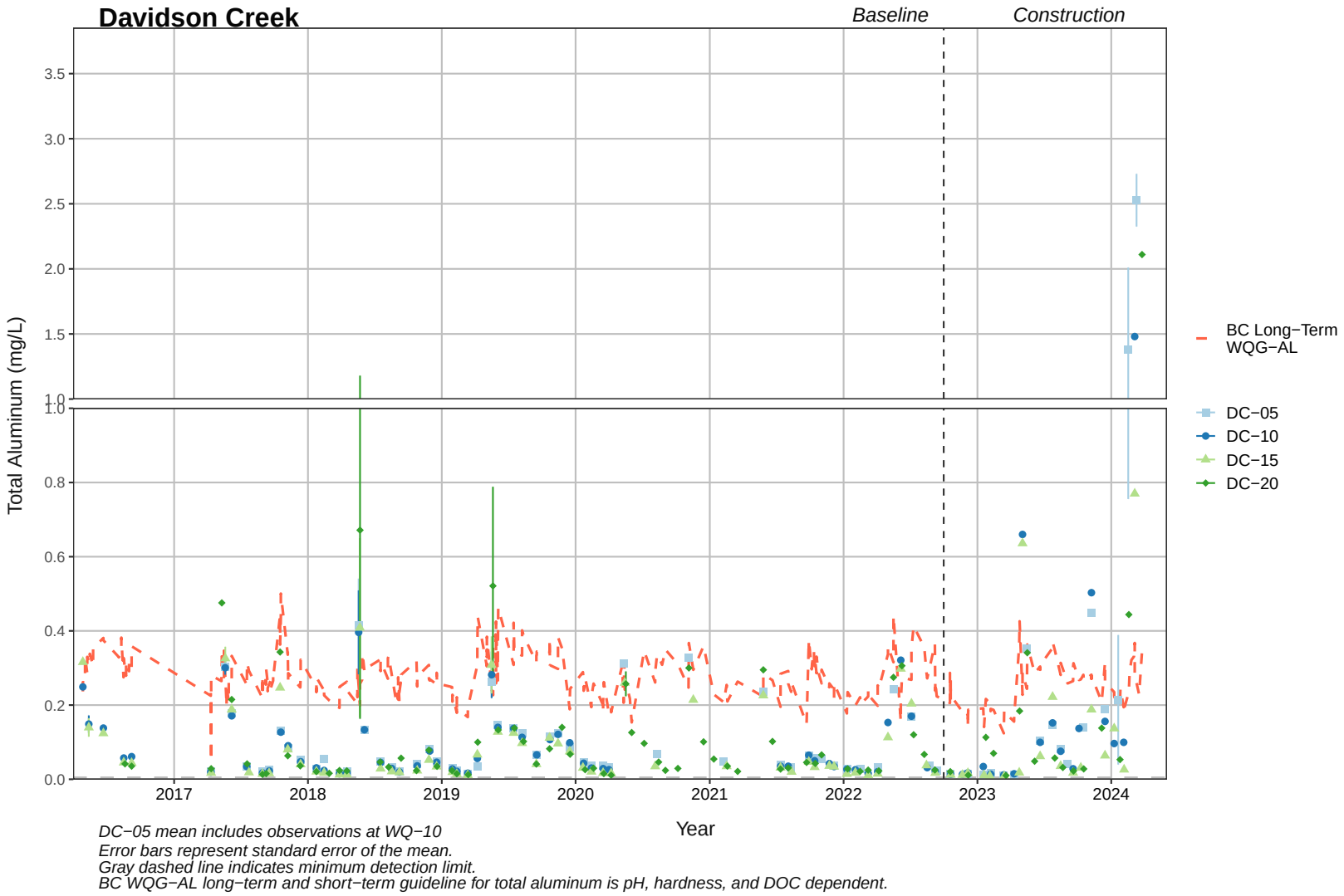
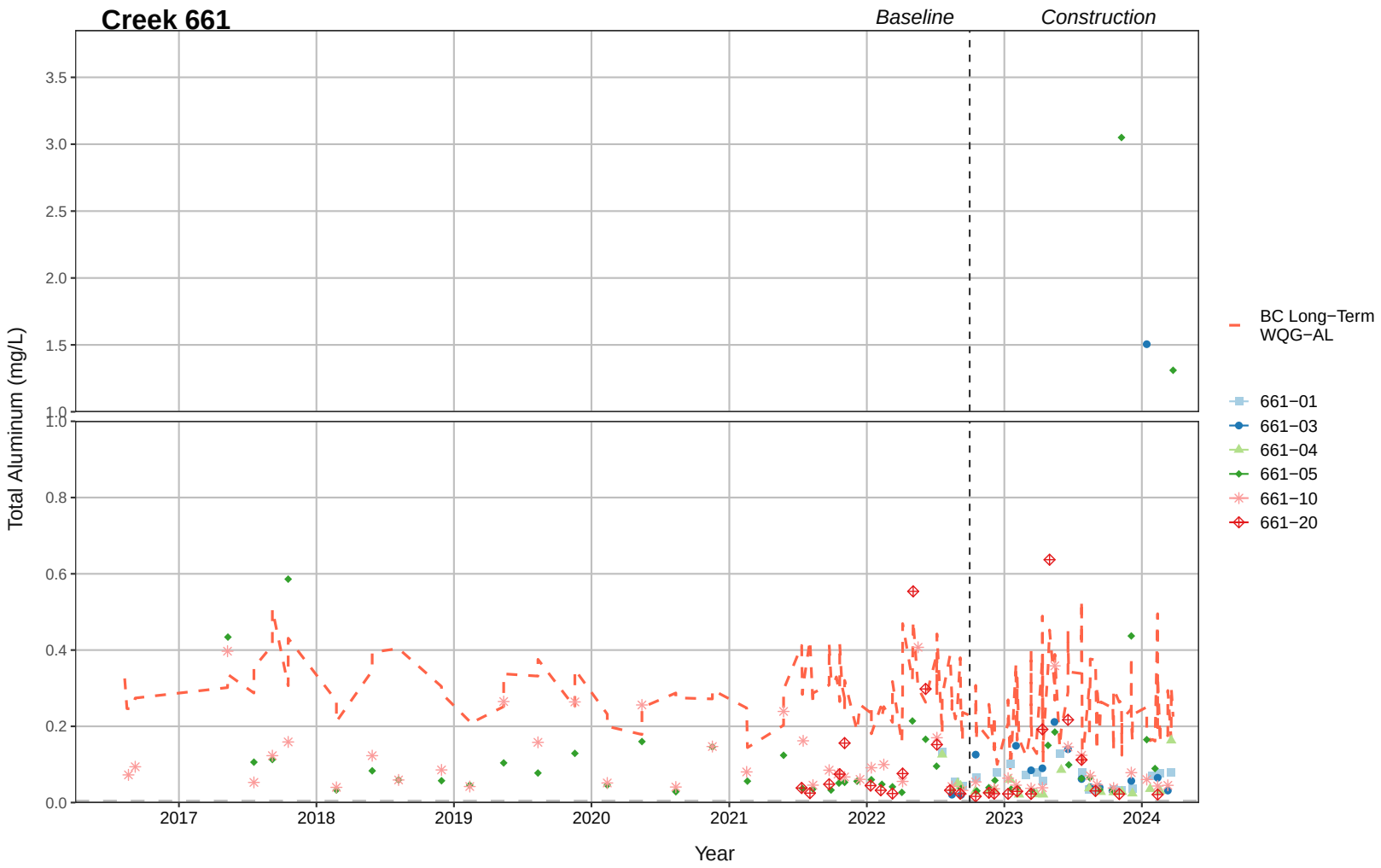
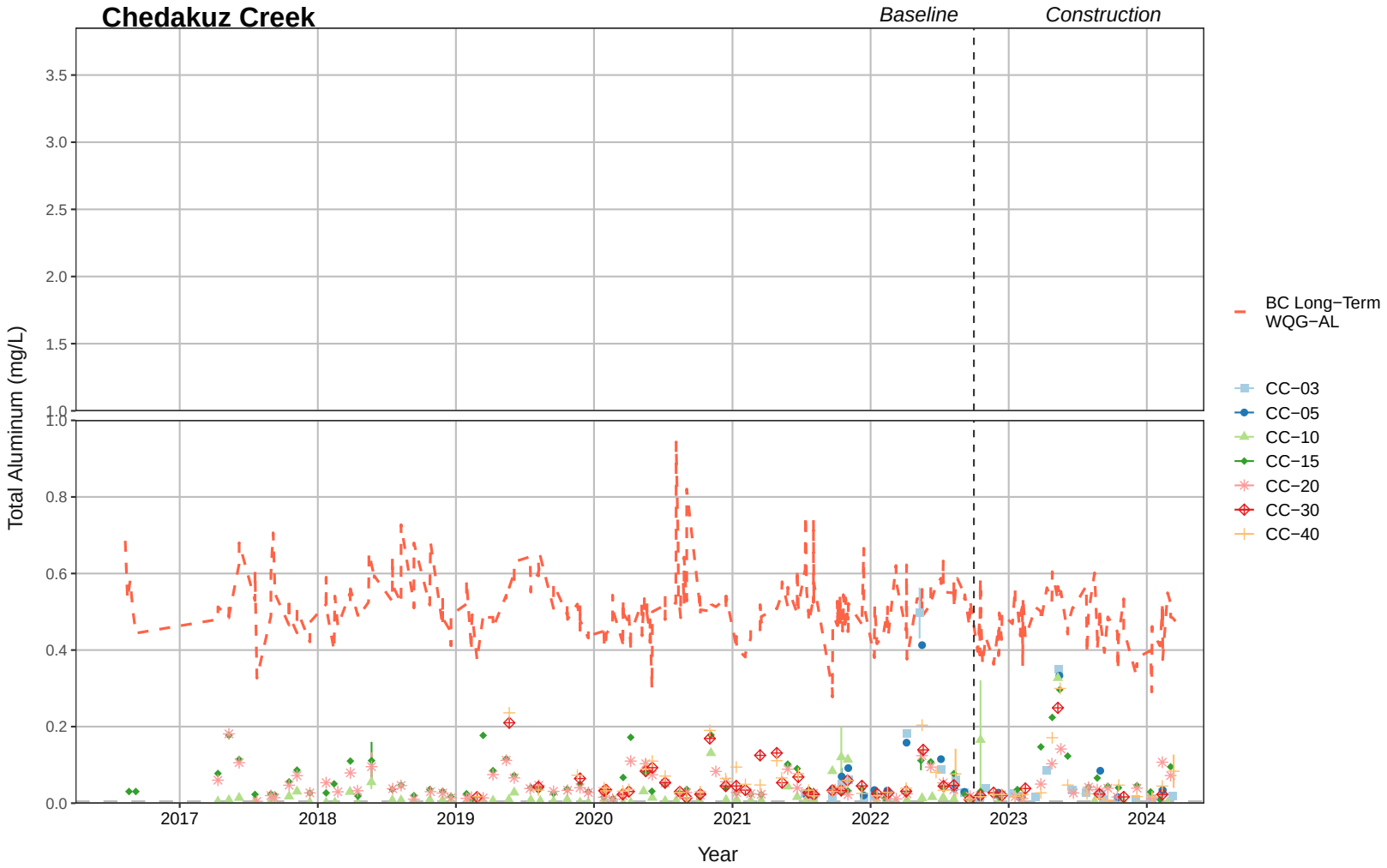


Figure C.18.a: Monthly Mean Total Aluminum Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



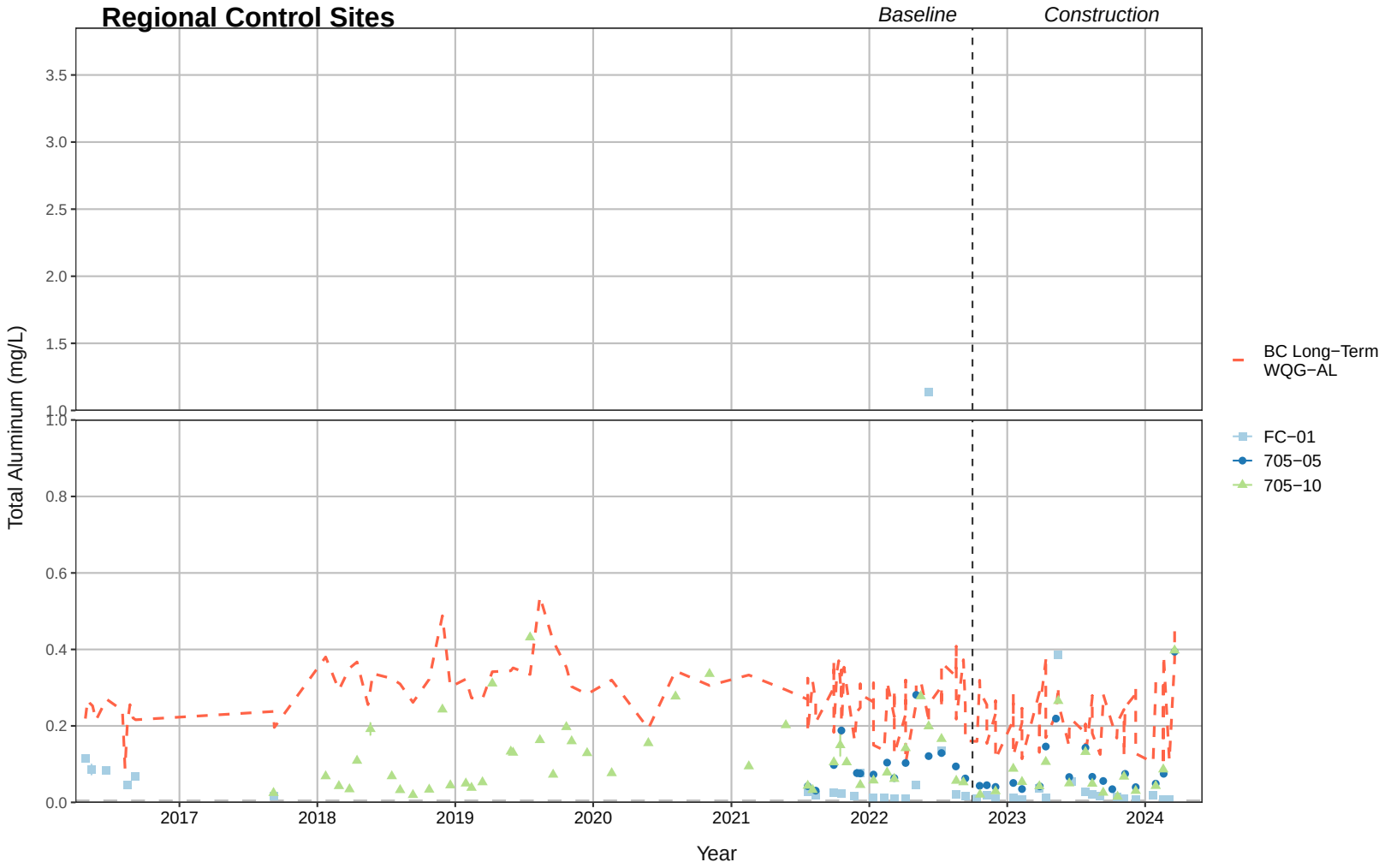
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term and short−term guideline for total aluminum is pH, hardness, and DOC dependent.

Figure C.18.b: Monthly Mean Total Aluminum Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



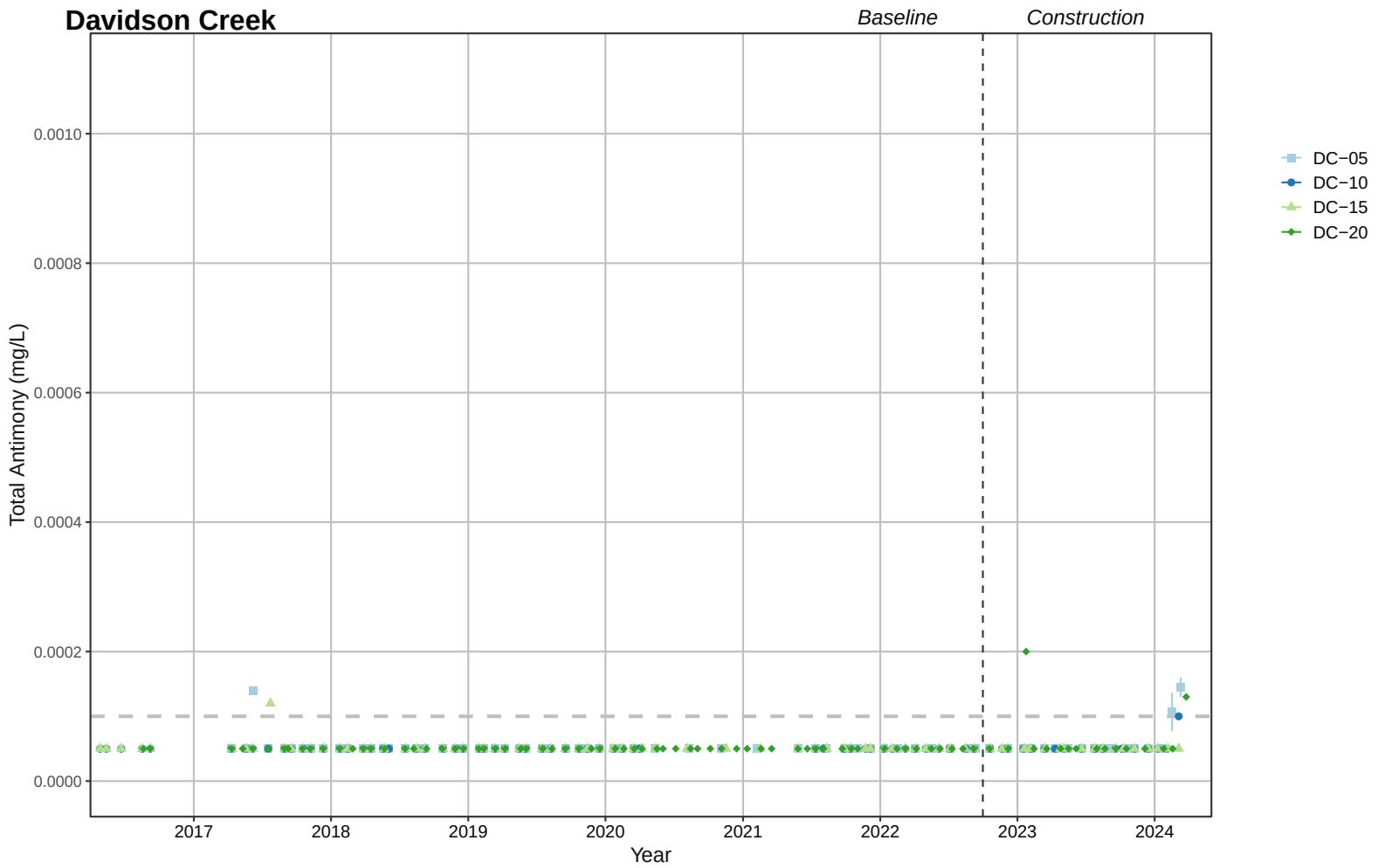
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term and short−term guideline for total aluminum is pH, hardness, and DOC dependent.

Figure C.18.c: Monthly Mean Total Aluminum Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



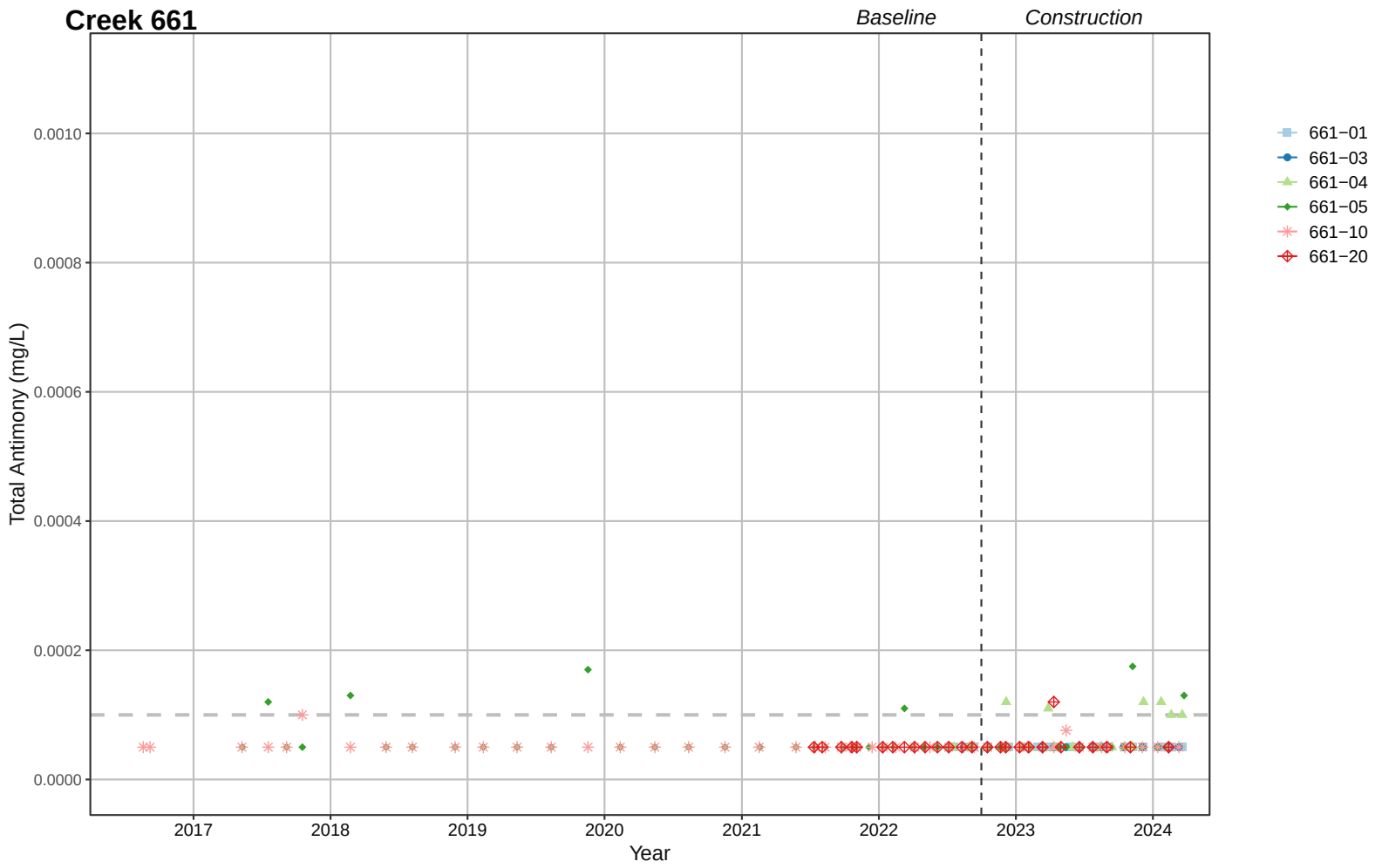
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term and short−term guideline for total aluminum is pH, hardness, and DOC dependent.

Figure C.18.d: Monthly Mean Total Aluminum Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



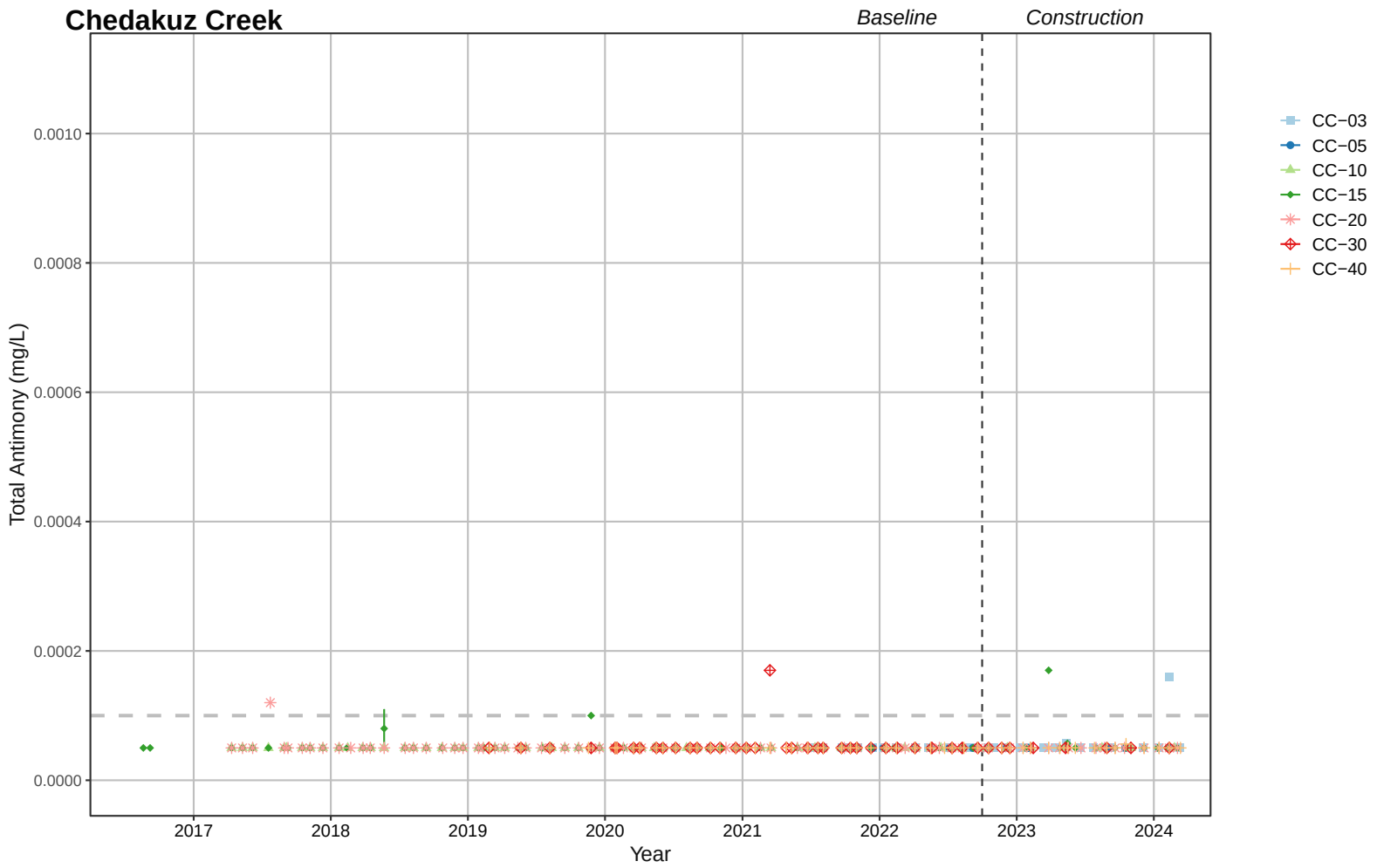
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for antimony = 0.074 mg/L.

Figure C.19.a: Monthly Mean Total Antimony Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



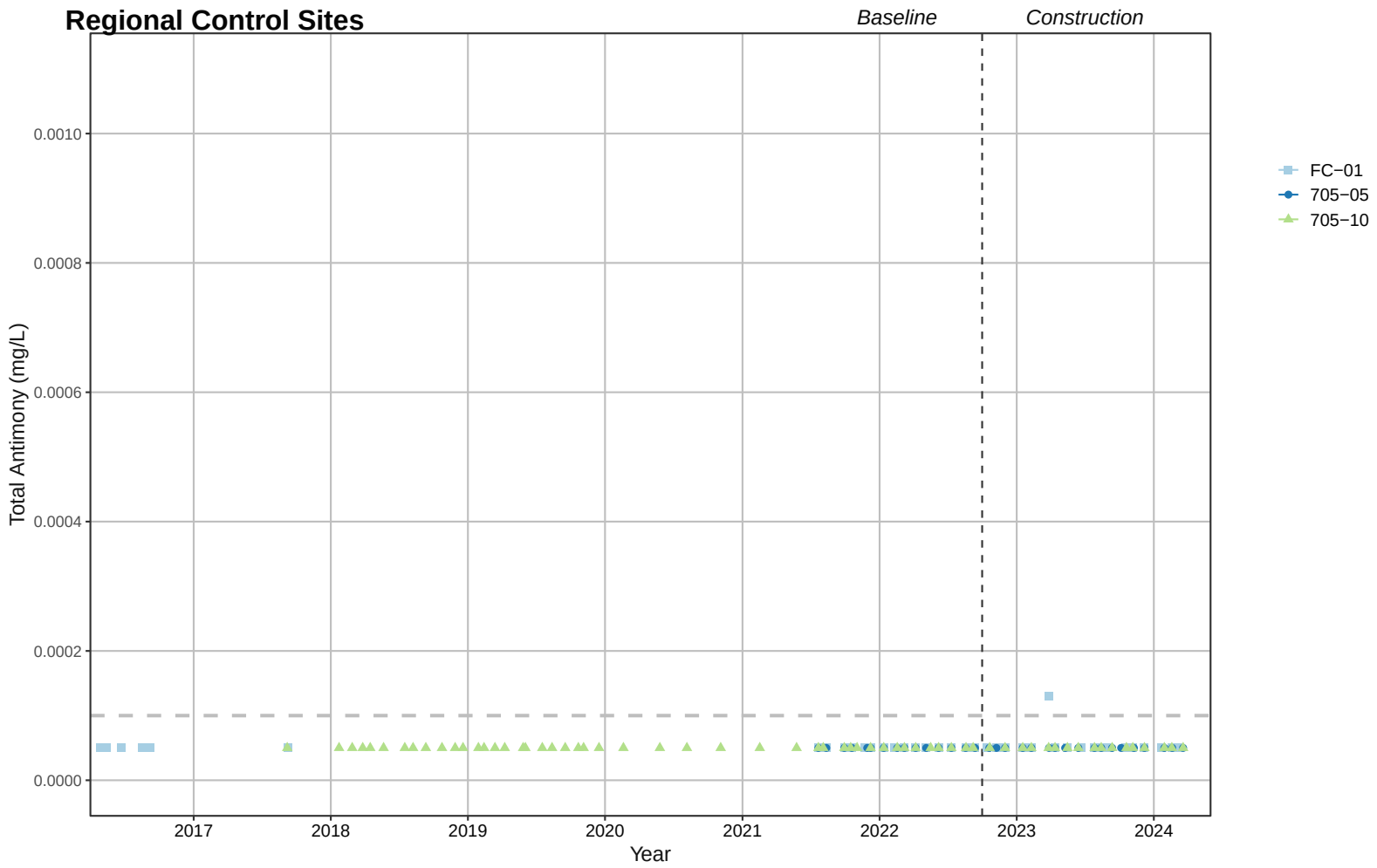
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for antimony = 0.074 mg/L.

Figure C.19.b: Monthly Mean Total Antimony Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



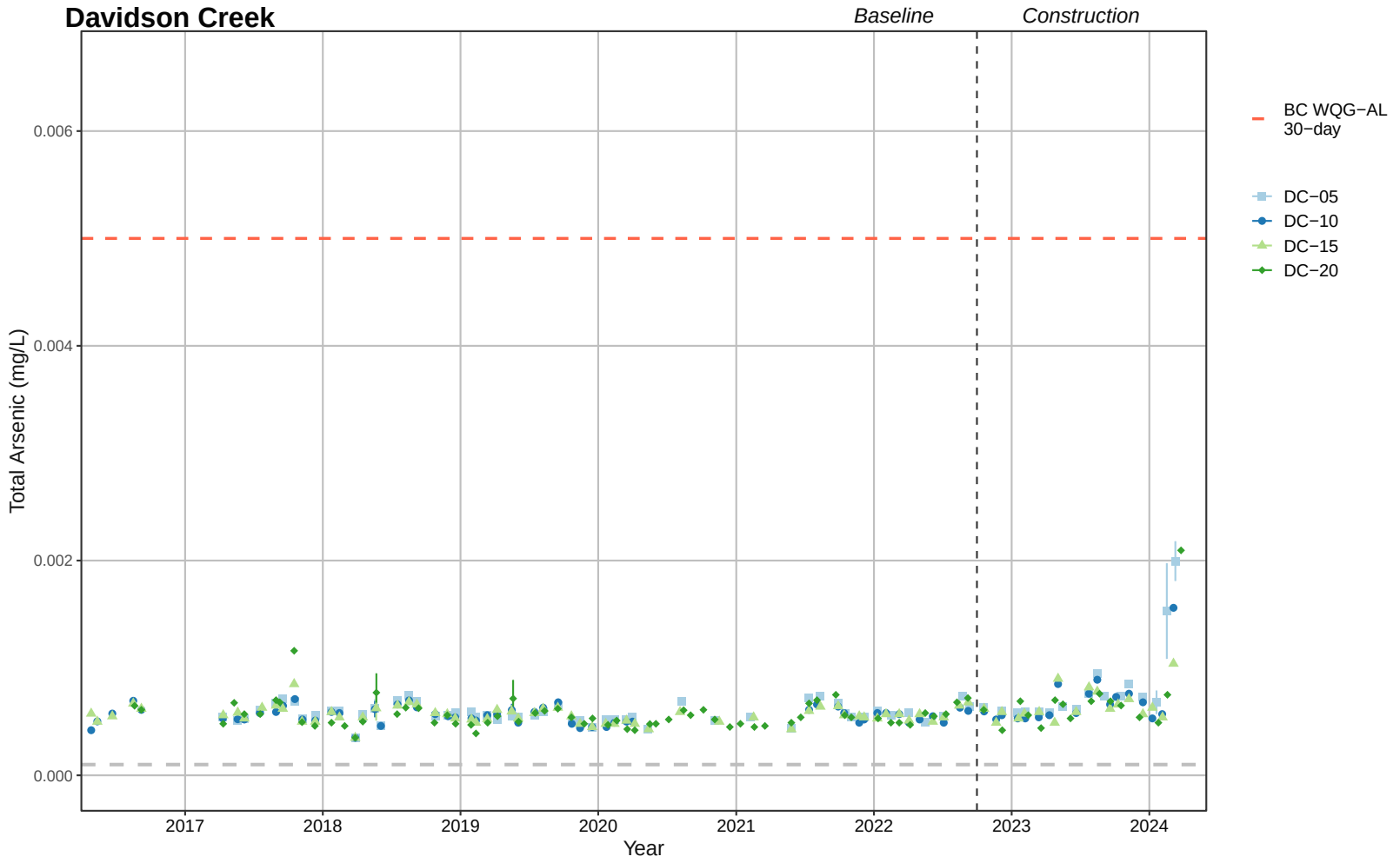
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for antimony = 0.074 mg/L.

Figure C.19.c: Monthly Mean Total Antimony Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



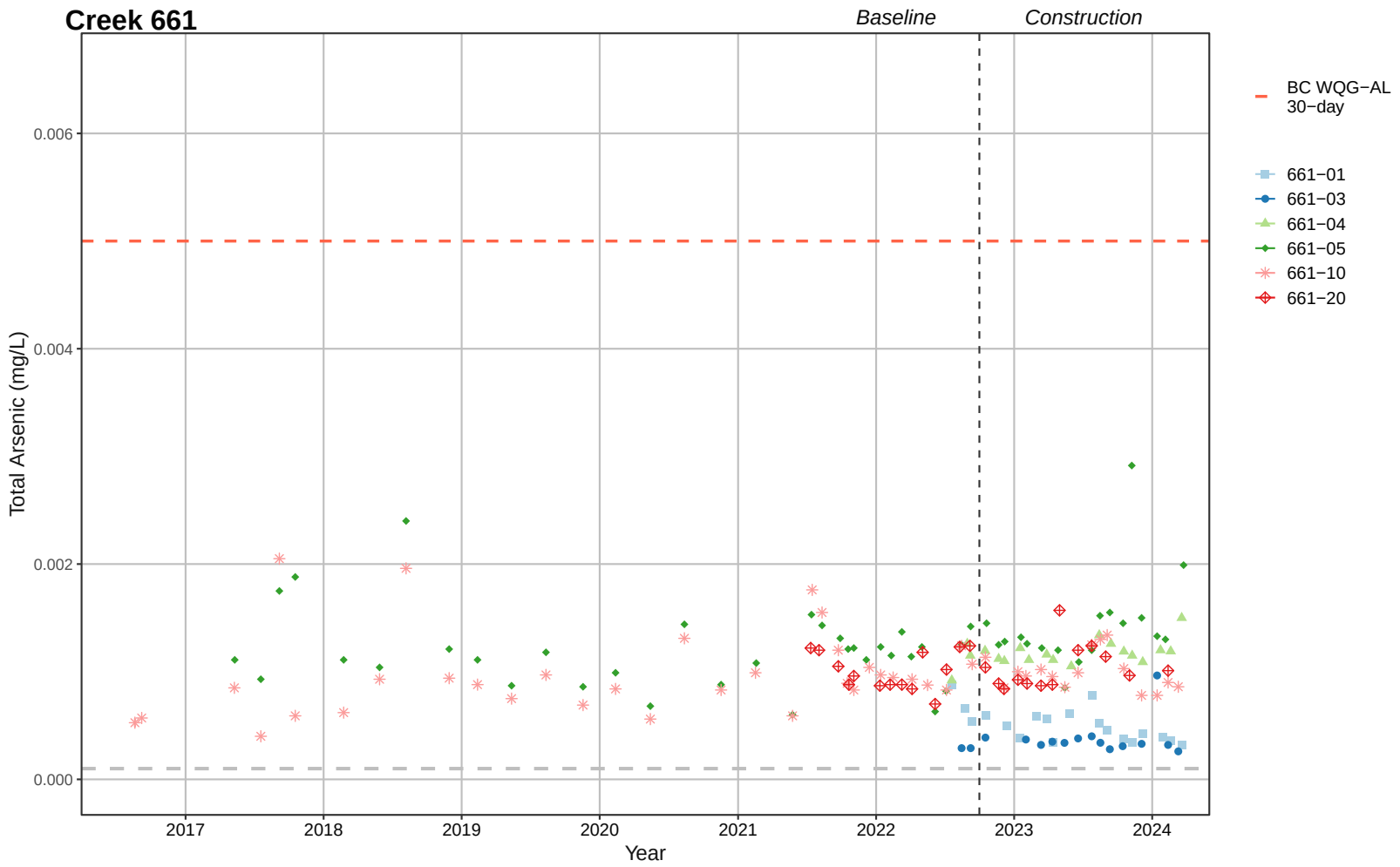
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for antimony = 0.074 mg/L.

Figure C.19.d: Monthly Mean Total Antimony Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



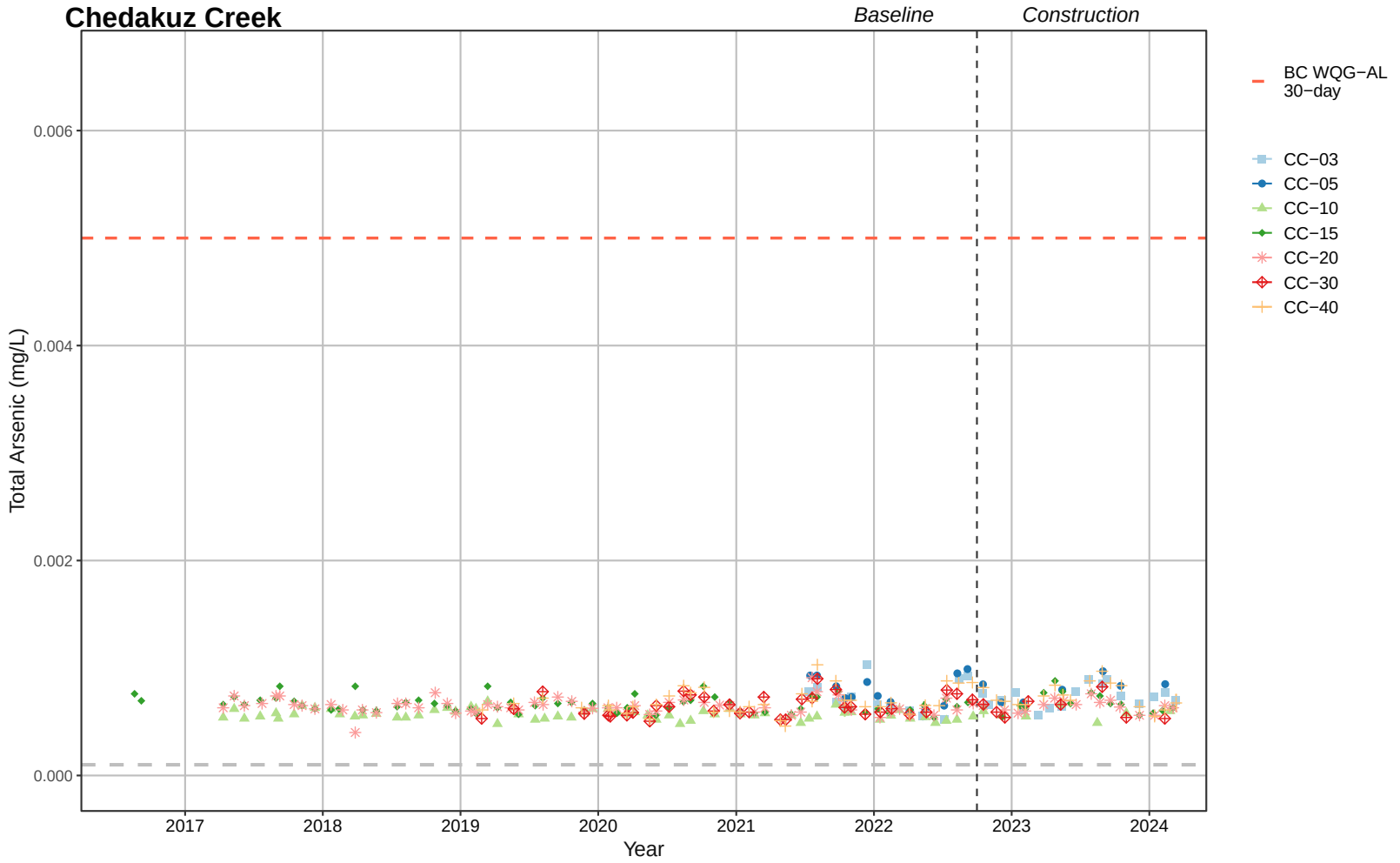
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total arsenic = 0.005 mg/L for a 30−day period.

Figure C.20.a: Monthly Mean Total Arsenic Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



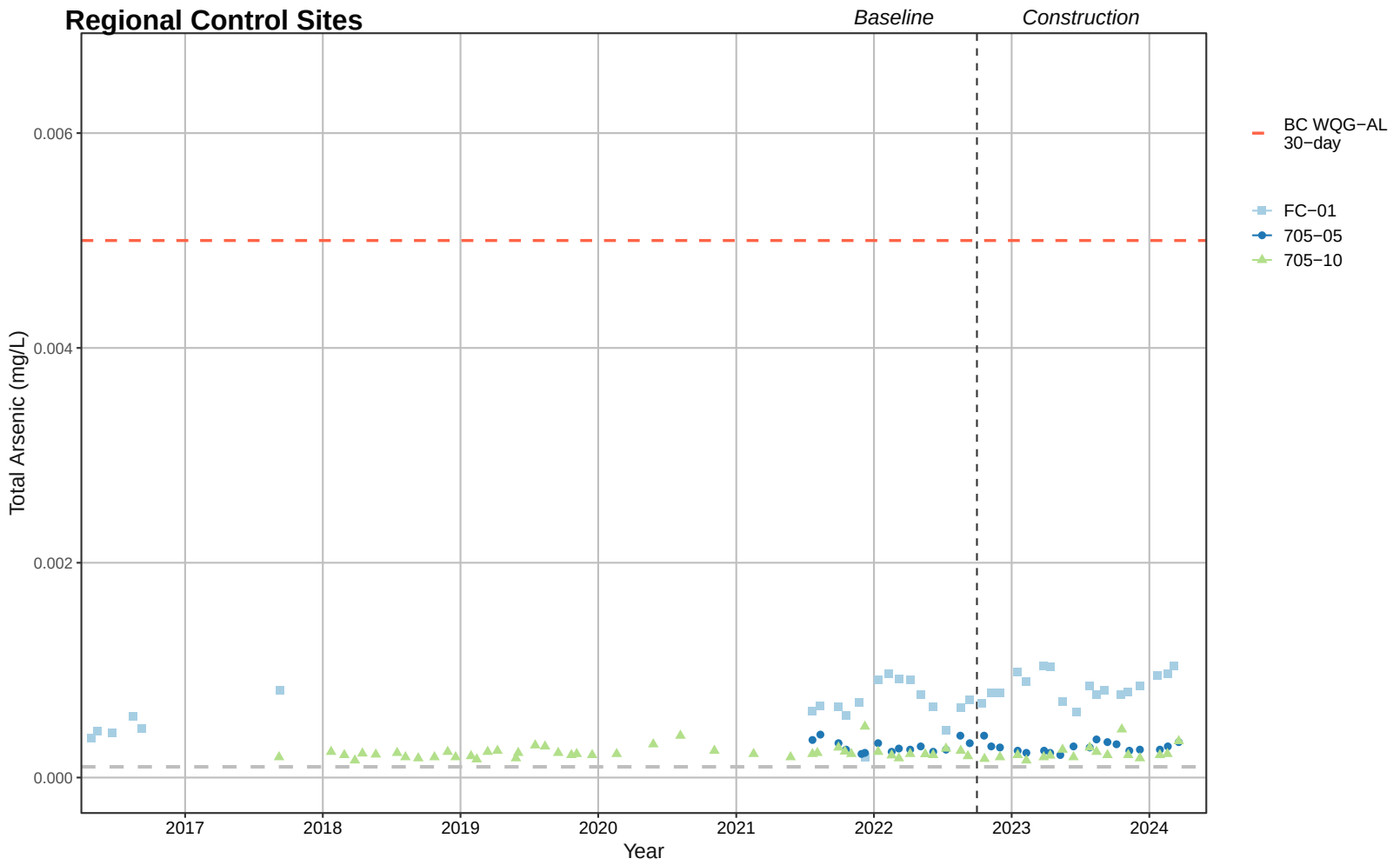
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term guideline for total arsenic = 0.005 mg/L for a 30−day period.

Figure C.20.b: Monthly Mean Total Arsenic Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total arsenic = 0.005 mg/L for a 30−day period.

Figure C.20.c: Monthly Mean Total Arsenic Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term guideline for total arsenic = 0.005 mg/L for a 30−day period.

Figure C.20.d: Monthly Mean Total Arsenic Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

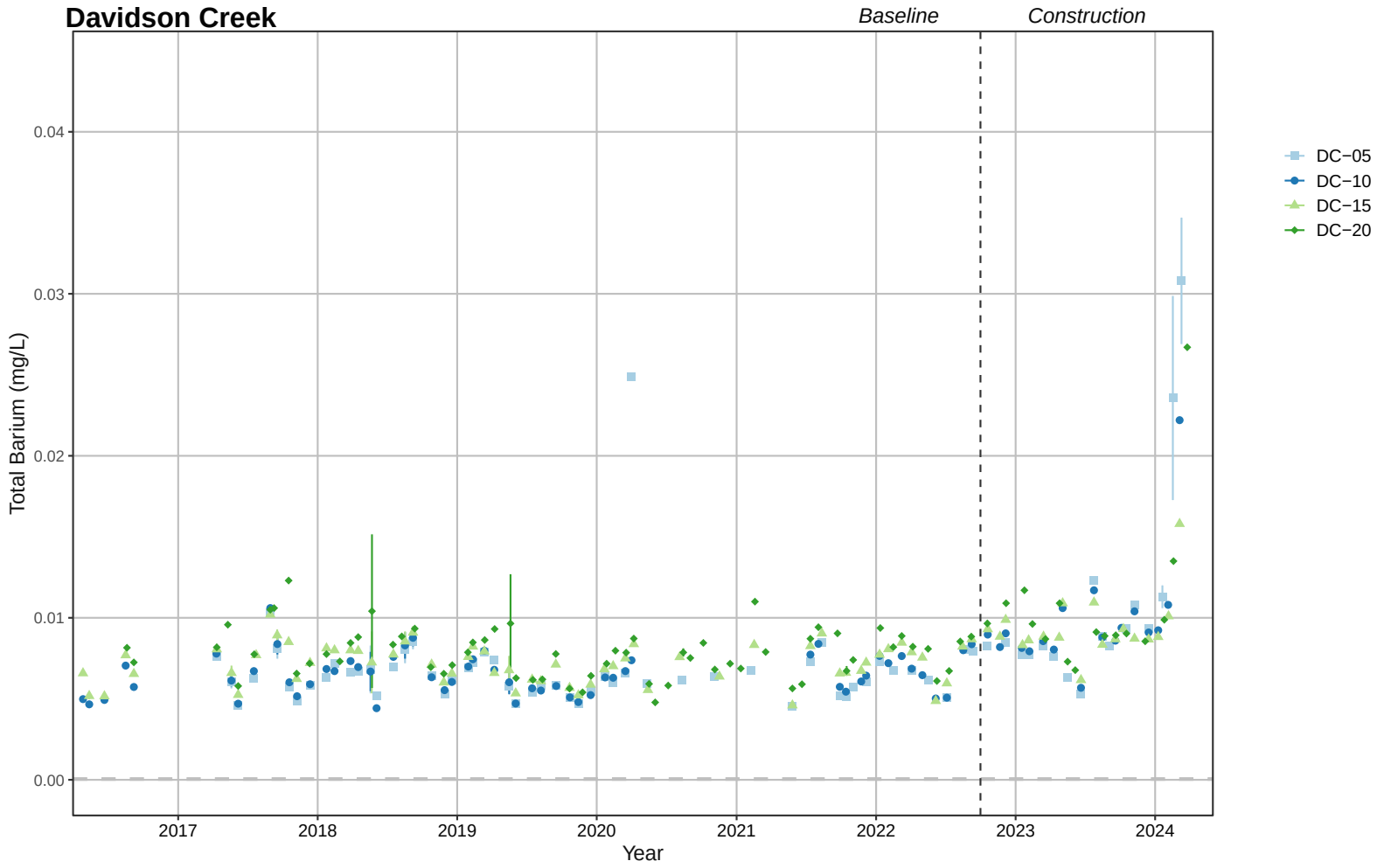
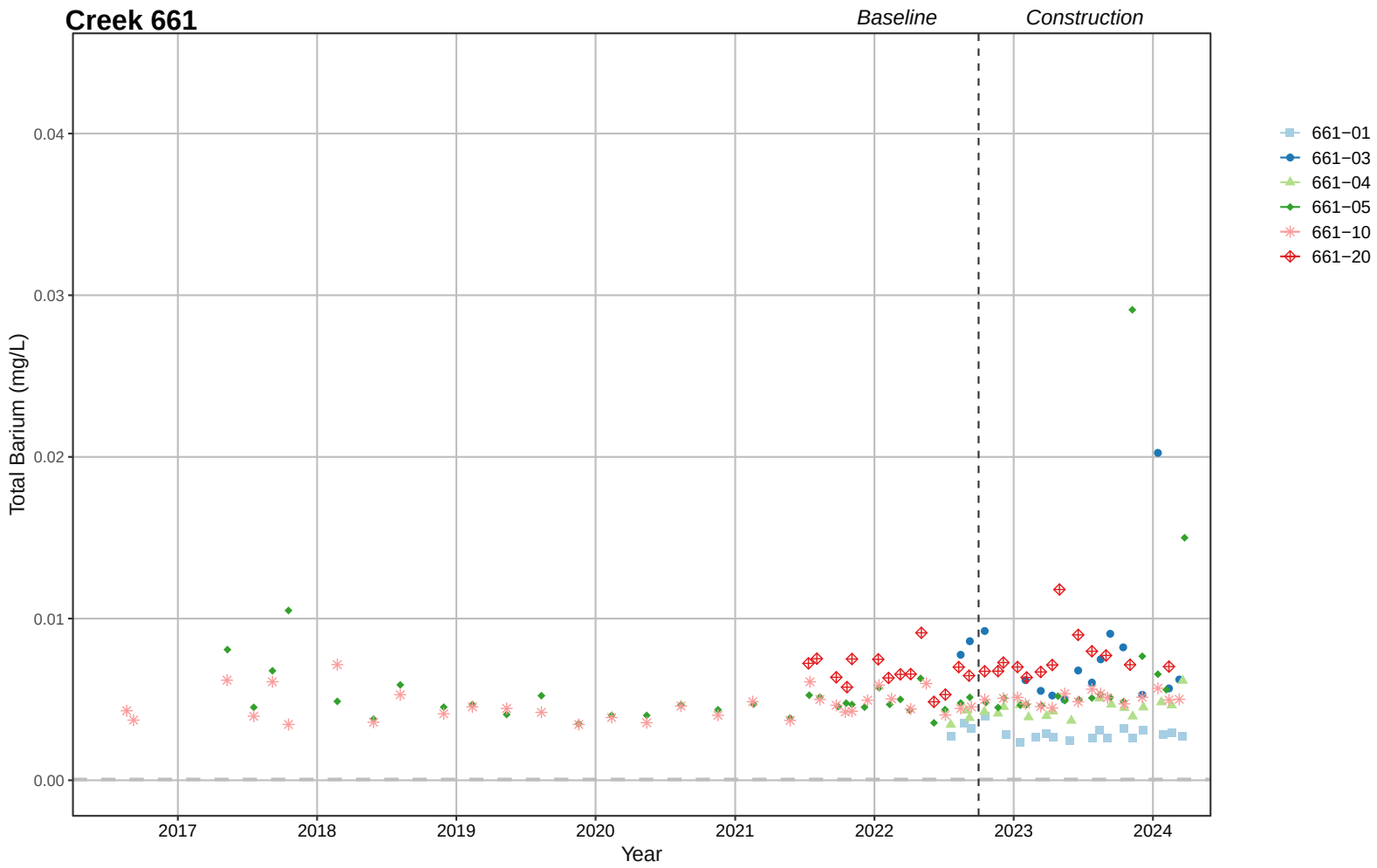
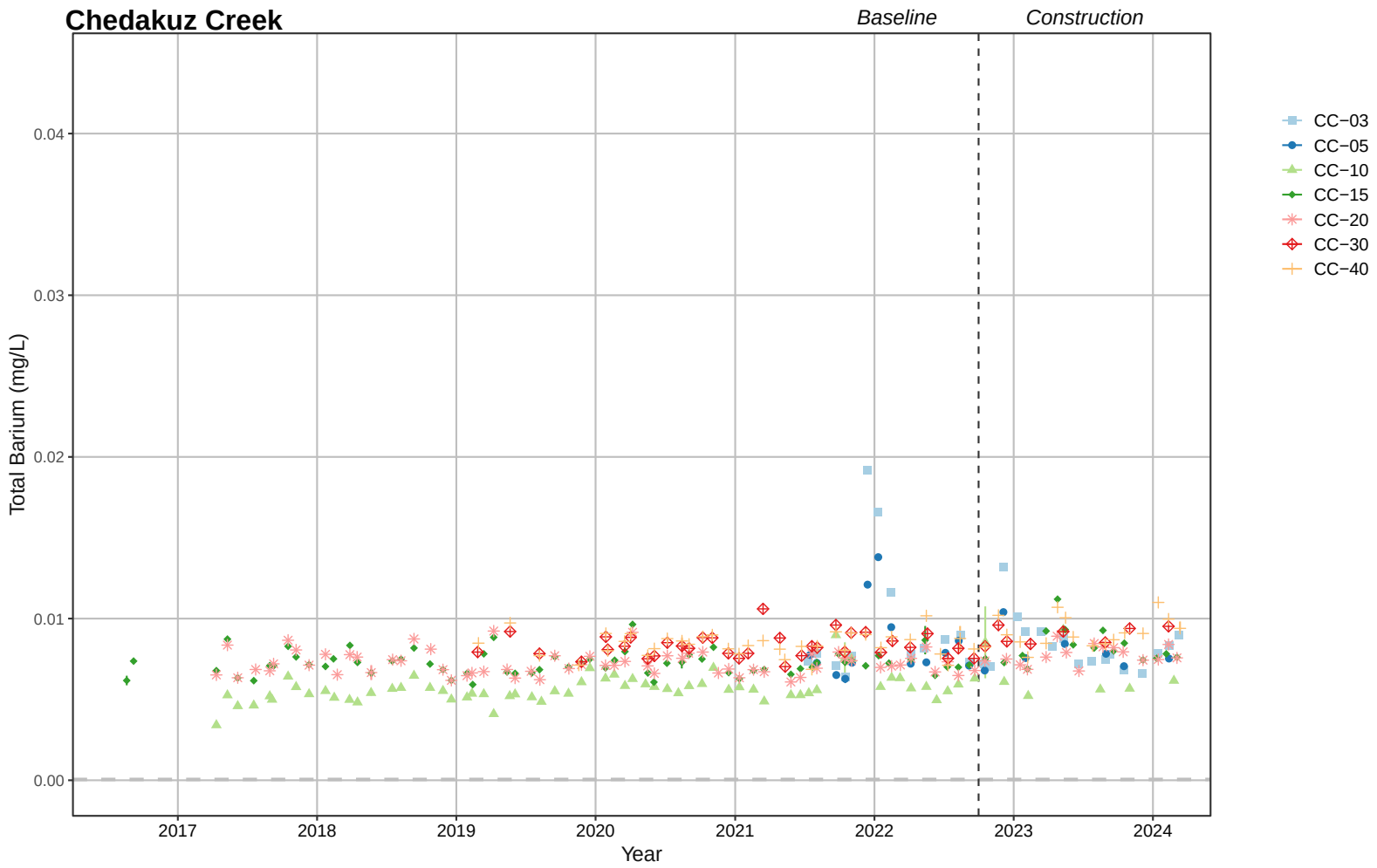


Figure C.21.a: Monthly Mean Total Barium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



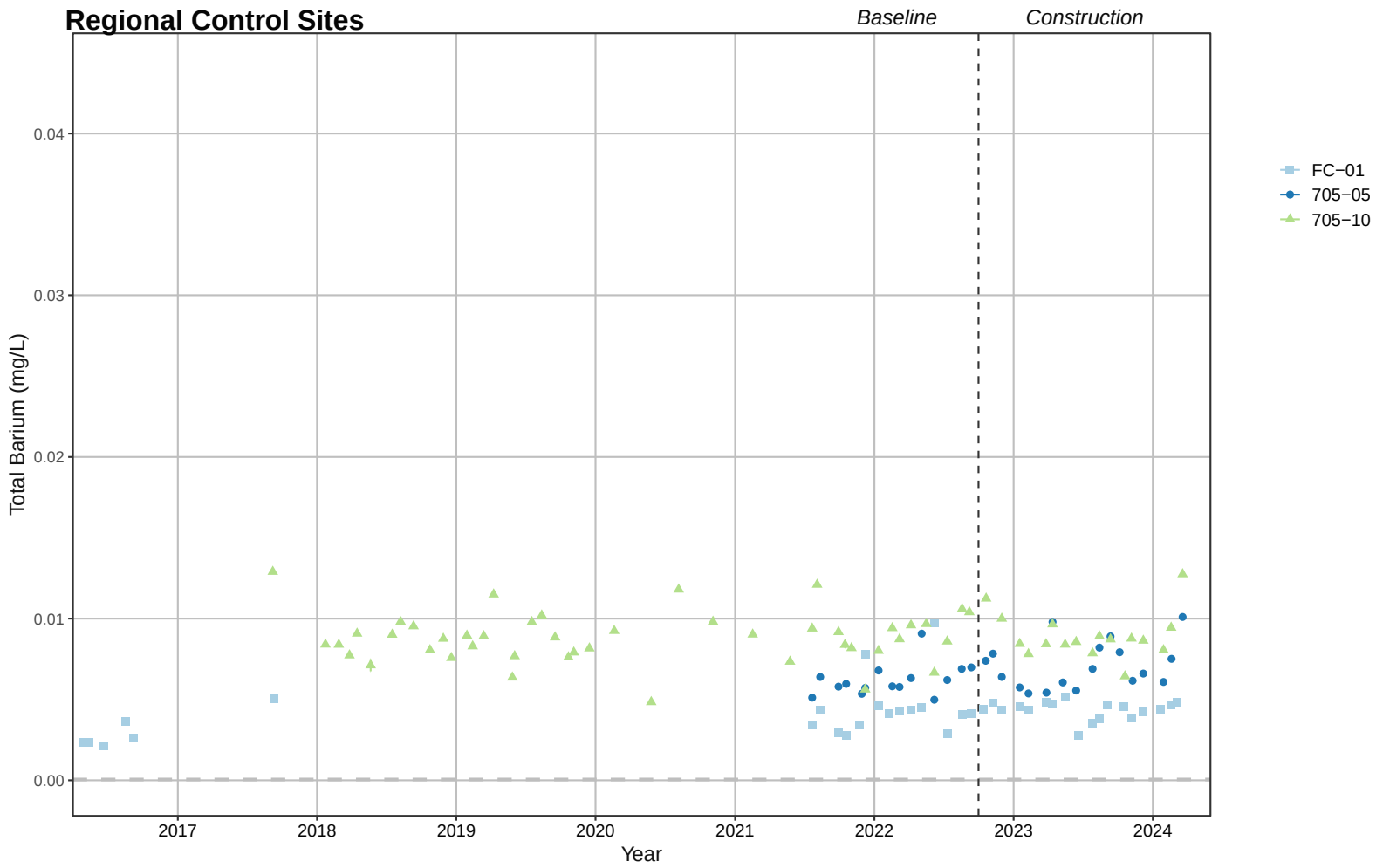
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term interim guideline for total barium = 1 mg/L.

Figure C.21.b: Monthly Mean Total Barium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



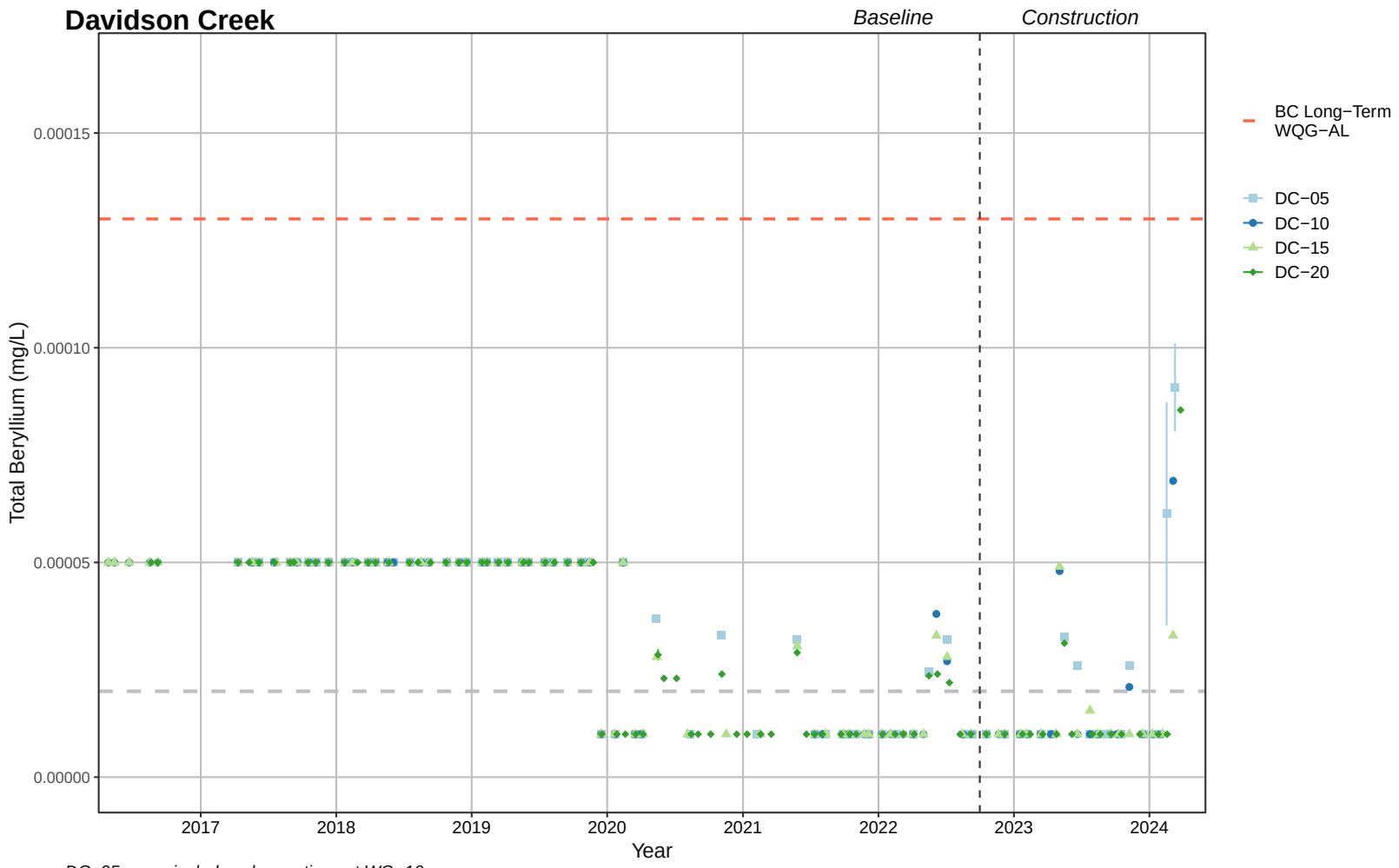
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term interim guideline for total barium = 1 mg/L.

Figure C.21.c: Monthly Mean Total Barium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



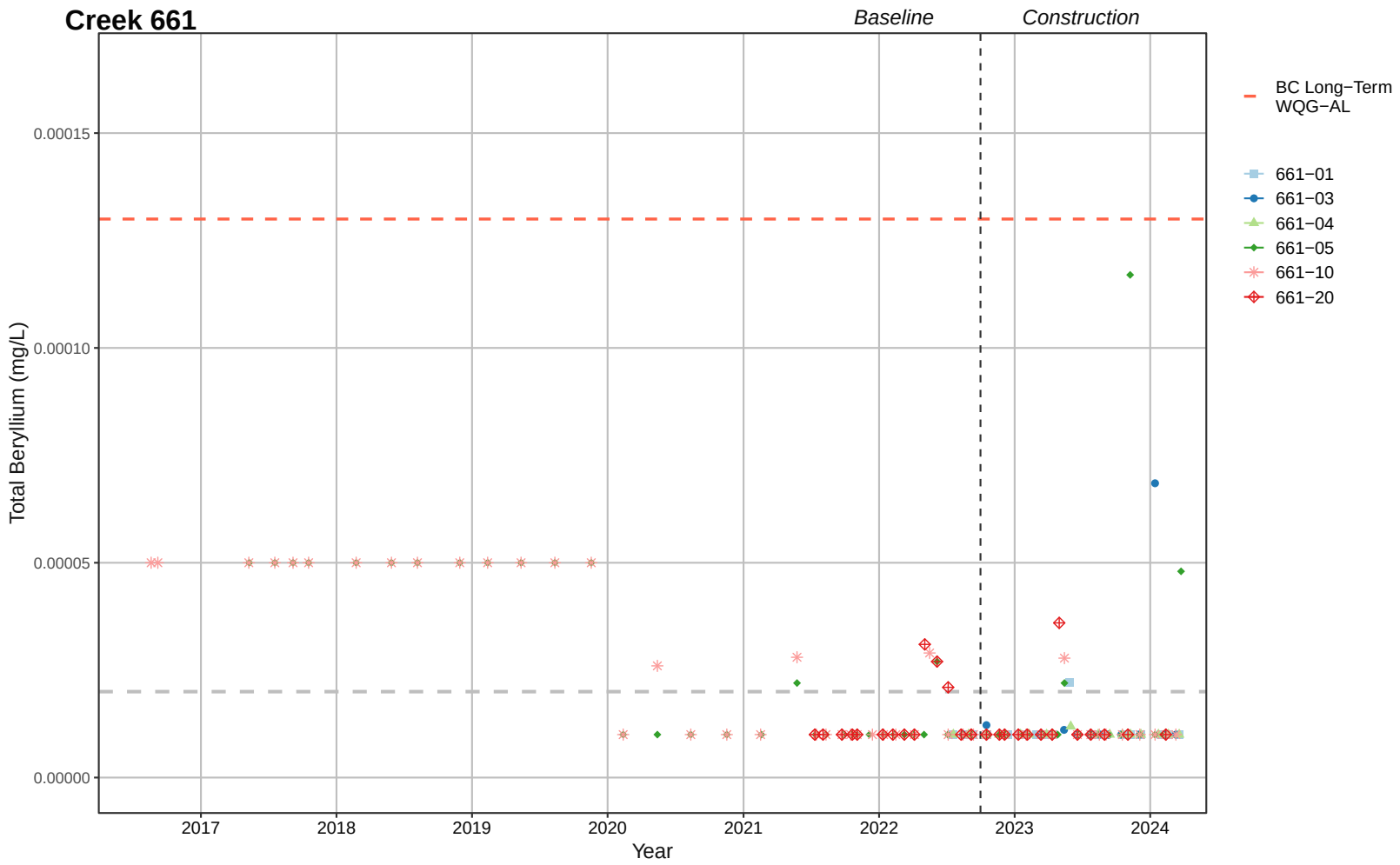
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL long−term interim guideline for total barium = 1 mg/L.

Figure C.21.d: Monthly Mean Total Barium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



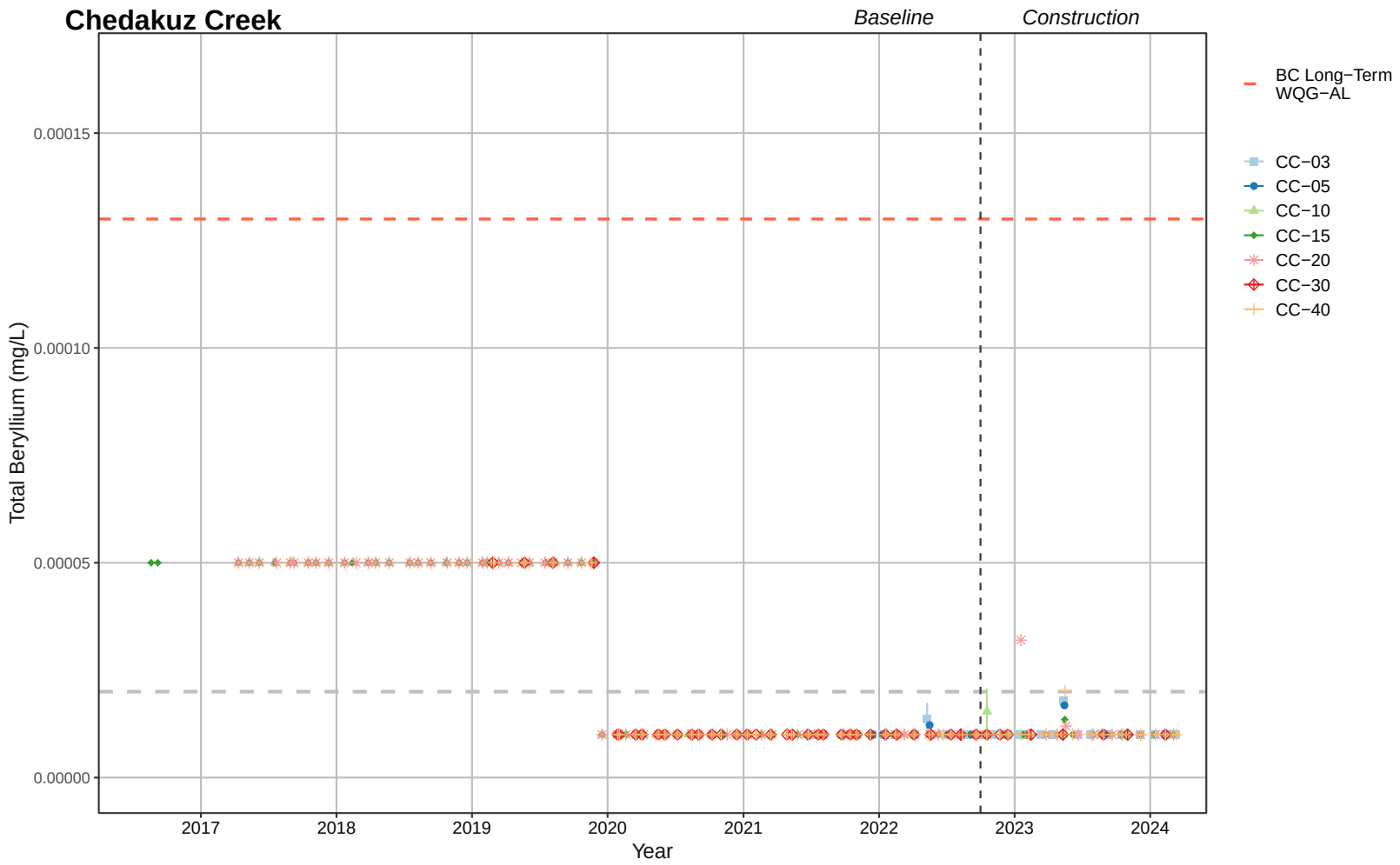
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term interim guideline for total beryllium = 0.00013 mg/L.

Figure C.22.a: Monthly Mean Total Beryllium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



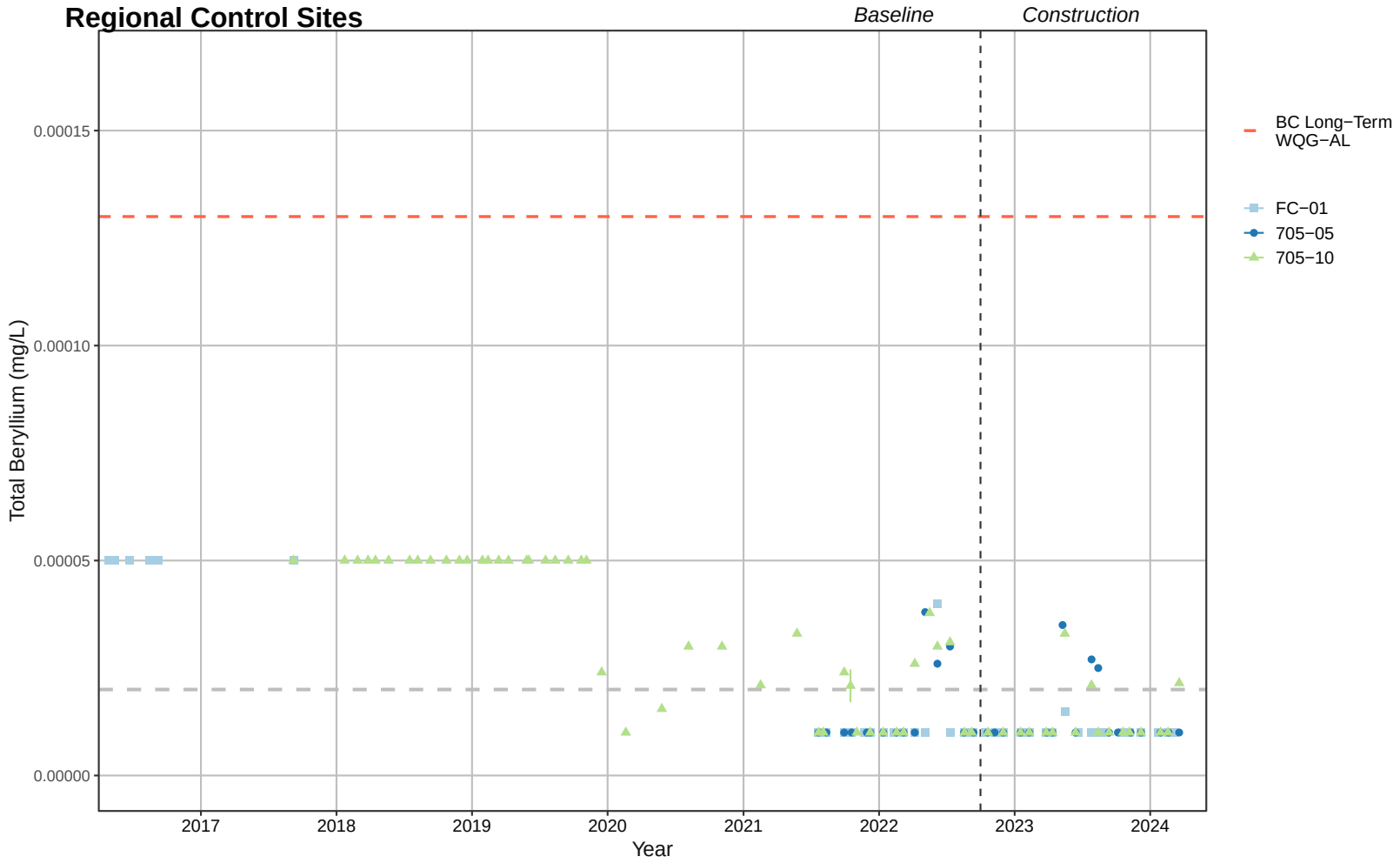
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term interim guideline for total beryllium = 0.00013 mg/L.

Figure C.22.b: Monthly Mean Total Beryllium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term interim guideline for total beryllium = 0.00013 mg/L.

Figure C.22.c: Monthly Mean Total Beryllium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term interim guideline for total beryllium = 0.00013 mg/L.

Figure C.22.d: Monthly Mean Total Beryllium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

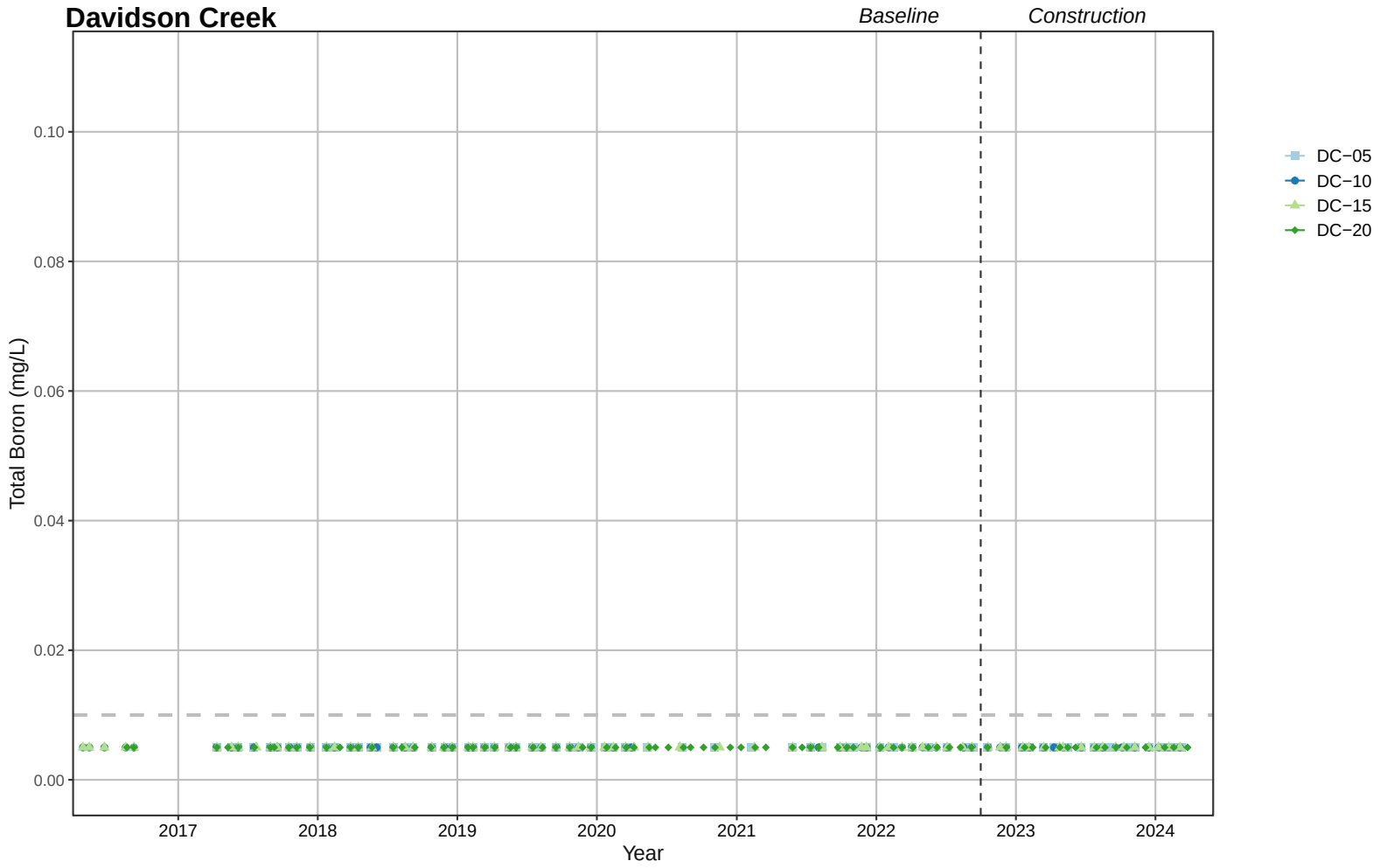
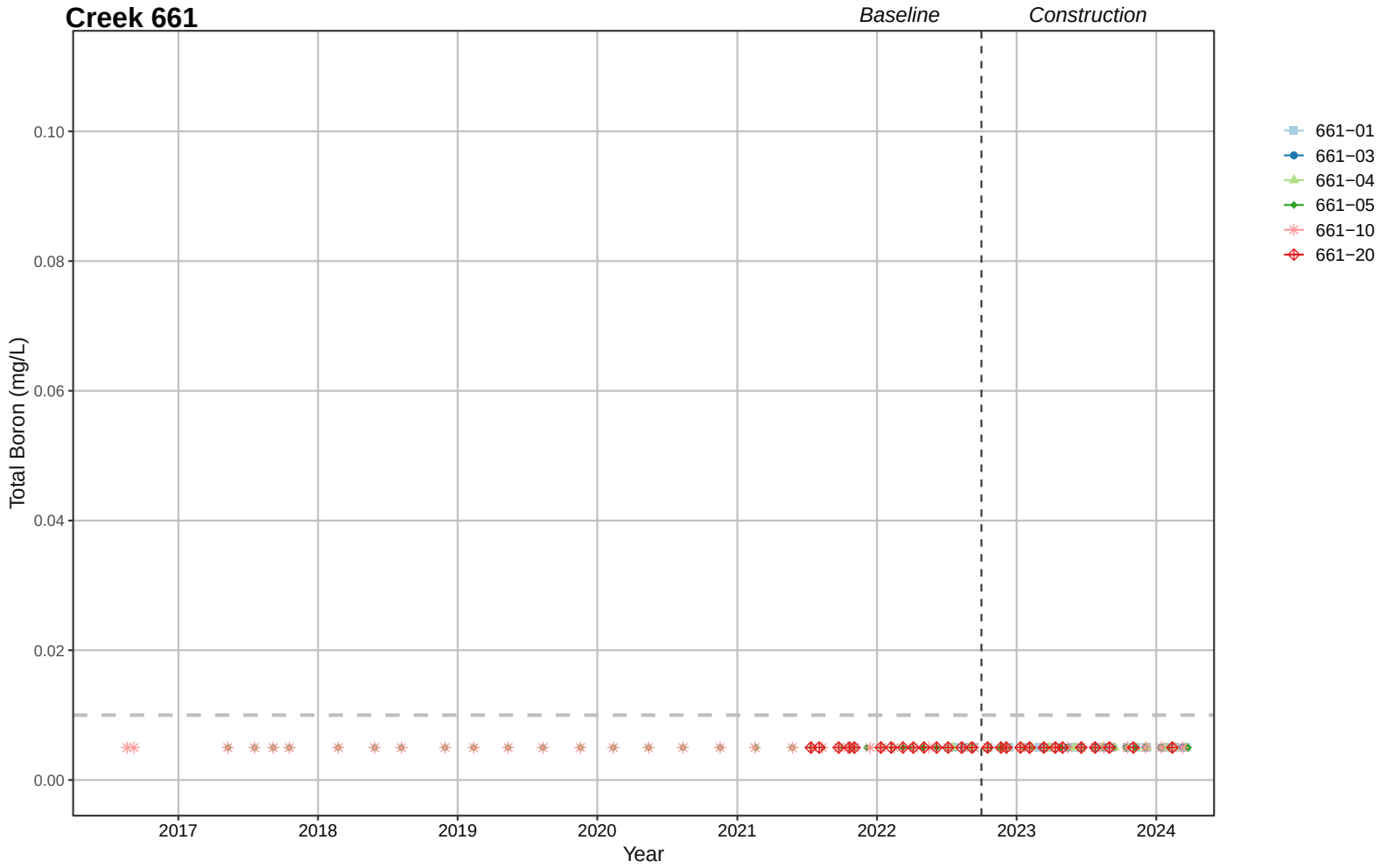
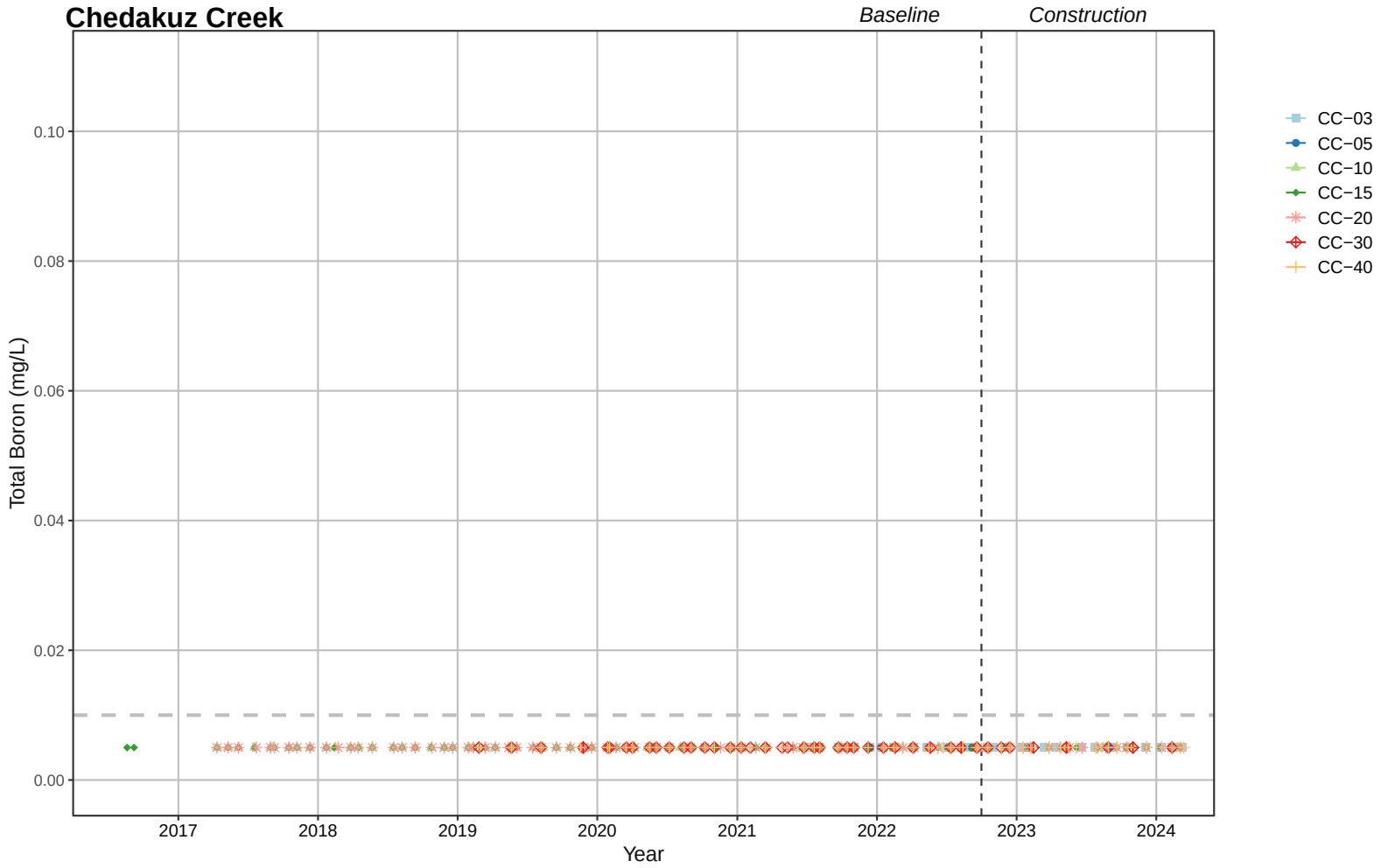


Figure C.23.a: Monthly Mean Total Boron Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



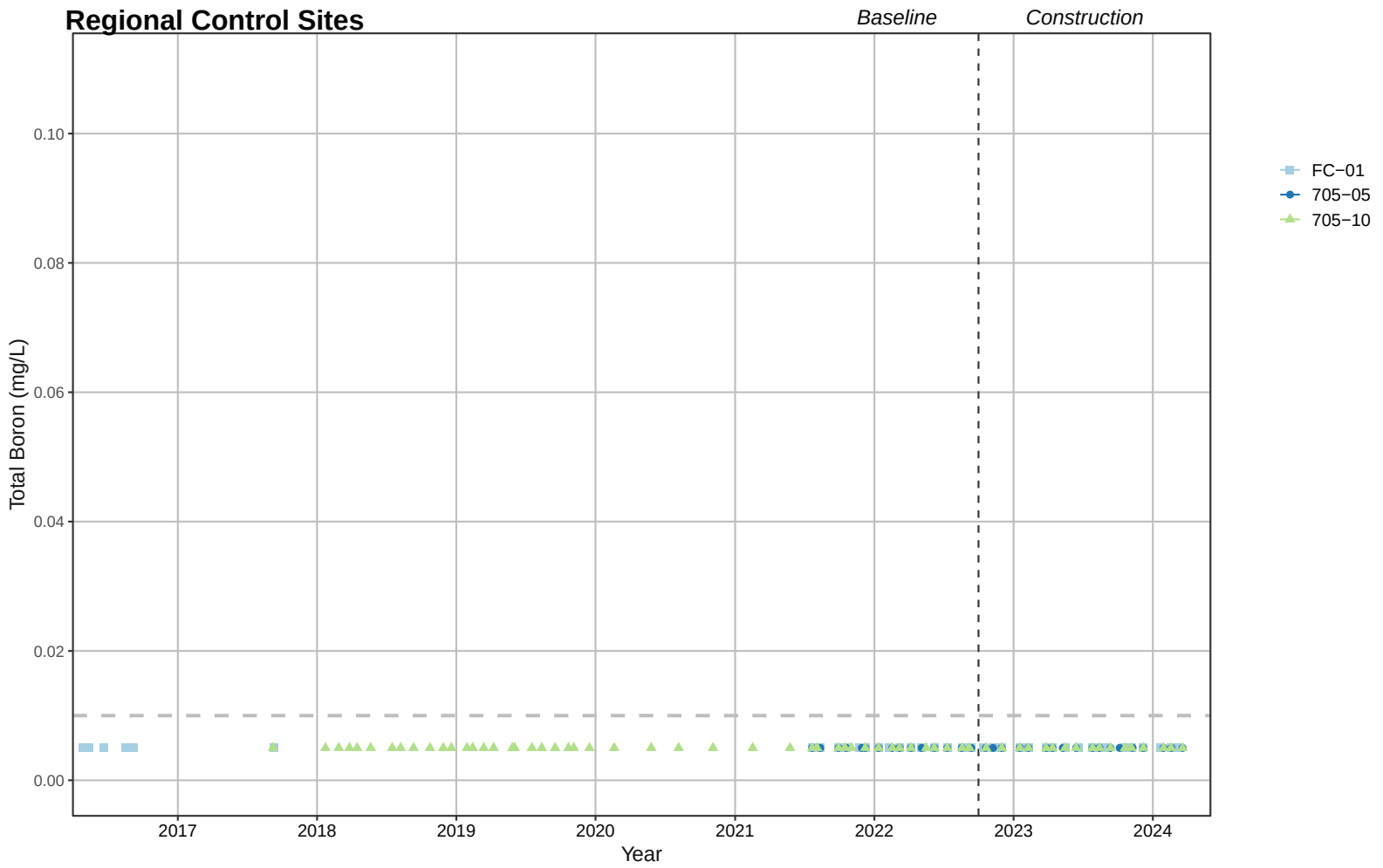
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC 30−day WQG−AL for total boron = 1.2 mg/L.

Figure C.23.b: Monthly Mean Total Boron Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



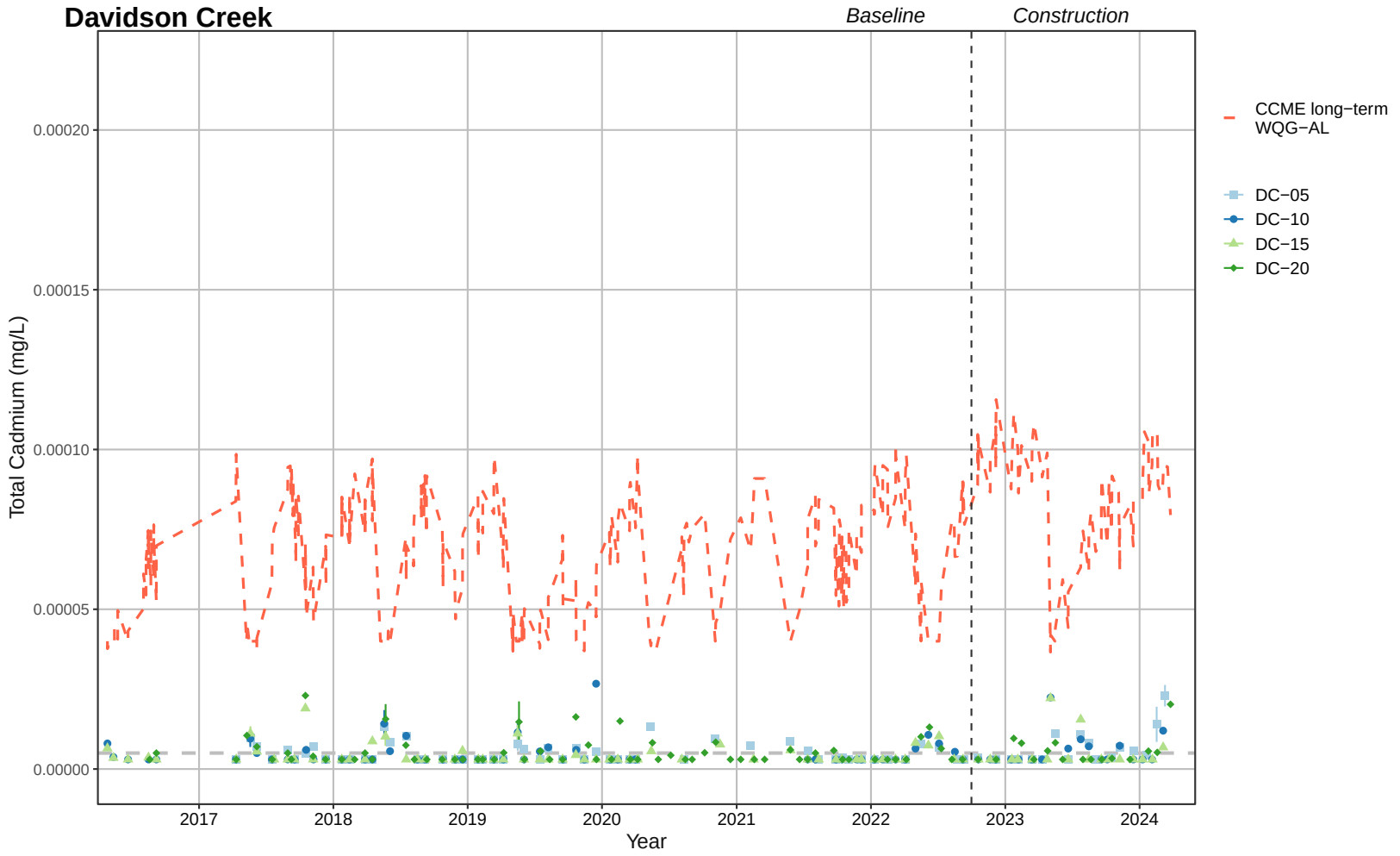
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC 30−day WQG−AL for total boron = 1.2 mg/L.

Figure C.23.c: Monthly Mean Total Boron Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



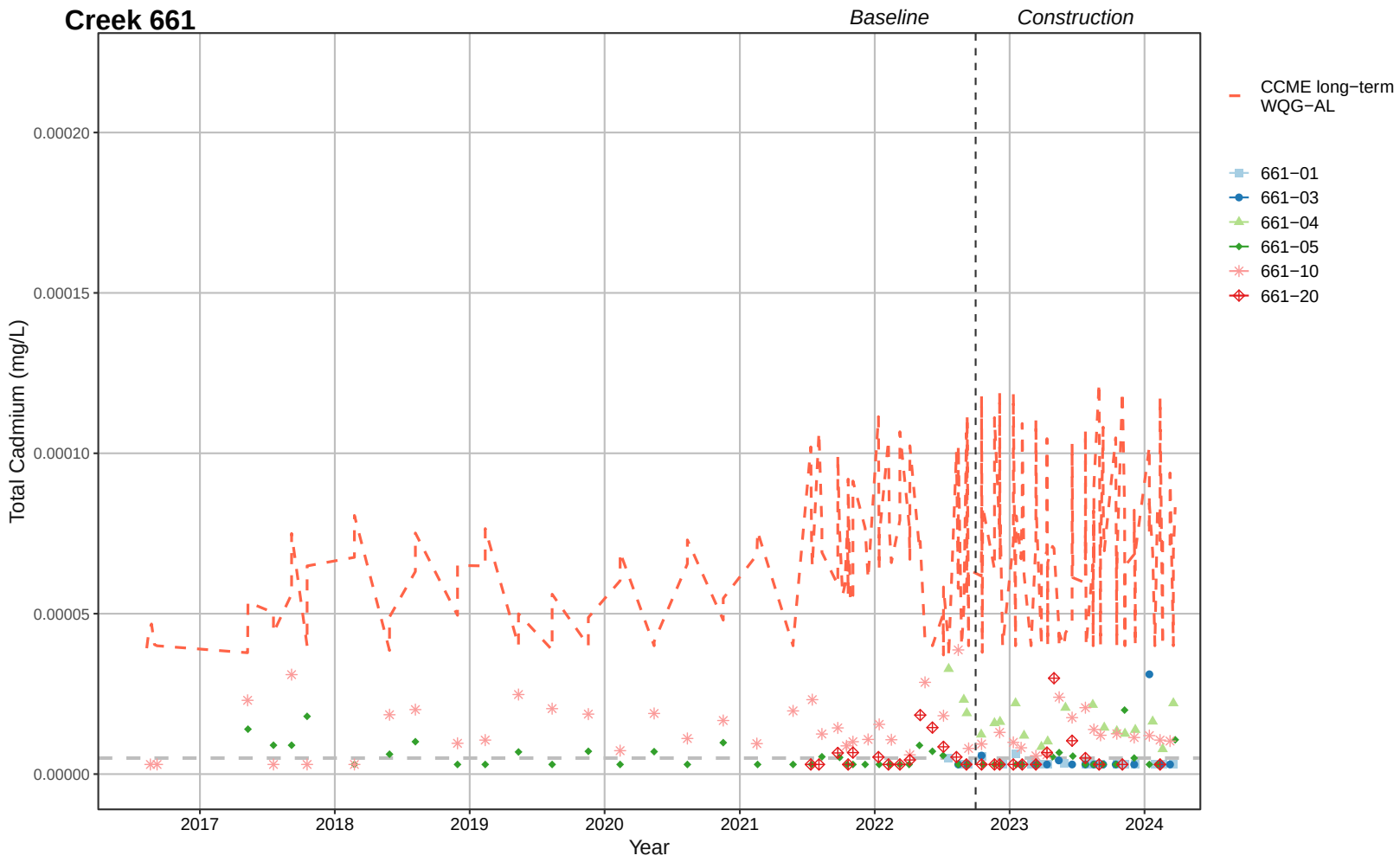
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC 30−day WQG−AL for total boron = 1.2 mg/L.

Figure C.23.d: Monthly Mean Total Boron Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



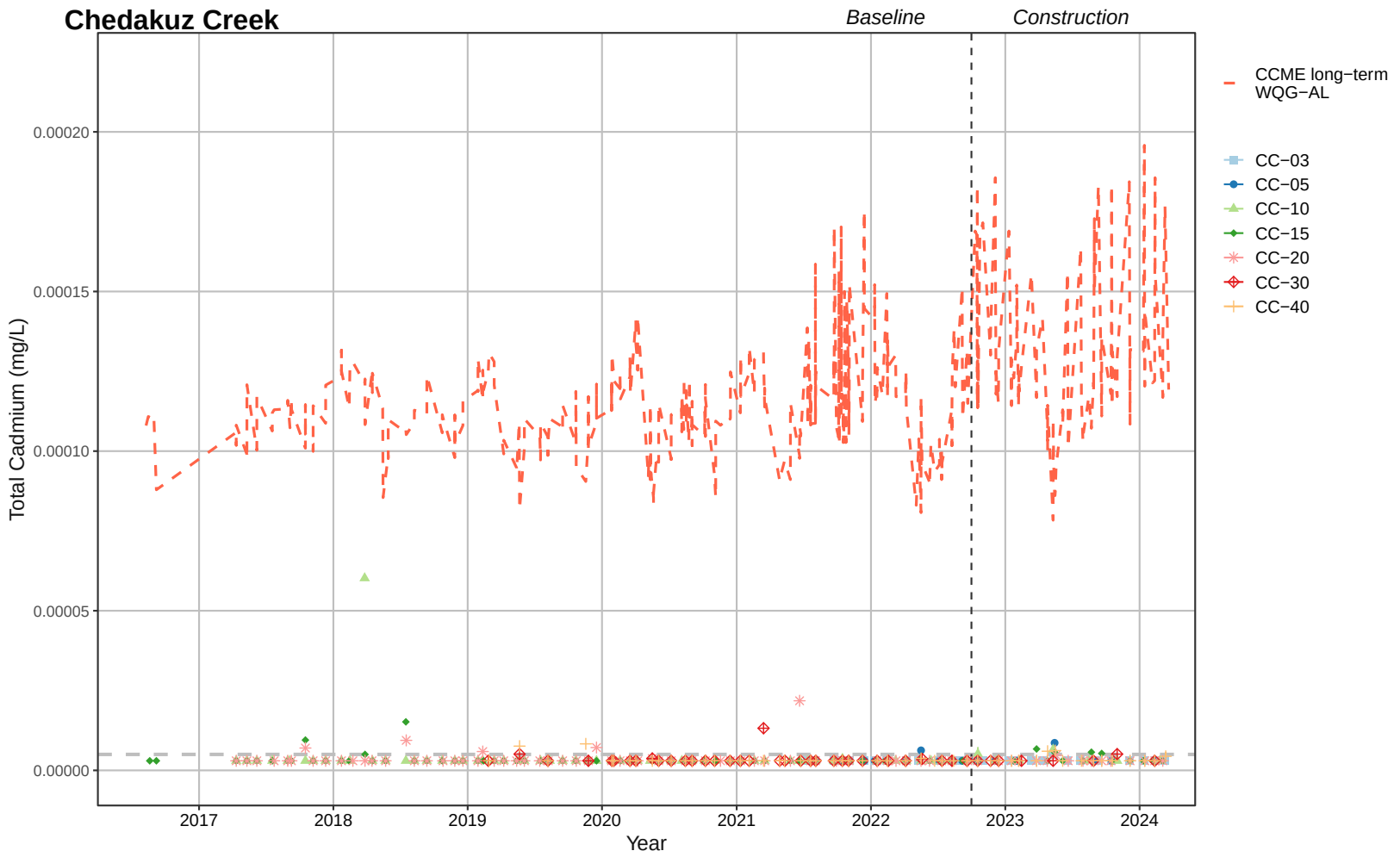
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total cadmium is hardness dependent.

Figure C.24.a: Monthly Mean Total Cadmium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



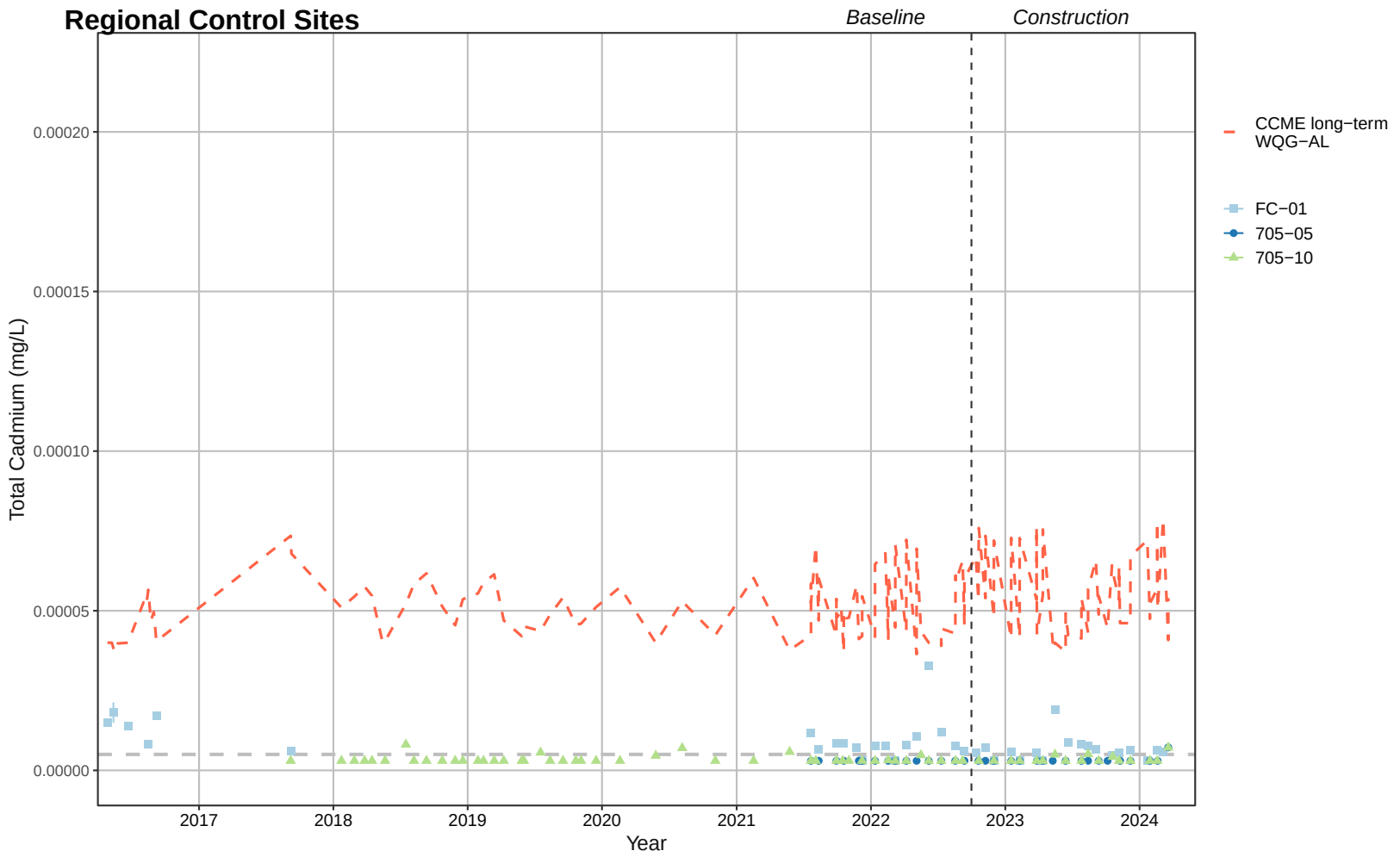
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total cadmium is hardness dependent.

Figure C.24.b: Monthly Mean Total Cadmium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



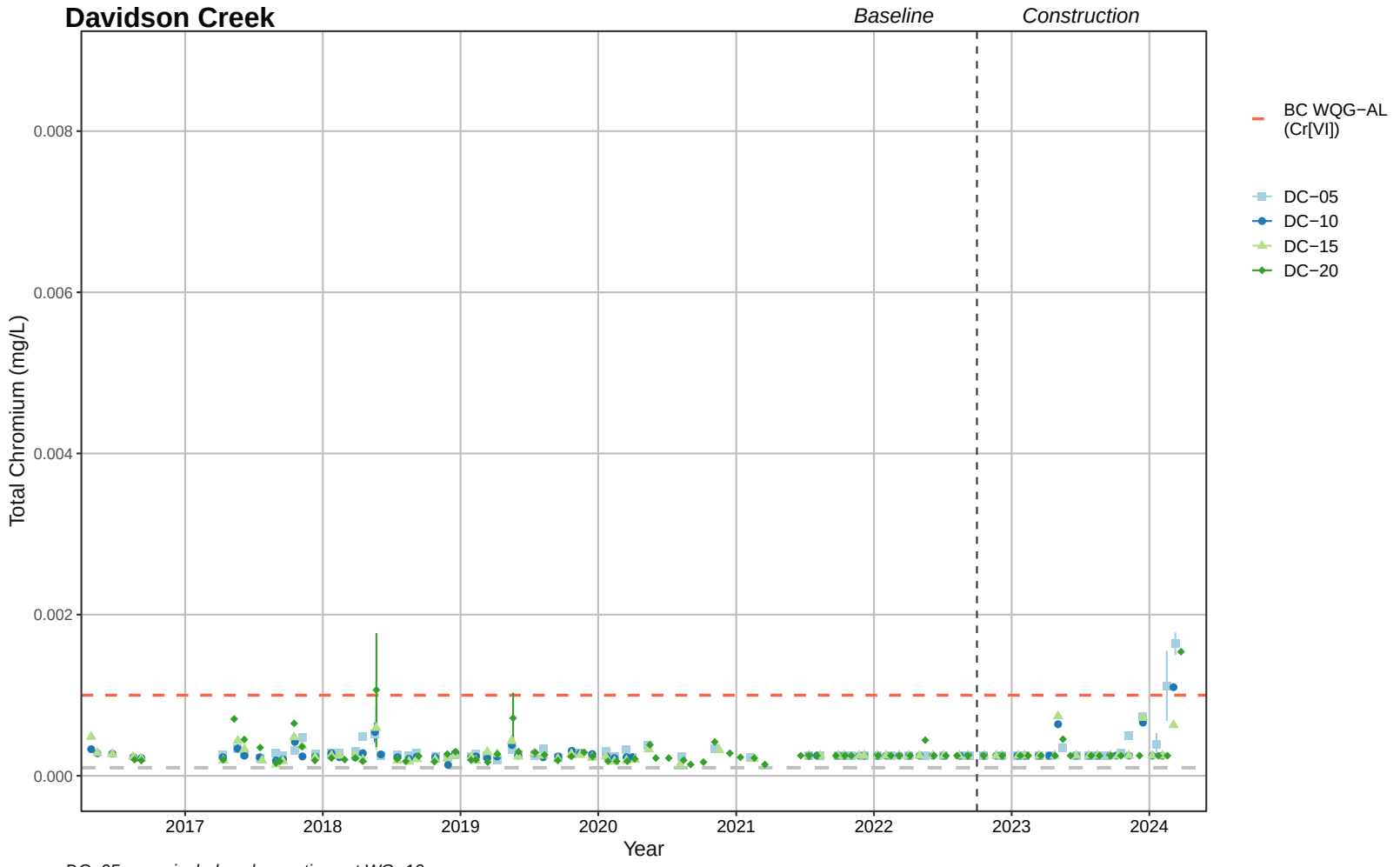
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total cadmium is hardness dependent.

Figure C.24.c: Monthly Mean Total Cadmium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



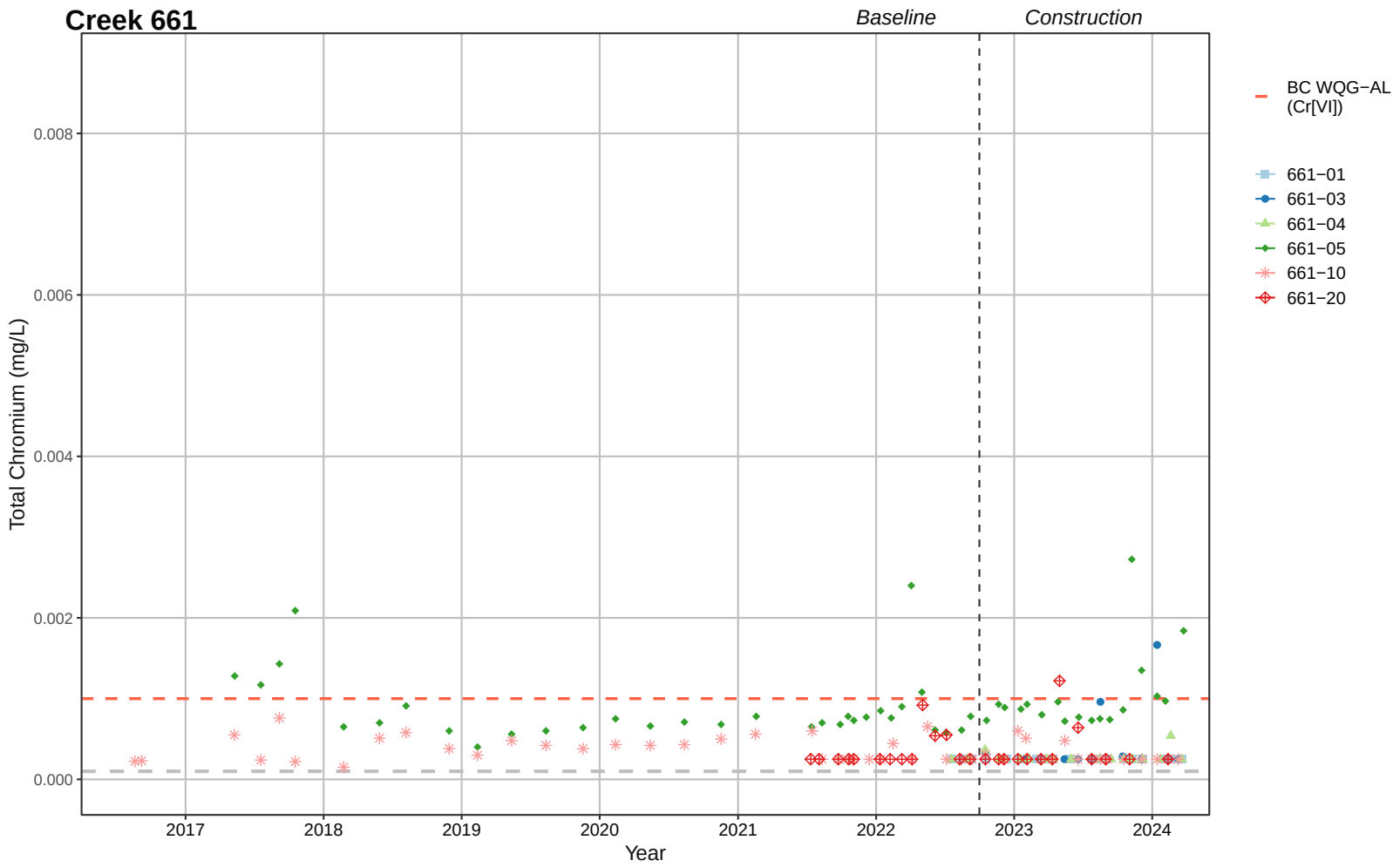
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total cadmium is hardness dependent.

Figure C.24.d: Monthly Mean Total Cadmium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



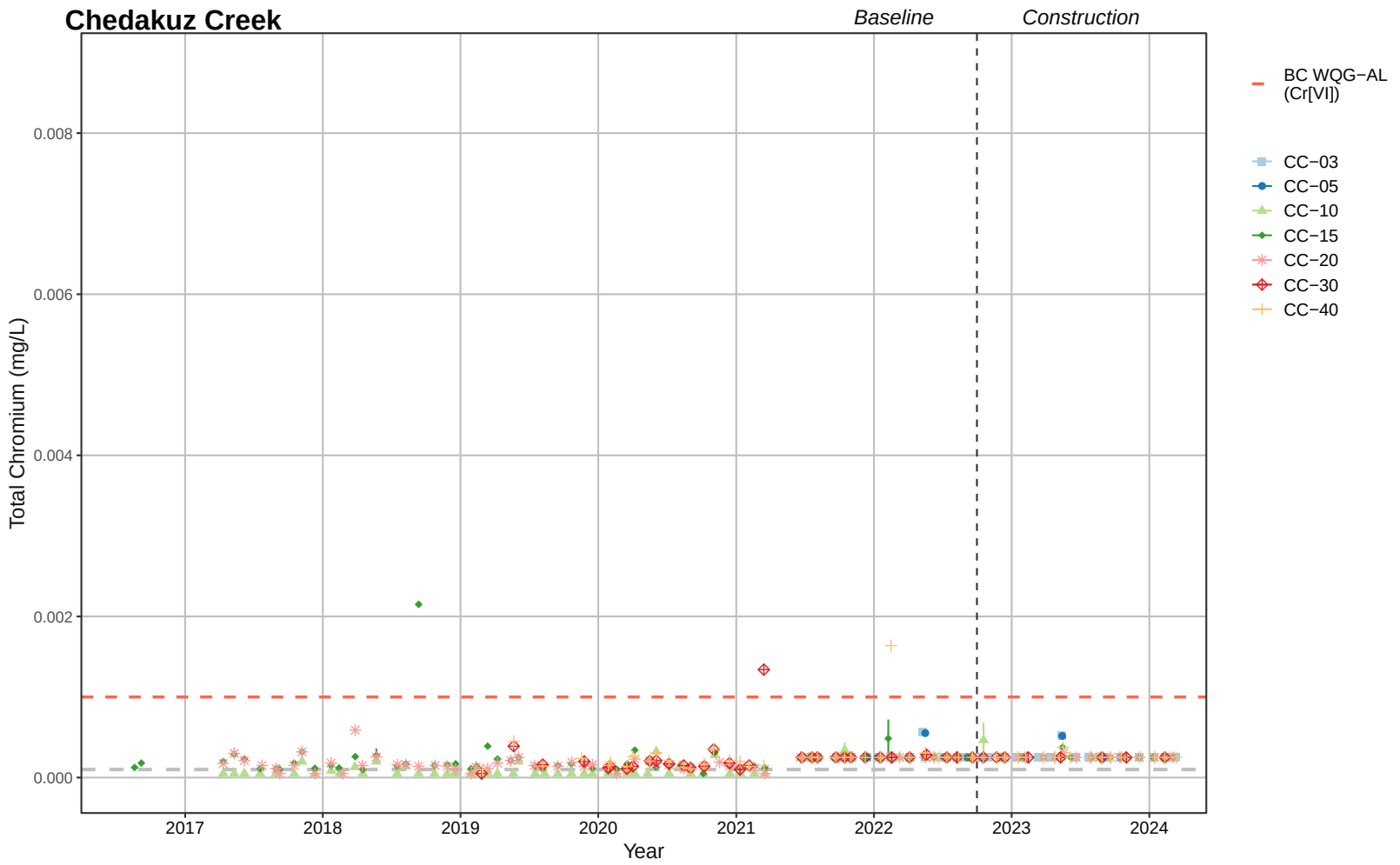
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
There is no BC WQG−AL for total chromium, the BC WQL−AL for hexavalent chromium (Cr[VI] 0.001mg/L) is plotted for comparison.

Figure C.25.a: Monthly Mean Total Chromium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



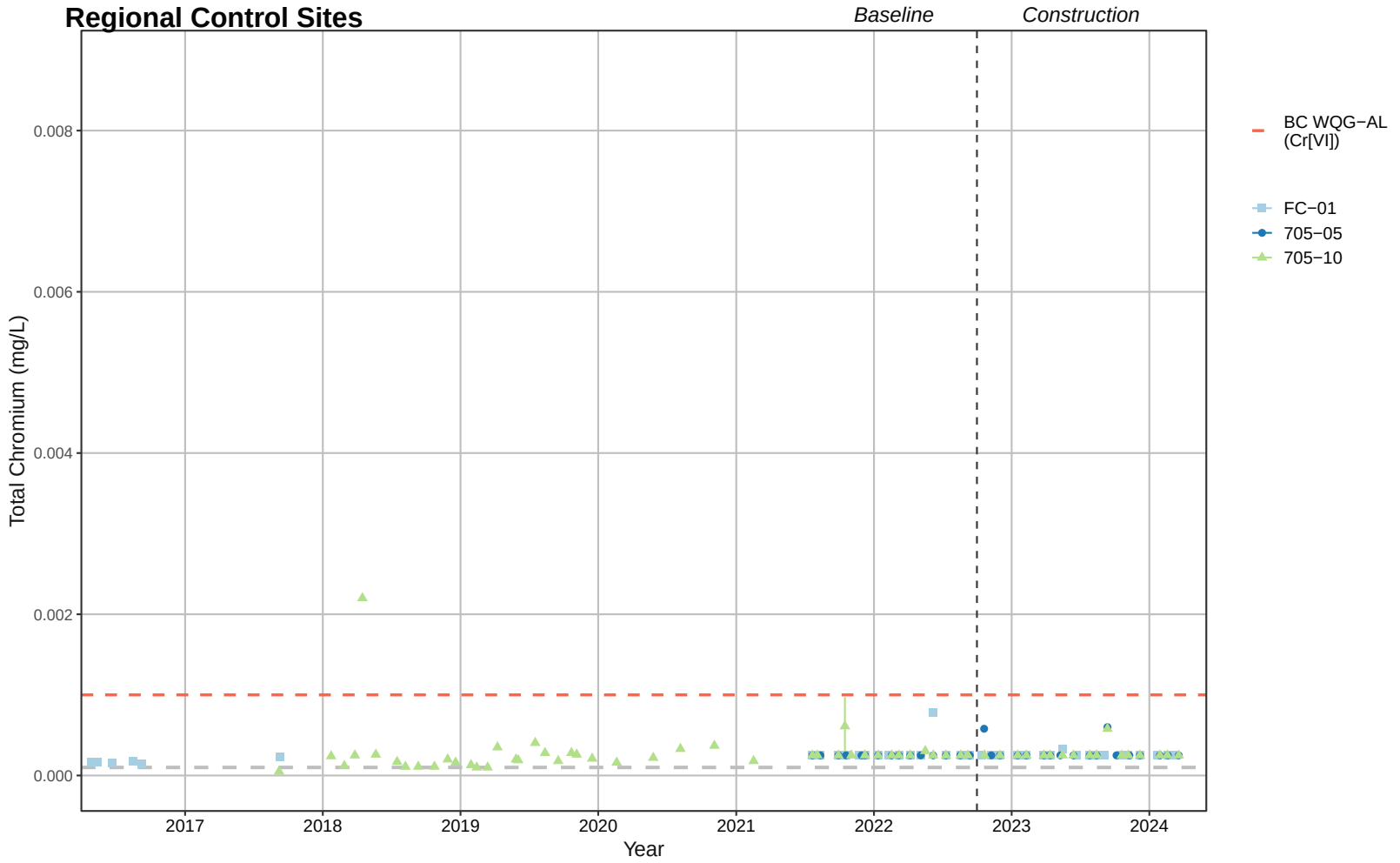
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
There is no BC WQG−AL for total chromium, the BC WQL−AL for hexavalent chromium (Cr[VI] 0.001mg/L) is plotted for comparison.

Figure C.25.b: Monthly Mean Total Chromium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
There is no BC WQG−AL for total chromium, the BC WQL−AL for hexavalent chromium (Cr[VI] 0.001mg/L) is plotted for comparison.

Figure C.25.c: Monthly Mean Total Chromium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
There is no BC WQG−AL for total chromium, the BC WQL−AL for hexavalent chromium (Cr[VI] 0.001mg/L) is plotted for comparison.

Figure C.25.d: Monthly Mean Total Chromium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

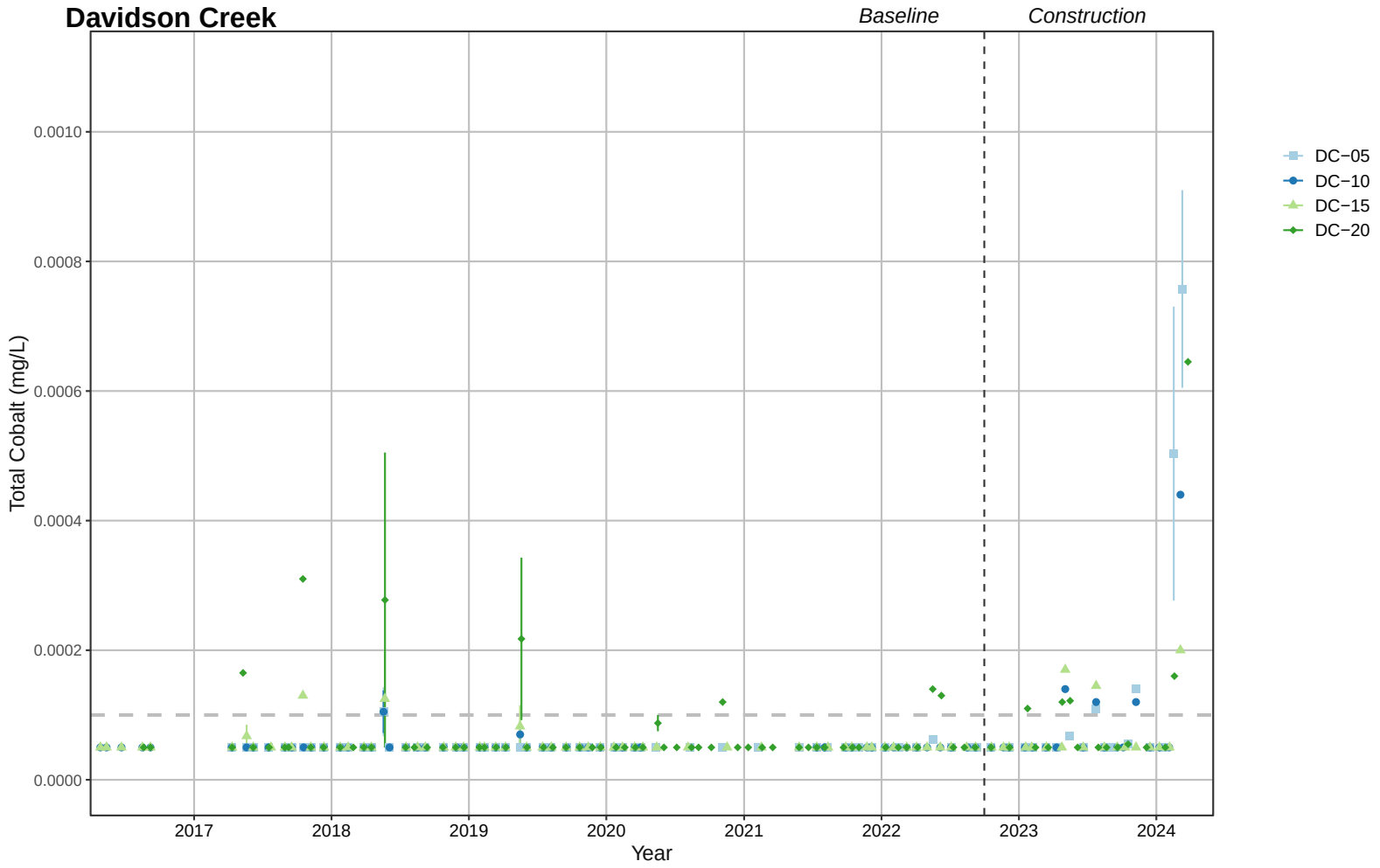
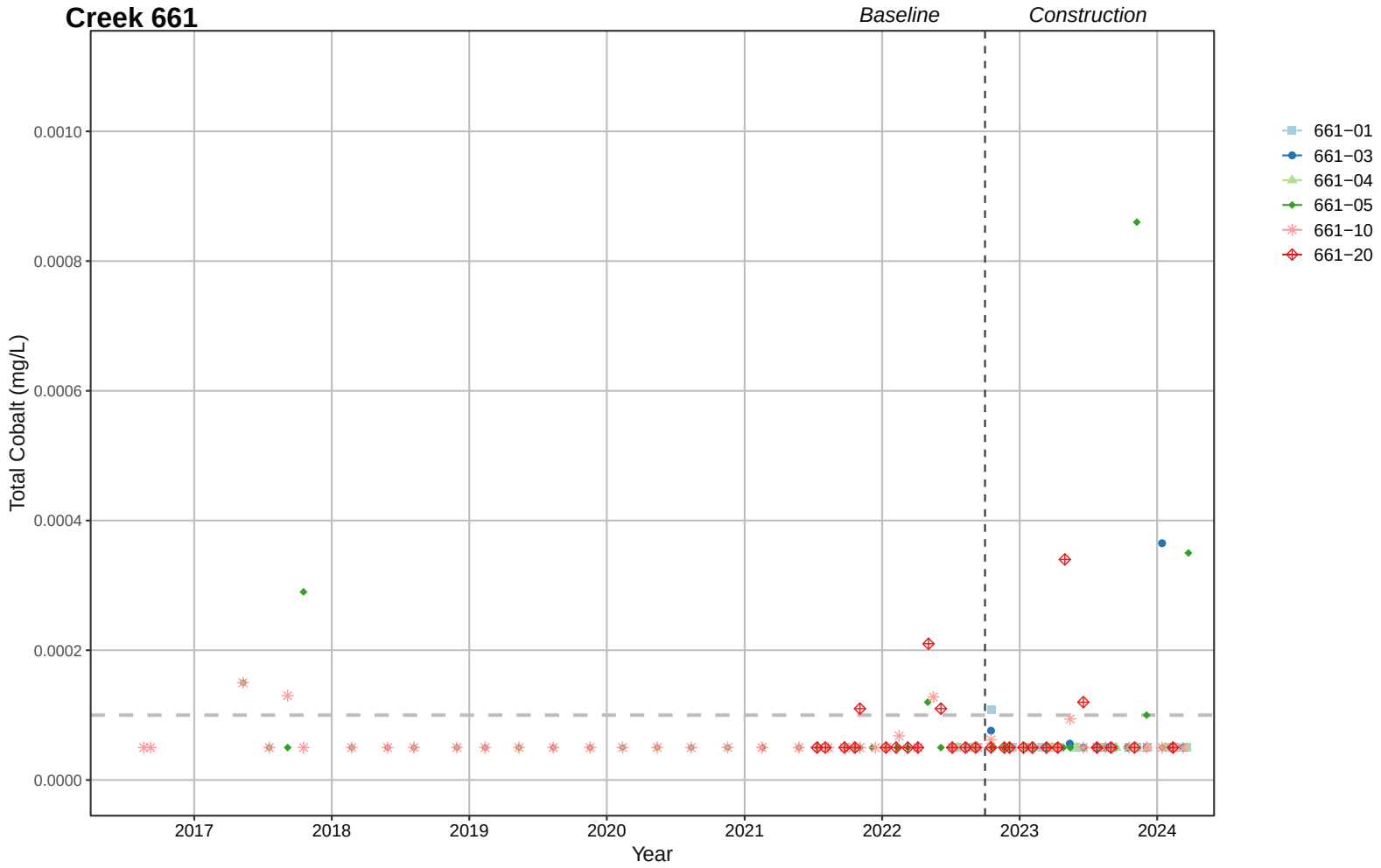
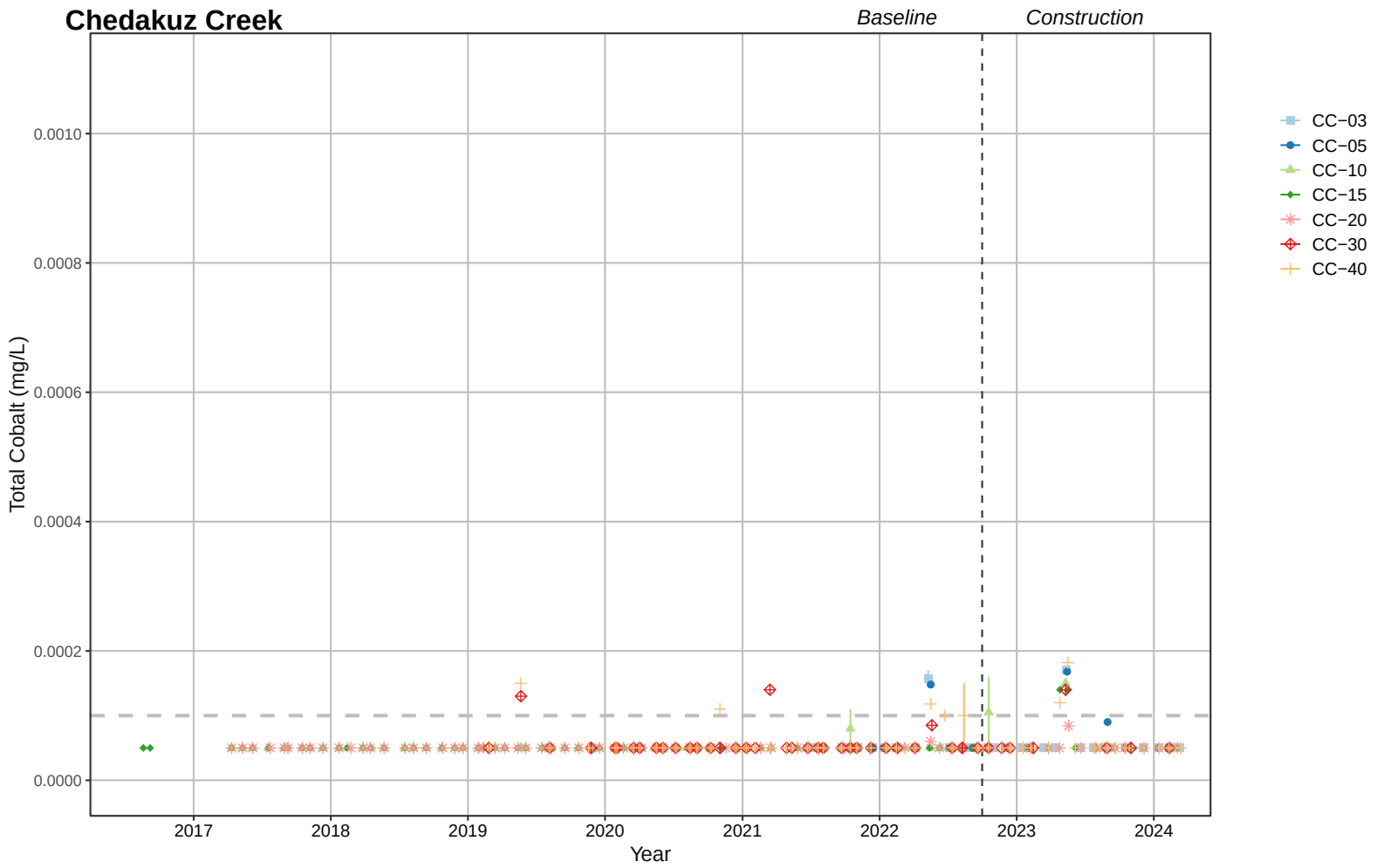


Figure C.26.a: Monthly Mean Total Cobalt Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



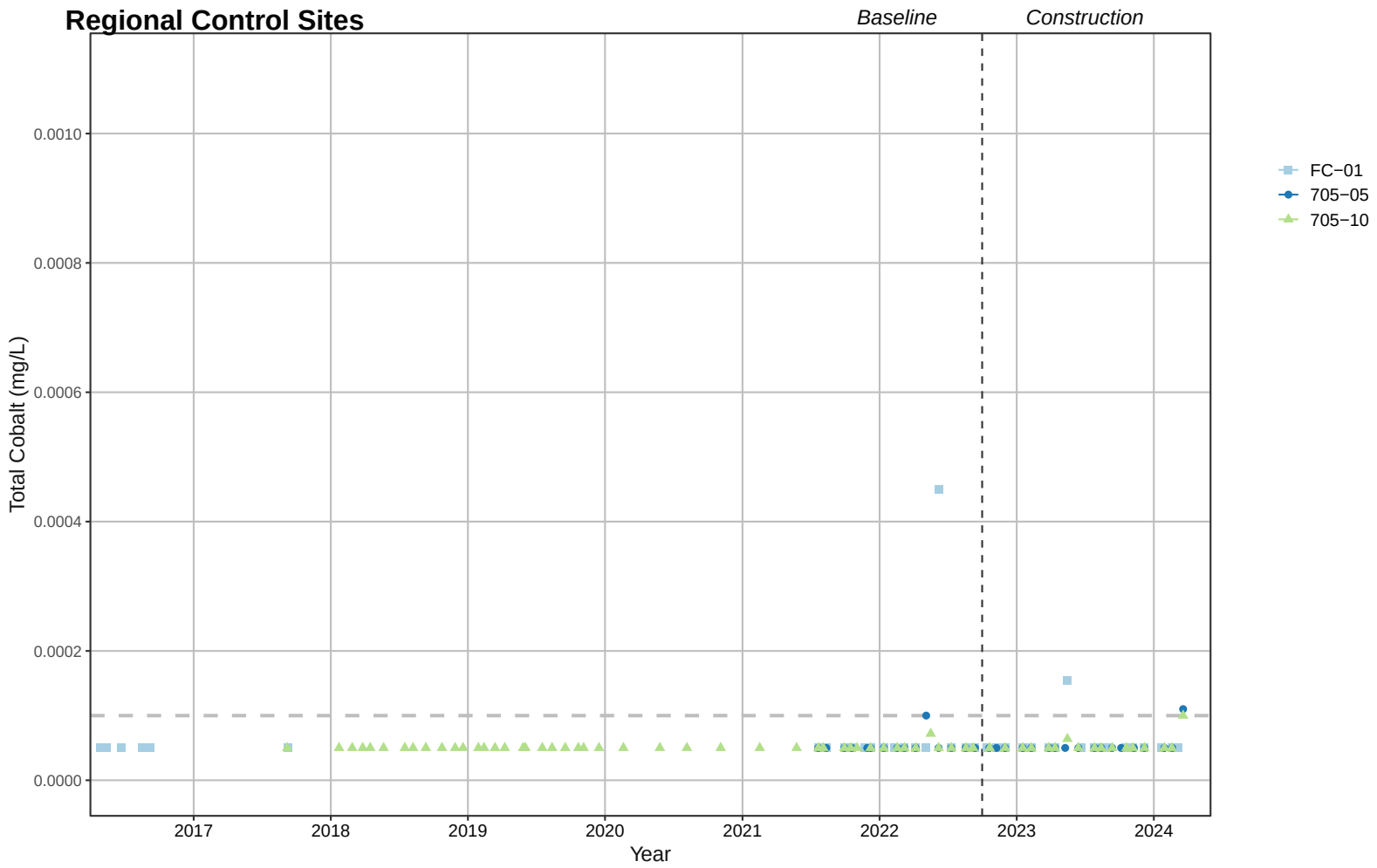
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term 30−day guideline for total cobalt = 0.004 mg/L.

Figure C.26.b: Monthly Mean Total Cobalt Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term 30−day guideline for total cobalt = 0.004 mg/L.

Figure C.26.c: Monthly Mean Total Cobalt Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term 30−day guideline for total cobalt = 0.004 mg/L.

Figure C.26.d: Monthly Mean Total Cobalt Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

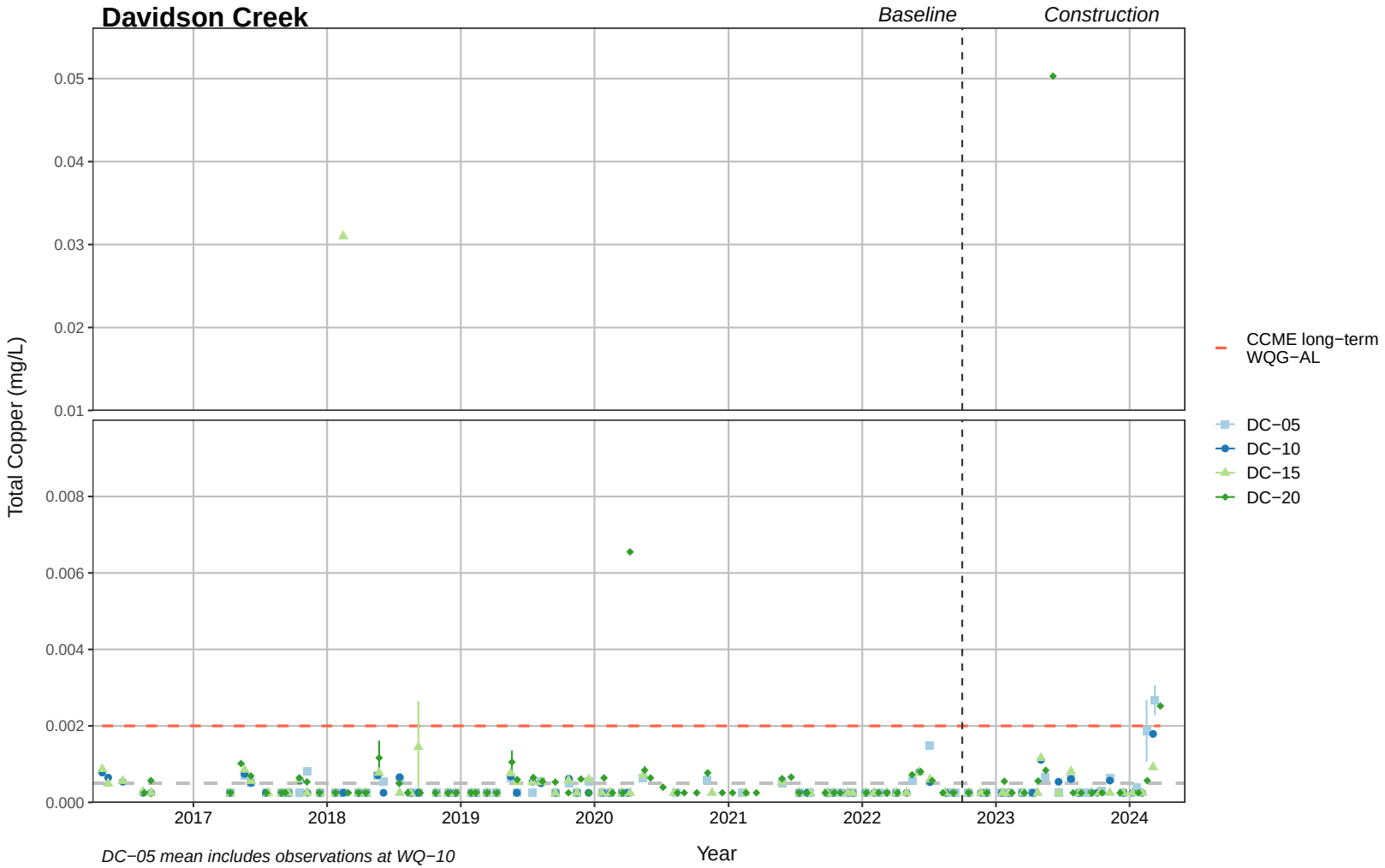
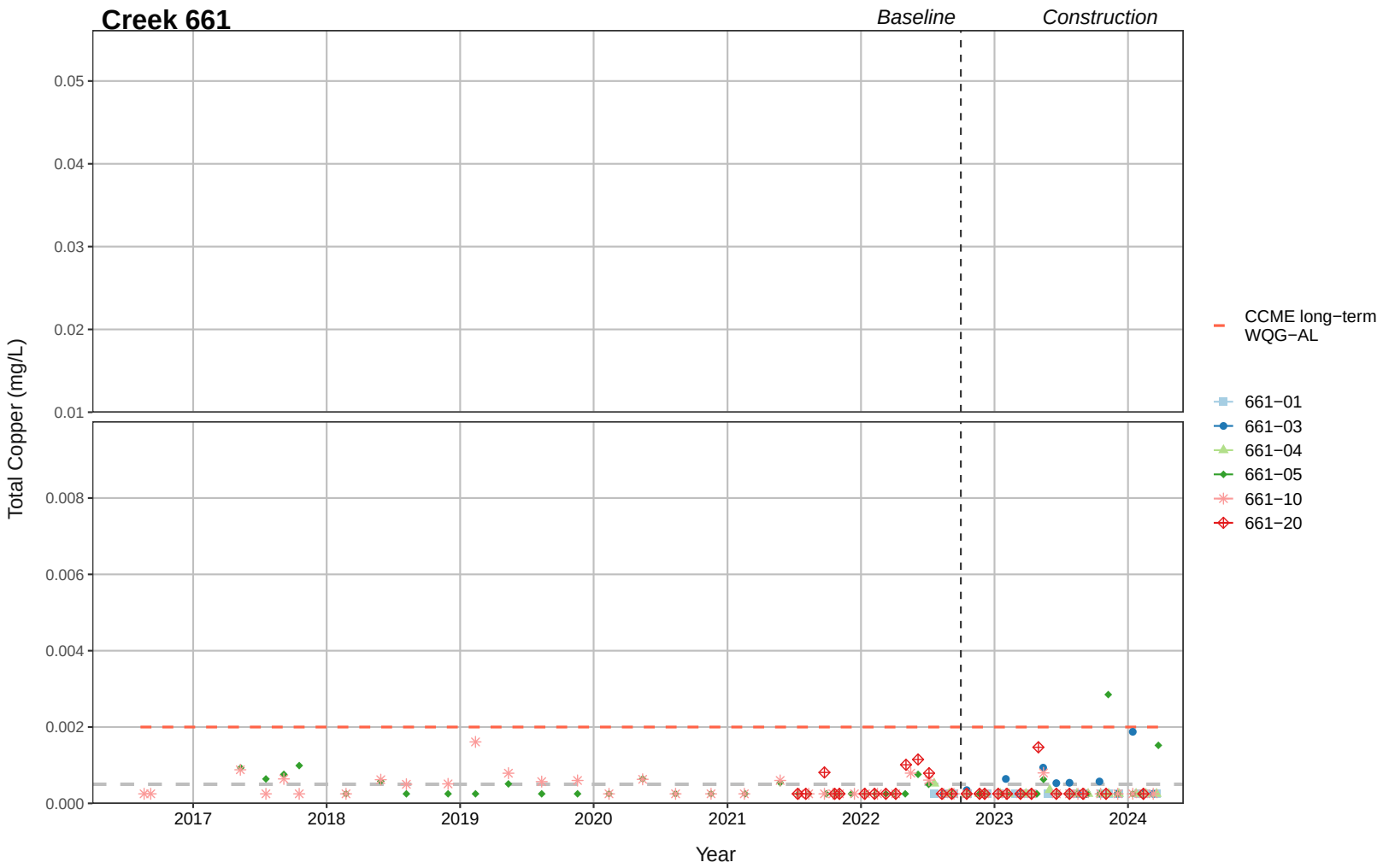
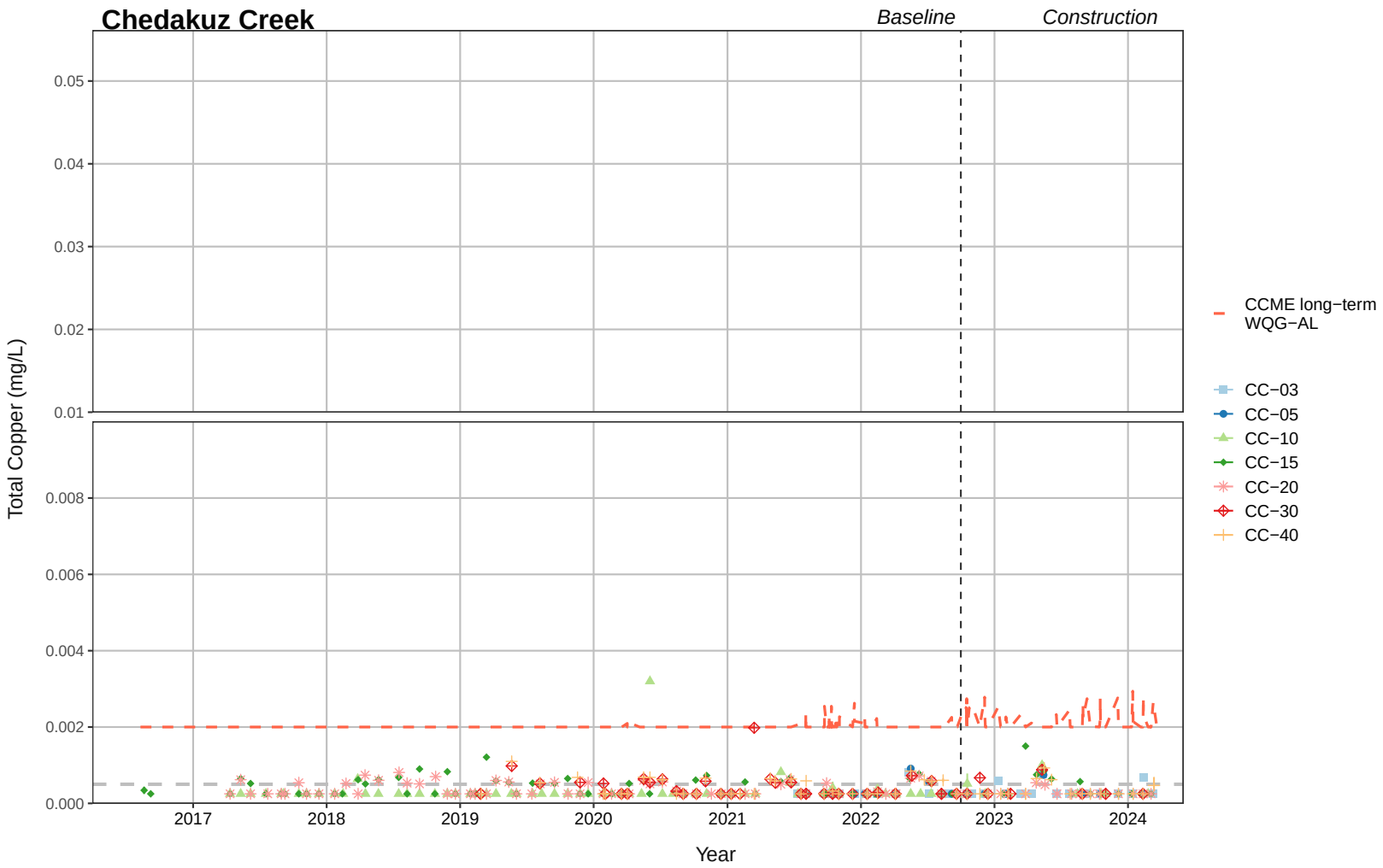


Figure C.27.a: Monthly Mean Total Copper Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total copper is hardness dependent.

Figure C.27.b: Monthly Mean Total Copper Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
CCME WQG−AL long−term guideline for total copper is hardness dependent.

Figure C.27.c: Monthly Mean Total Copper Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

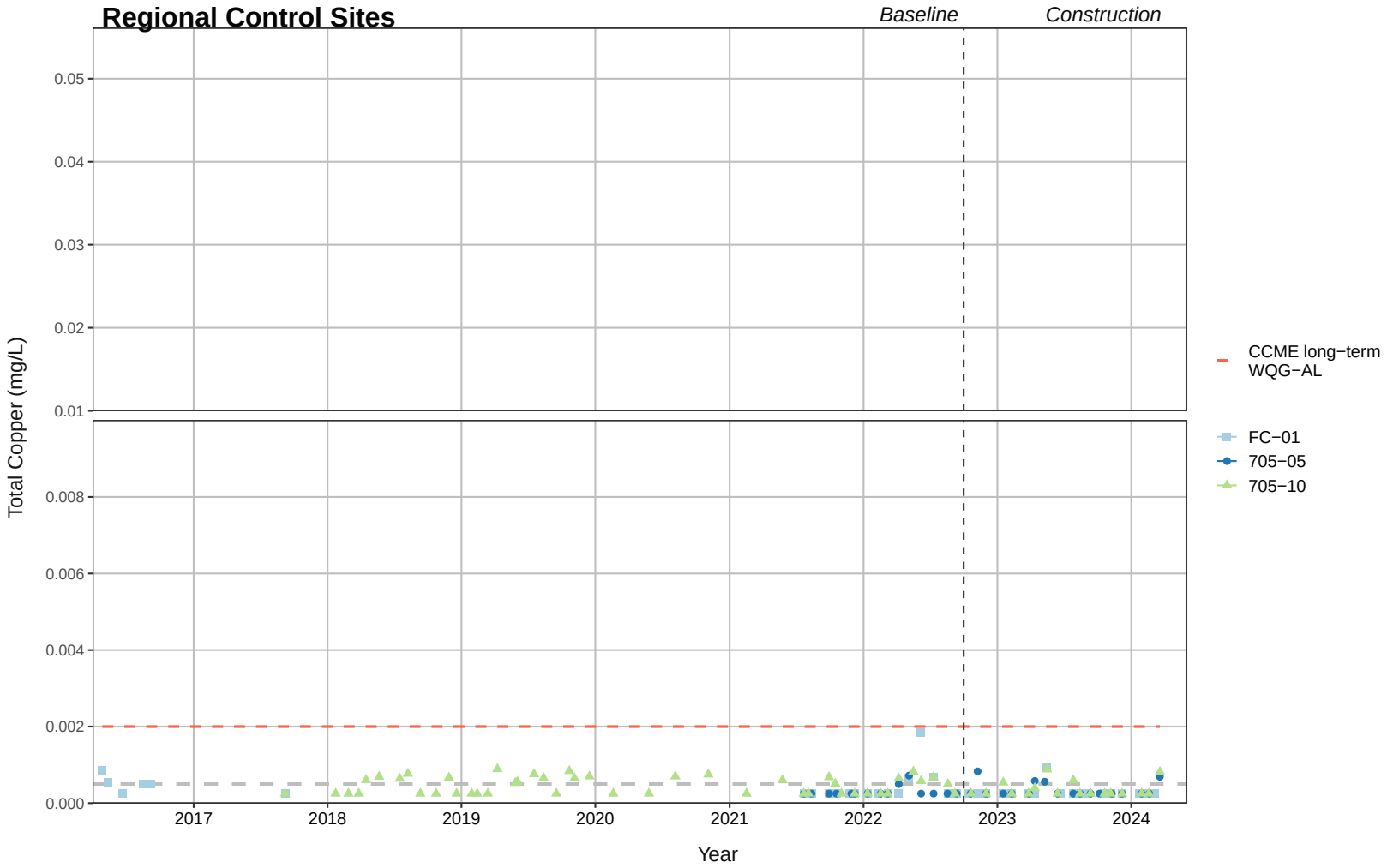
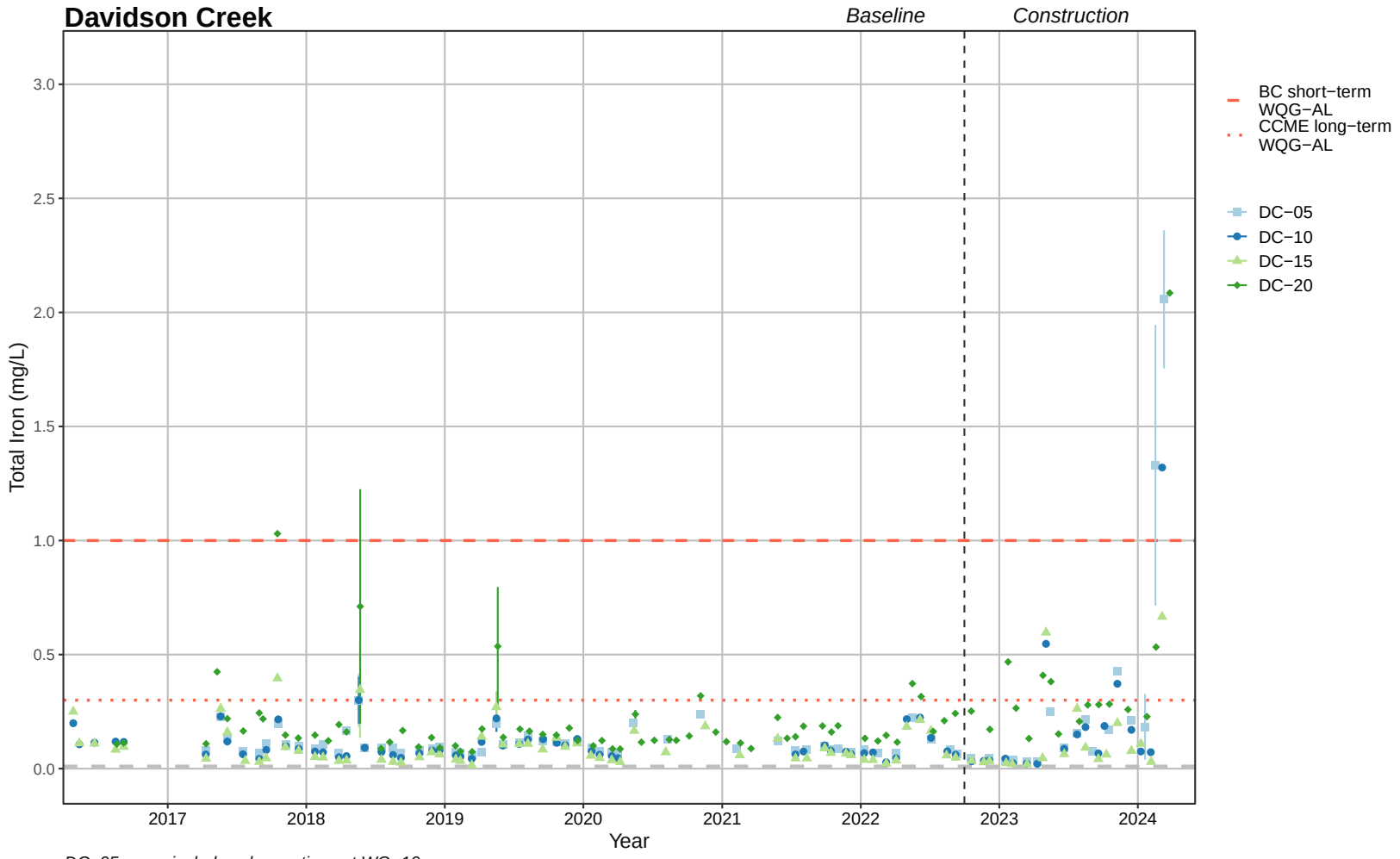


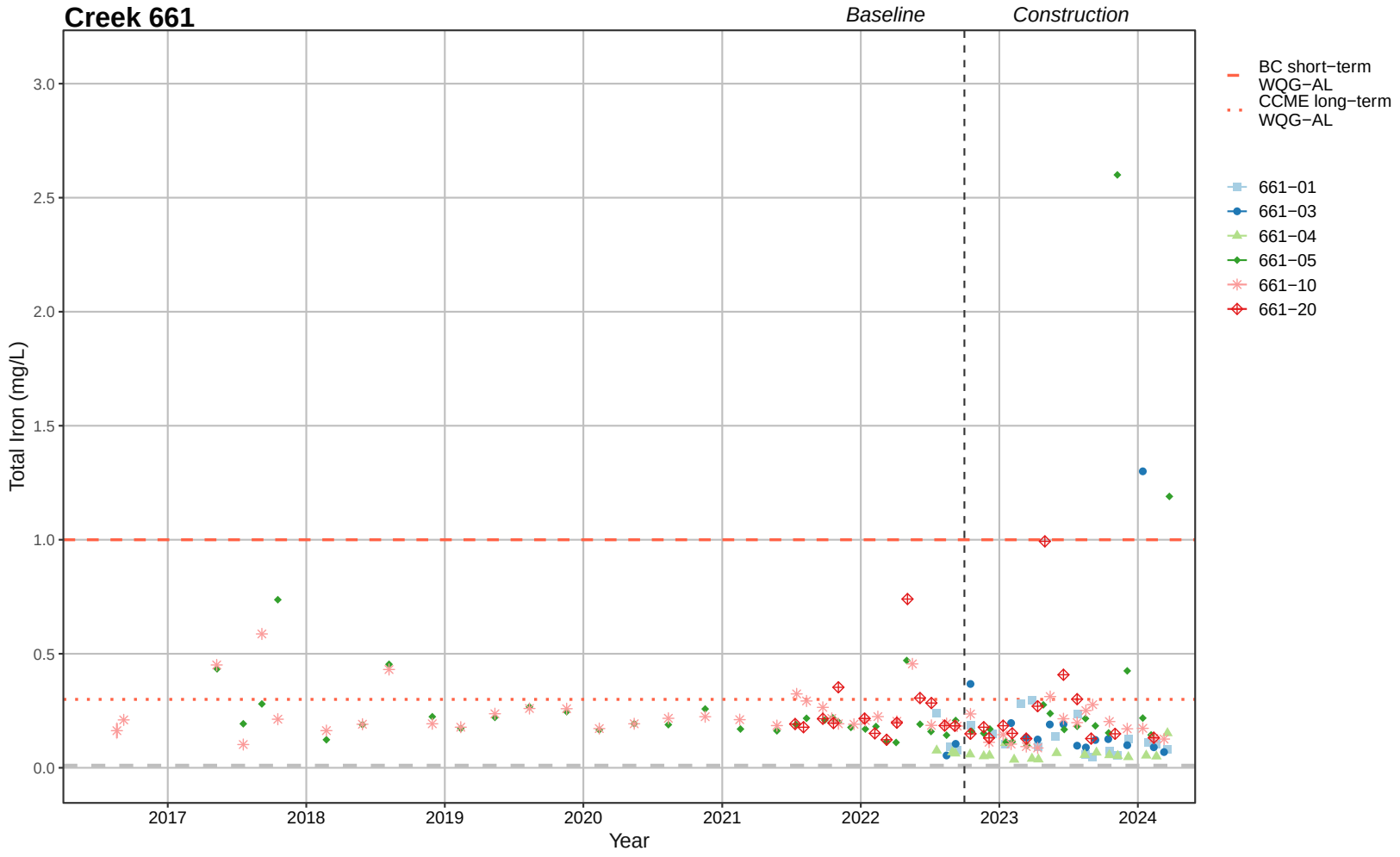
Figure C.27.d: Monthly Mean Total Copper Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME WQG−AL long−term guideline for total iron = 0.3 mg/L.
BC WQG−AL short−term maximum guideline for total iron = 1.0 mg/L.

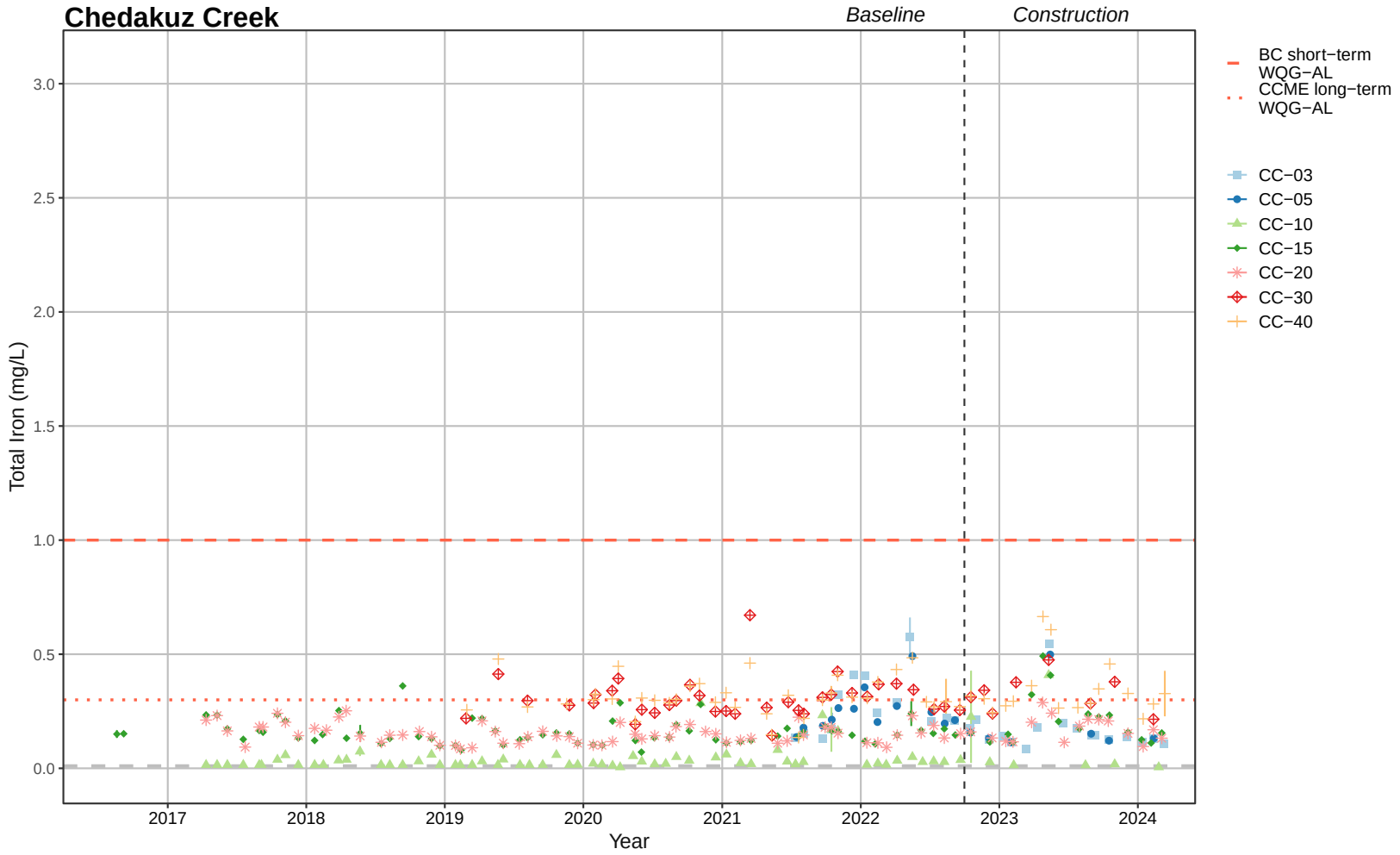
Figure C.28.a: Monthly Mean Total Iron Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

CCME WQG−AL long−term guideline for total iron = 0.3 mg/L.
BC WQG−AL short−term maximum guideline for total iron = 1.0 mg/L.

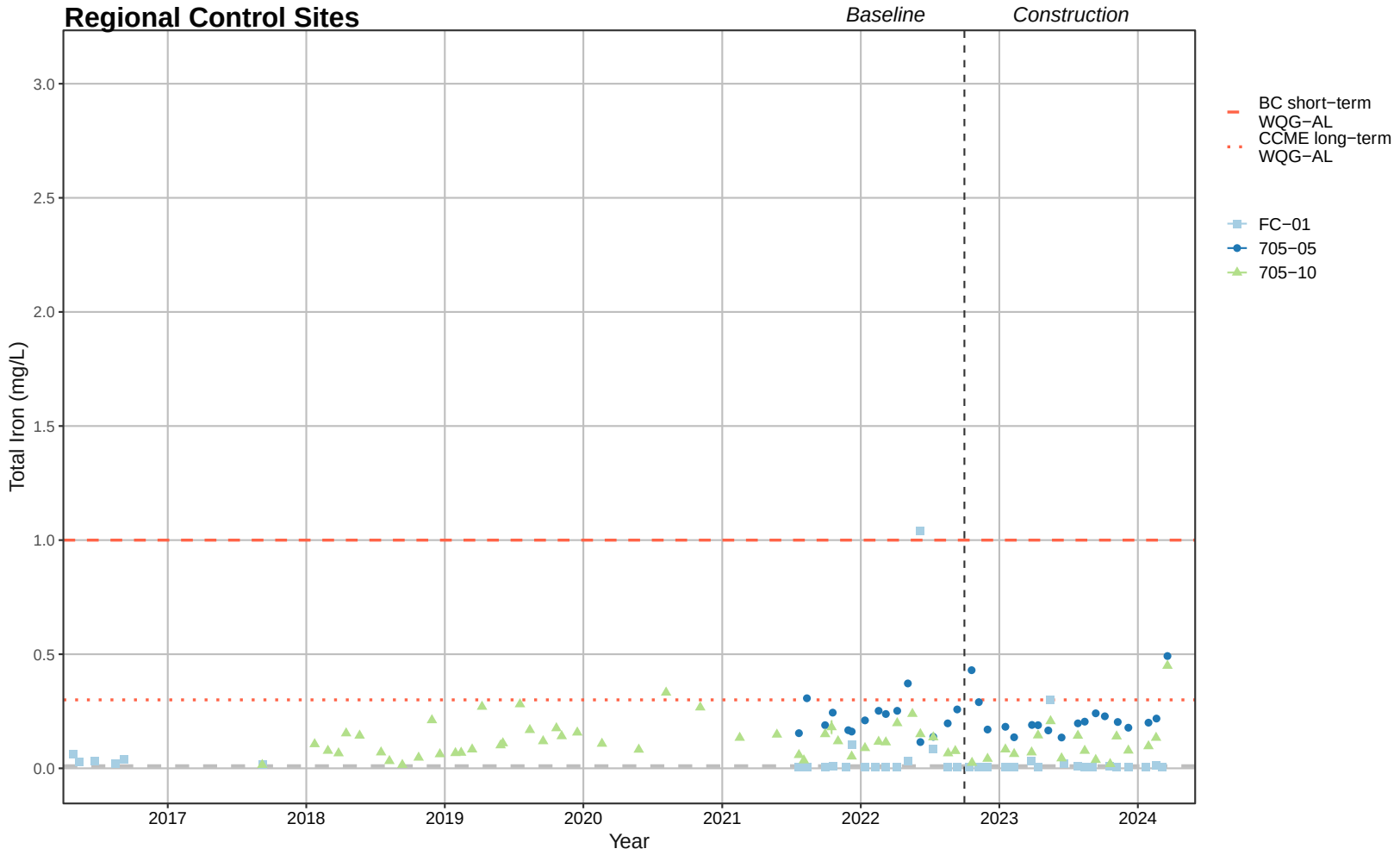
Figure C.28.b: Monthly Mean Total Iron Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME WQG−AL long−term guideline for total iron = 0.3 mg/L.
BC WQG−AL short−term maximum guideline for total iron = 1.0 mg/L.

Figure C.28.c: Monthly Mean Total Iron Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME WQG−AL long−term guideline for total iron = 0.3 mg/L.
BC WQG−AL short−term maximum guideline for total iron = 1.0 mg/L.

Figure C.28.d: Monthly Mean Total Iron Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

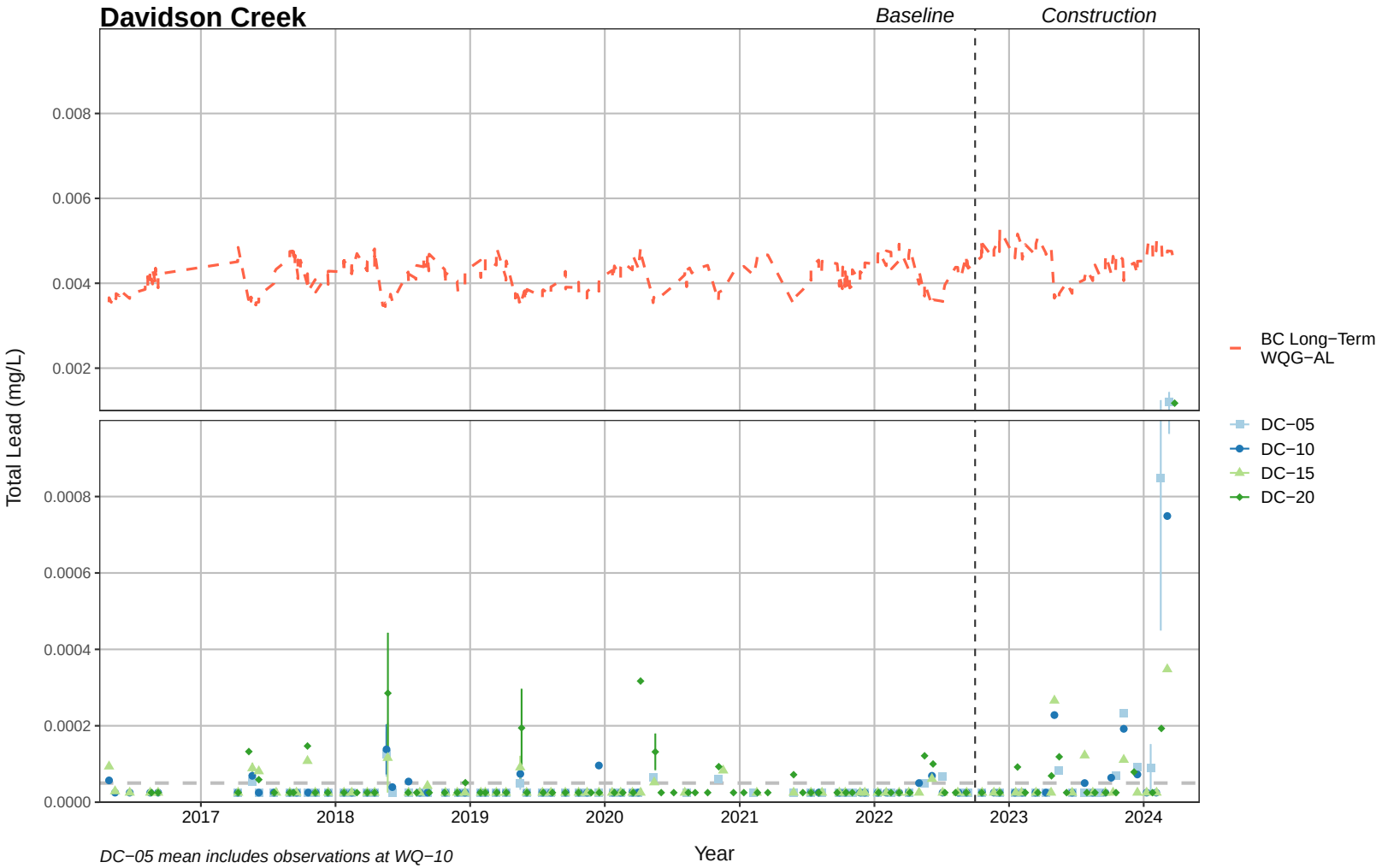
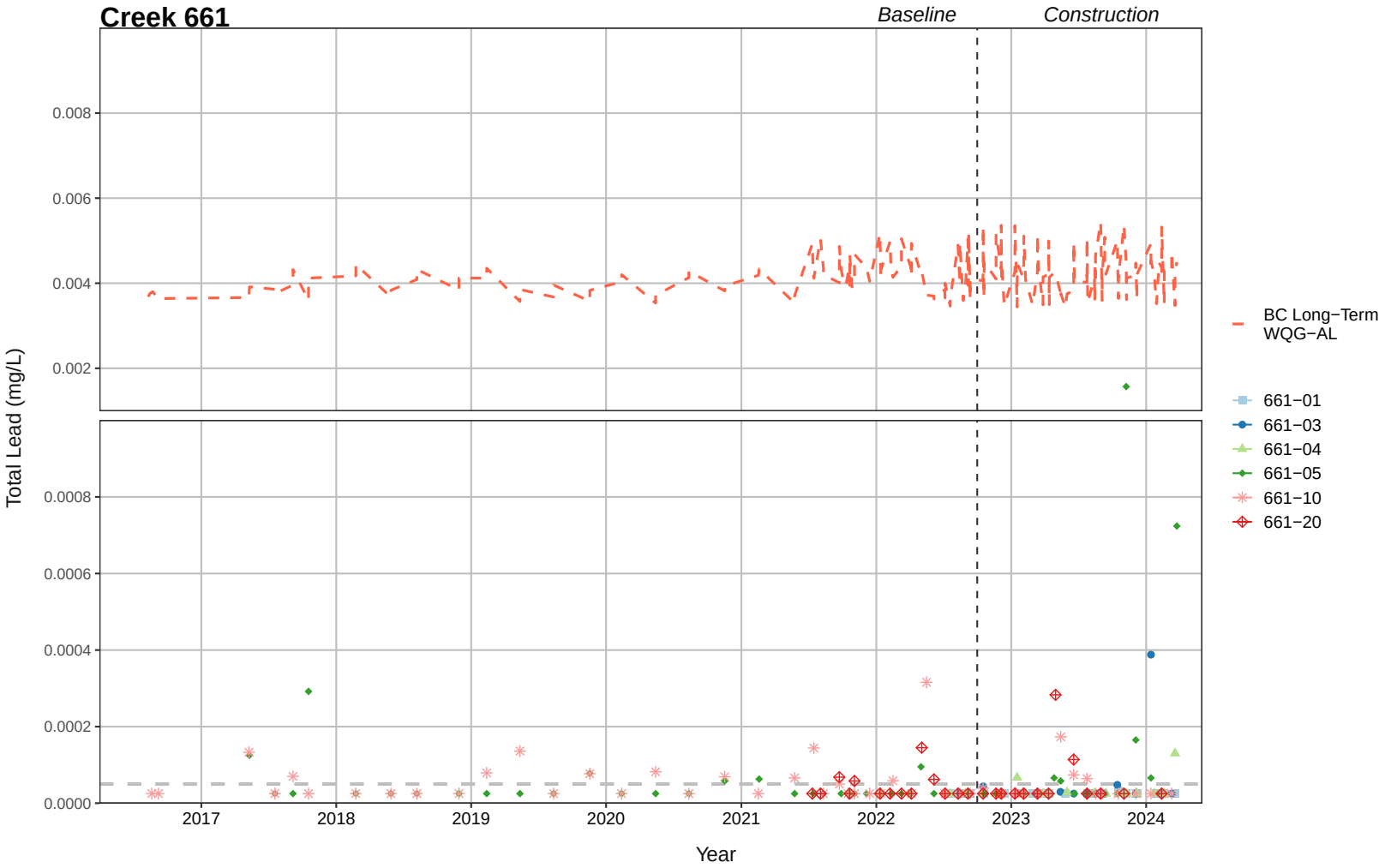
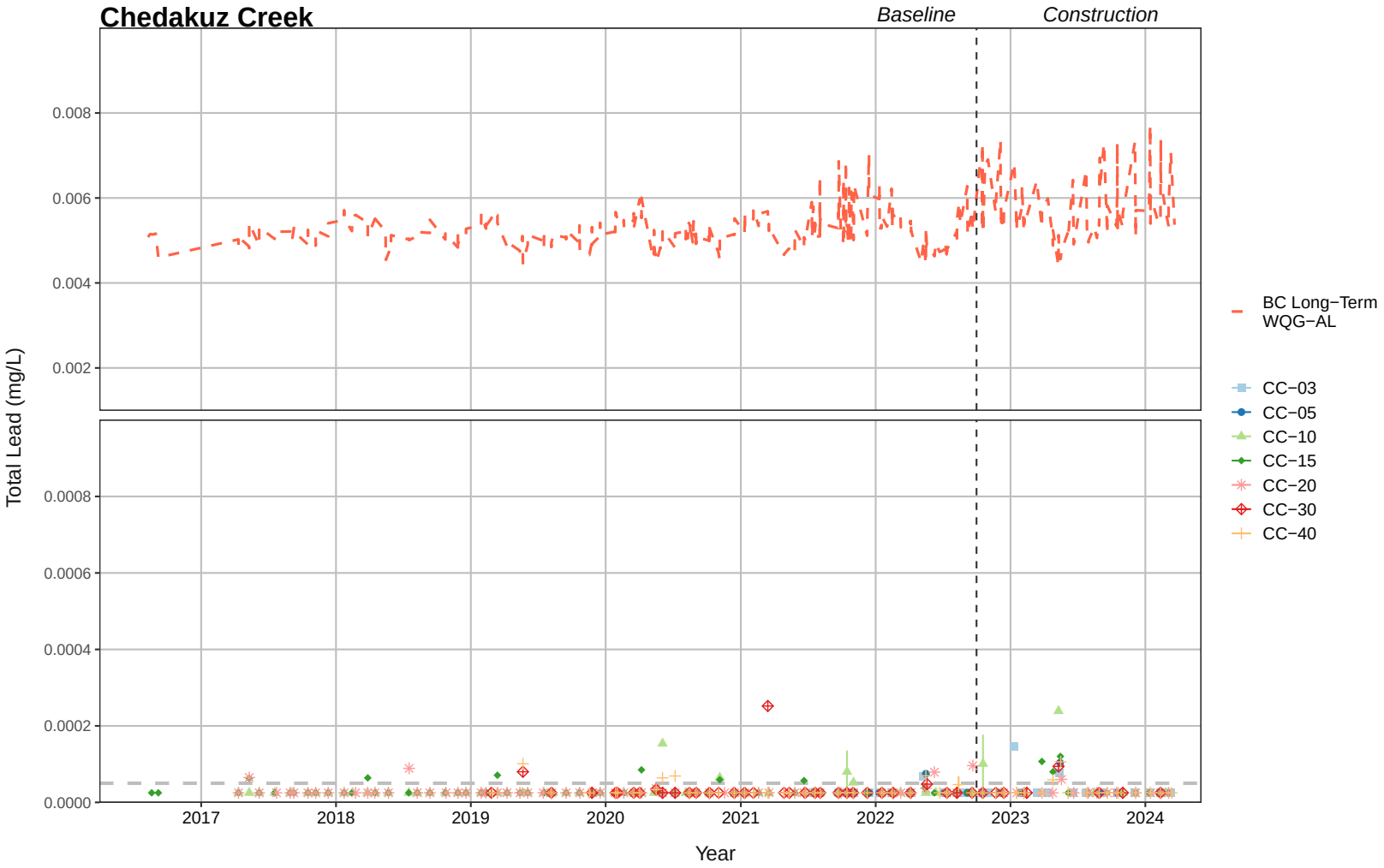


Figure C.29.a: Monthly Mean Total Lead Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



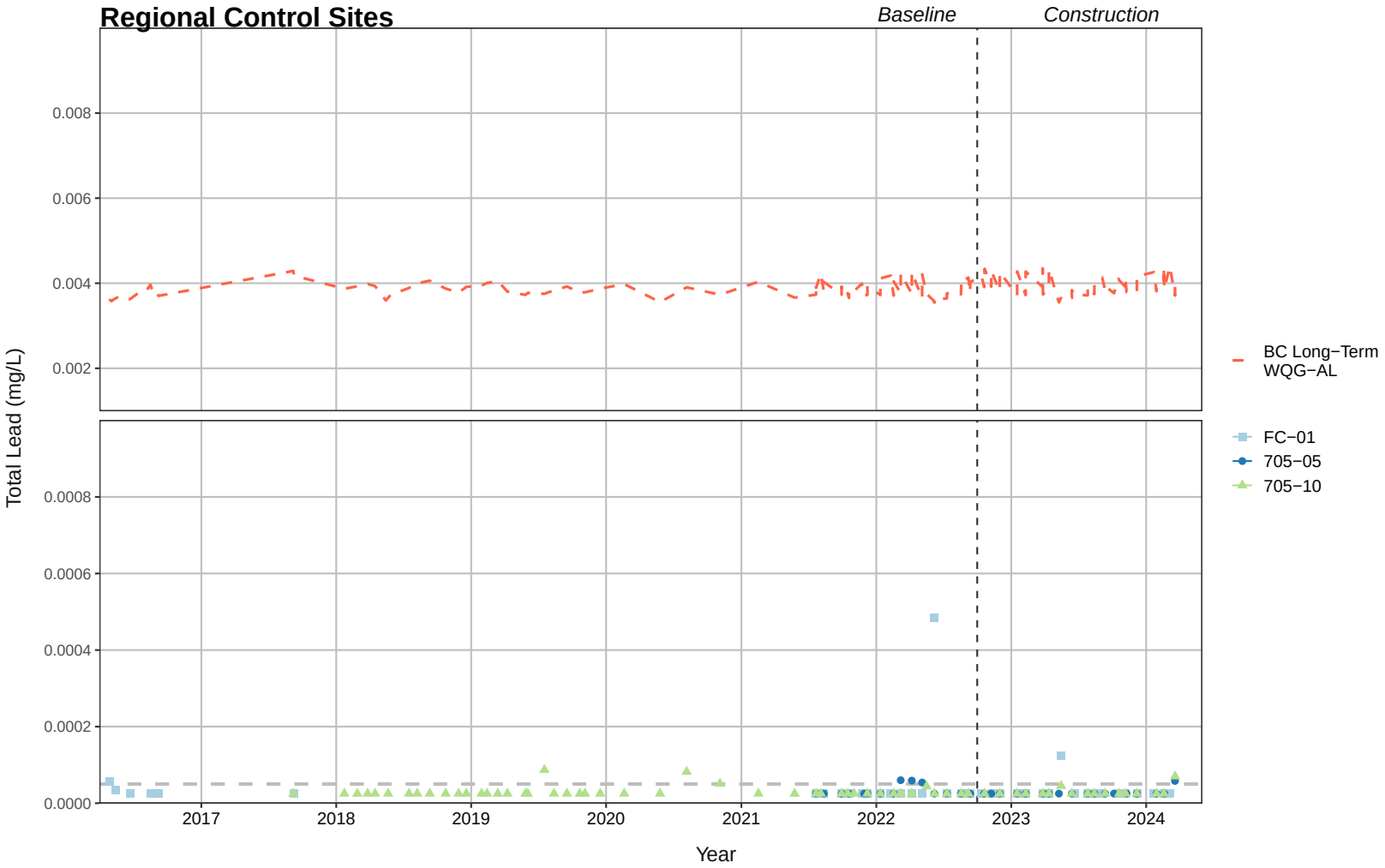
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total lead is hardness dependent.

Figure C.29.b: Monthly Mean Total Lead Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



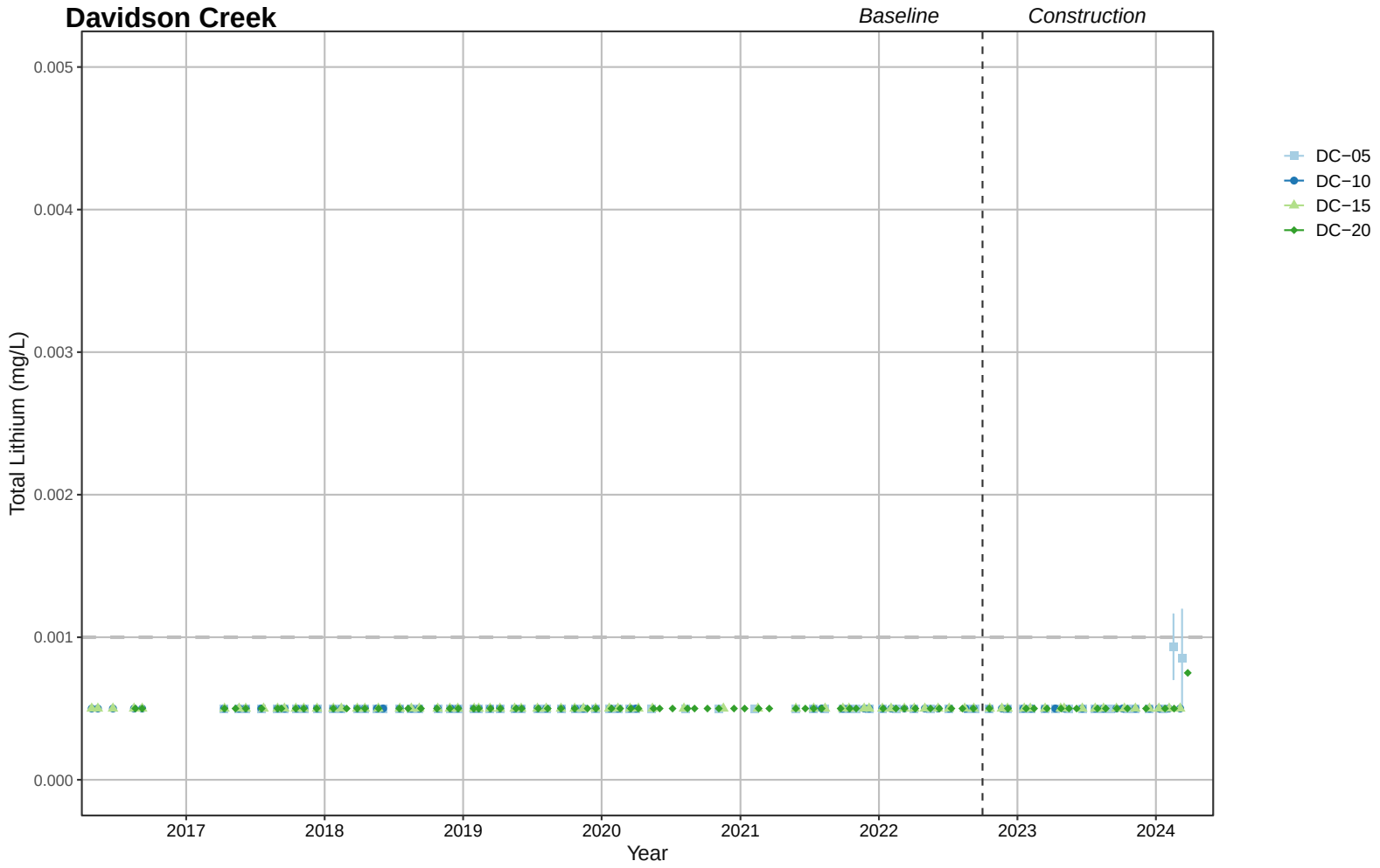
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total lead is hardness dependent.

Figure C.29.c: Monthly Mean Total Lead Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



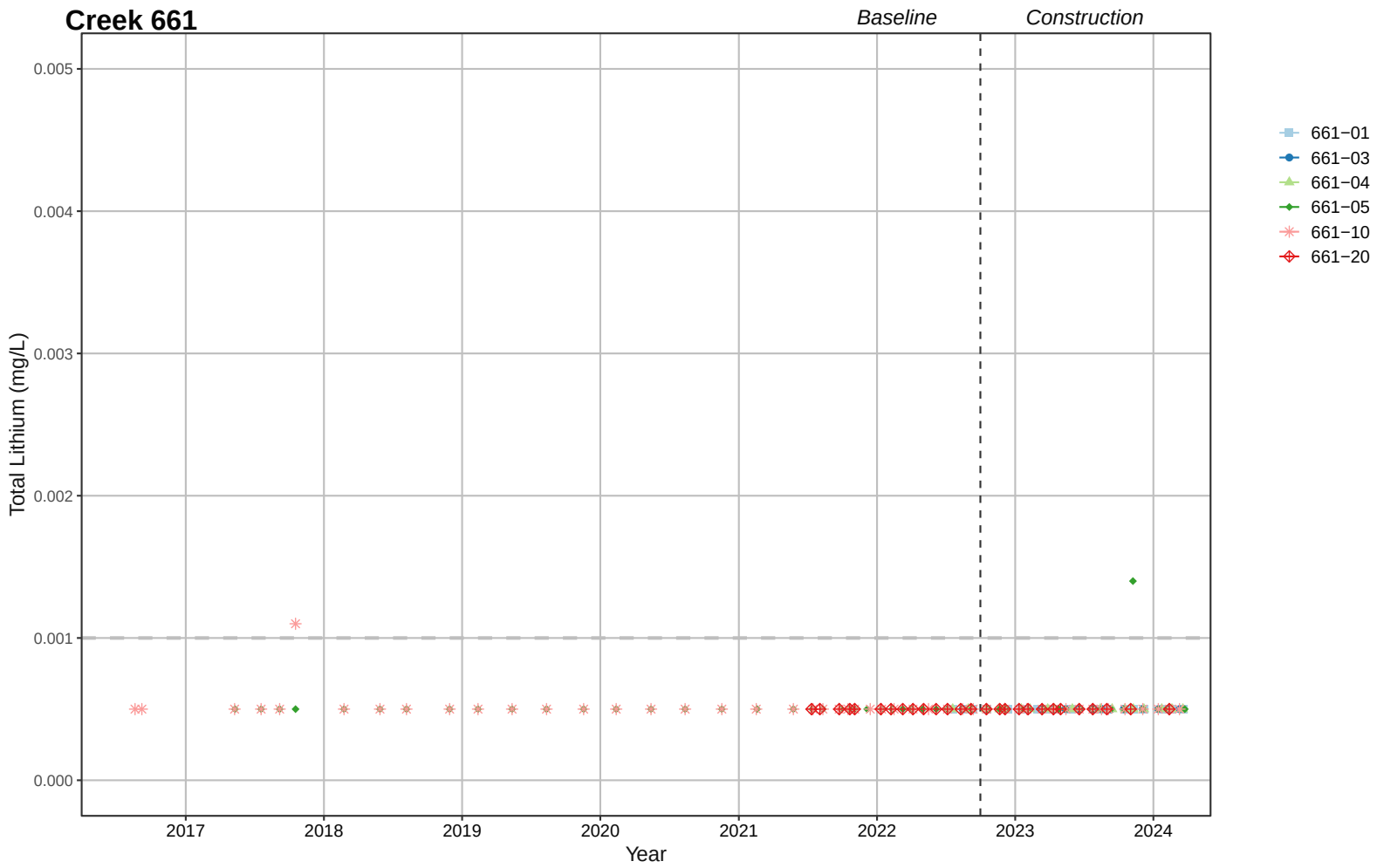
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total lead is hardness dependent.

Figure C.29.d: Monthly Mean Total Lead Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



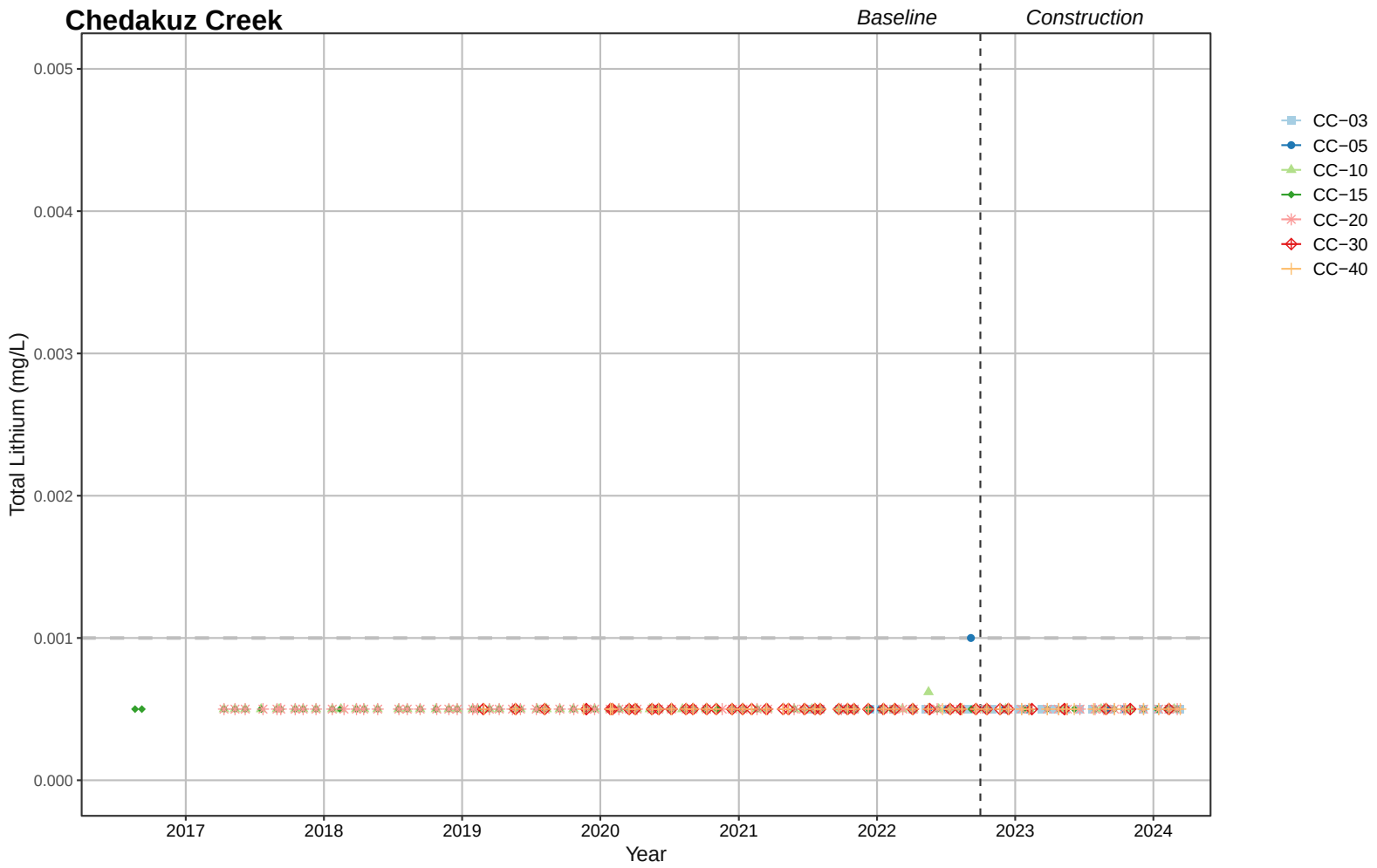
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.30.a: Monthly Mean Total Lithium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



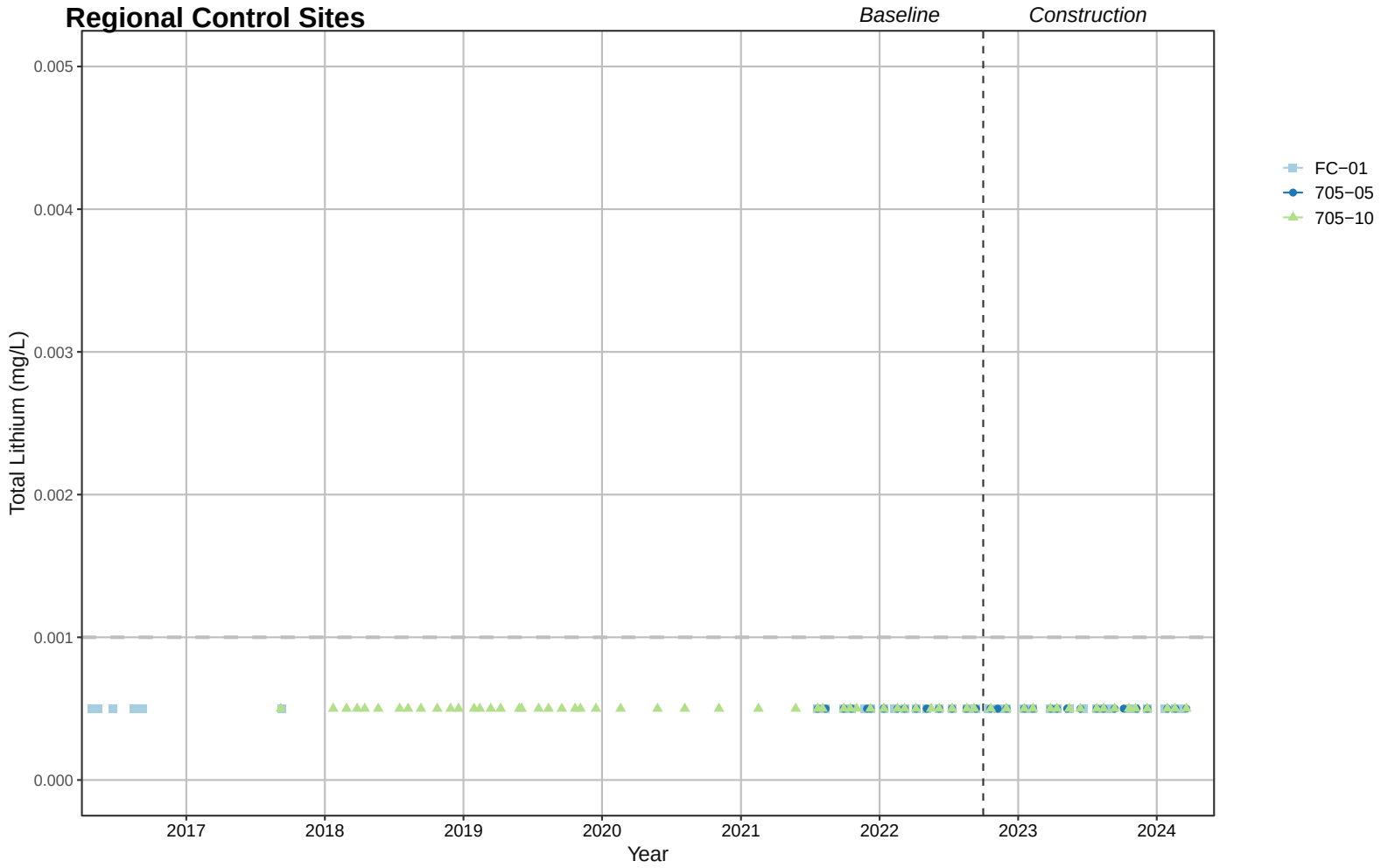
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.30.b: Monthly Mean Total Lithium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.30.c: Monthly Mean Total Lithium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.30.d: Monthly Mean Total Lithium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

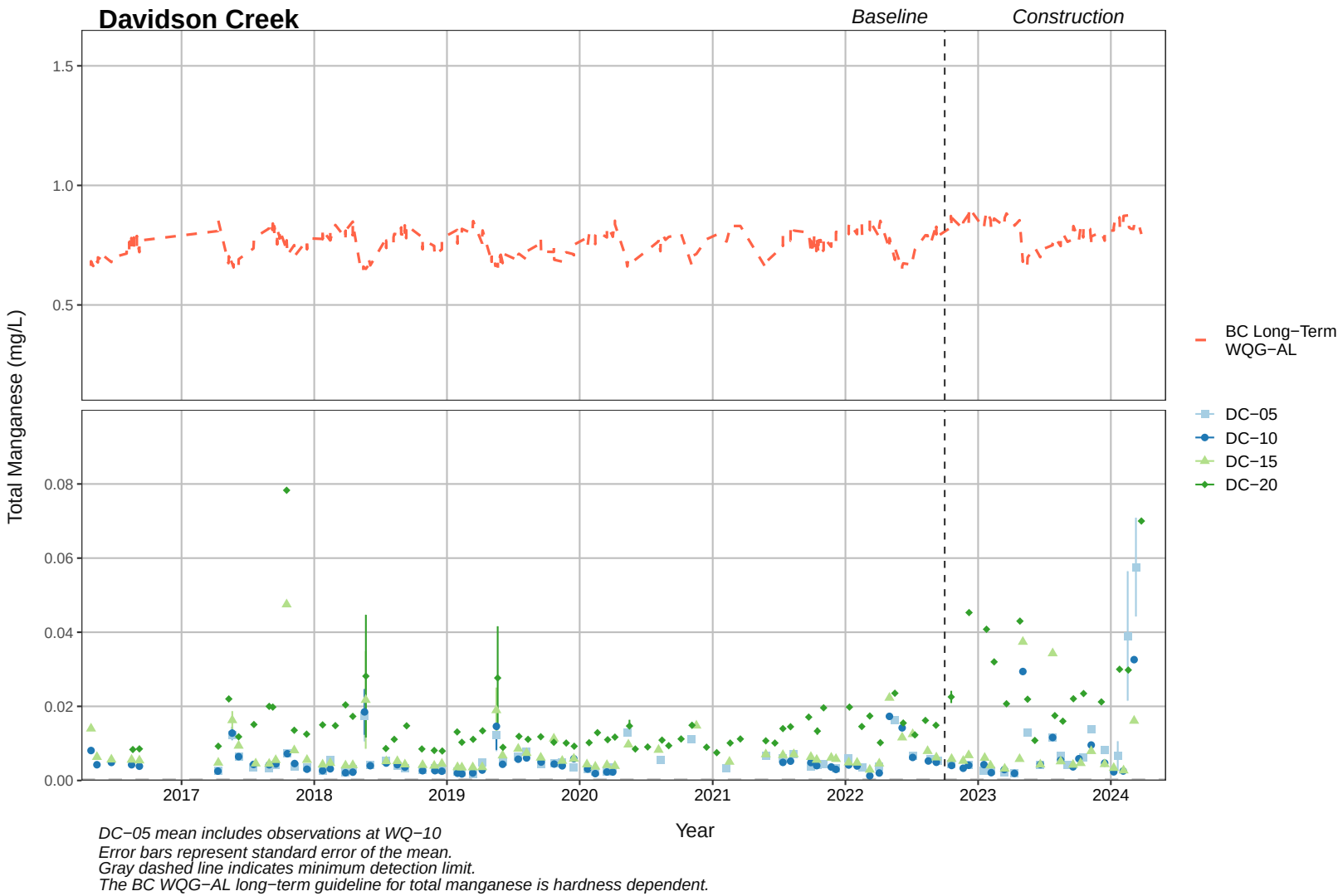


Figure C.31.a: Monthly Mean Total Manganese Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024

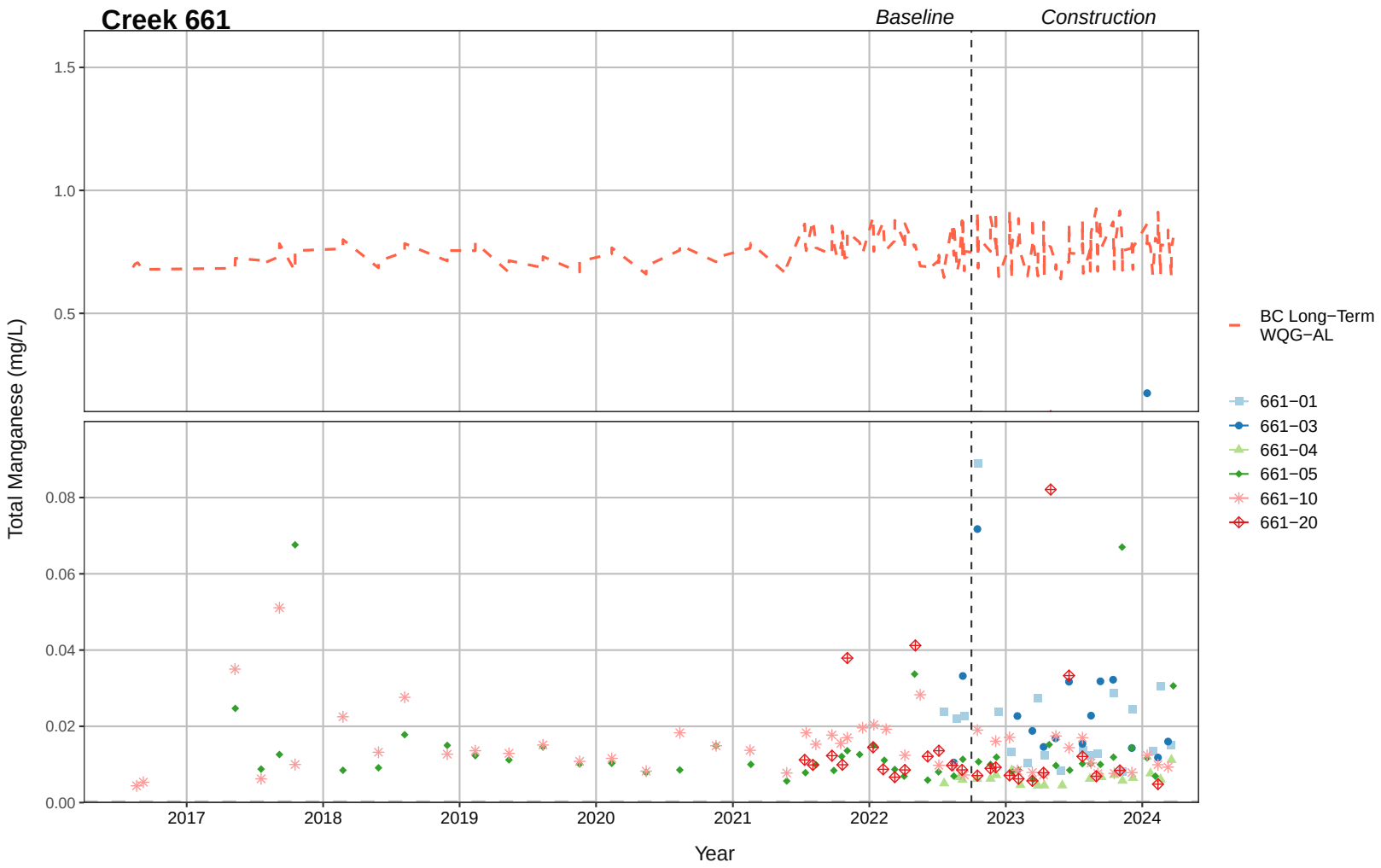
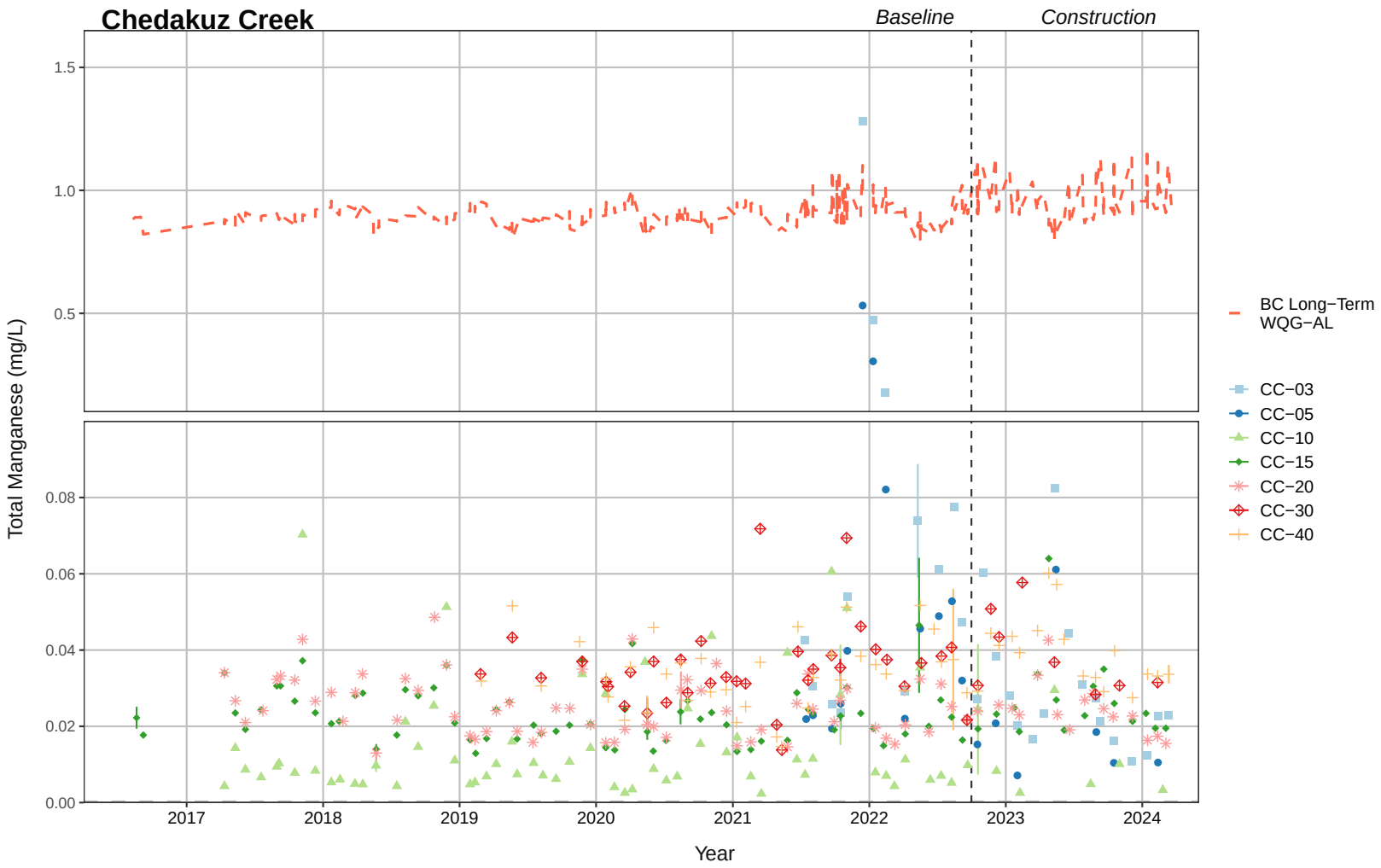


Figure C.31.b: Monthly Mean Total Manganese Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
The BC WQG−AL long−term guideline for total manganese is hardness dependent.

Figure C.31.c: Monthly Mean Total Manganese Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

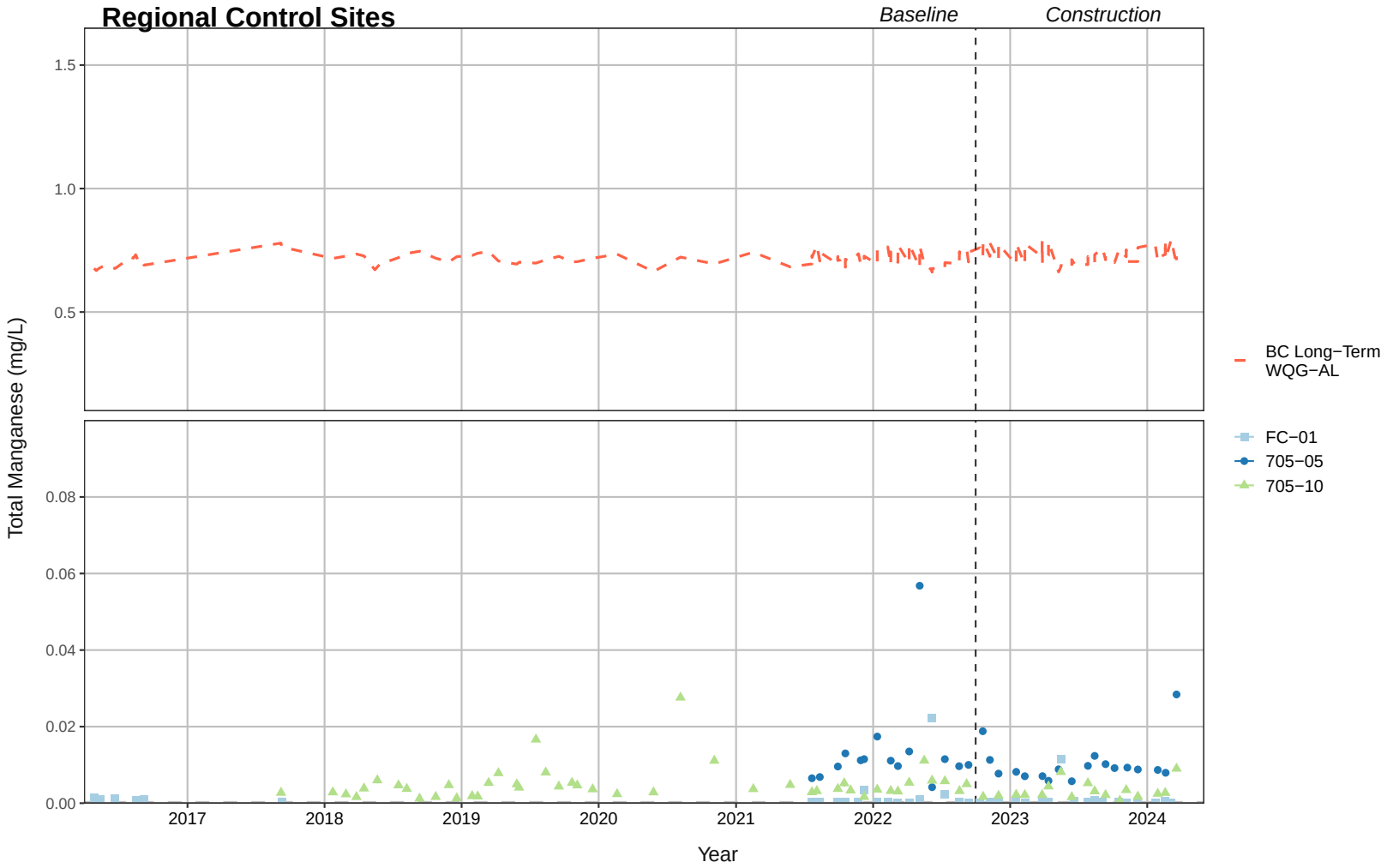
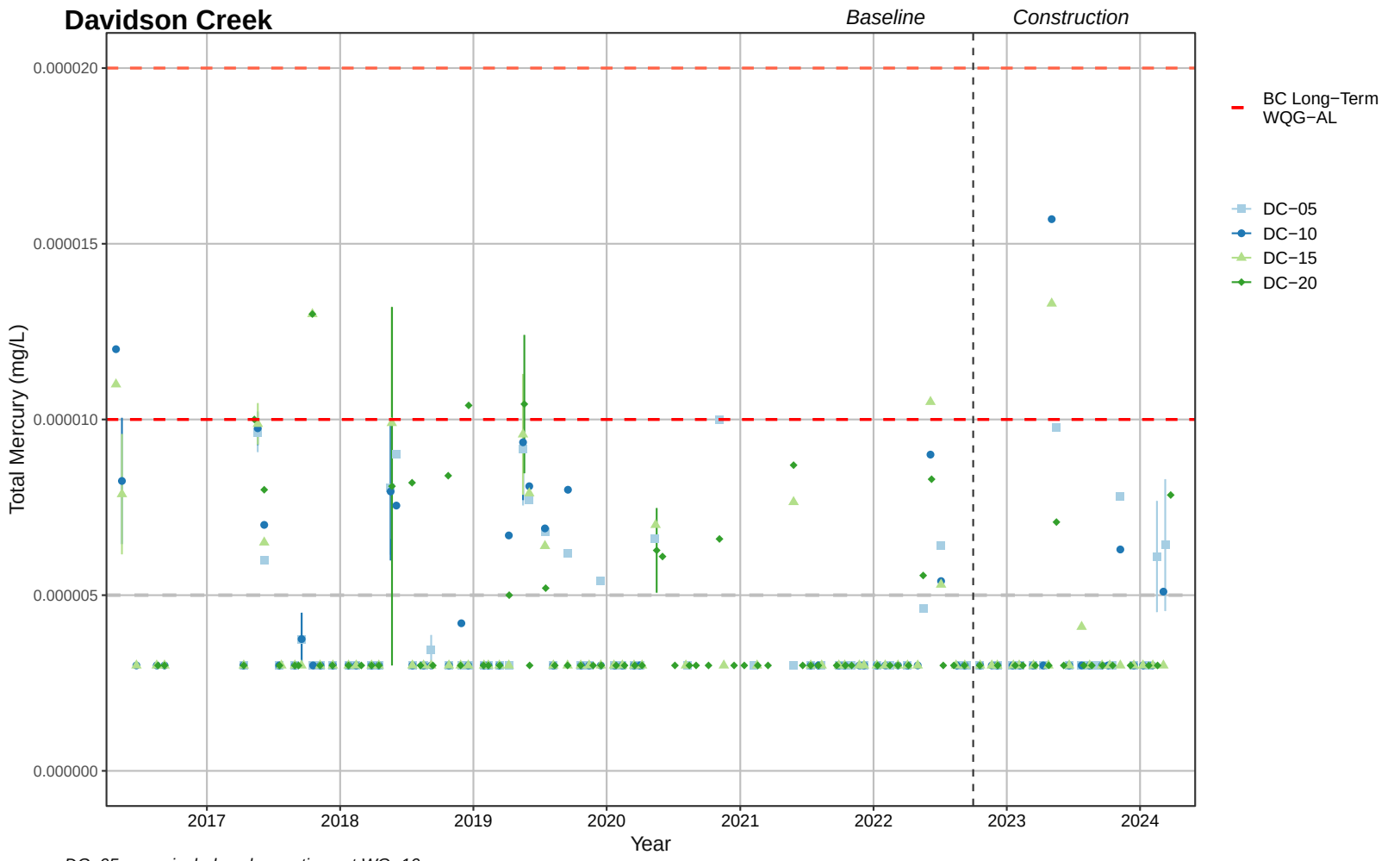
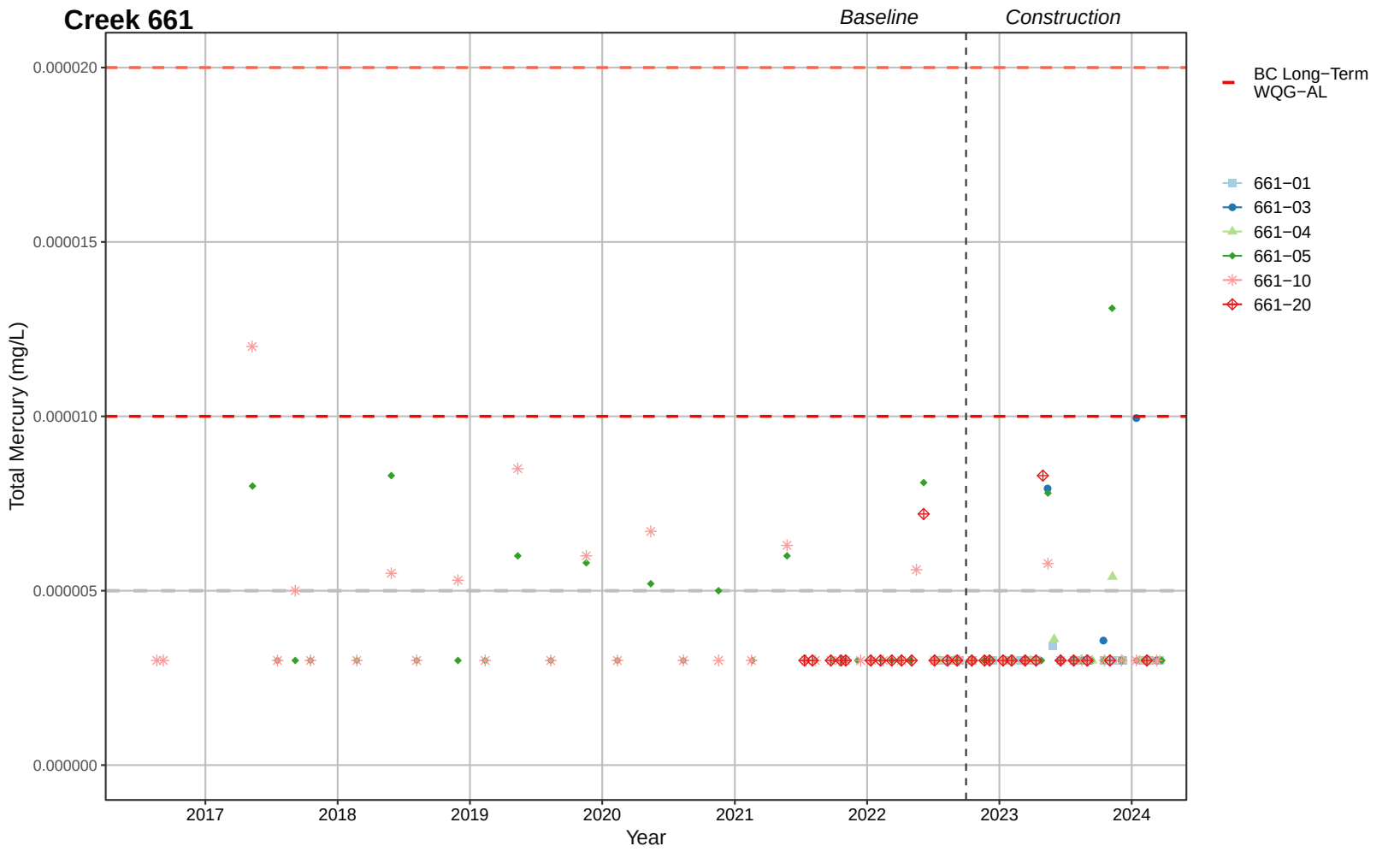


Figure C.31.d: Monthly Mean Total Manganese Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total mercury = 0.00002 mg/L, when MeHg = 0.5% THg.
BC WQG−AL long−term guideline for total mercury = 0.00001 mg/L, when MeHg = 1% THg.

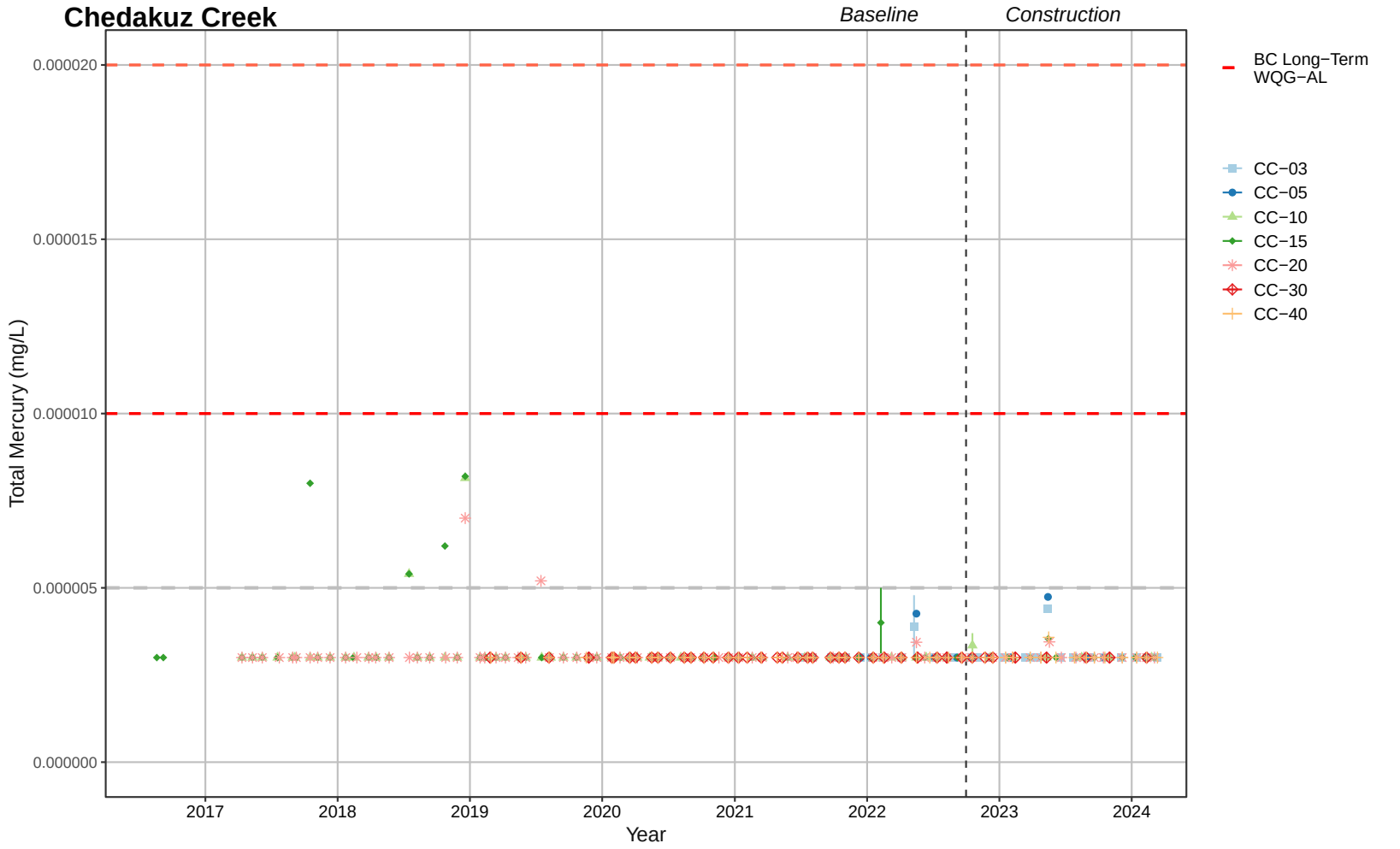
Figure C.32.a: Monthly Mean Total Mercury Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total mercury = 0.00002 mg/L, when MeHg = 0.5% THg.

BC WQG−AL long−term guideline for total mercury = 0.00001 mg/L, when MeHg = 1% THg.

Figure C.32.b: Monthly Mean Total Mercury Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total mercury = 0.00002 mg/L, when MeHg = 0.5% THg.

BC WQG−AL long−term guideline for total mercury = 0.00001 mg/L, when MeHg = 1% THg.

Figure C.32.c: Monthly Mean Total Mercury Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total mercury = 0.00002 mg/L, when MeHg = 0.5% THg.

BC WQG−AL long−term guideline for total mercury = 0.00001 mg/L, when MeHg = 1% THg.

Figure C.32.d: Monthly Mean Total Mercury Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

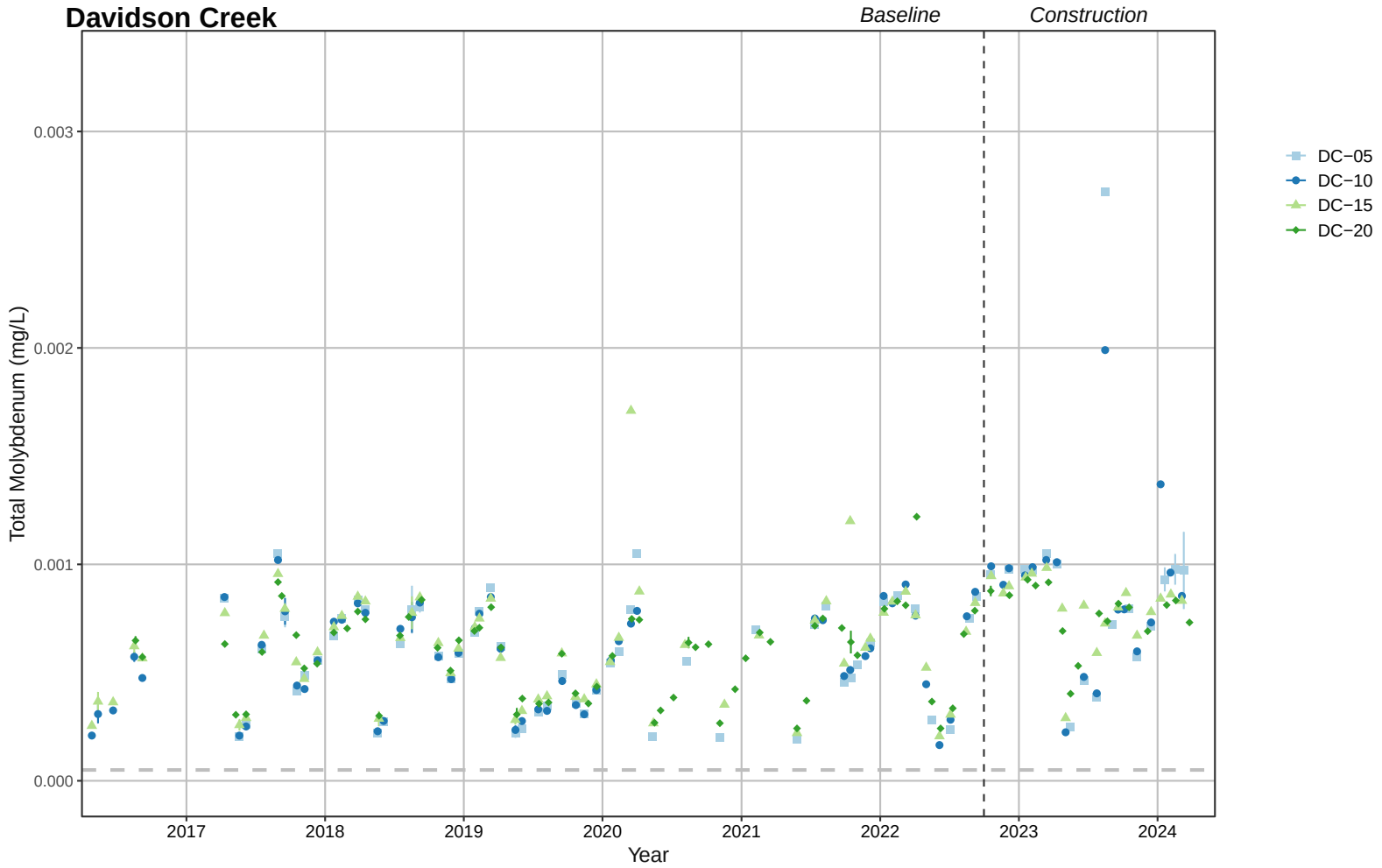
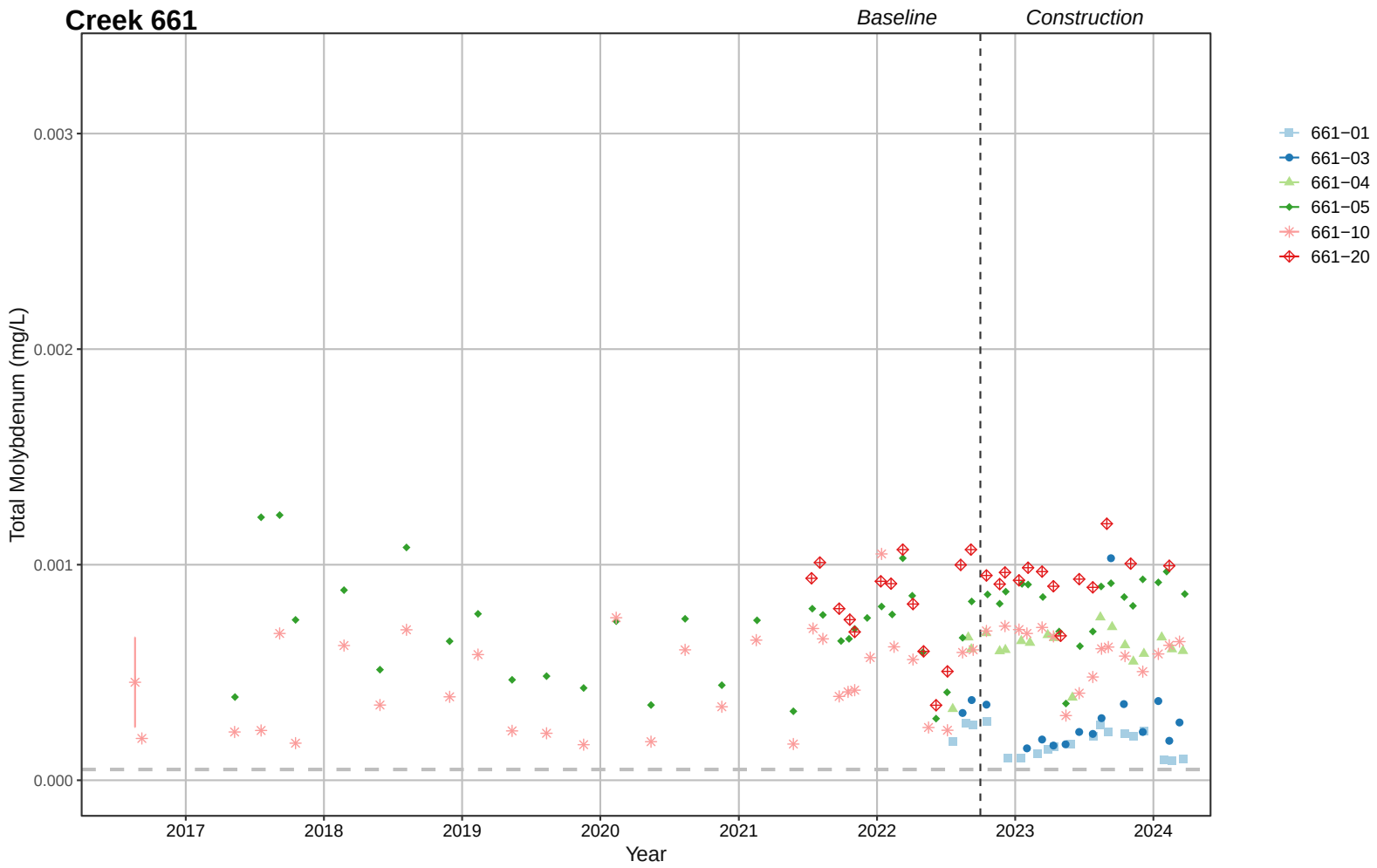
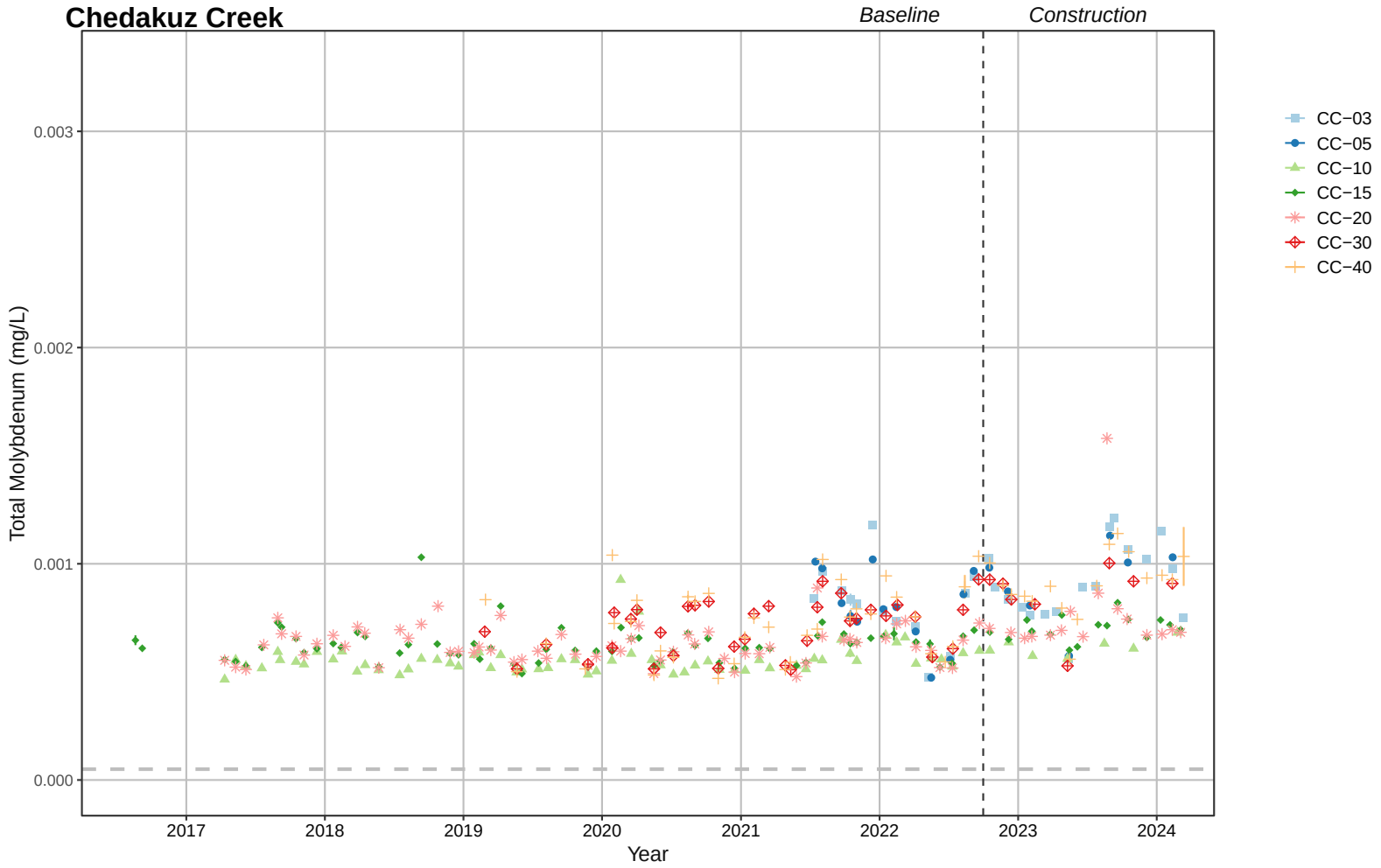


Figure C.33.a: Monthly Mean Total Molybdenum Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



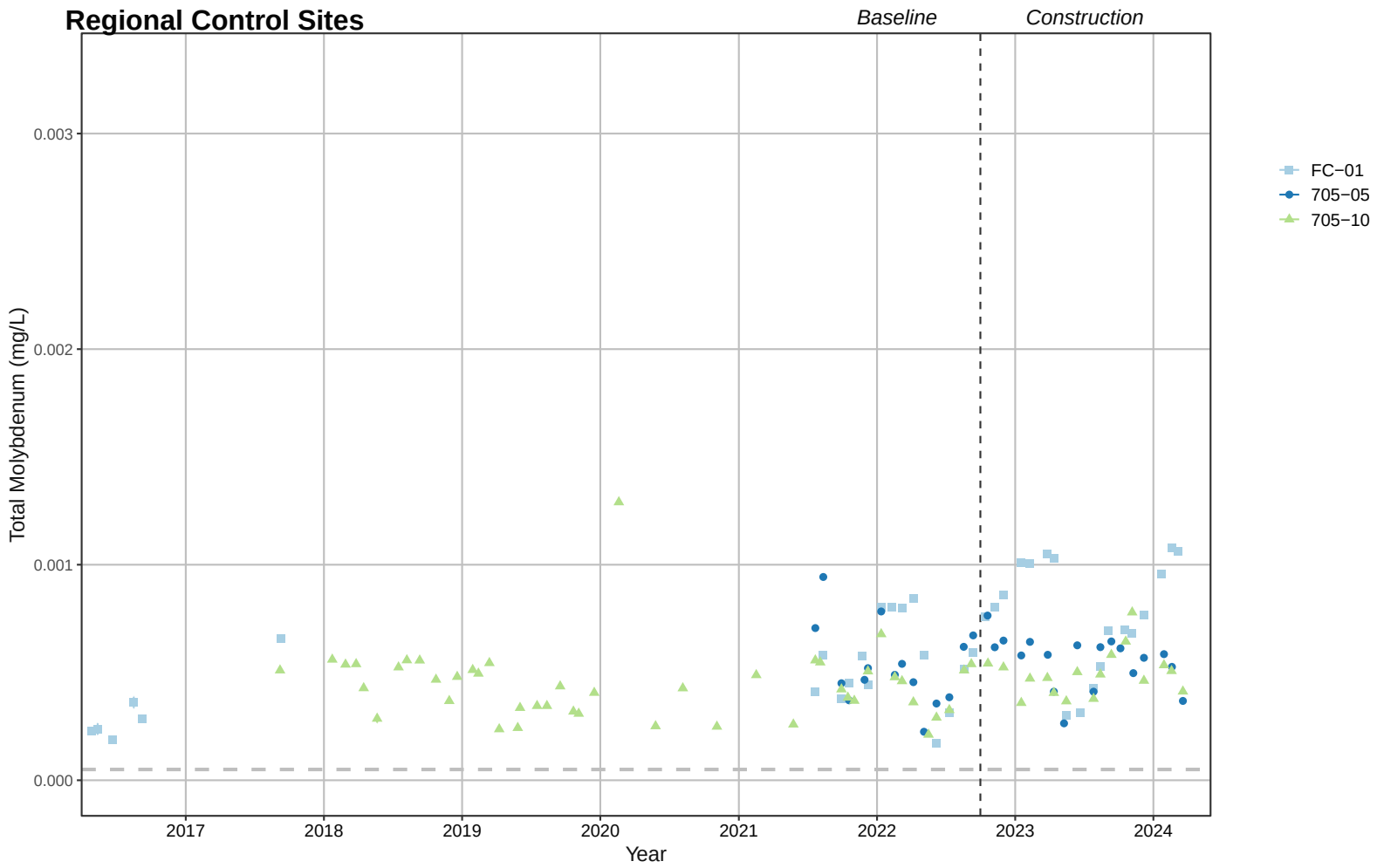
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL 30−day long−term guideline for total molybedenum = 7.61 mg/L.

Figure C.33.b: Monthly Mean Total Molybdenum Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL 30−day long−term guideline for total molybedenum = 7.61 mg/L.

Figure C.33.c: Monthly Mean Total Molybdenum Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL 30−day long−term guideline for total molybedenum = 7.61 mg/L.

Figure C.33.d: Monthly Mean Total Molybdenum Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

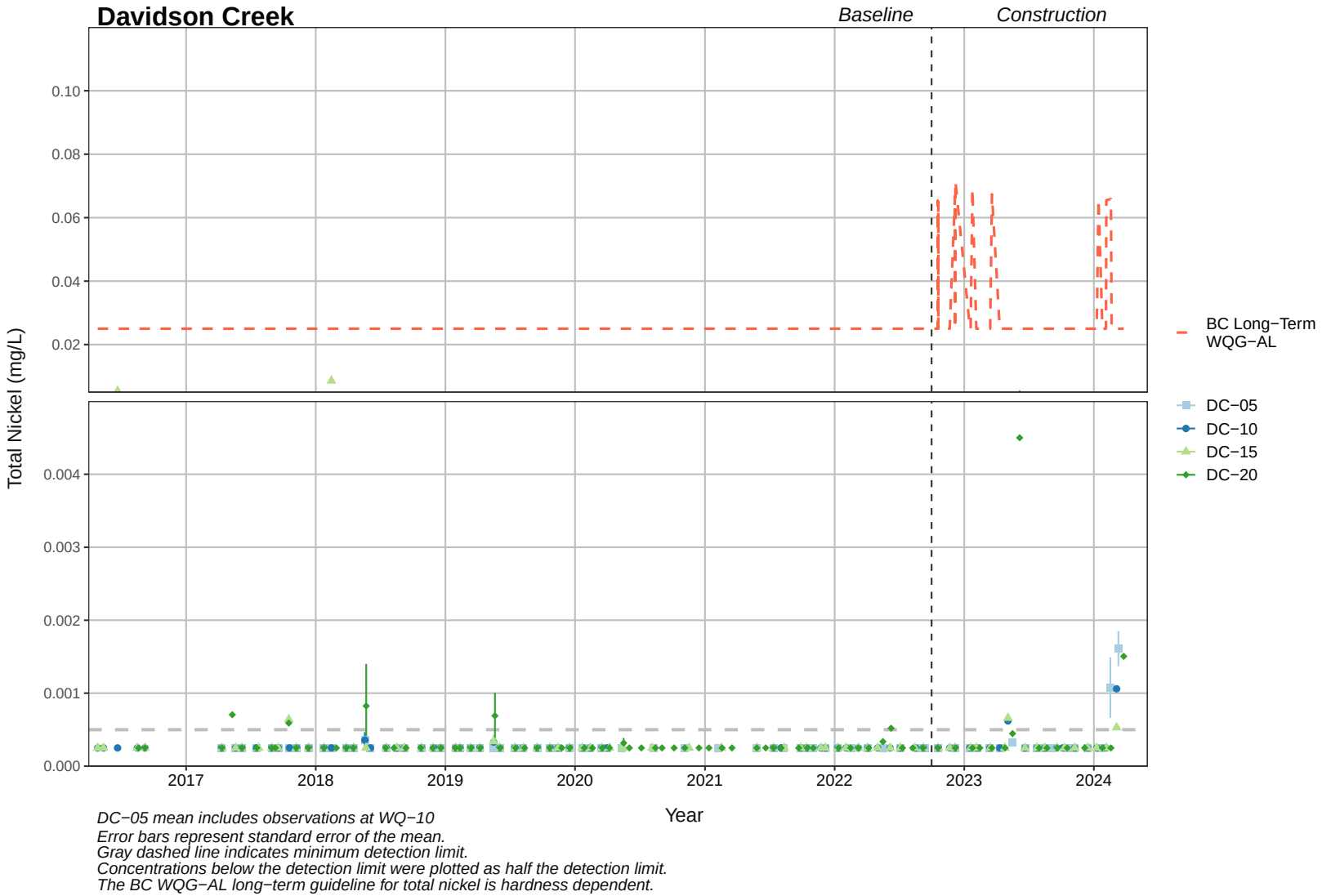
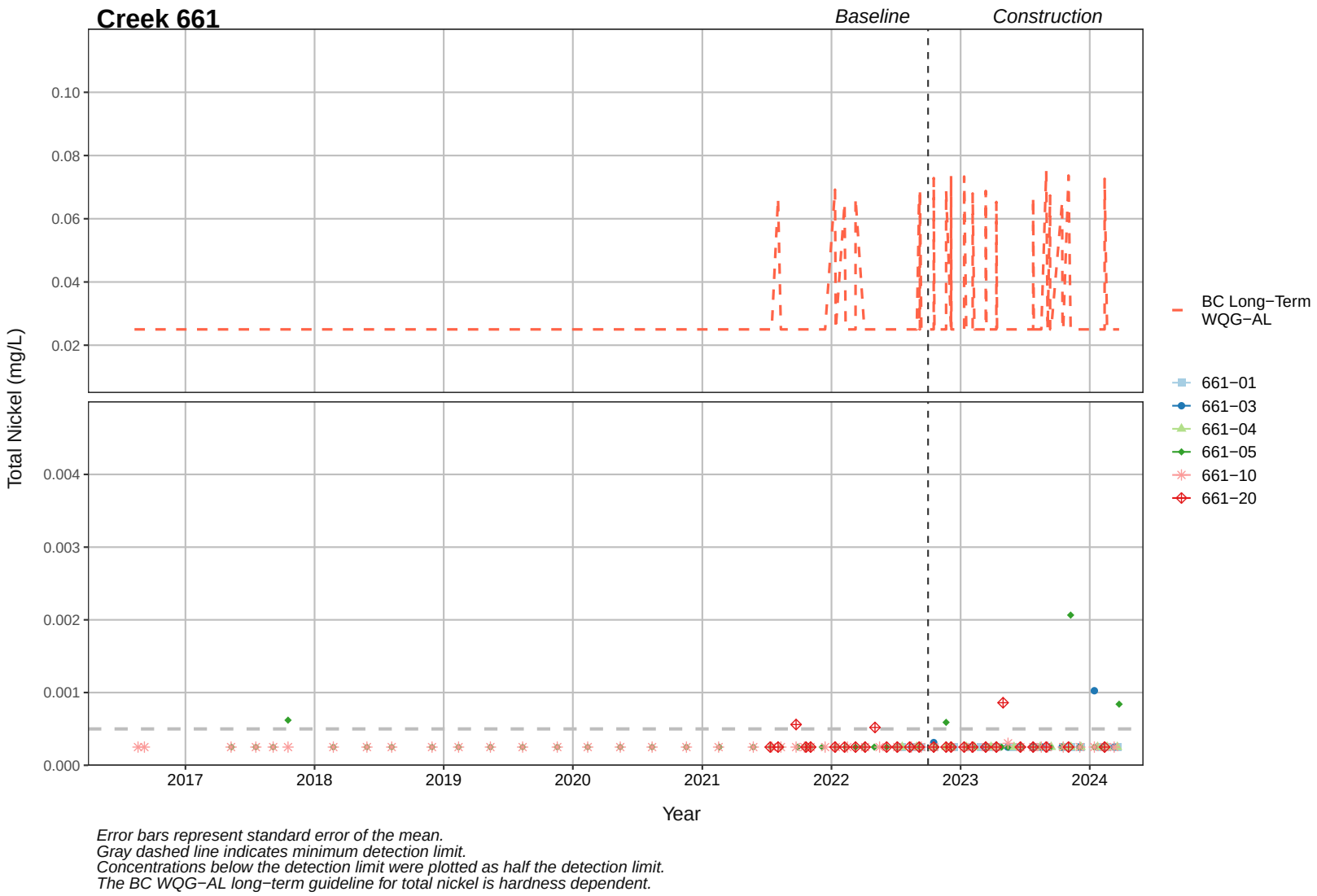
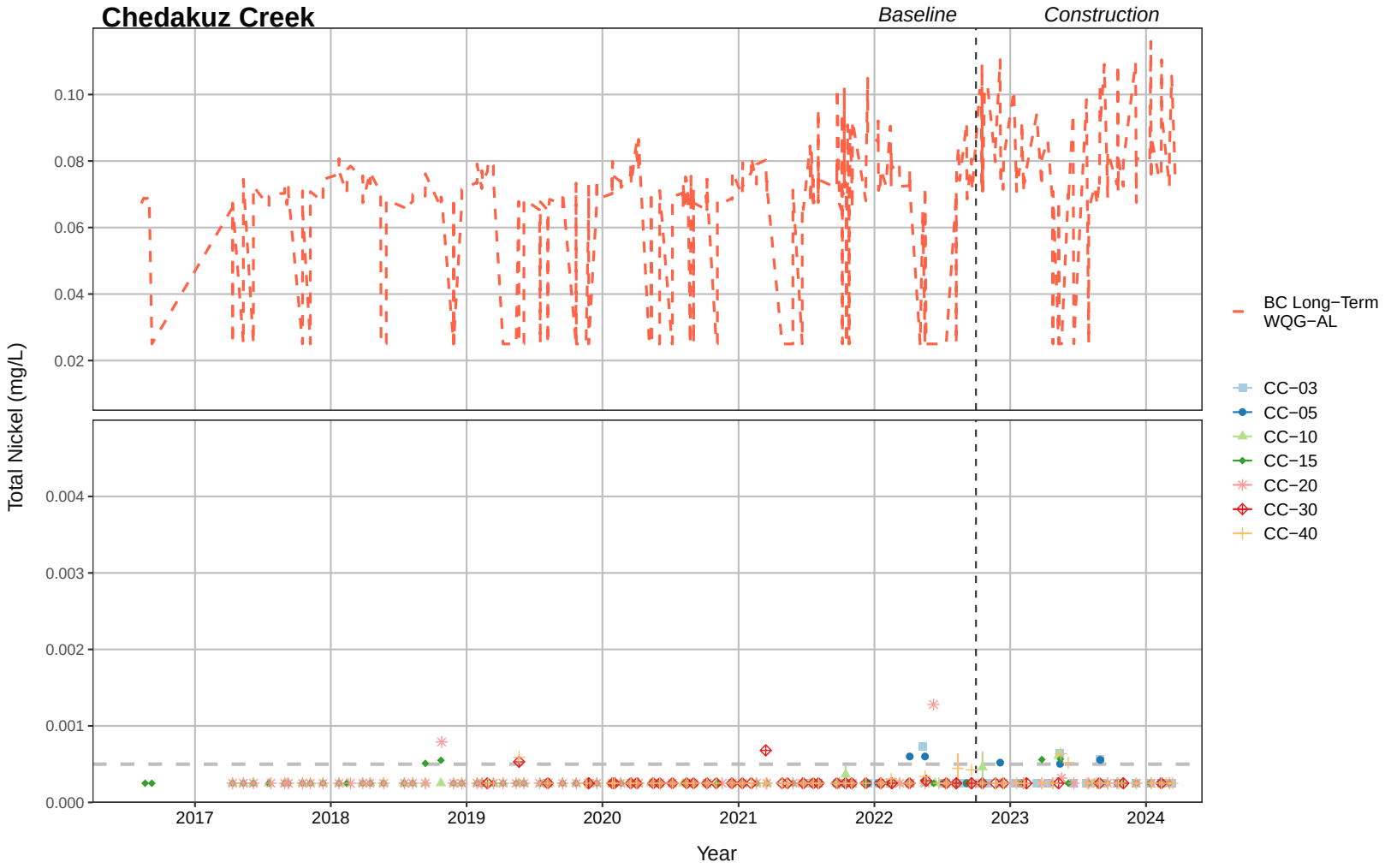


Figure C.34.a: Monthly Mean Total Nickel Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



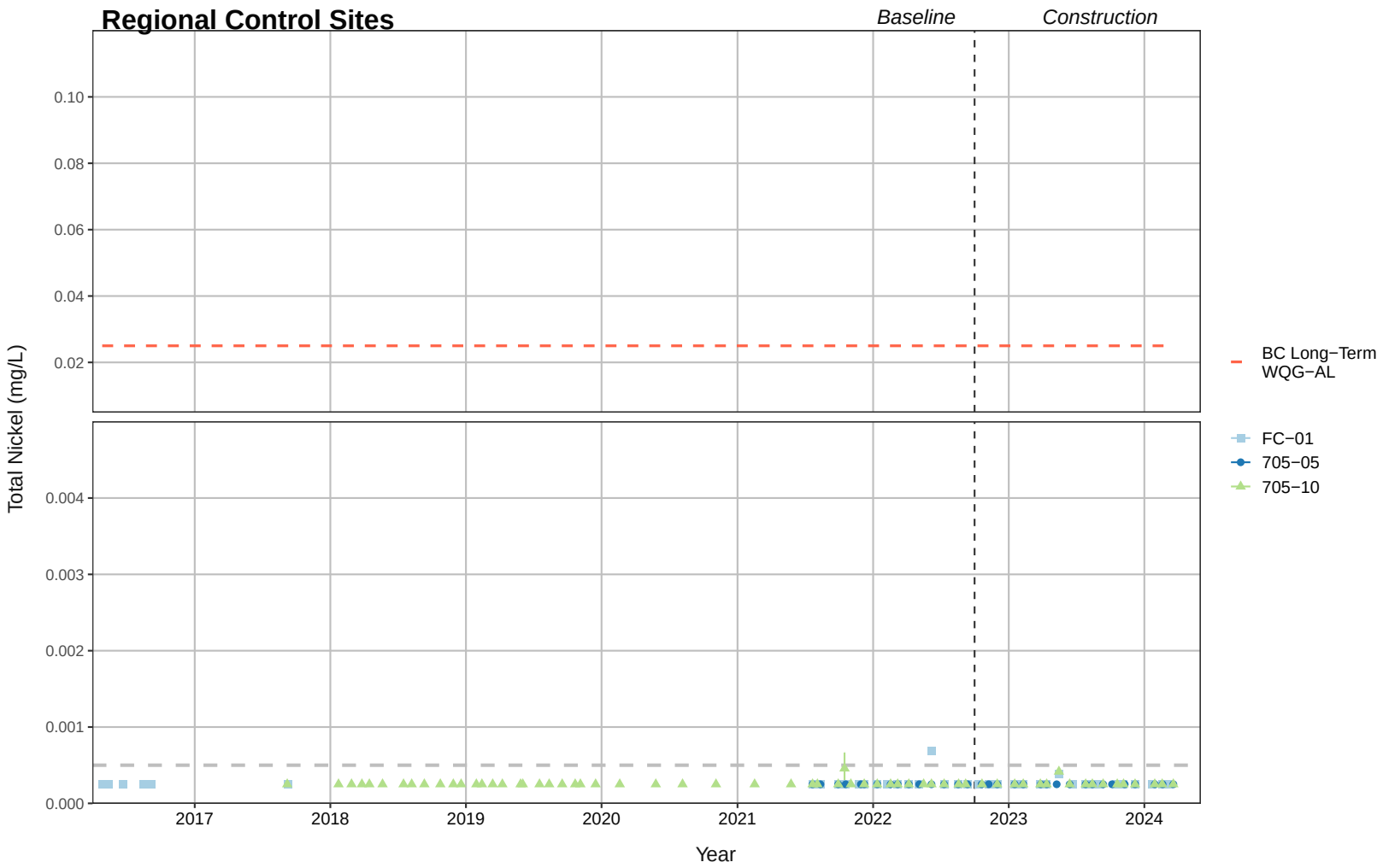
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total nickel is hardness dependent.

Figure C.34.b: Monthly Mean Total Nickel Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



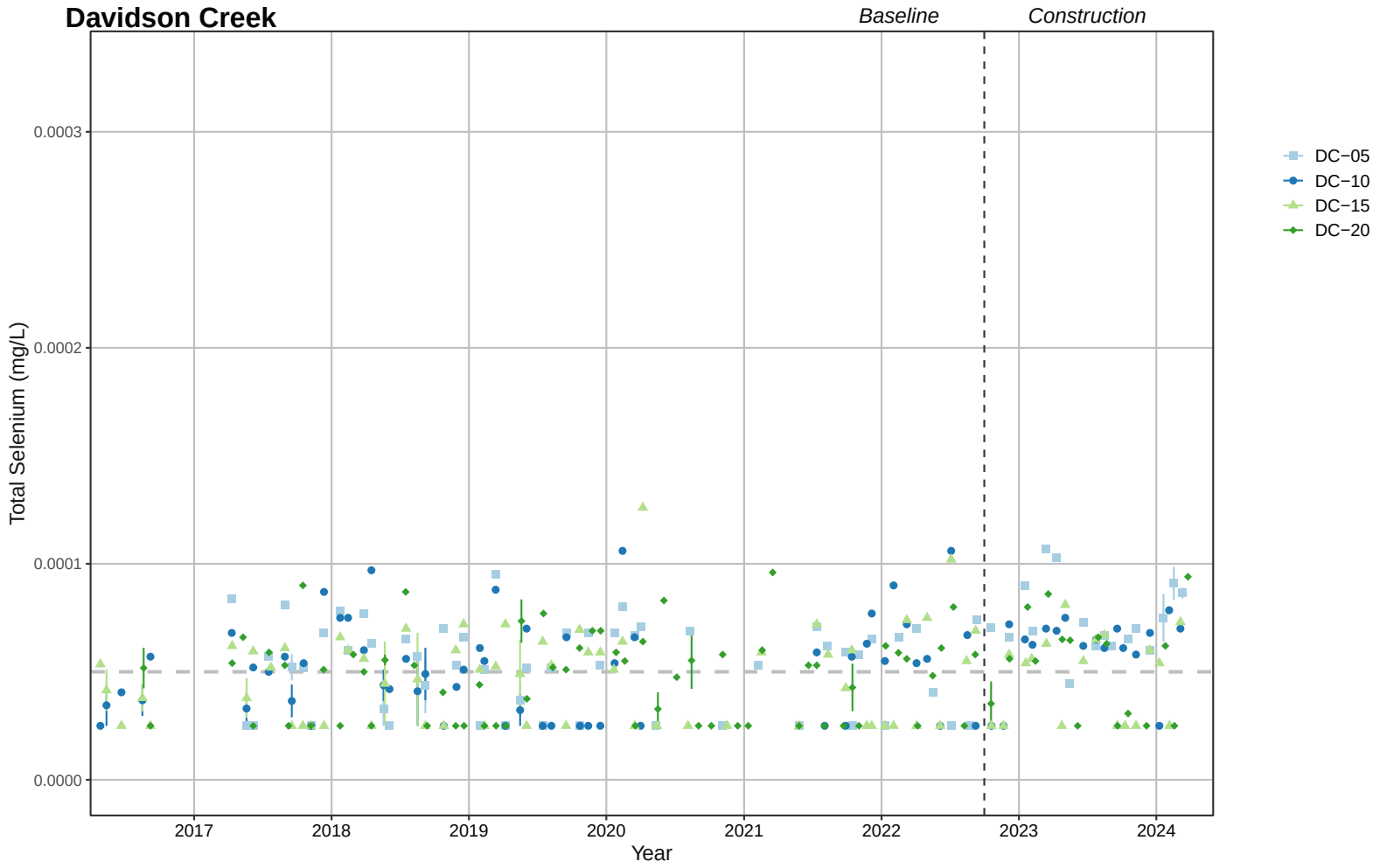
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total nickel is hardness dependent.

Figure C.34.c: Monthly Mean Total Nickel Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



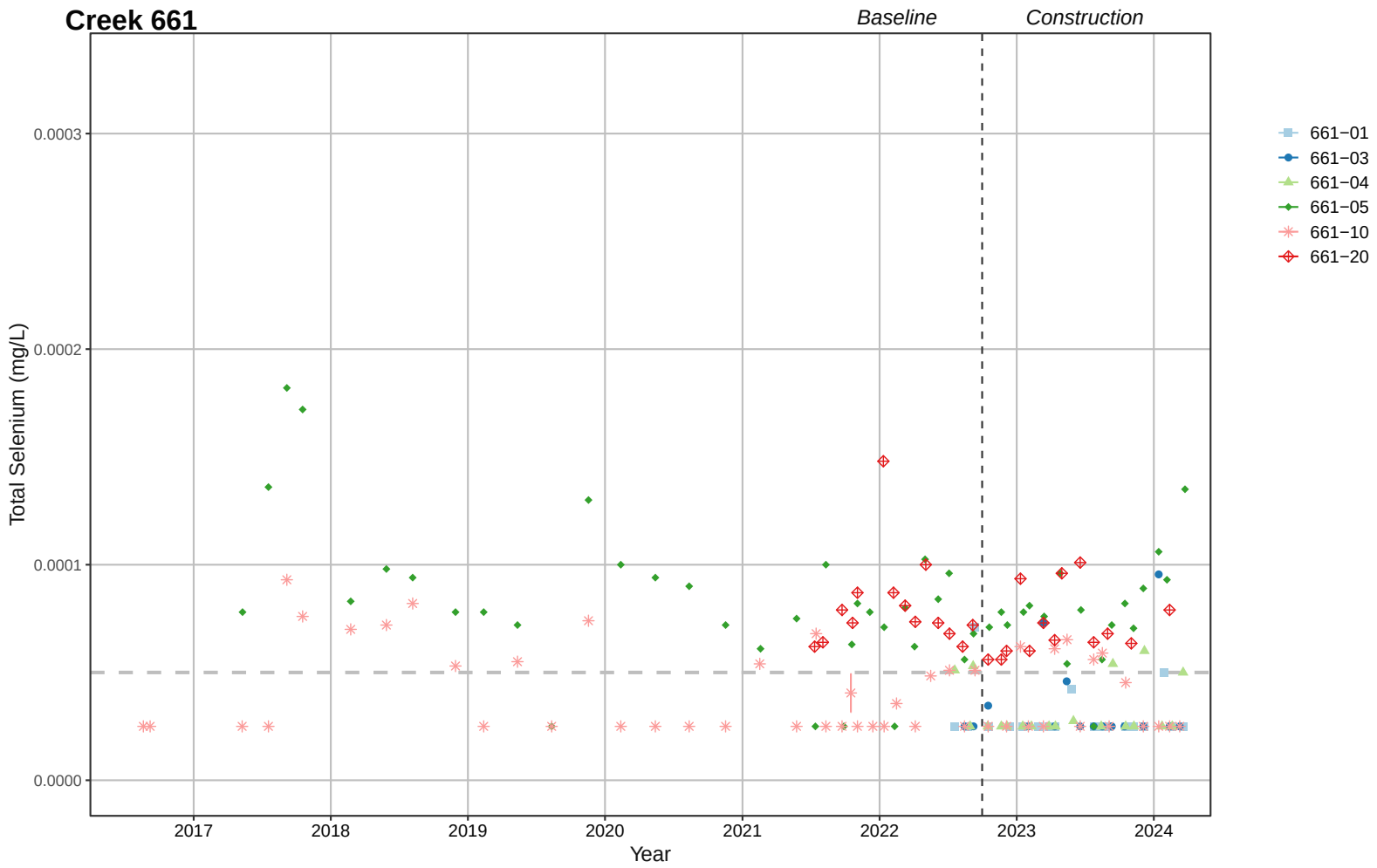
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
The BC WQG−AL long−term guideline for total nickel is hardness dependent.

Figure C.34.d: Monthly Mean Total Nickel Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



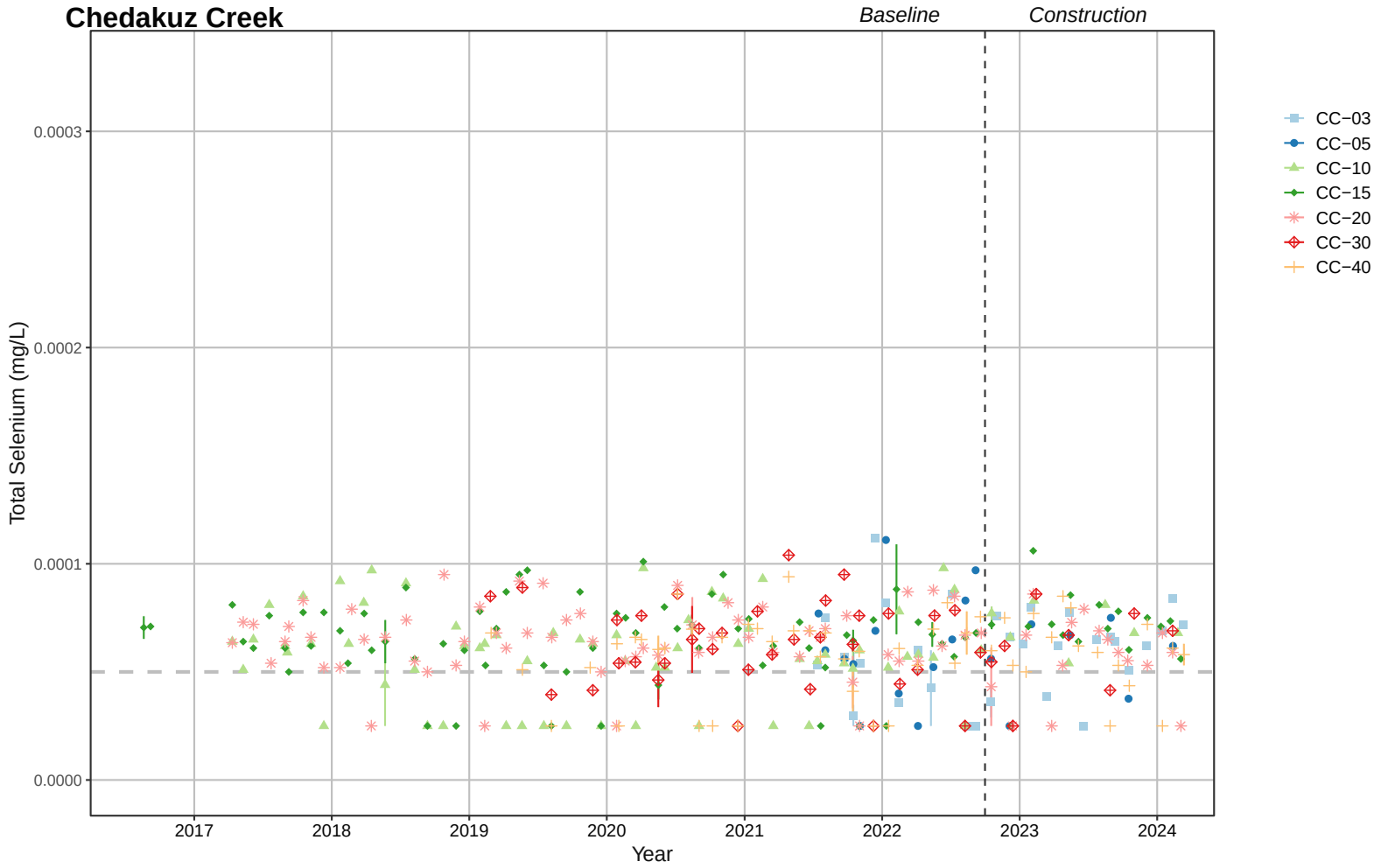
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total selenium = 0.002 mg/L.

Figure C.35.a: Monthly Mean Total Selenium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



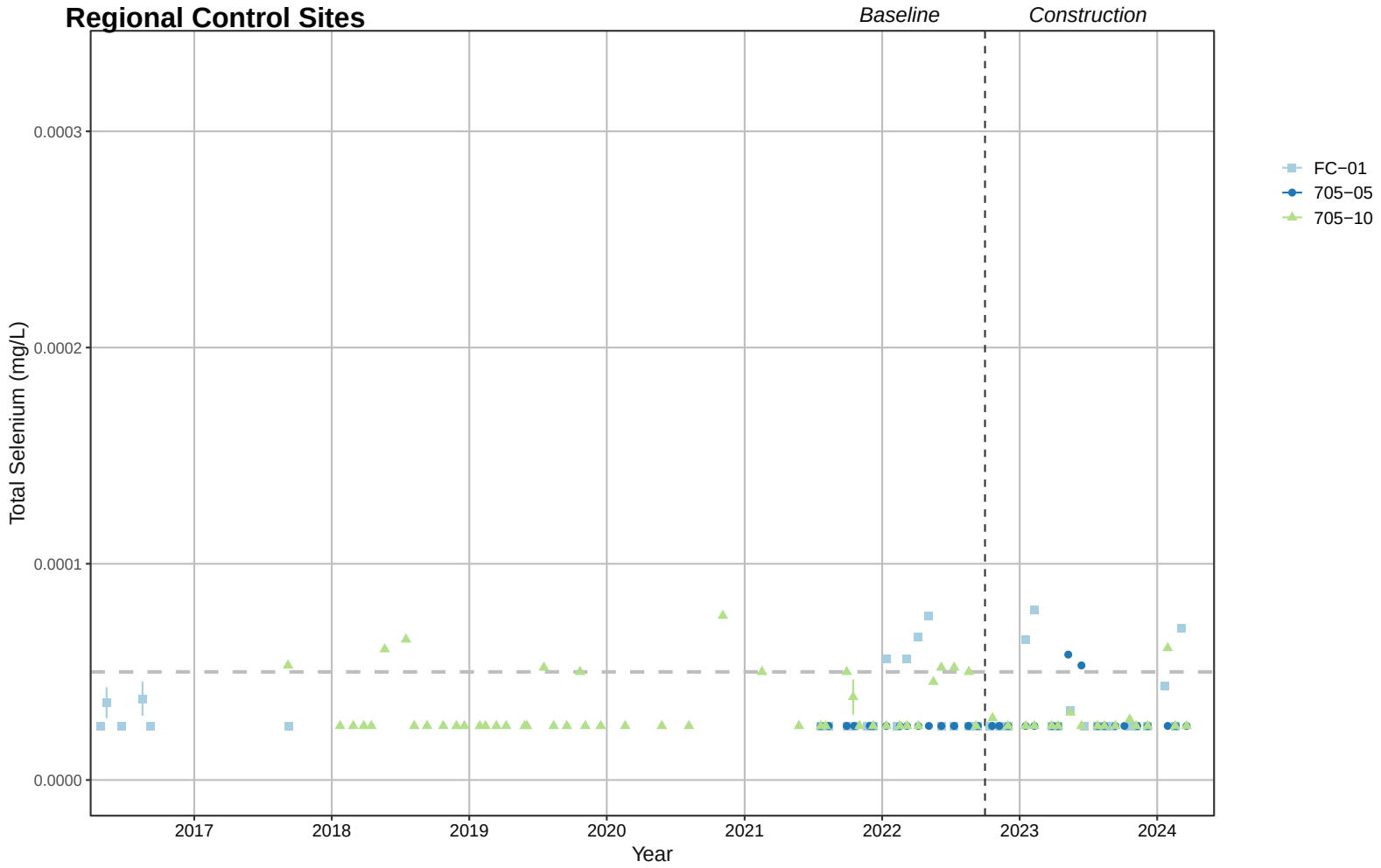
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total selenium = 0.002 mg/L.

Figure C.35.b: Monthly Mean Total Selenium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total selenium = 0.002 mg/L.

Figure C.35.c: Monthly Mean Total Selenium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for total selenium = 0.002 mg/L.

Figure C.35.d: Monthly Mean Total Selenium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

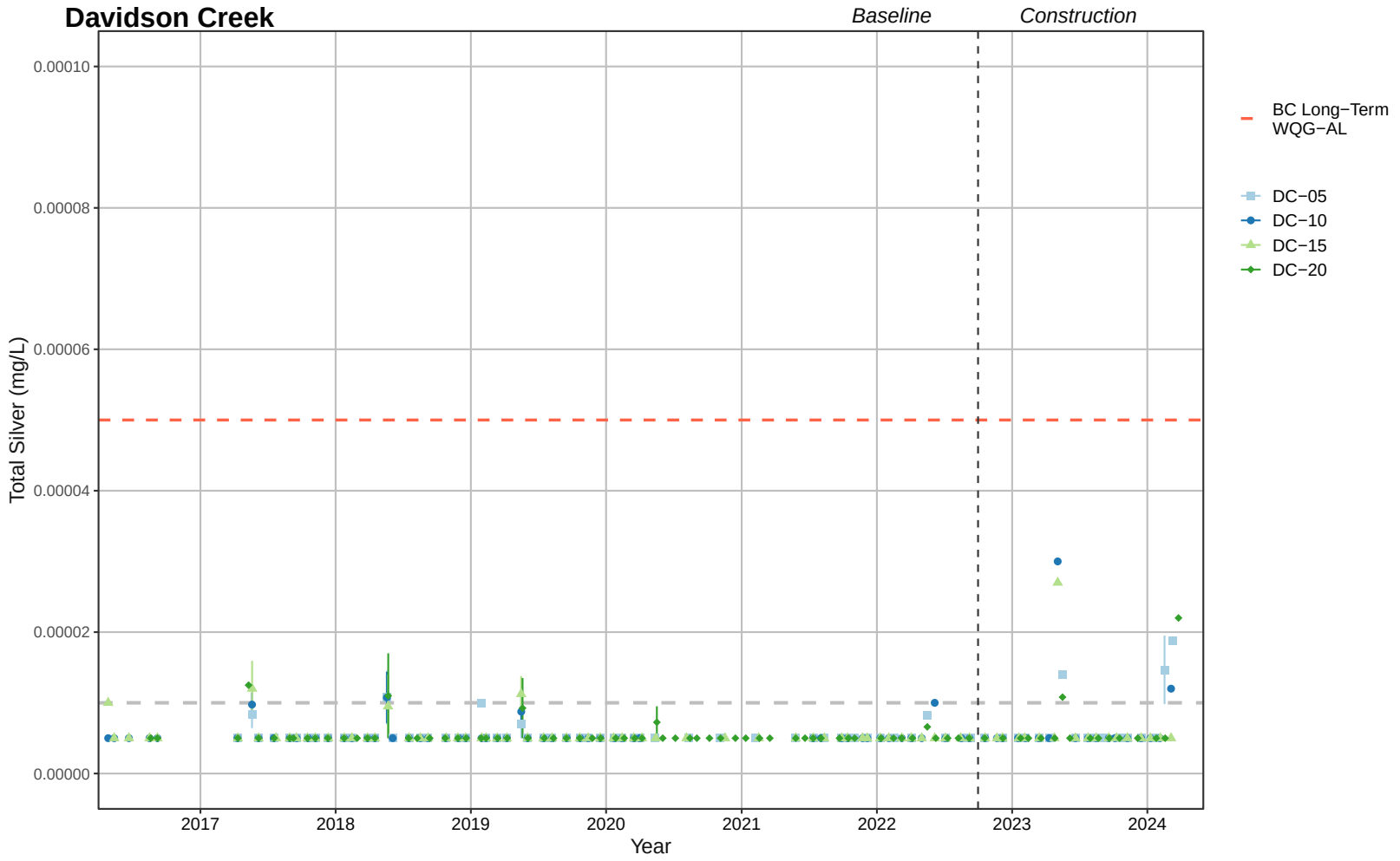
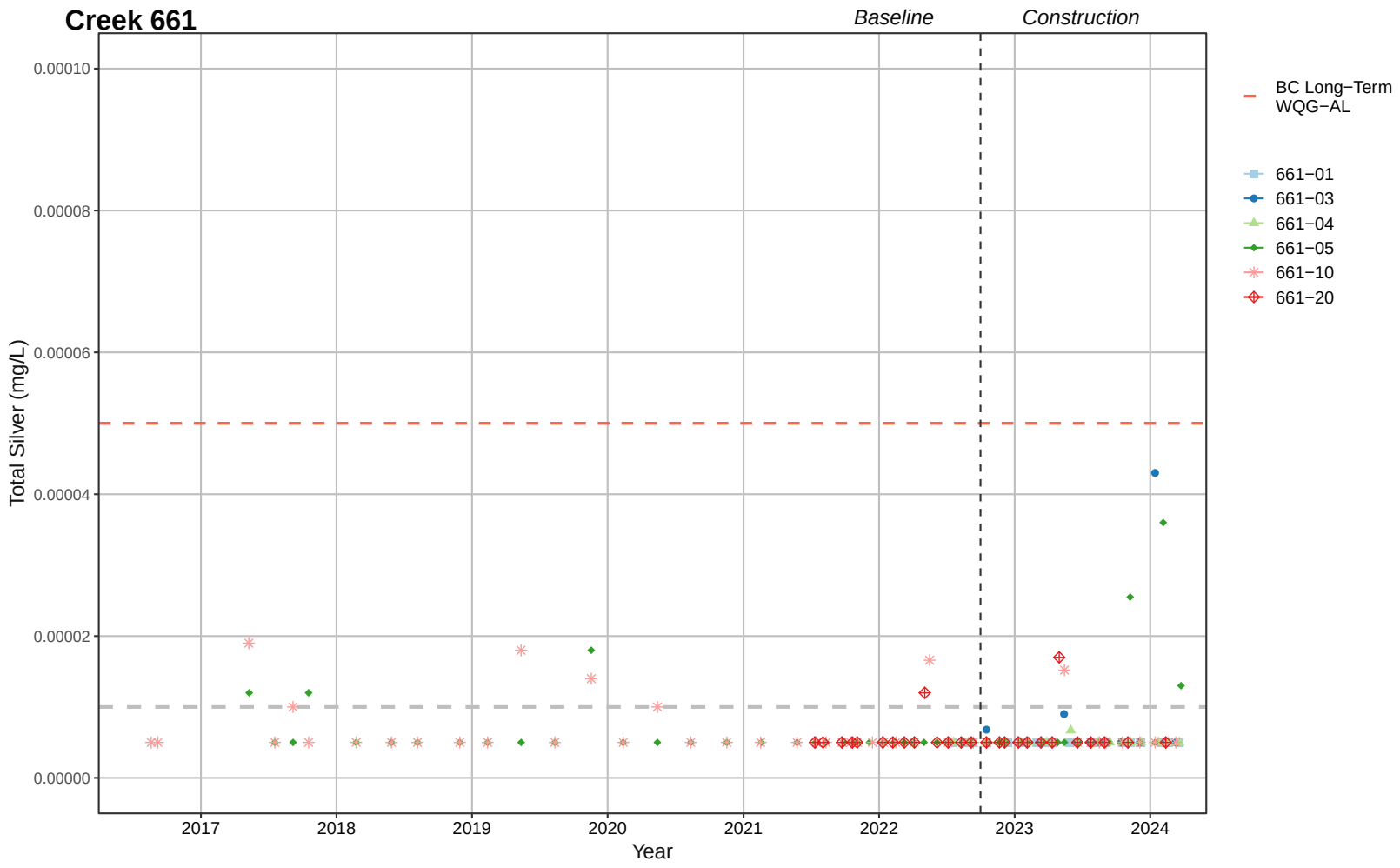


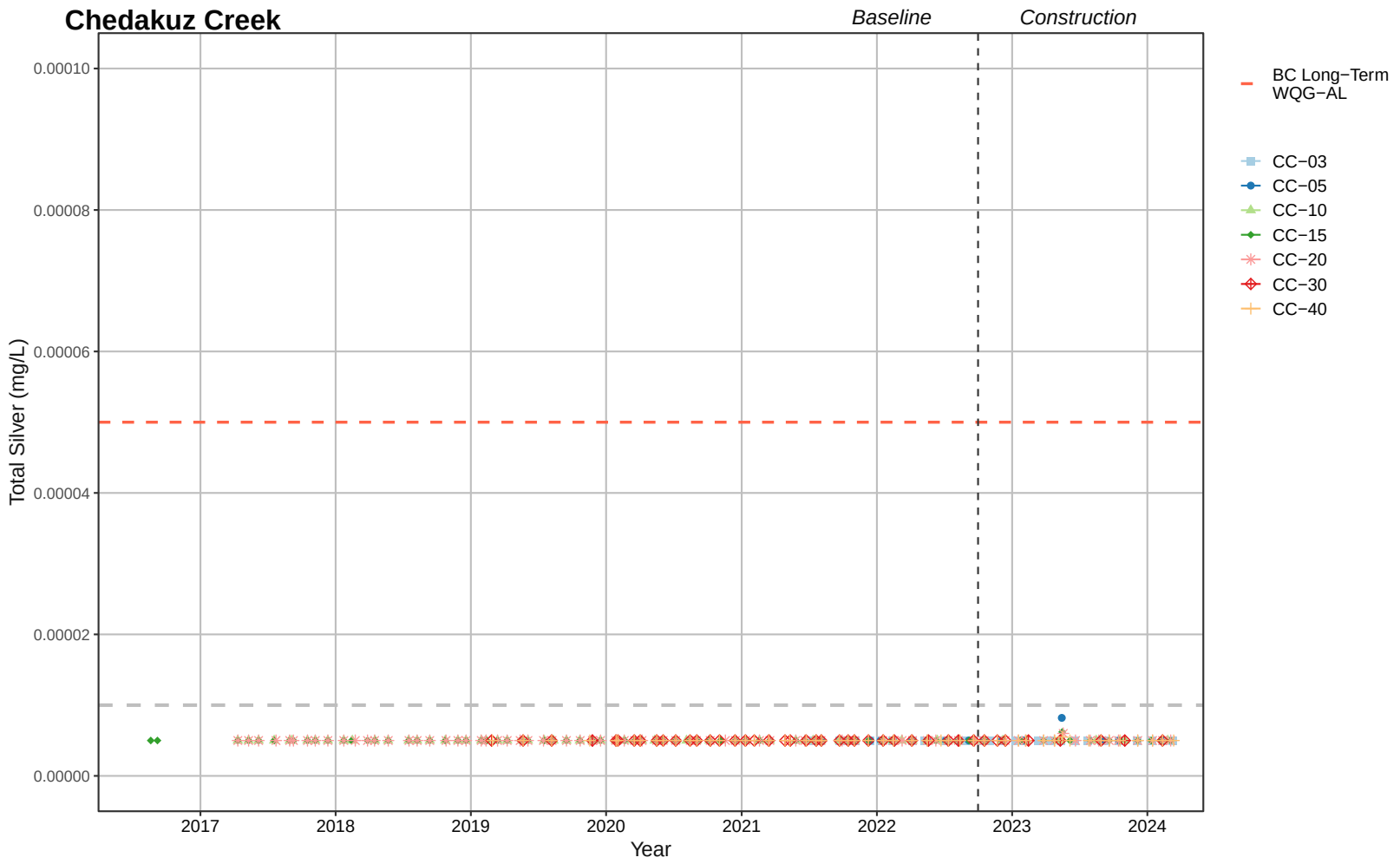
Figure C.36.a: Monthly Mean Total Silver Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for total silver is hardness dependent.

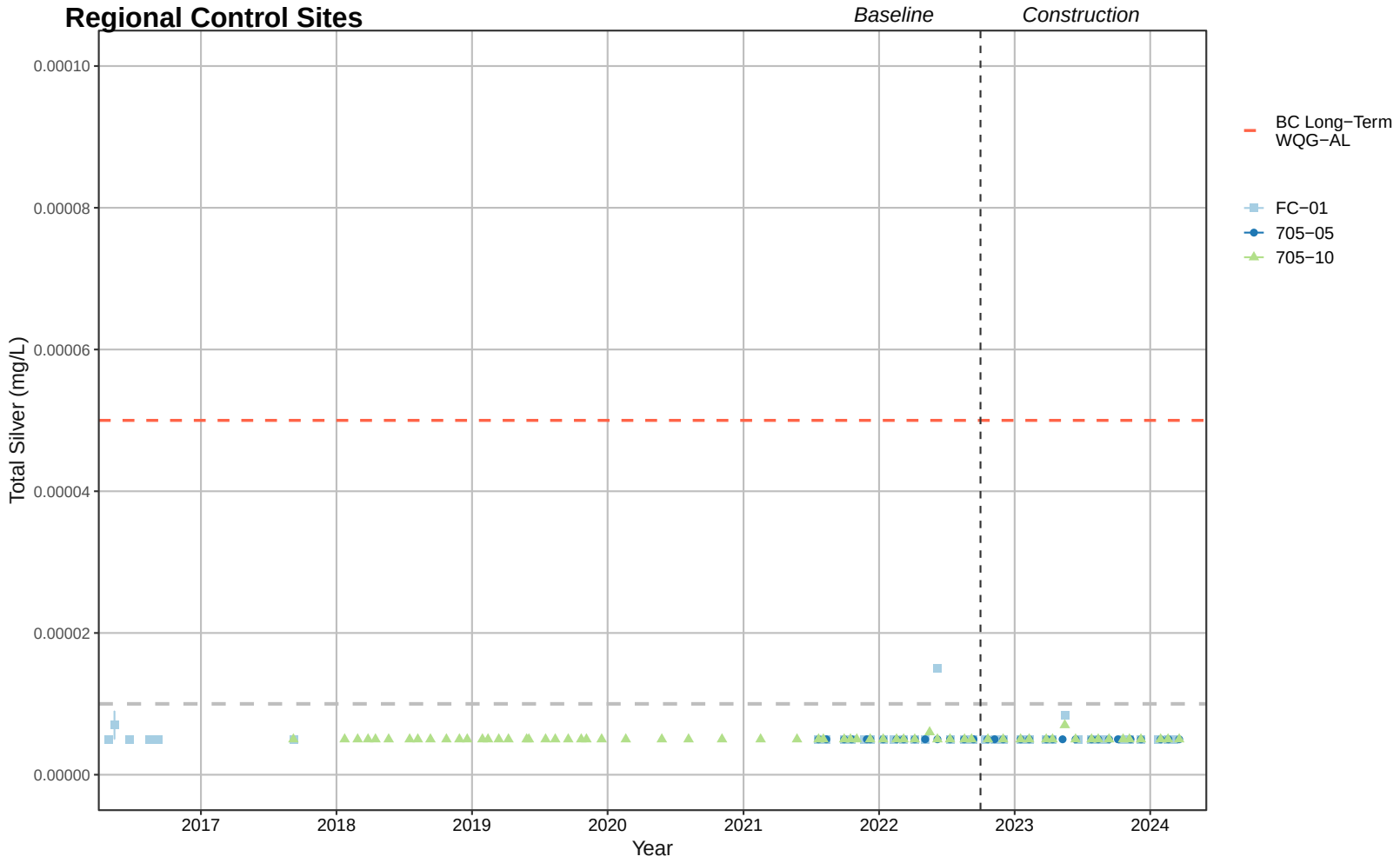
Figure C.36.b: Monthly Mean Total Silver Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for total silver is hardness dependent.

Figure C.36.c: Monthly Mean Total Silver Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term guideline for total silver is hardness dependent.

Figure C.36.d: Monthly Mean Total Silver Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

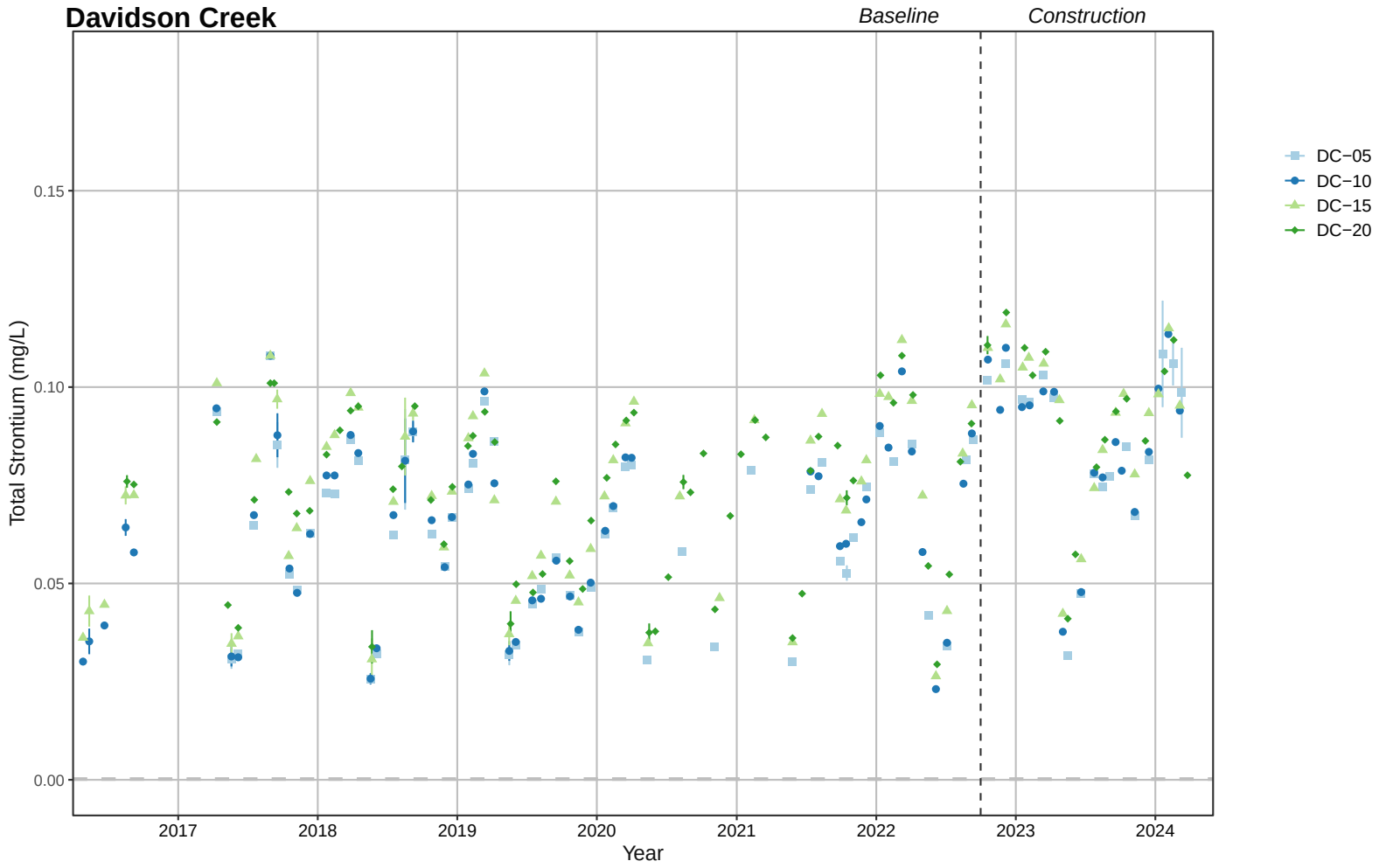
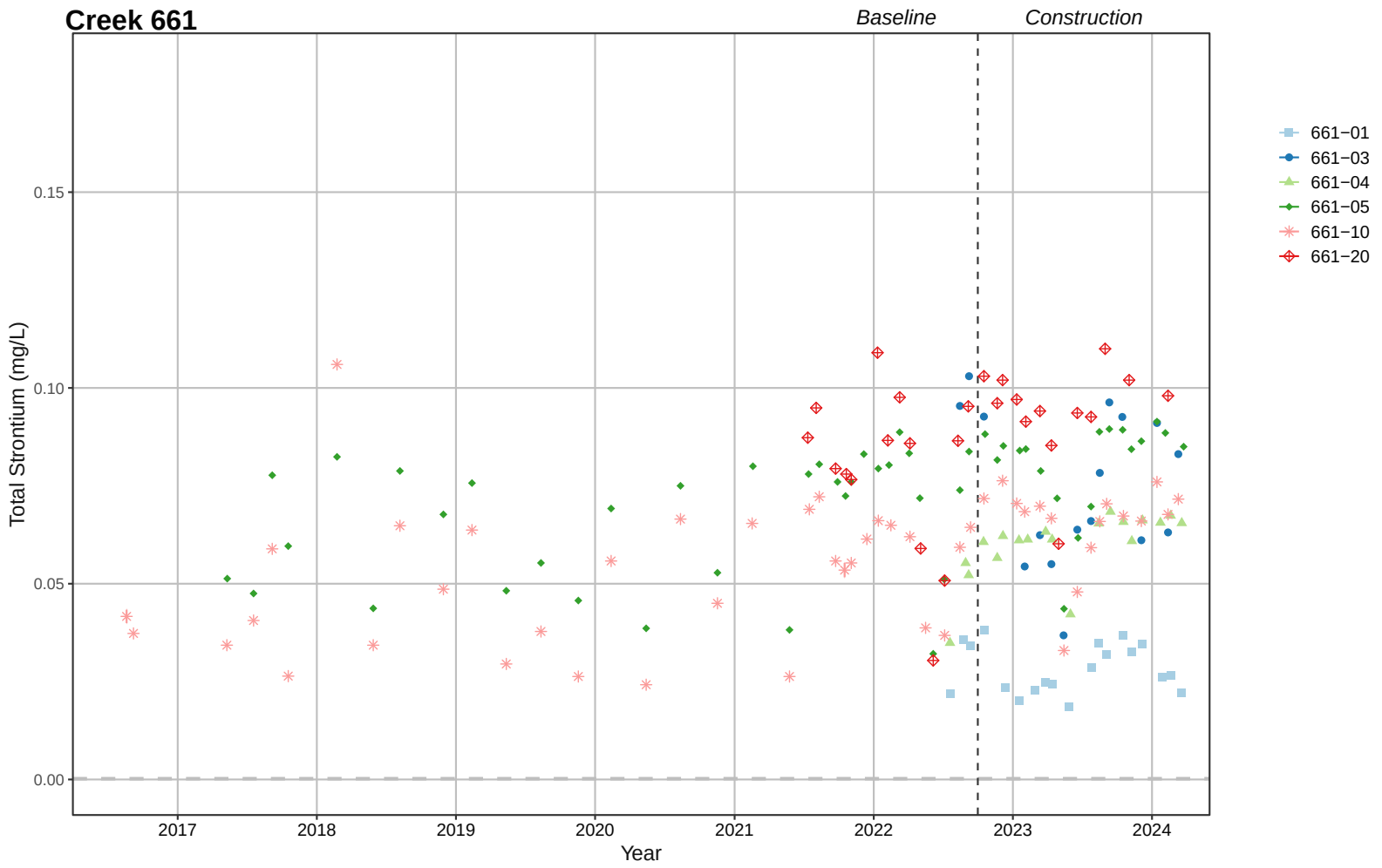
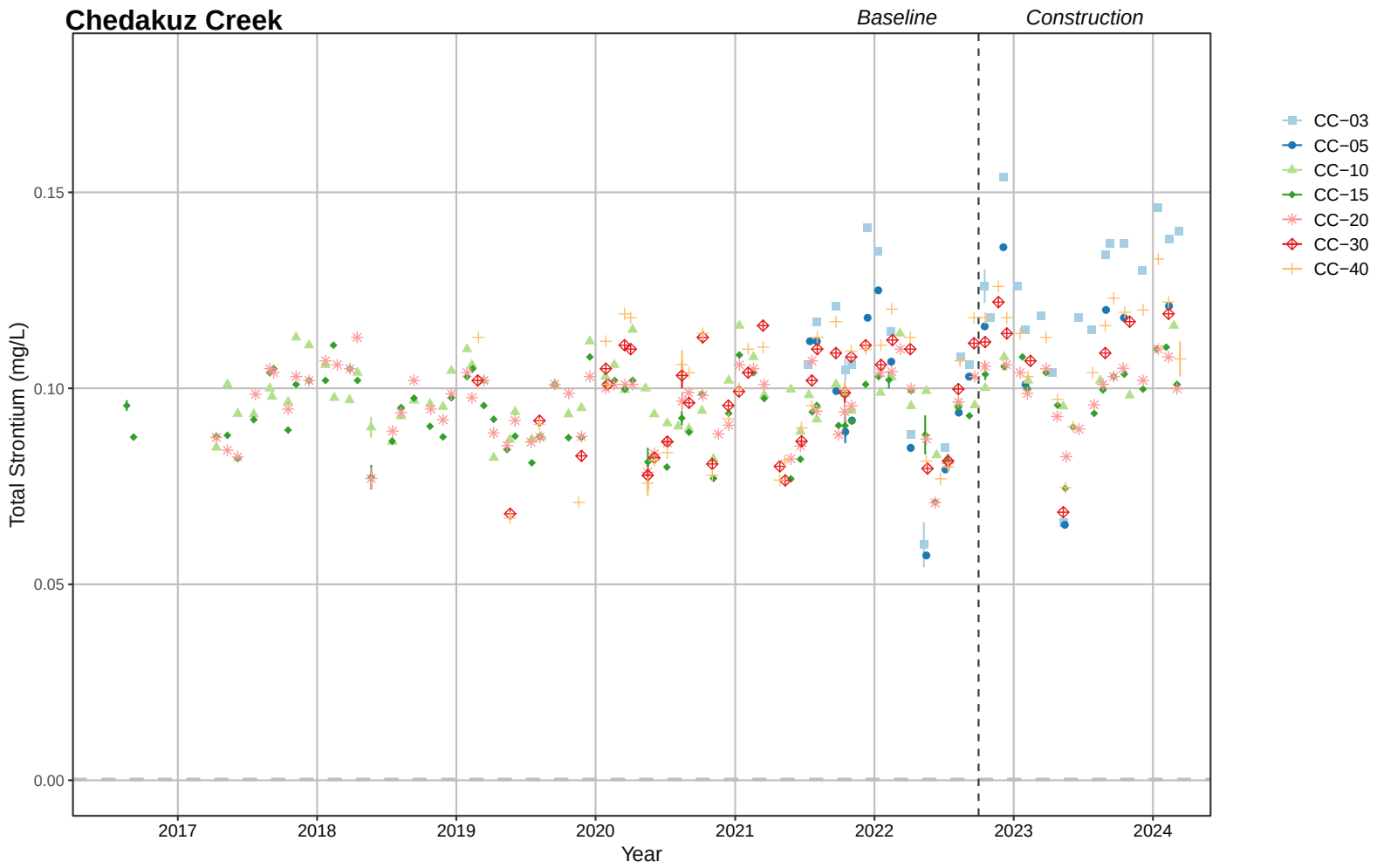


Figure C.37.a: Monthly Mean Total Strontium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



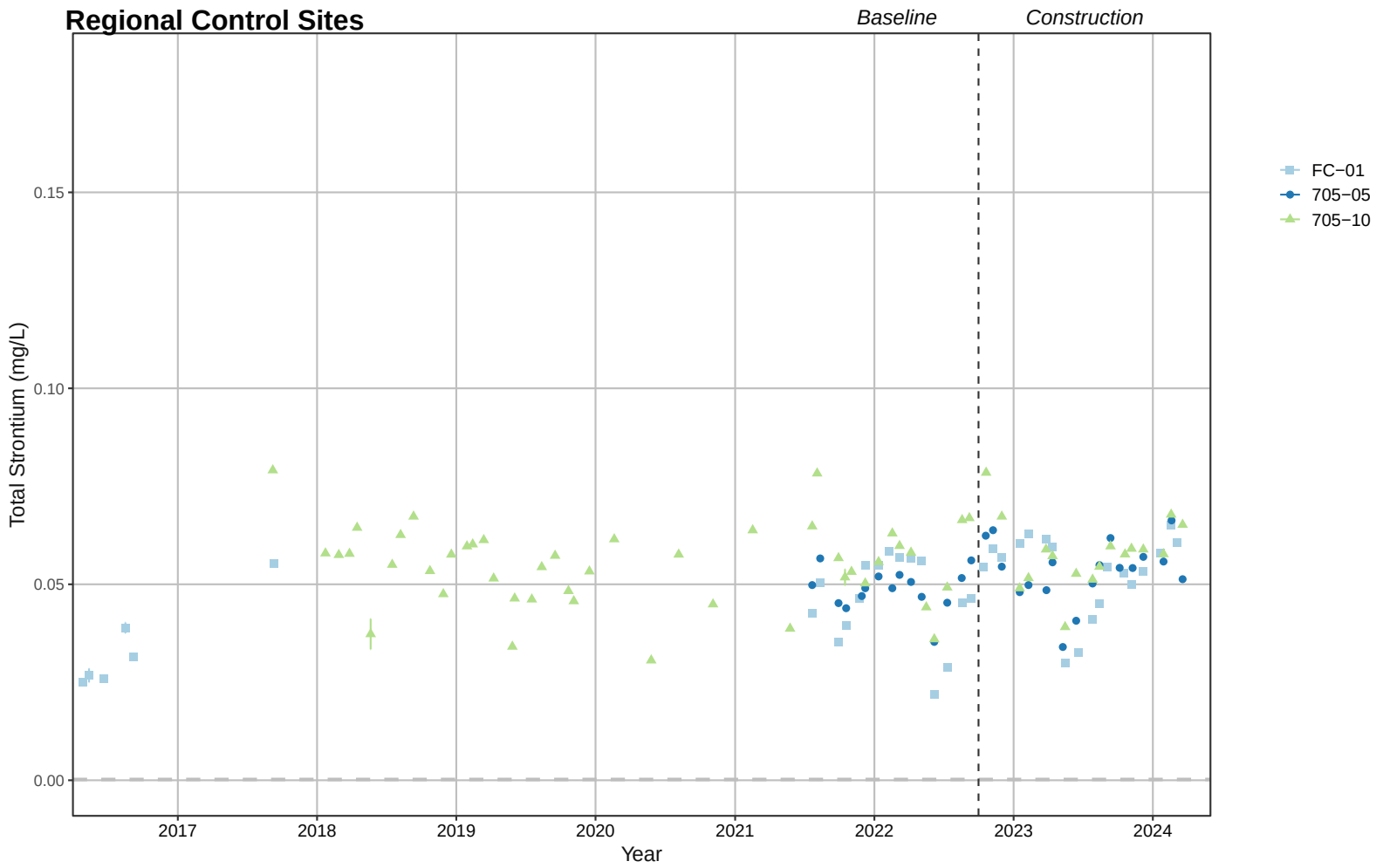
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.37.b: Monthly Mean Total Strontium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.37.c: Monthly Mean Total Strontium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.37.d: Monthly Mean Total Strontium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

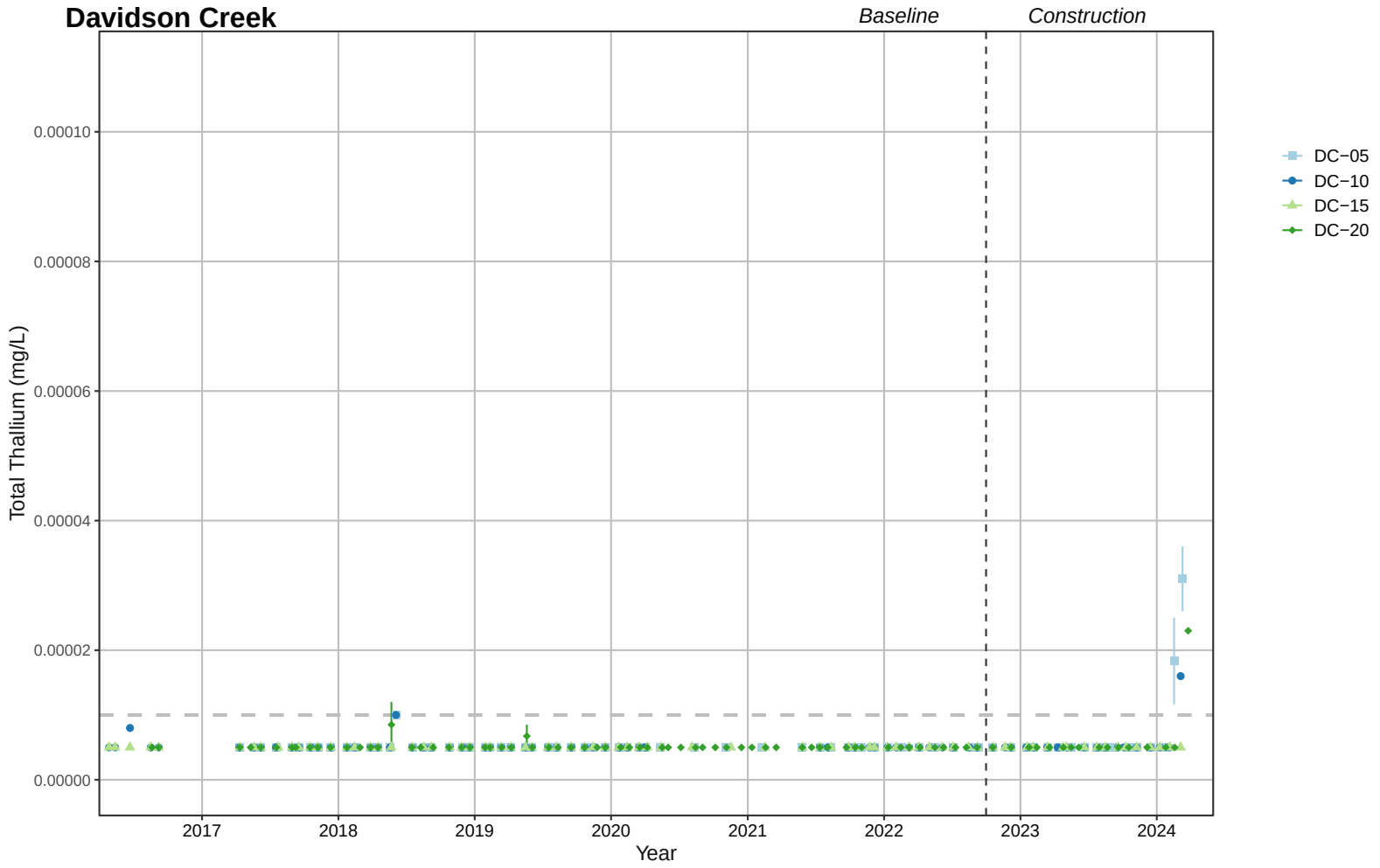
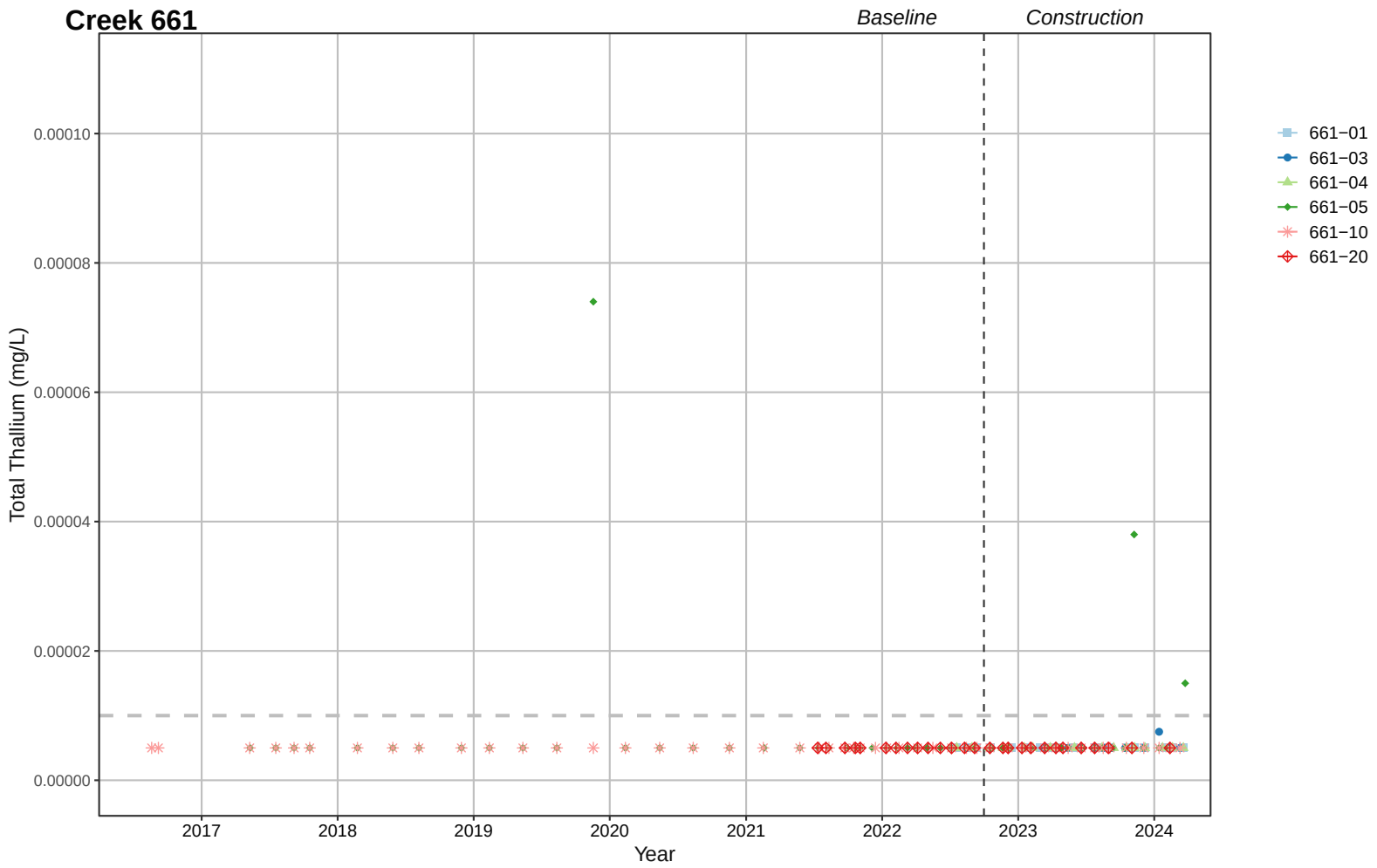
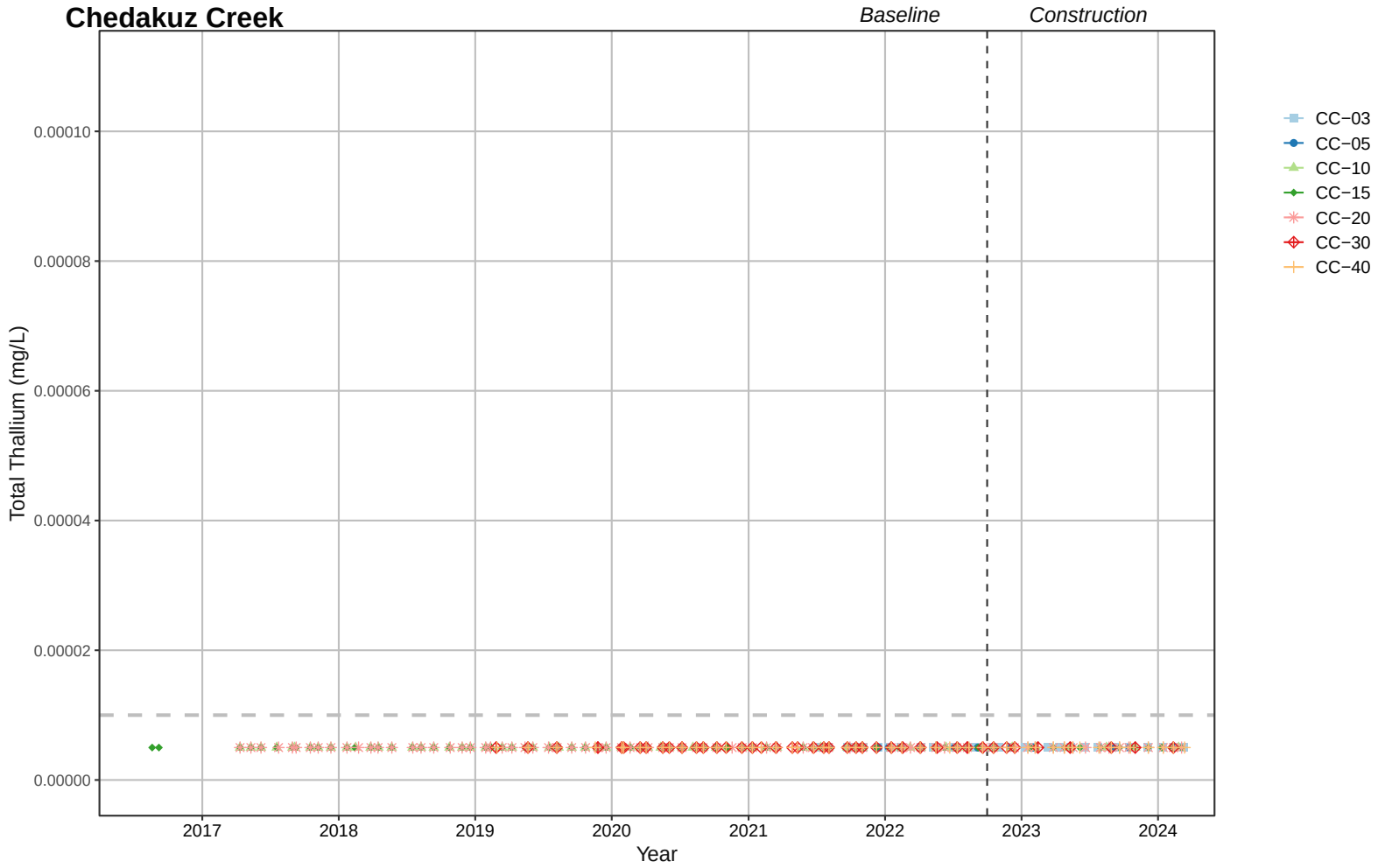


Figure C.38.a: Monthly Mean Total Thallium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



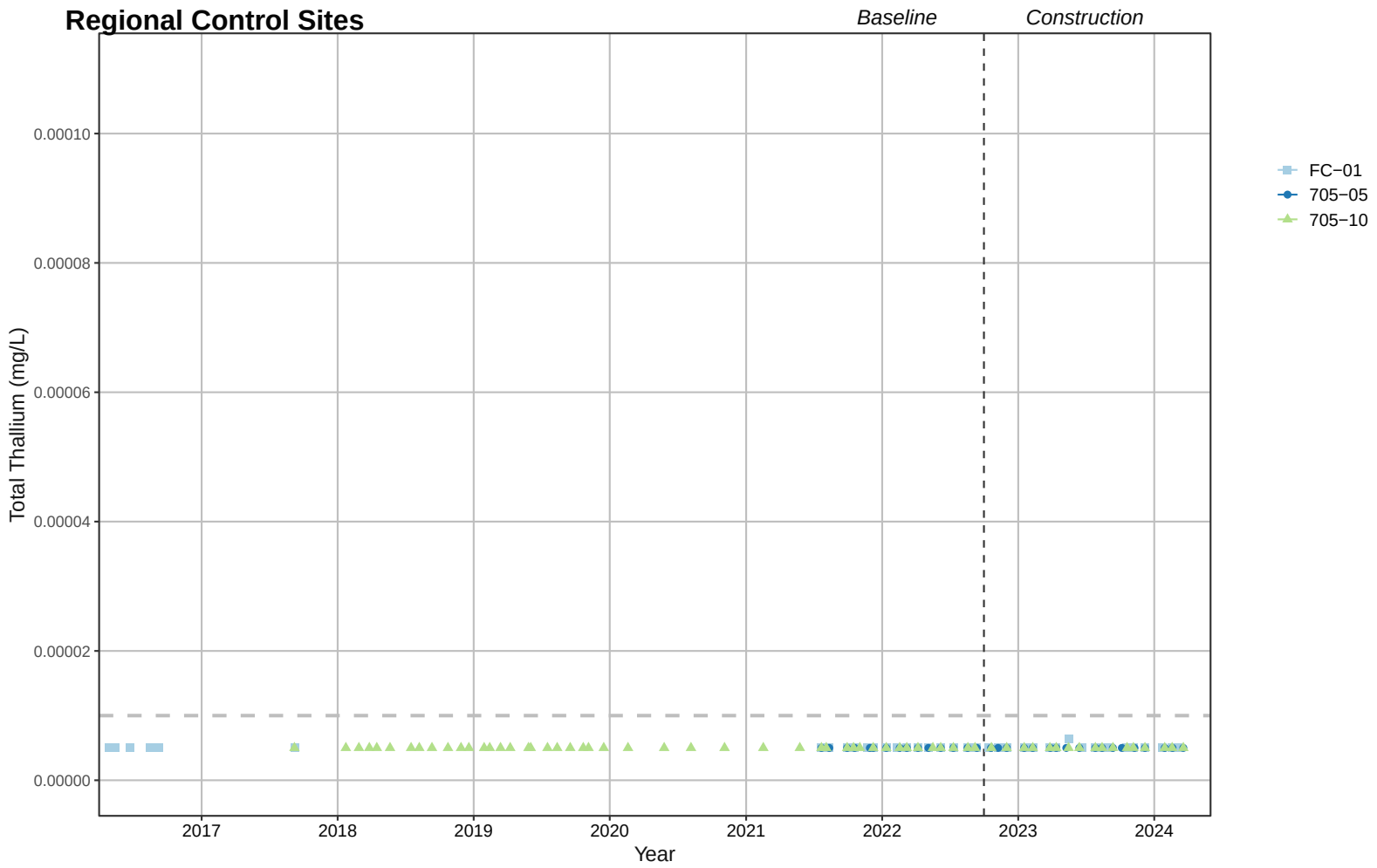
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term working guideline for total thallium = 0.0008 mg/L

Figure C.38.b: Monthly Mean Total Thallium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term working guideline for total thallium = 0.0008 mg/L

Figure C.38.c: Monthly Mean Total Thallium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term working guideline for total thallium = 0.0008 mg/L

Figure C.38.d: Monthly Mean Total Thallium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

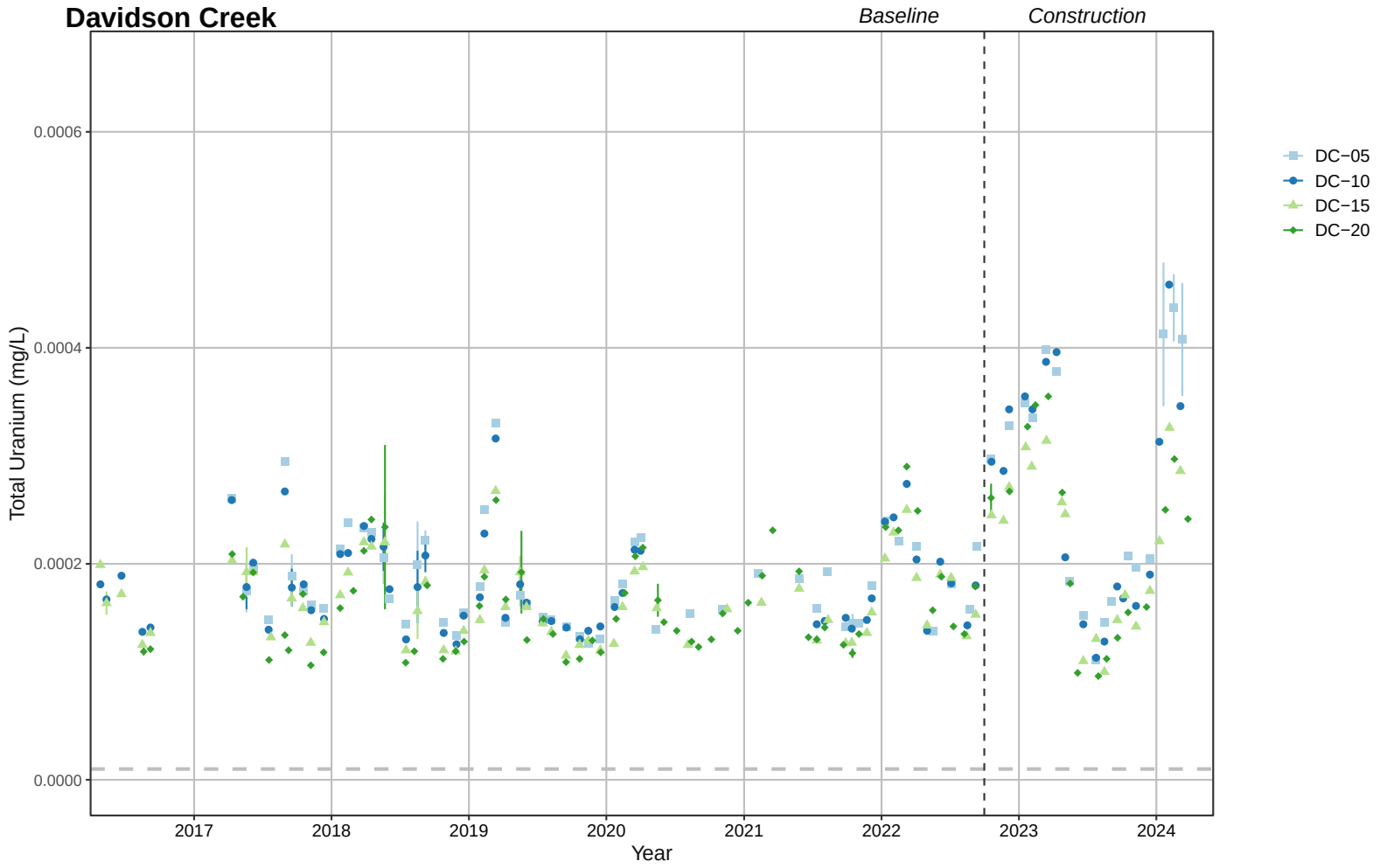
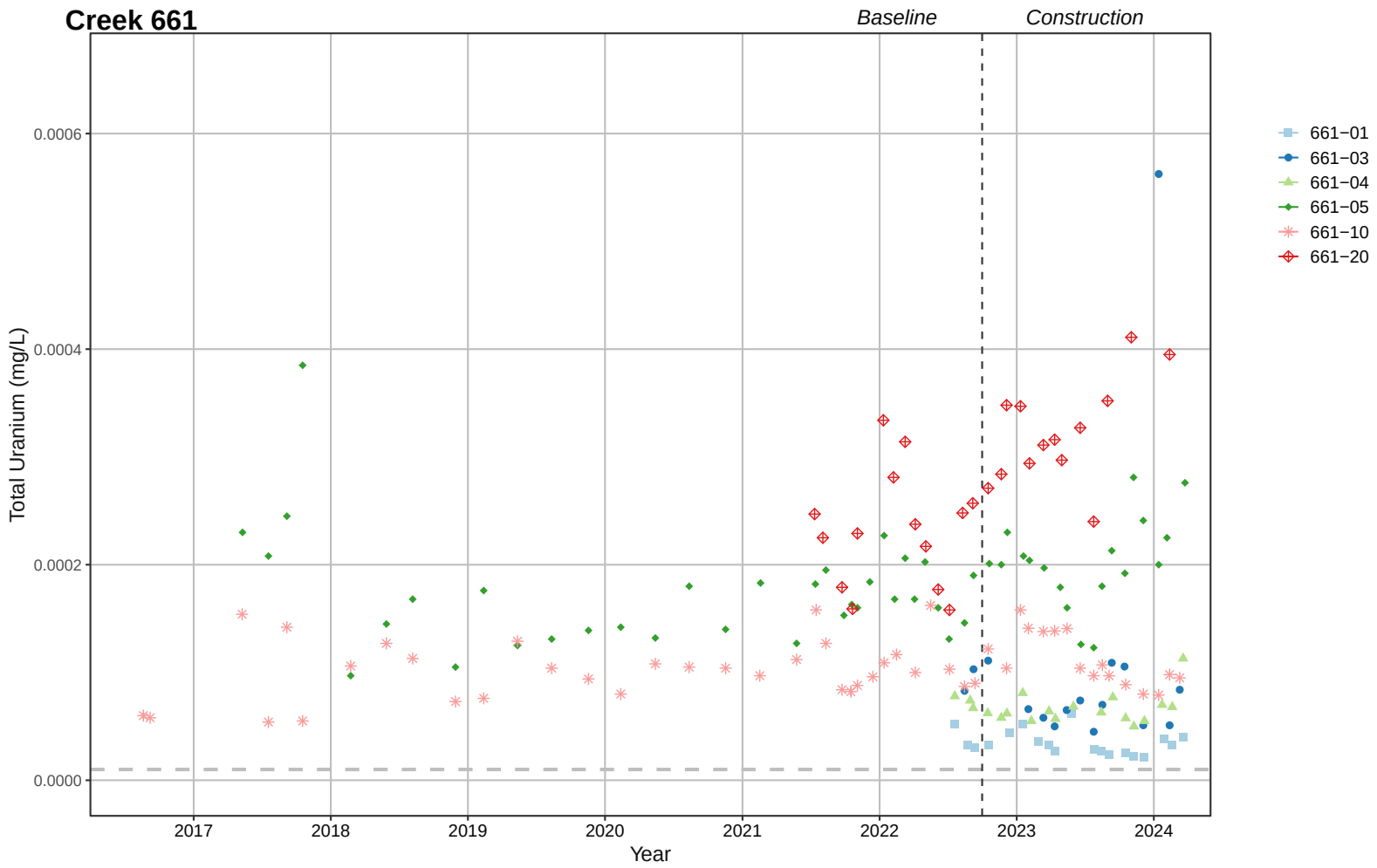
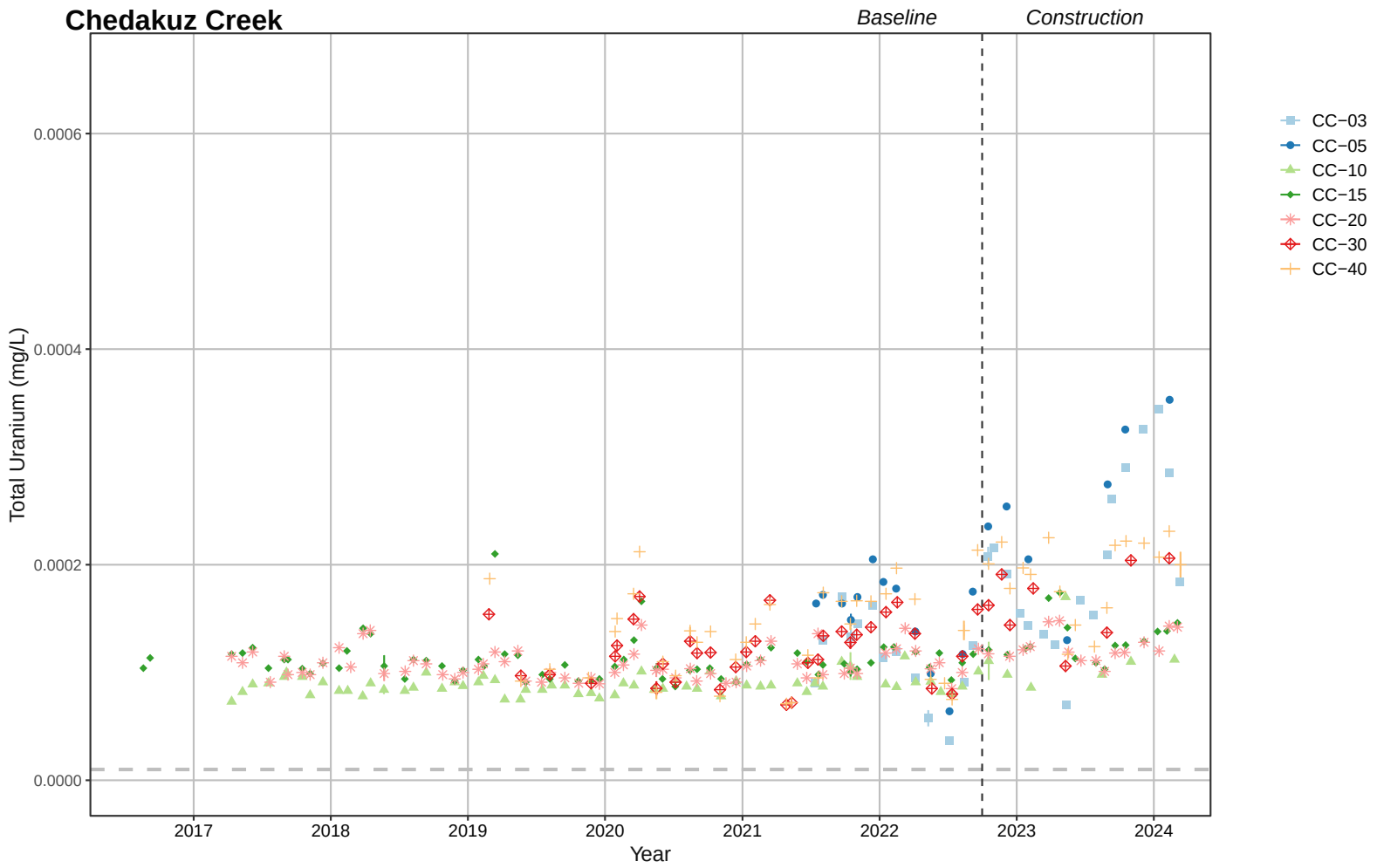


Figure C.39.a: Monthly Mean Total Uranium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



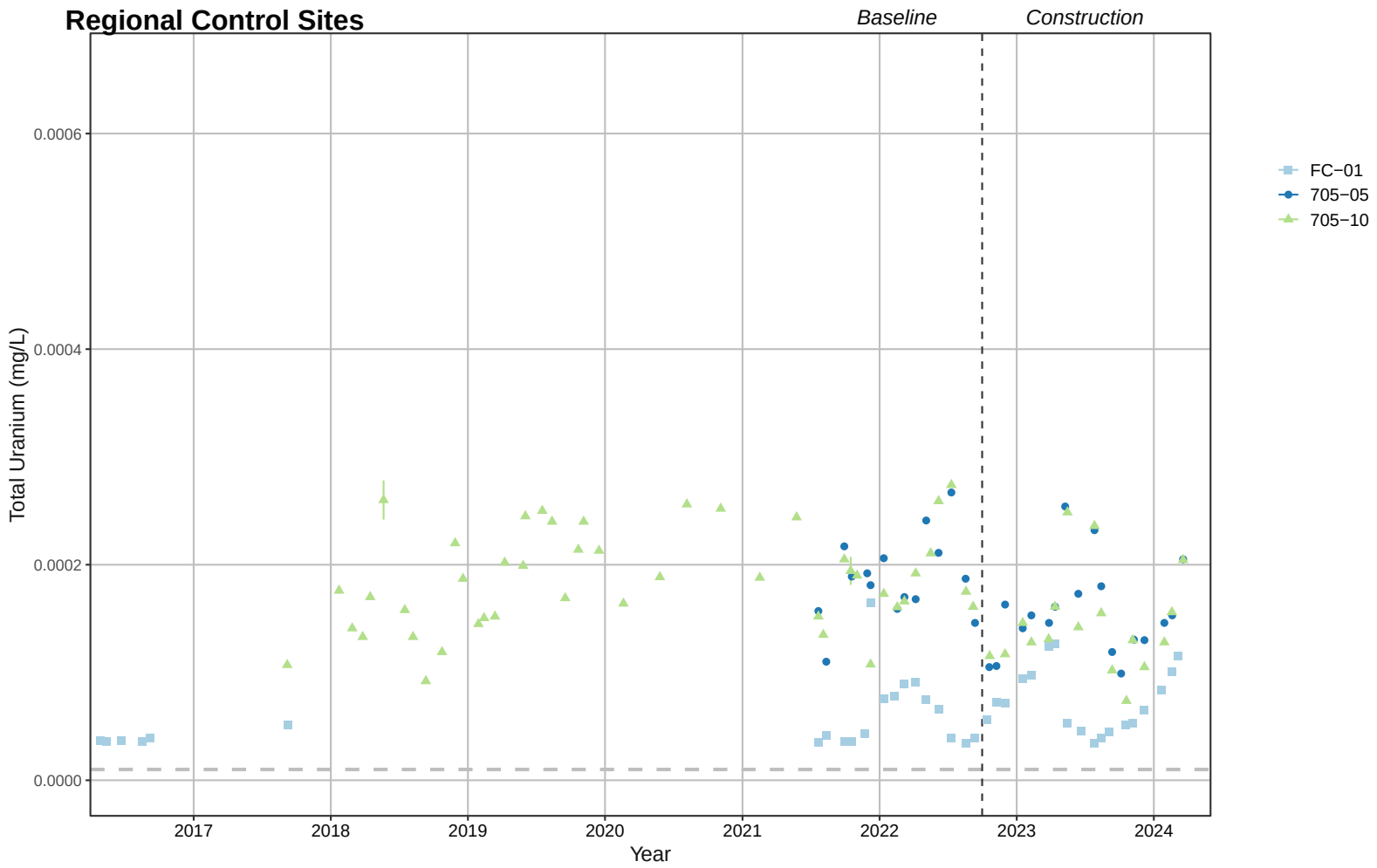
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL working long−term guideline for total uranium = 0.0085 mg/L.

Figure C.39.b: Monthly Mean Total Uranium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



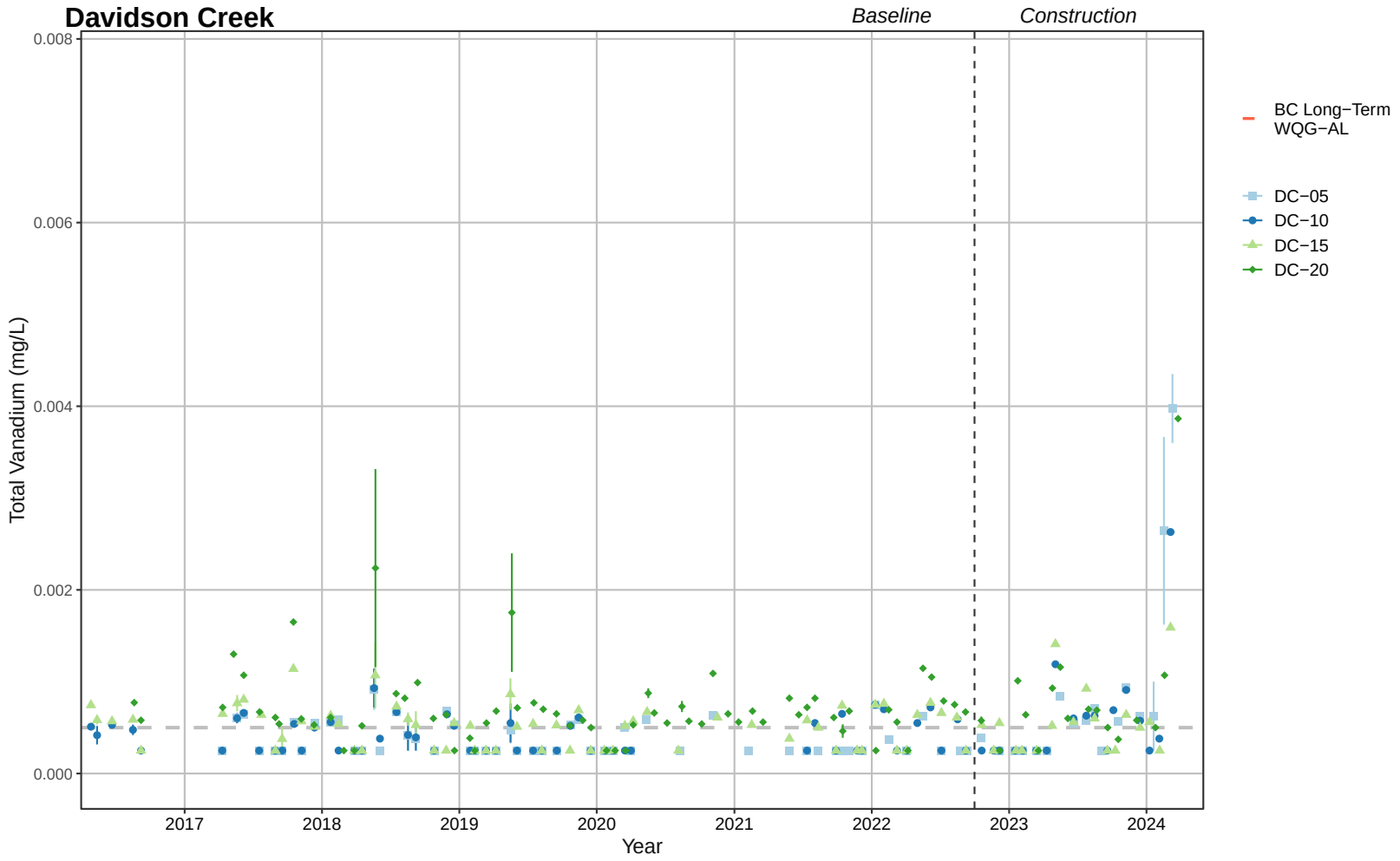
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL working long−term guideline for total uranium = 0.0085 mg/L.

Figure C.39.c: Monthly Mean Total Uranium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



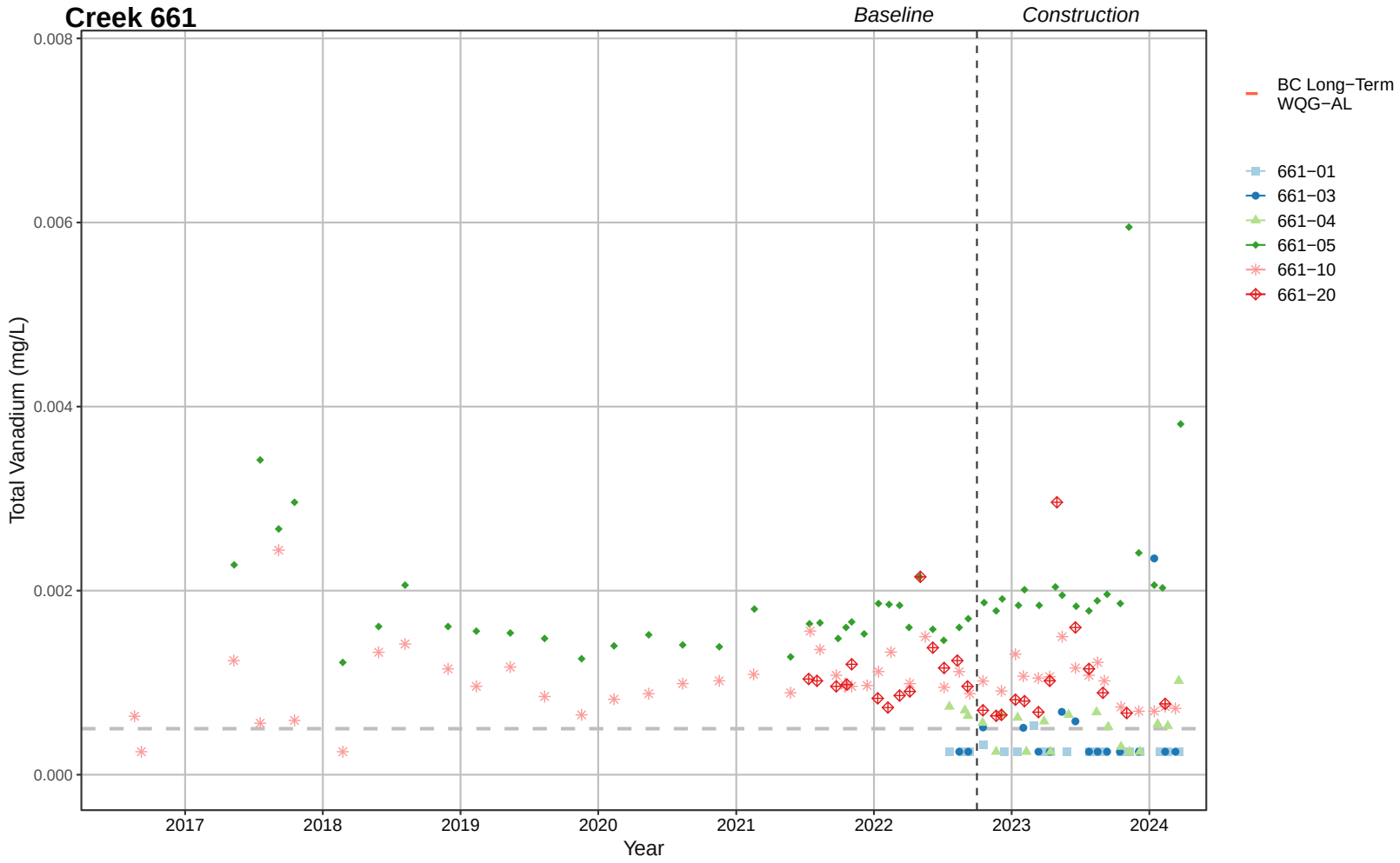
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
BC WQG−AL working long−term guideline for total uranium = 0.0085 mg/L.

Figure C.39.d: Monthly Mean Total Uranium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



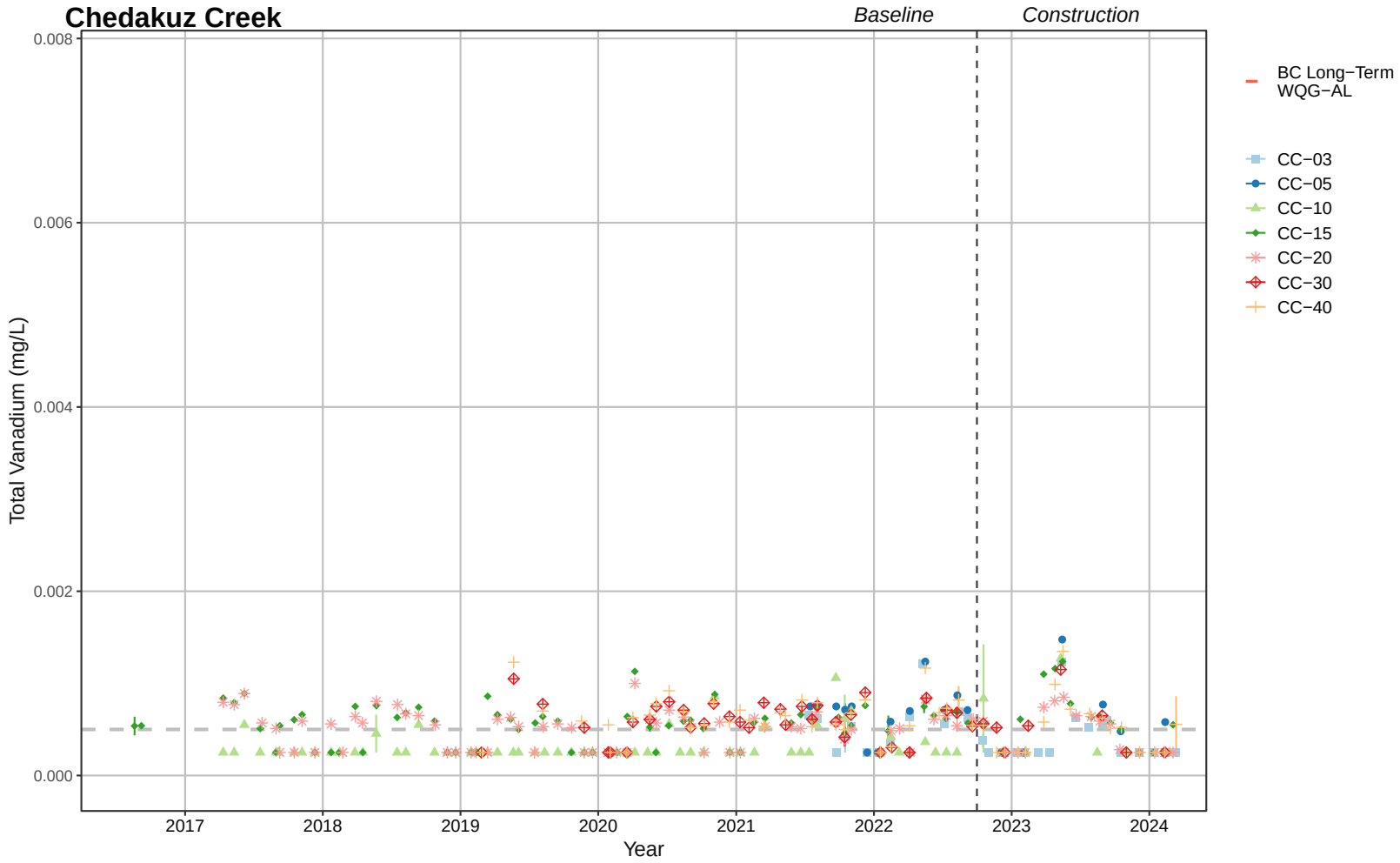
DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.40.a: Monthly Mean Total Vanadium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



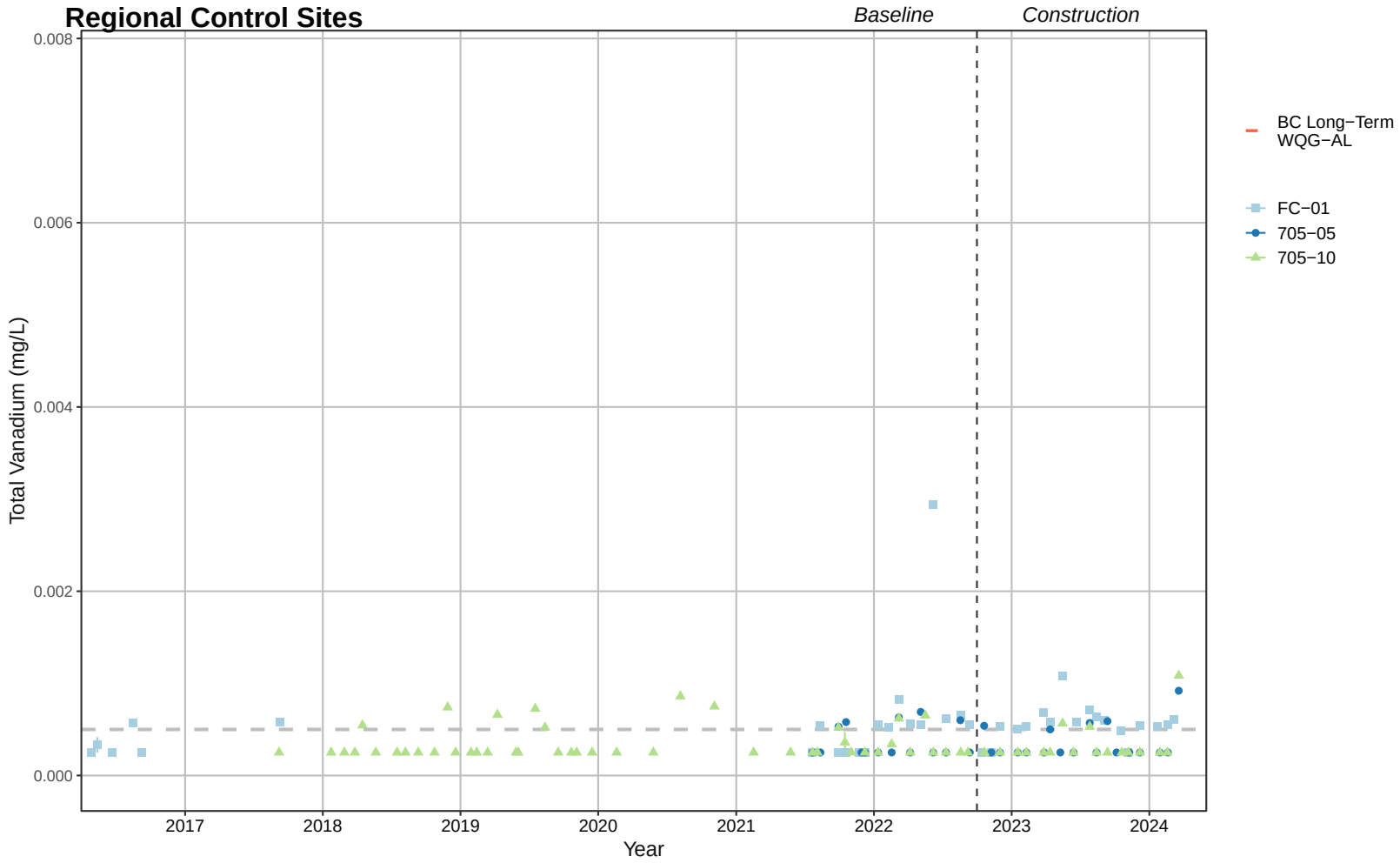
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.40.b: Monthly Mean Total Vanadium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.40.c: Monthly Mean Total Vanadium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.40.d: Monthly Mean Total Vanadium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

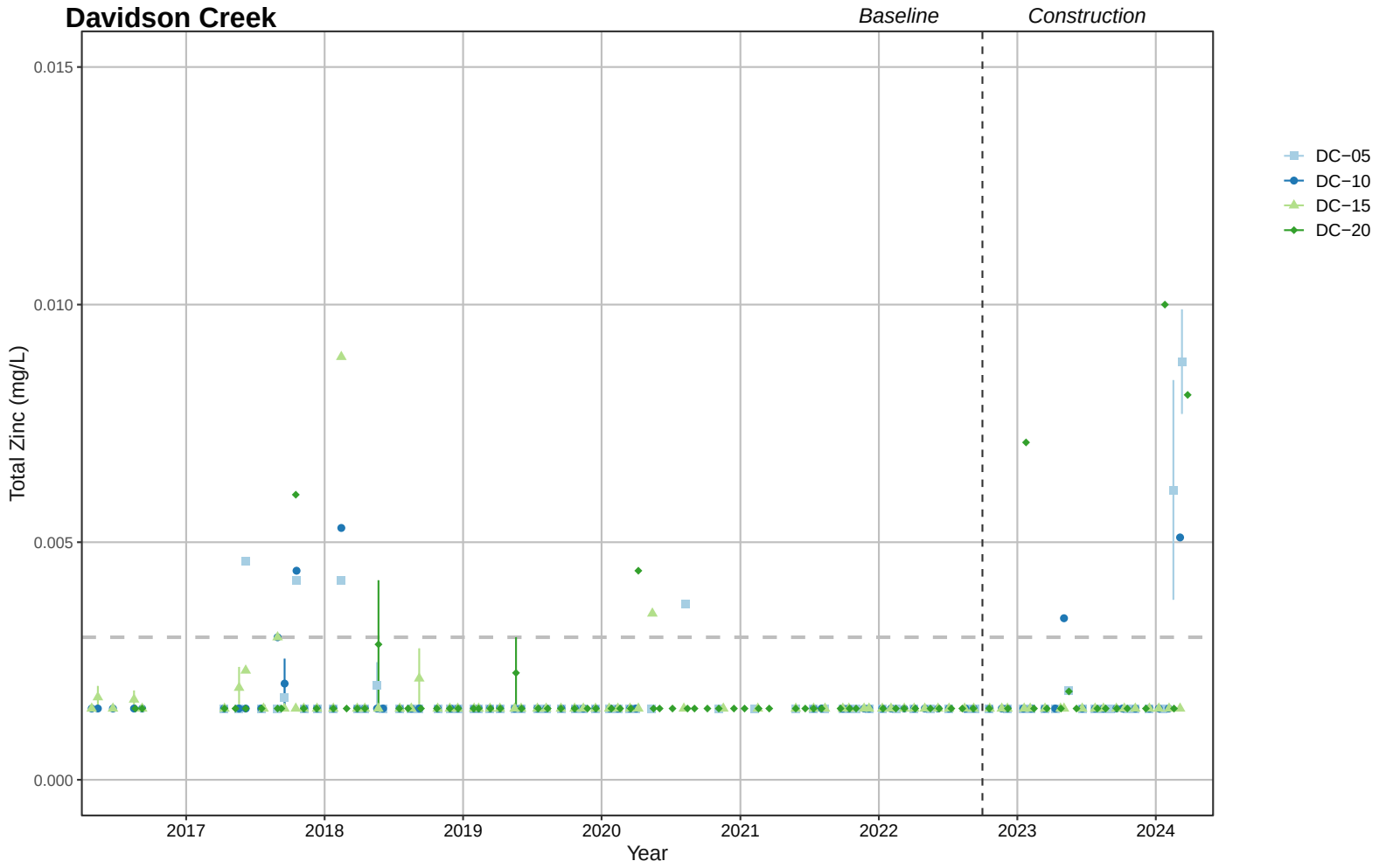
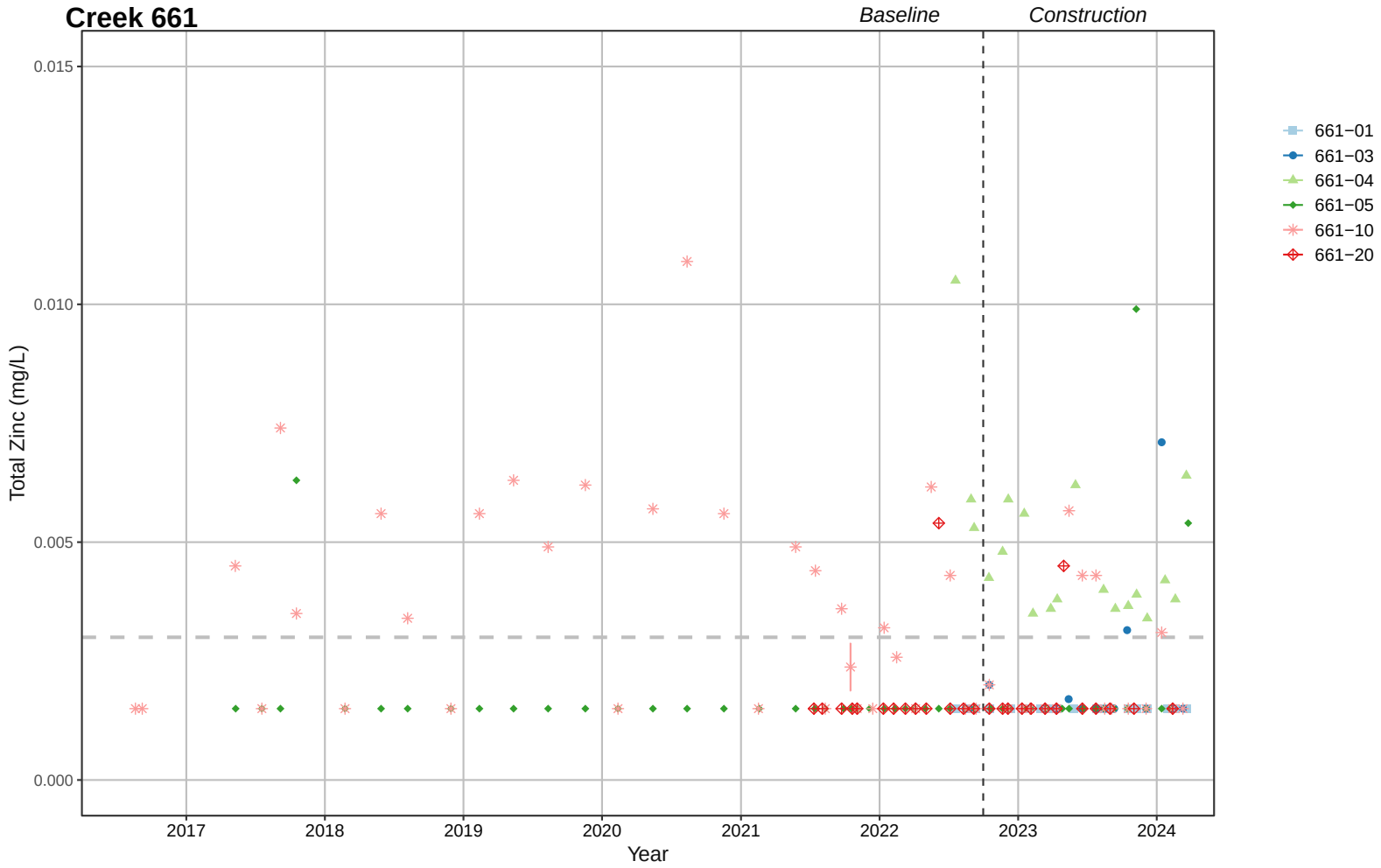
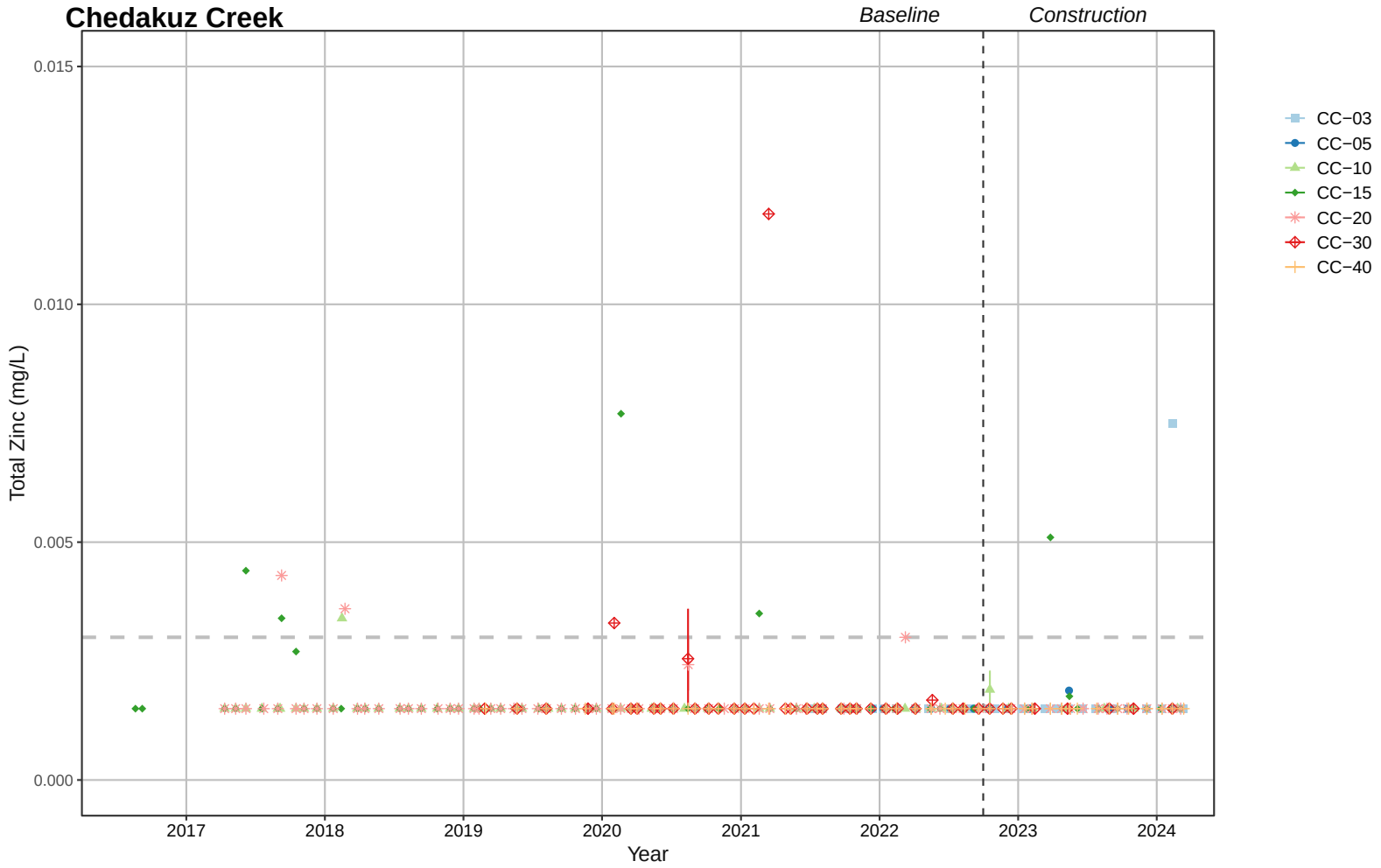


Figure C.41.a: Monthly Mean Total Zinc Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



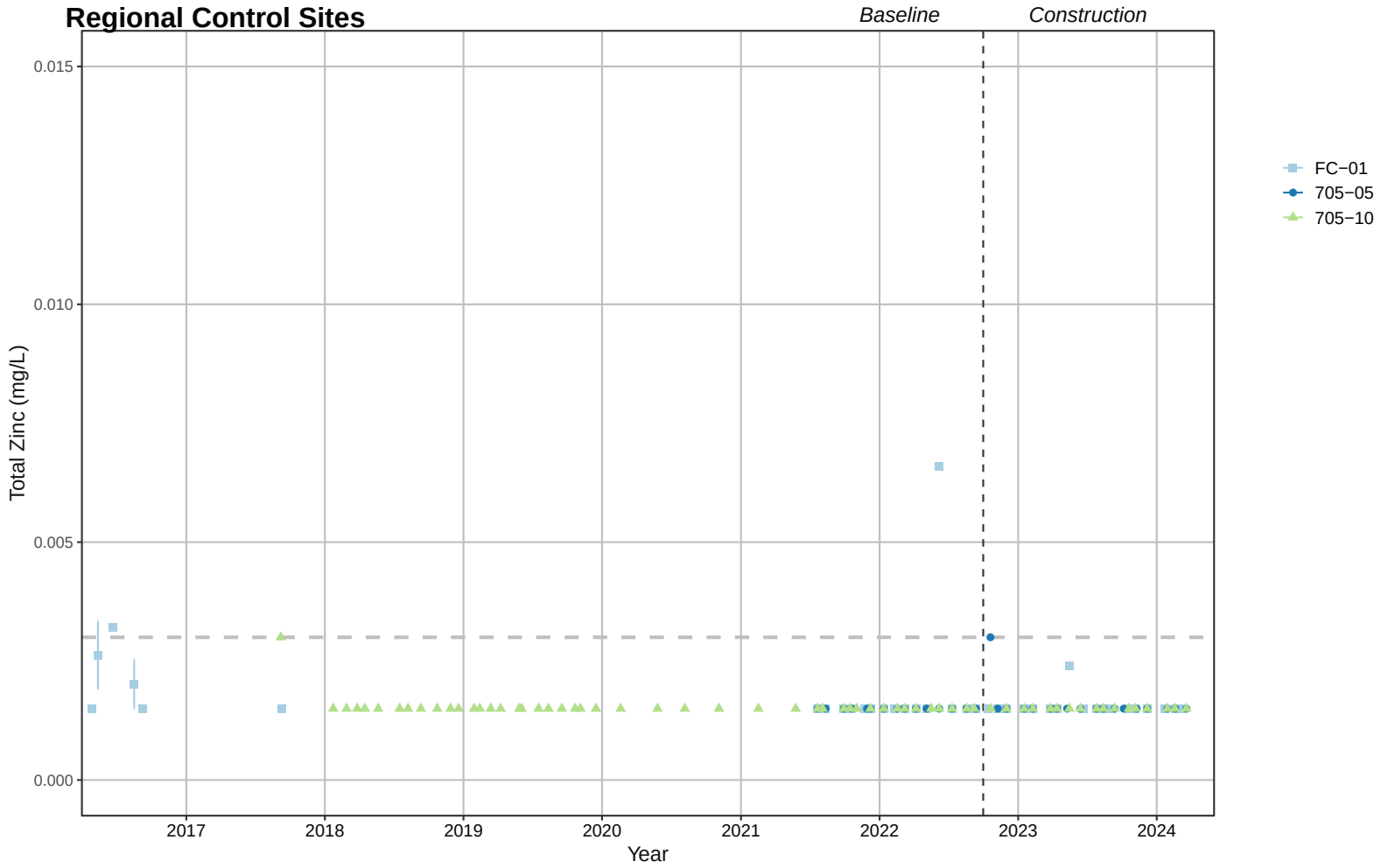
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.41.b: Monthly Mean Total Zinc Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.41.c: Monthly Mean Total Zinc Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

Figure C.41.d: Monthly Mean Total Zinc Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

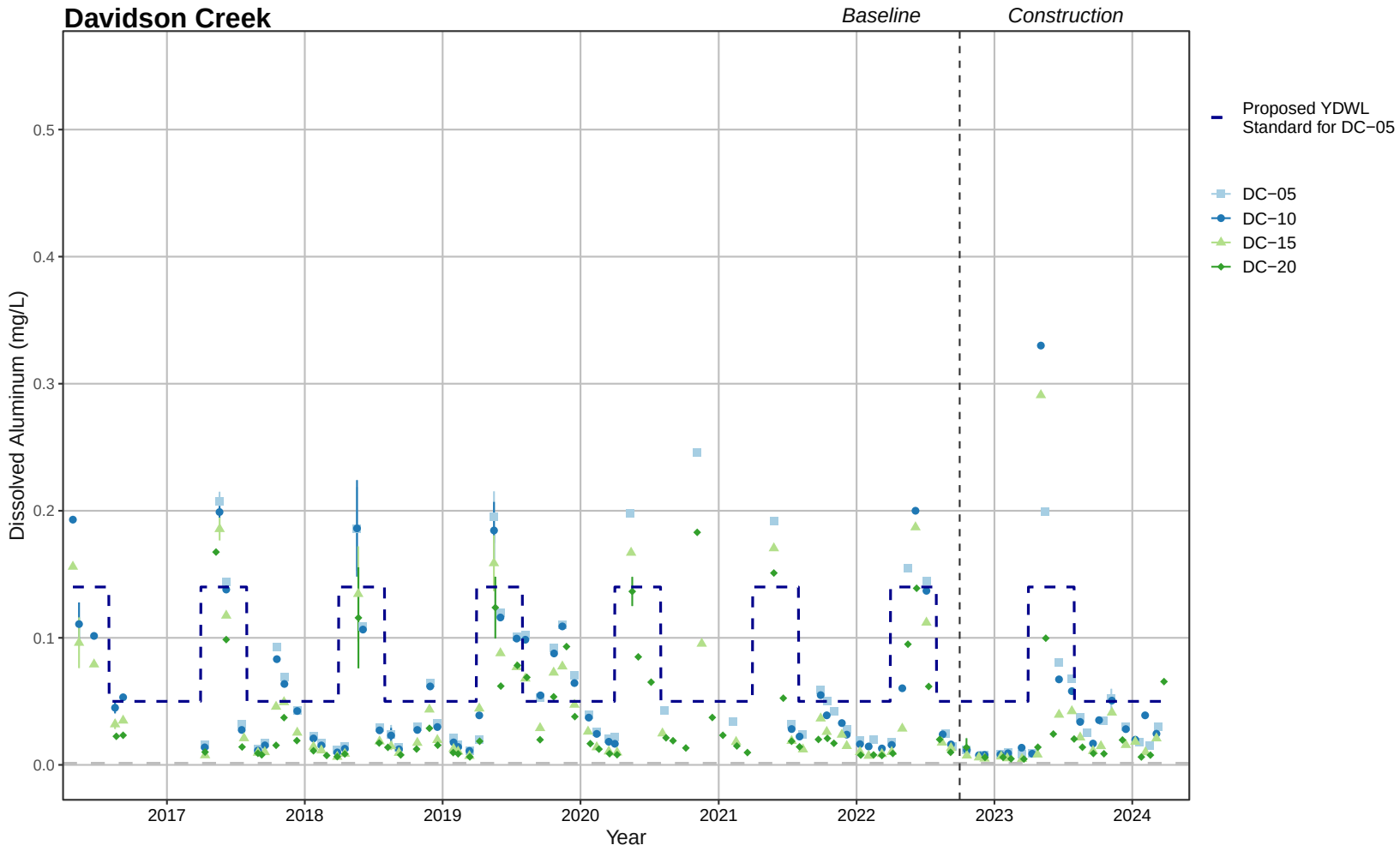
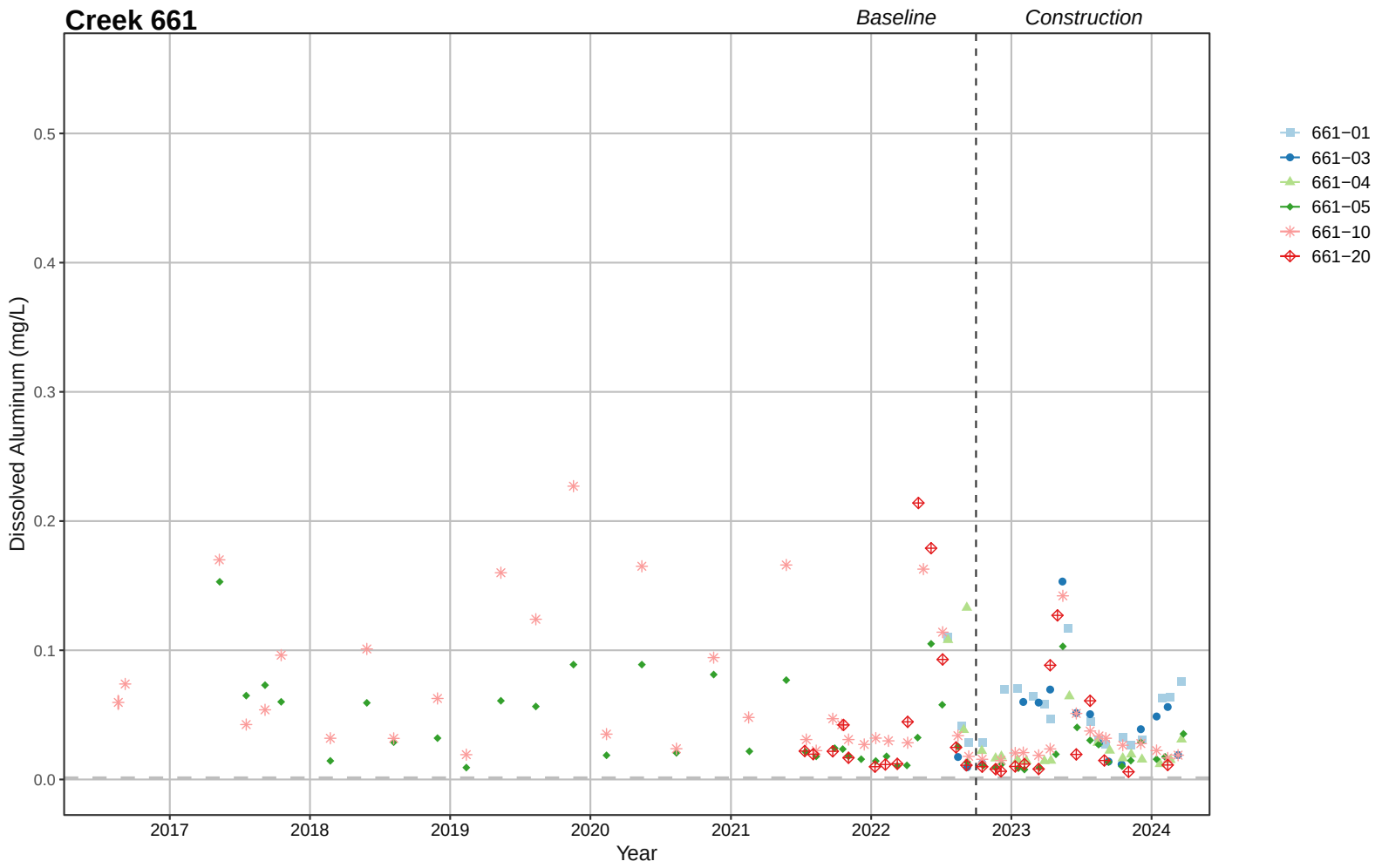


Figure C.42.a: Monthly Mean Dissolved Aluminum Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

Figure C.42.b: Monthly Mean Dissolved Aluminum Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024

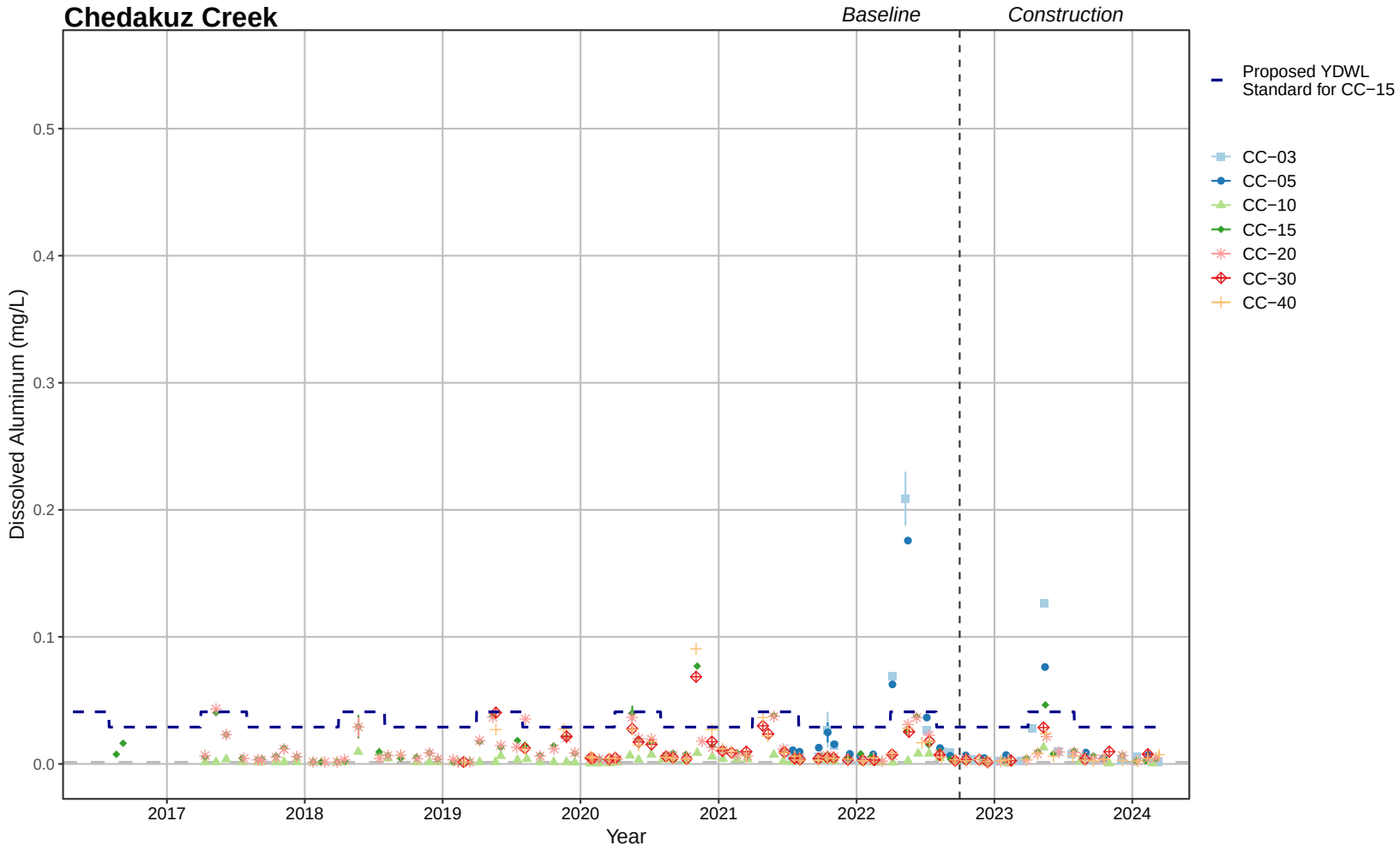
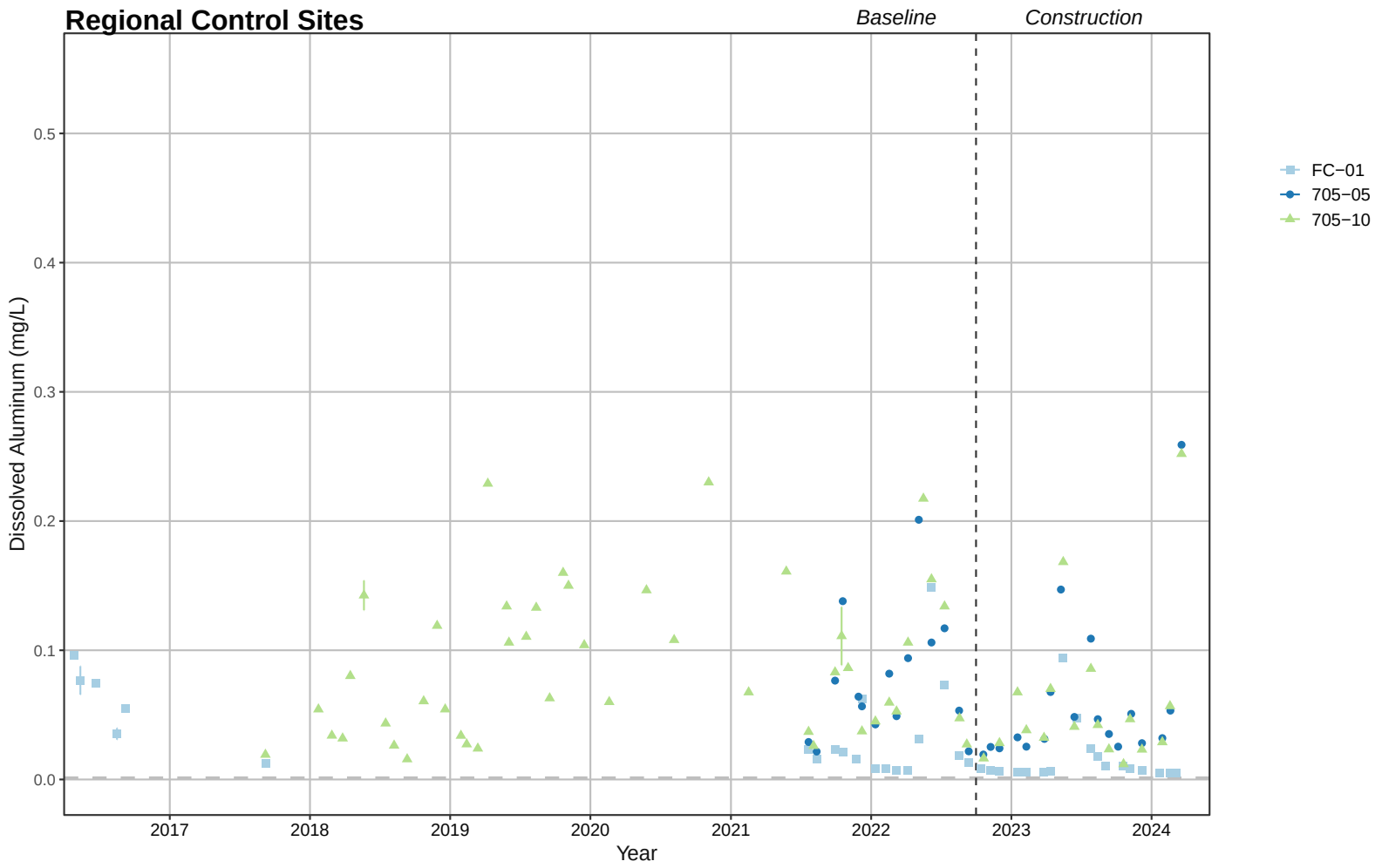
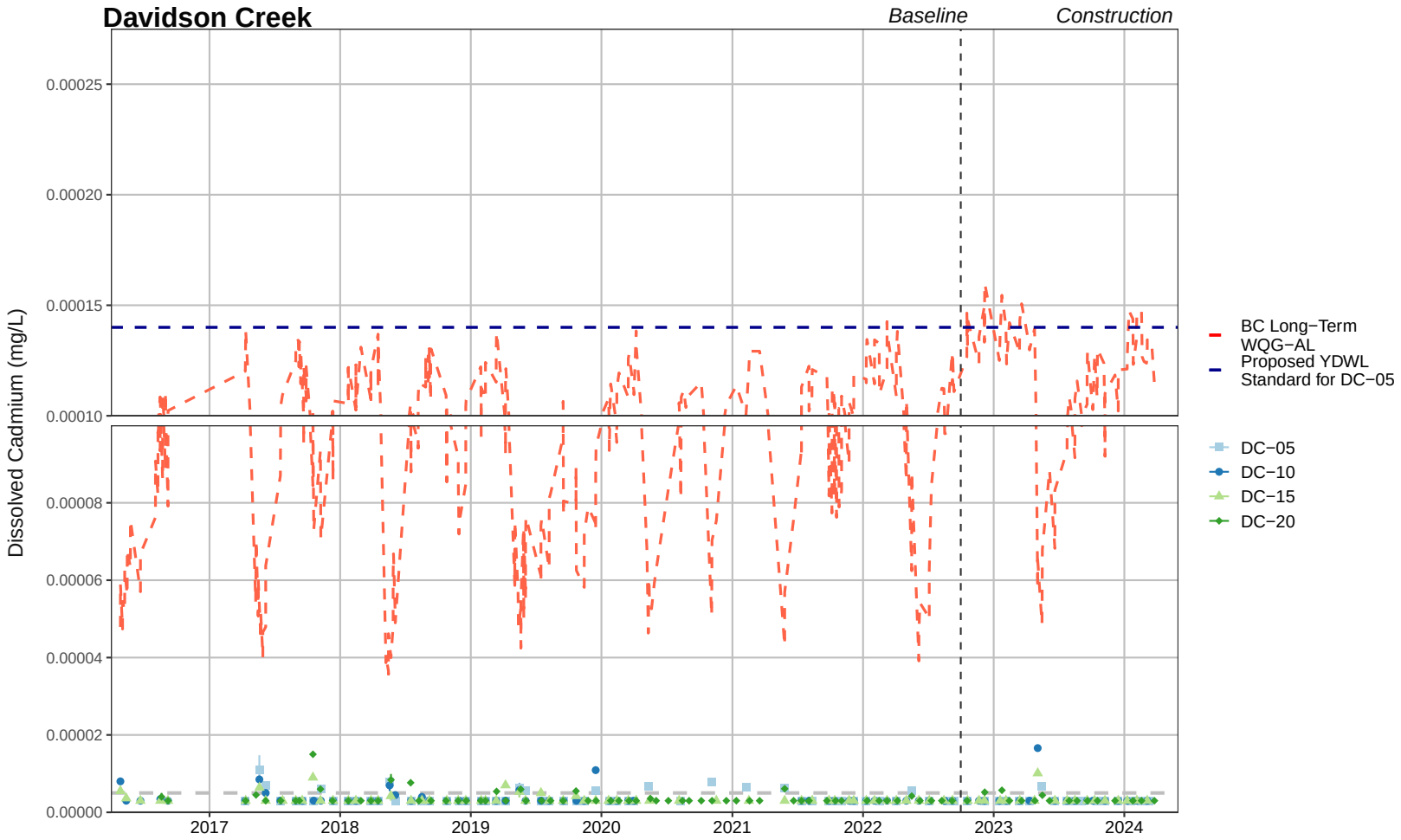


Figure C.42.c: Monthly Mean Dissolved Aluminum Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

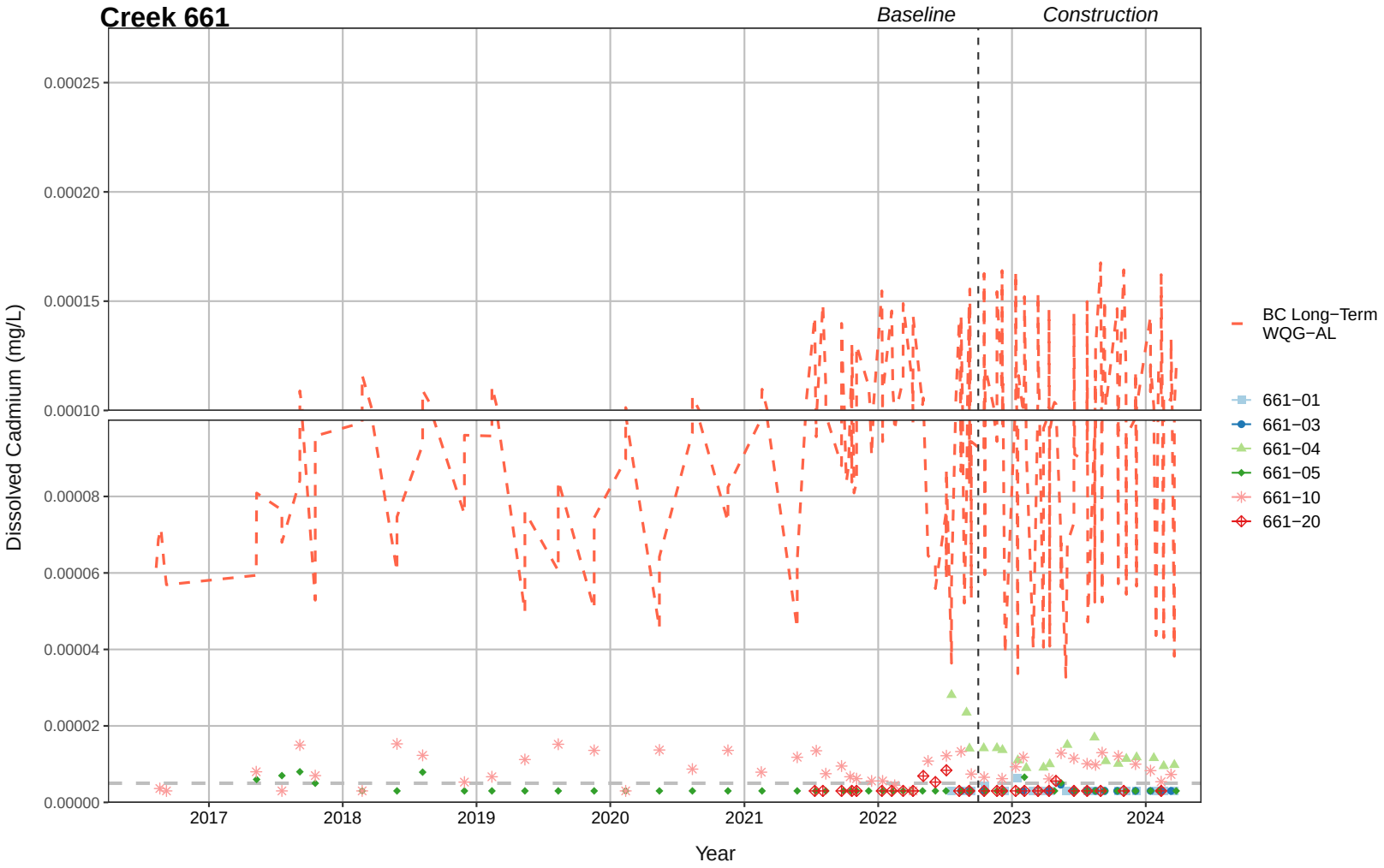
Figure C.42.d: Monthly Mean Dissolved Aluminum Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for dissolved cadmium is hardness dependent.

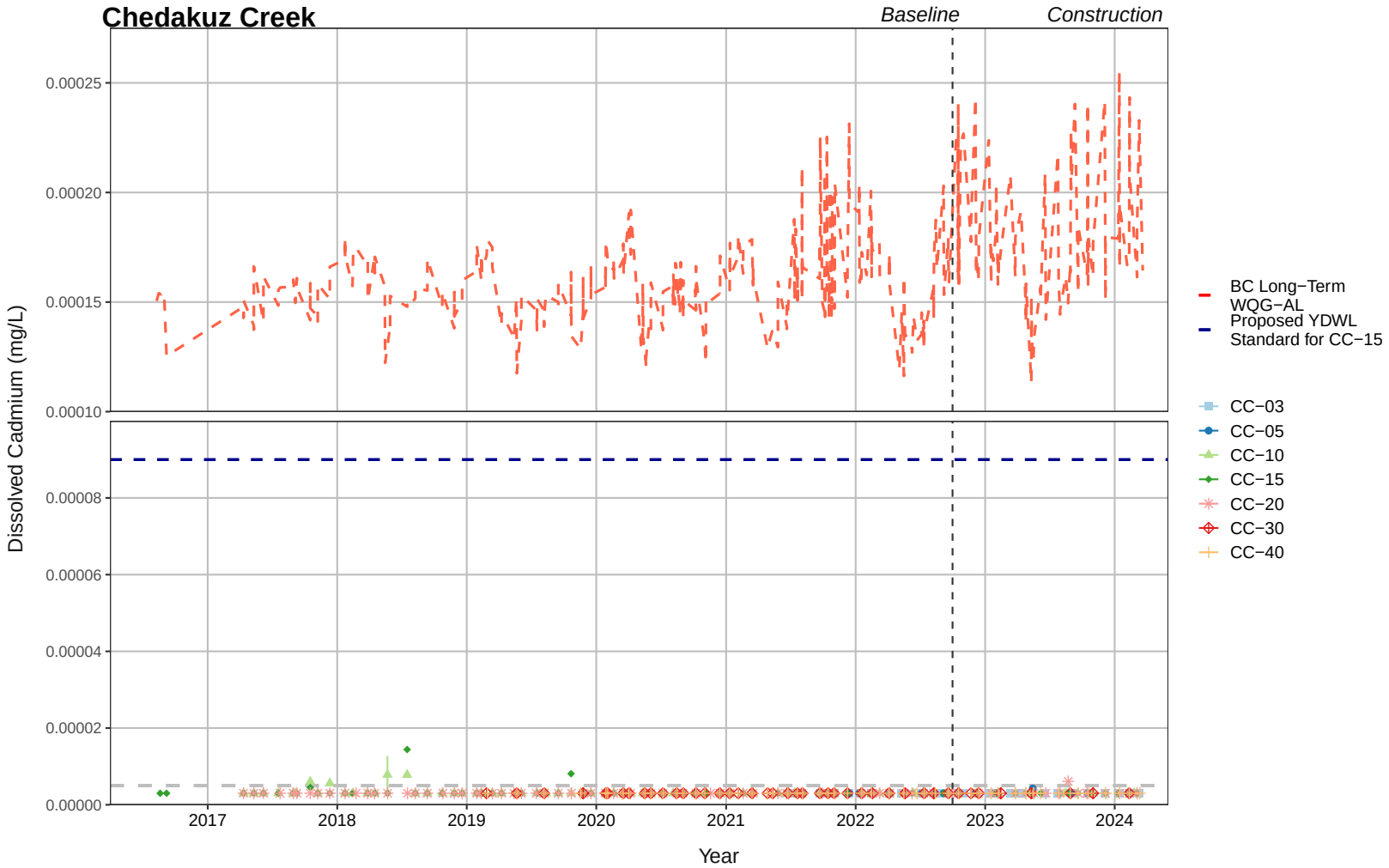
Proposed YDWL Standard for dissolved cadmium at DC−05 is 0.00014 mg/L.

Figure C.43.a: Monthly Mean Dissolved Cadmium Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for dissolved cadmium is hardness dependent.

Figure C.43.b: Monthly Mean Dissolved Cadmium Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.
BC WQG−AL long−term guideline for dissolved cadmium is hardness dependent.

Proposed YDWL Standard for dissolved cadmium at CC−15 is 0.00009 mg/L.

Figure C.43.c: Monthly Mean Dissolved Cadmium Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

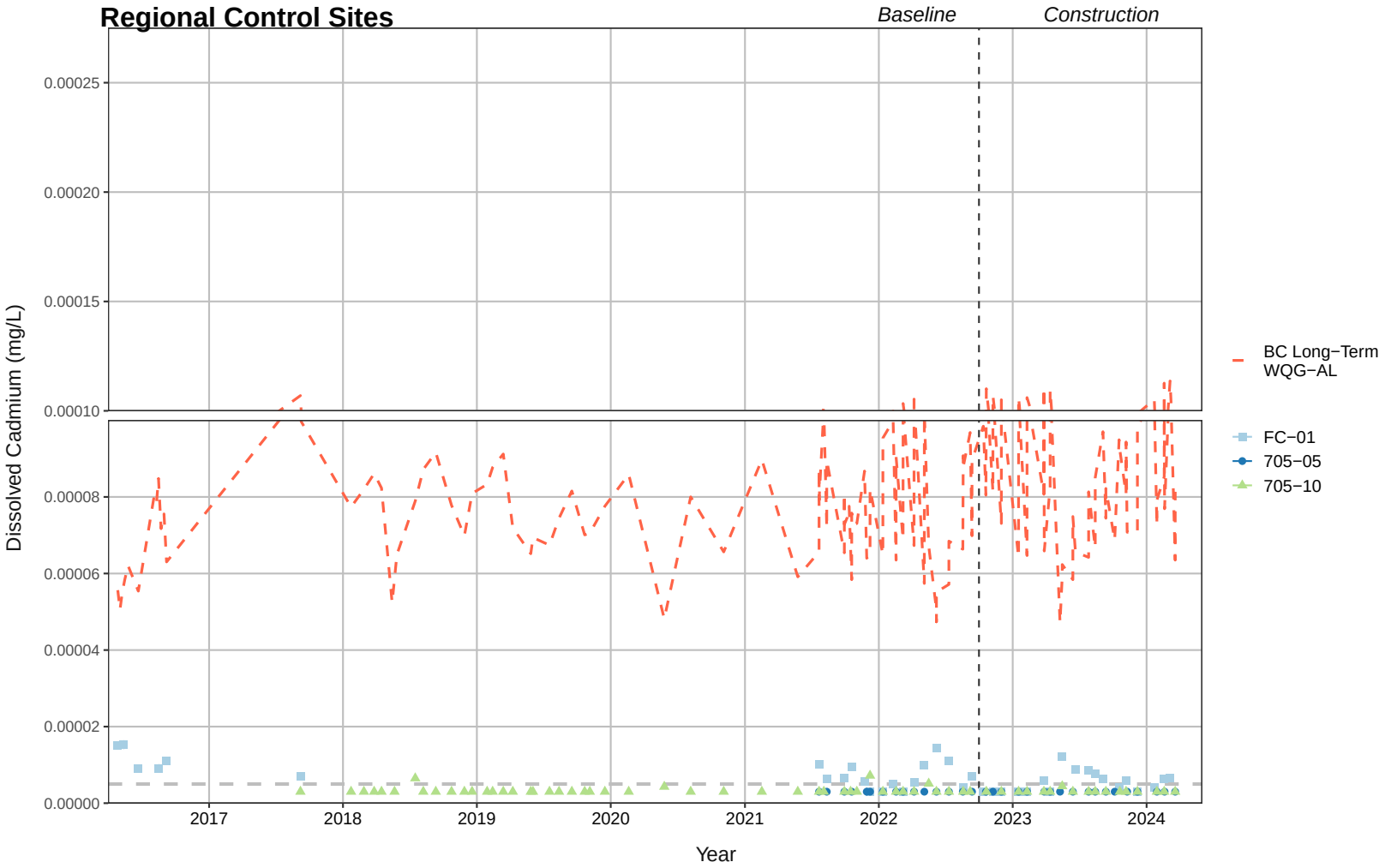
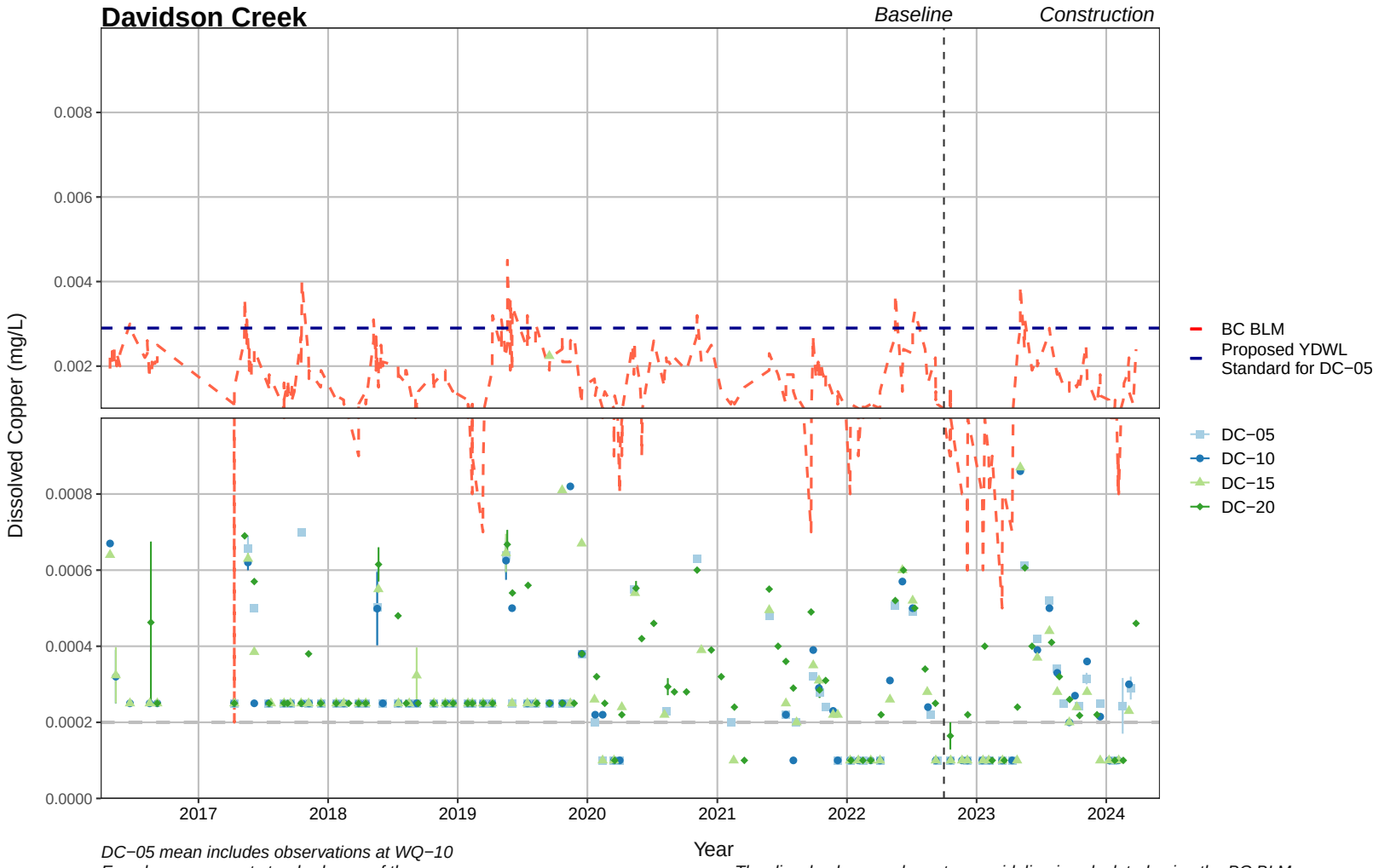


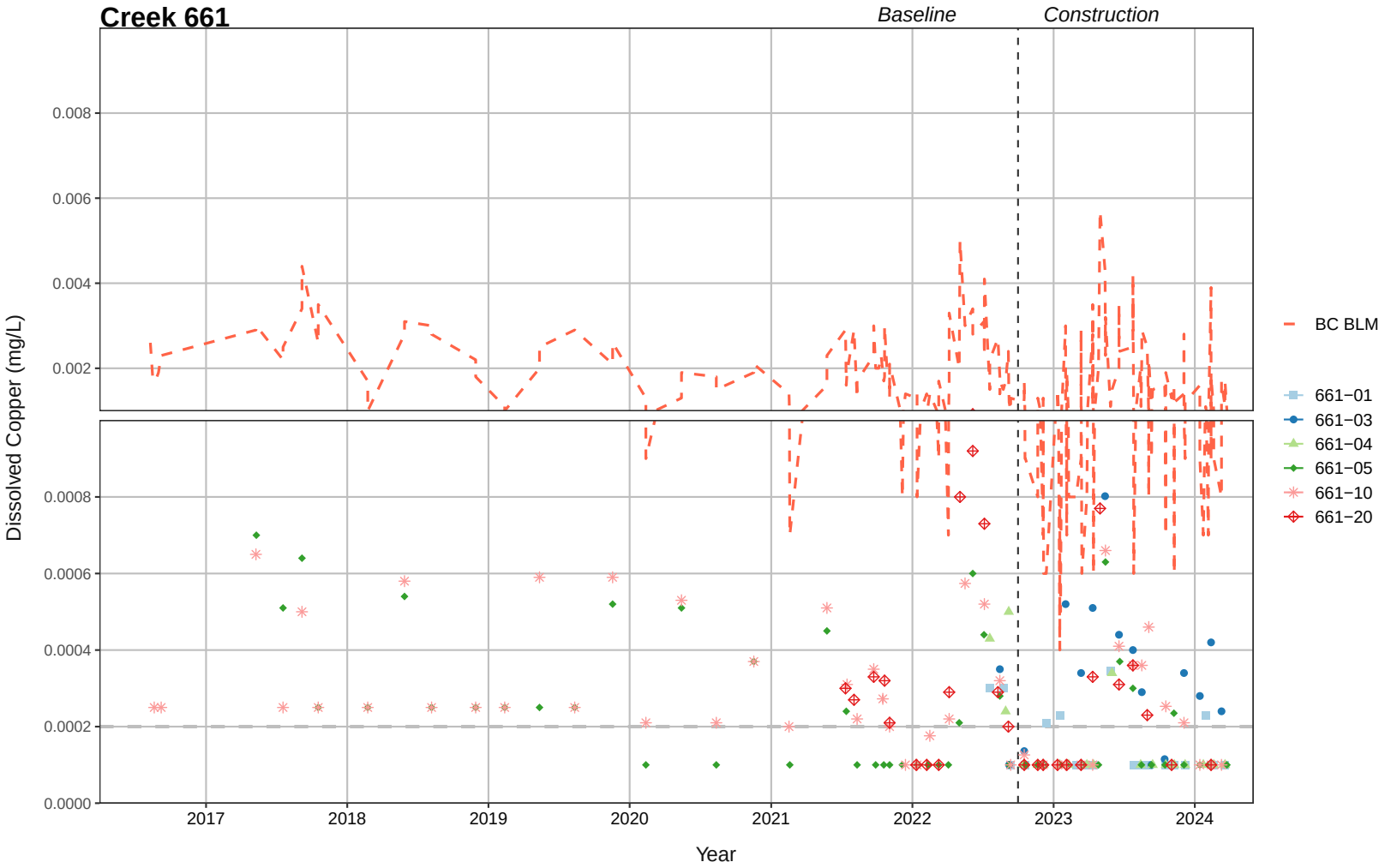
Figure C.43.d: Monthly Mean Dissolved Cadmium Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

The dissolved copper long−term guideline is calculated using the BC BLM.
Proposed YDWL Standard for dissolved copper at DC−05 is 0.0029 mg/L.

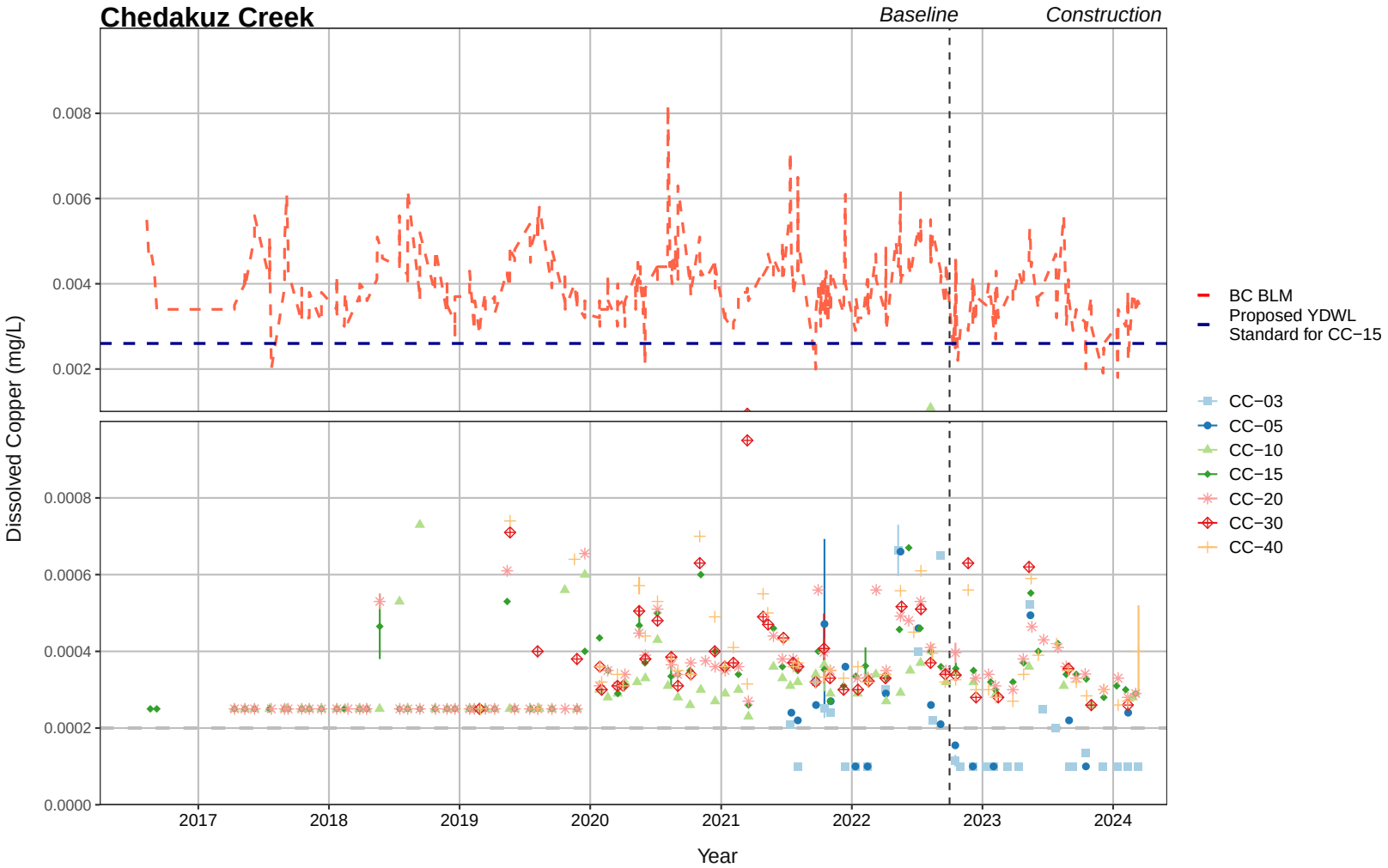
Figure C.44.a: Monthly Mean Dissolved Copper Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

The dissolved copper long−term guideline is calculated using the BC BLM.

Figure C.44.b: Monthly Mean Dissolved Copper Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

The dissolved copper long−term guideline is calculated using the BC BLM.
Proposed YDWL Standard for dissolved copper at CC−15 is 0.0026 mg/L.

Figure C.44.c: Monthly Mean Dissolved Copper Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

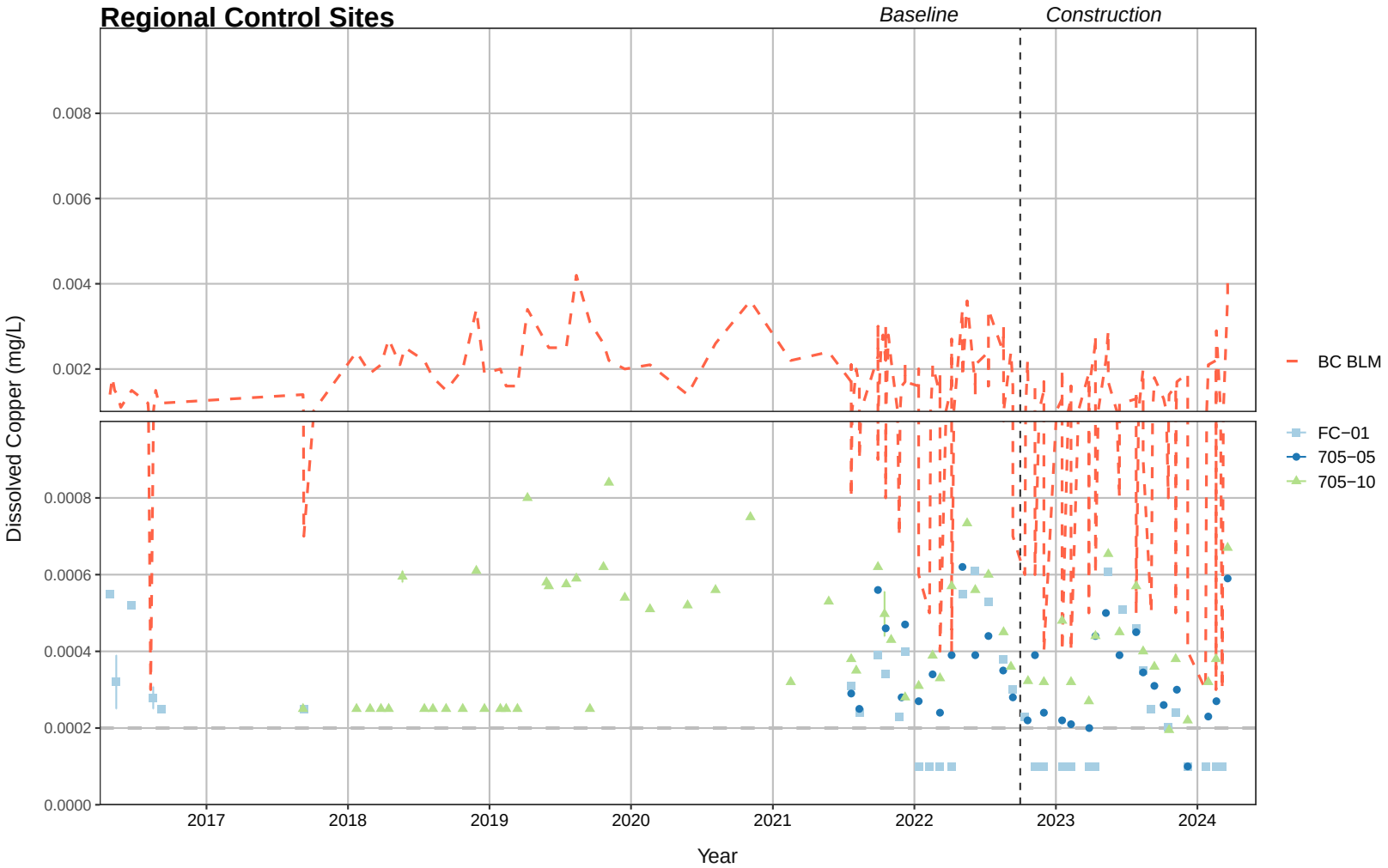


Figure C.44.d: Monthly Mean Dissolved Copper Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

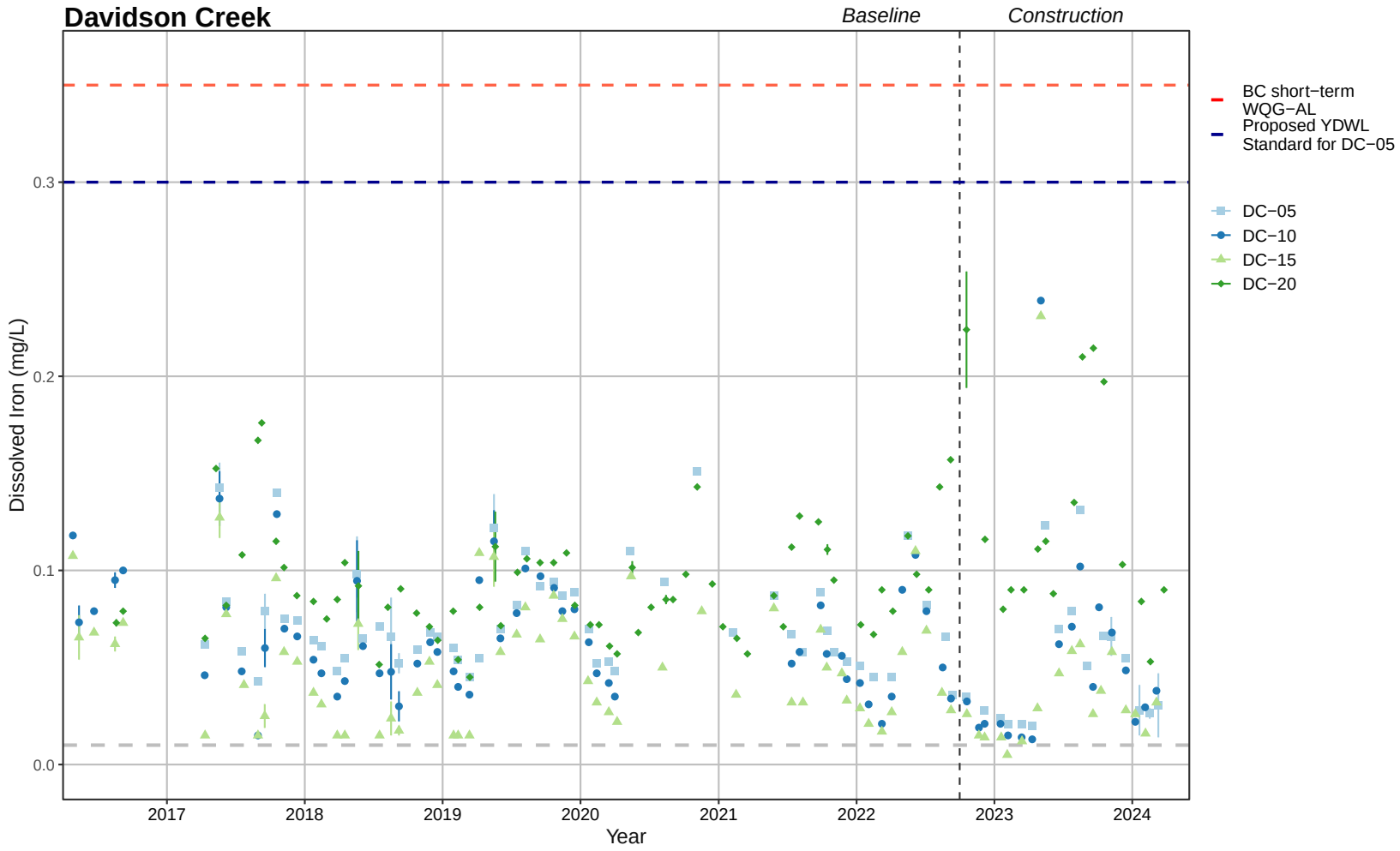
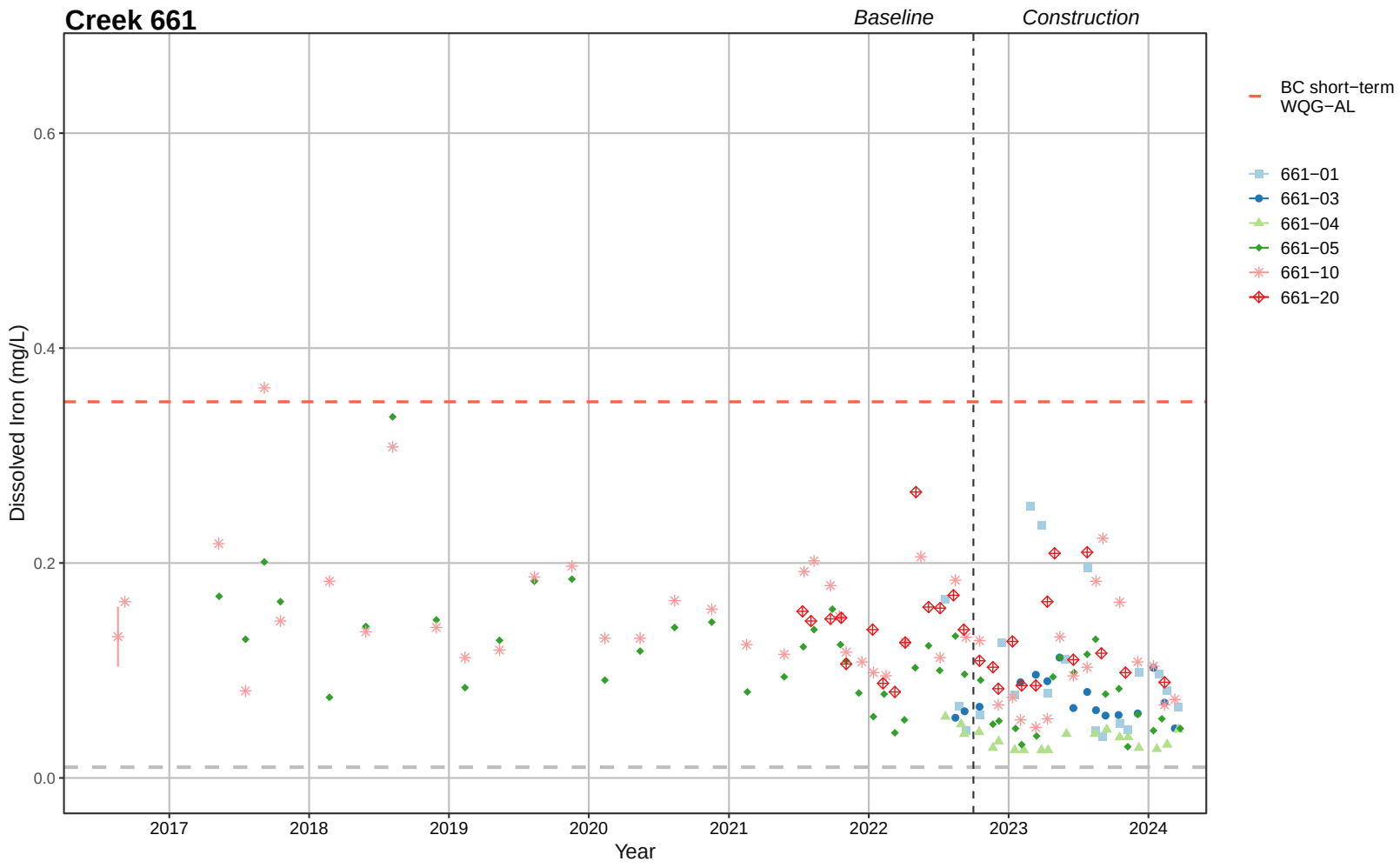


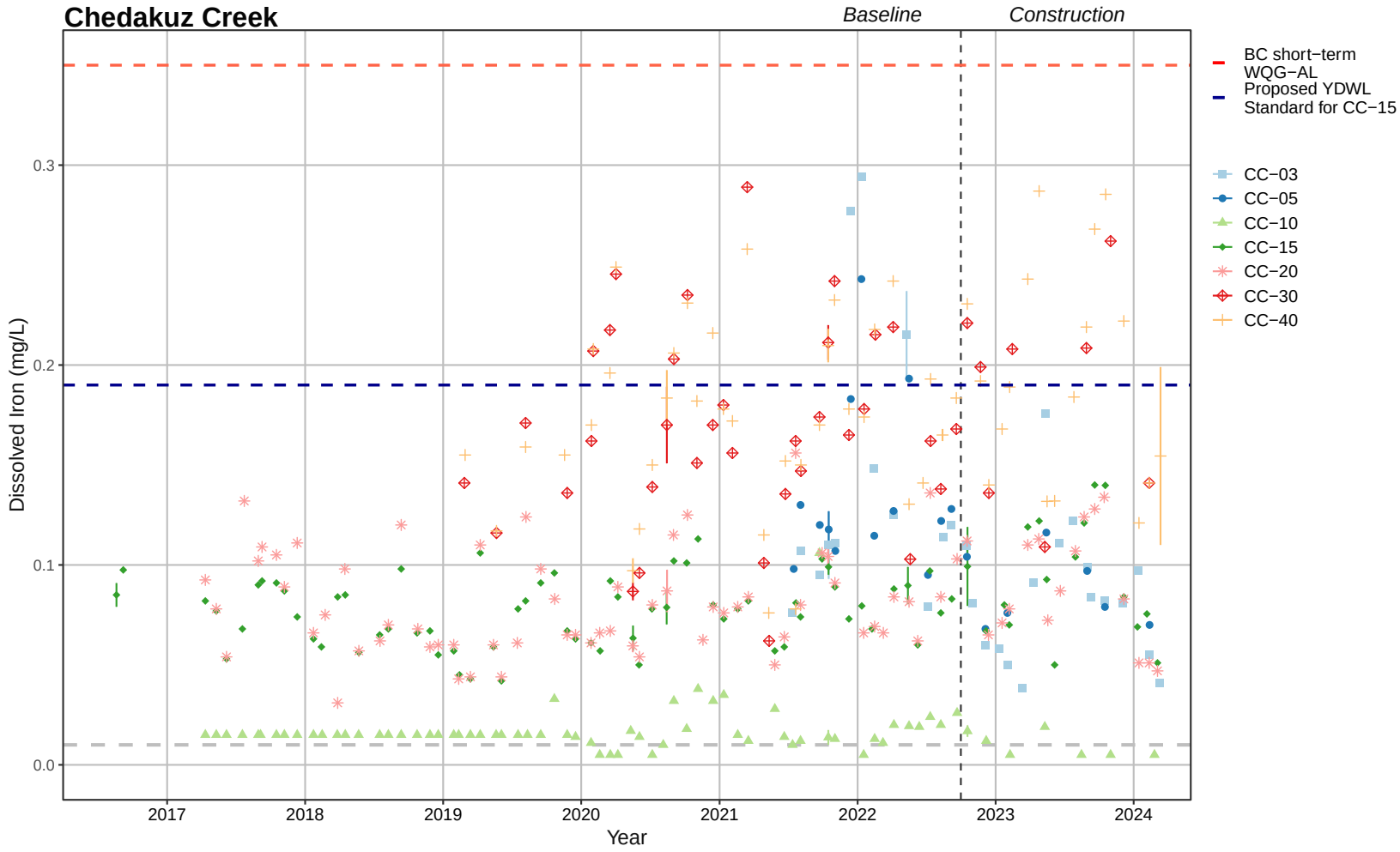
Figure C.45.a: Monthly Mean Dissolved Iron Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

BC WQG−AL short−term guideline for dissolved iron = 0.35 mg/L.

Figure C.45.b: Monthly Mean Dissolved Iron Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL short−term guideline for dissolved iron = 0.35 mg/L.
Proposed YDWL Standard for dissolved iron at CC−15 is 0.19 mg/L.

Figure C.45.c: Monthly Mean Dissolved Iron Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

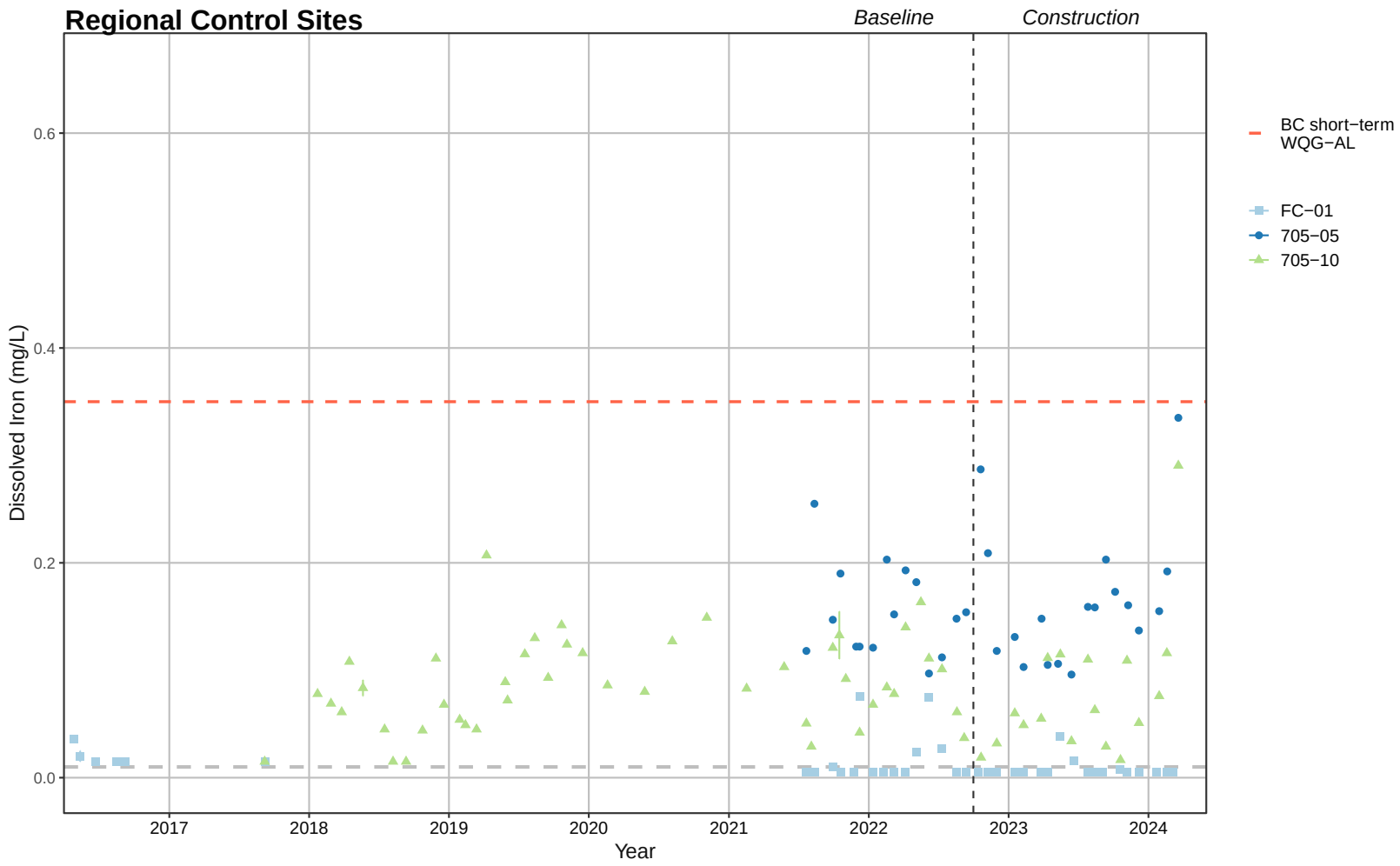


Figure C.45.d: Monthly Mean Dissolved Iron Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

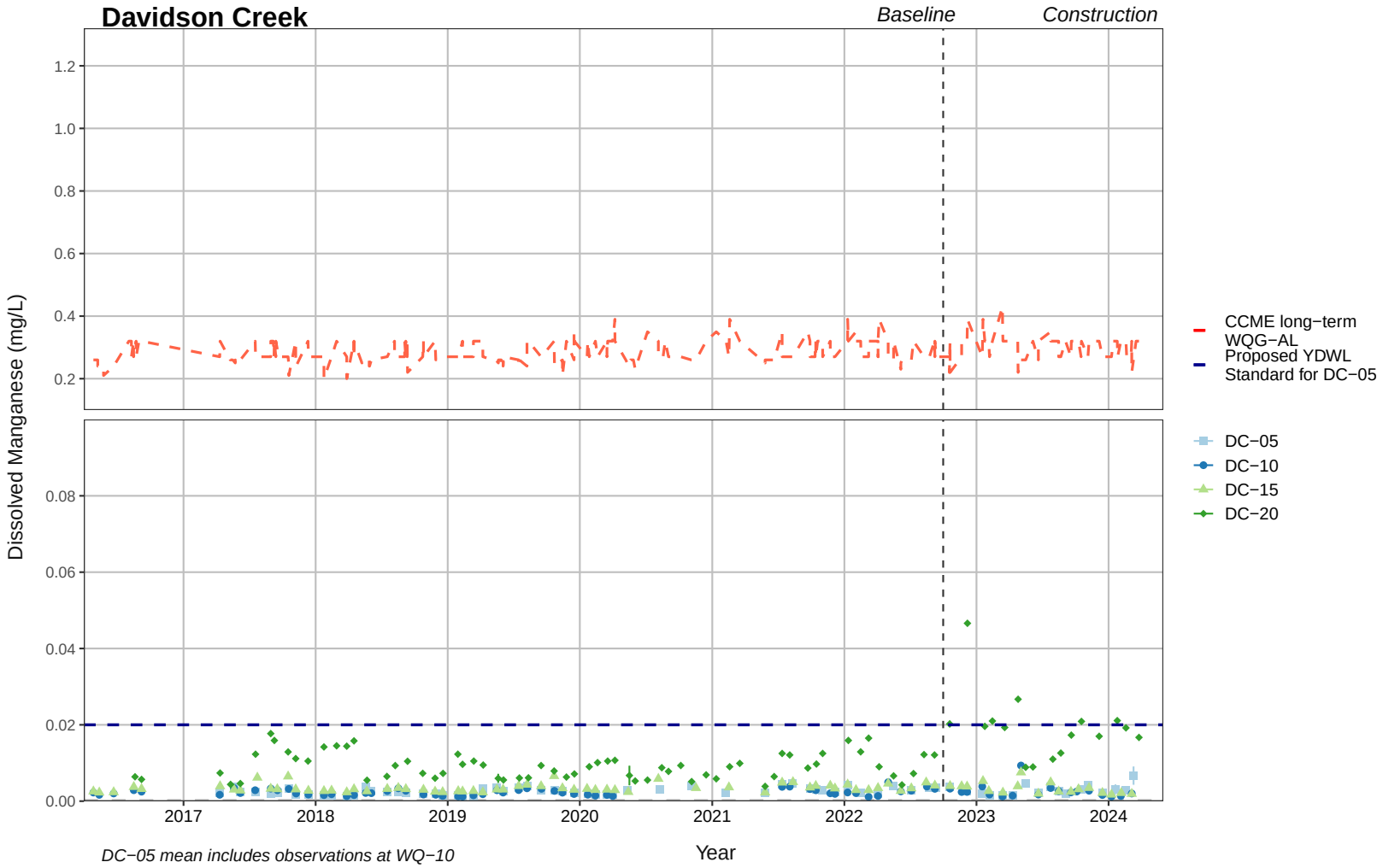
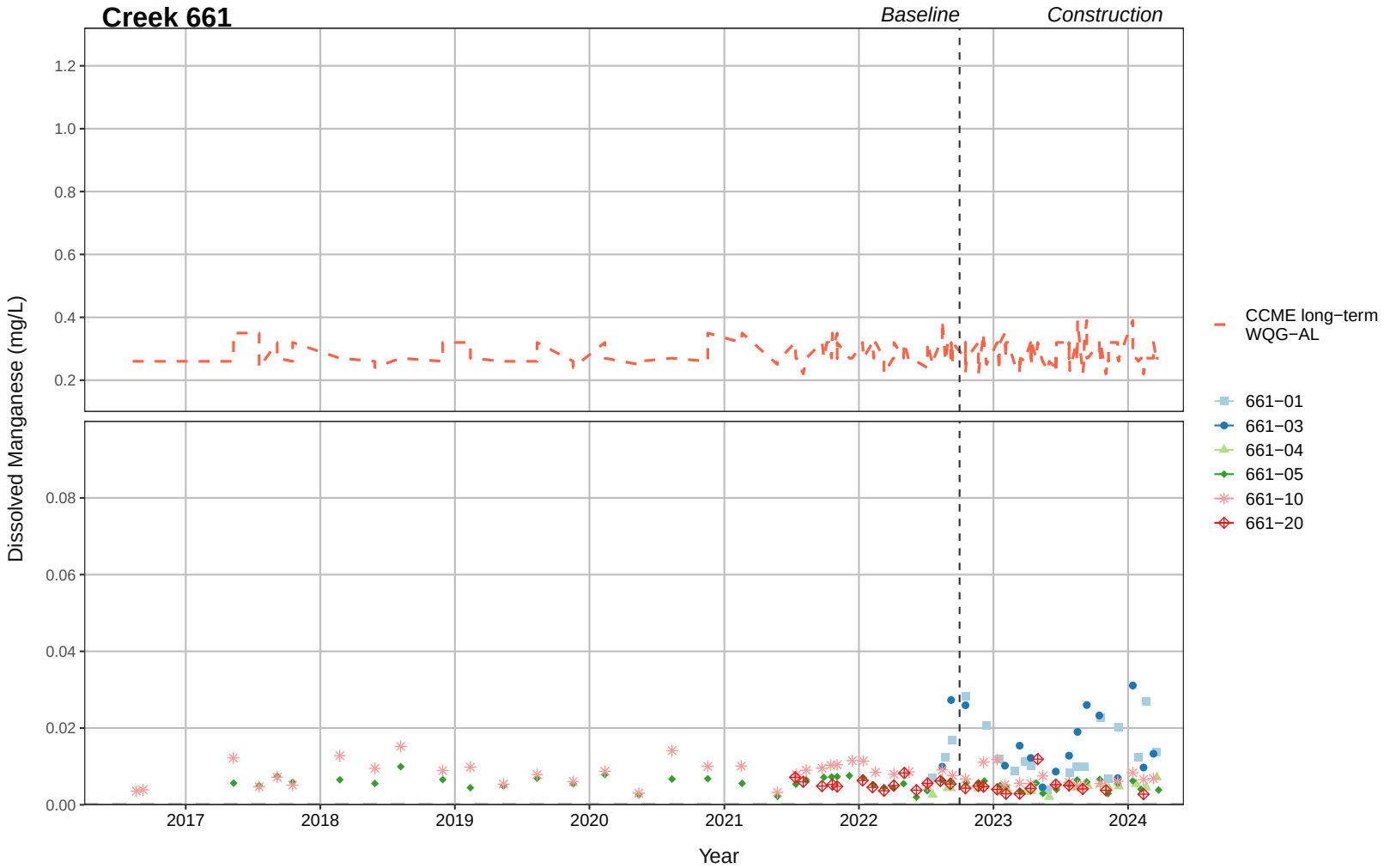


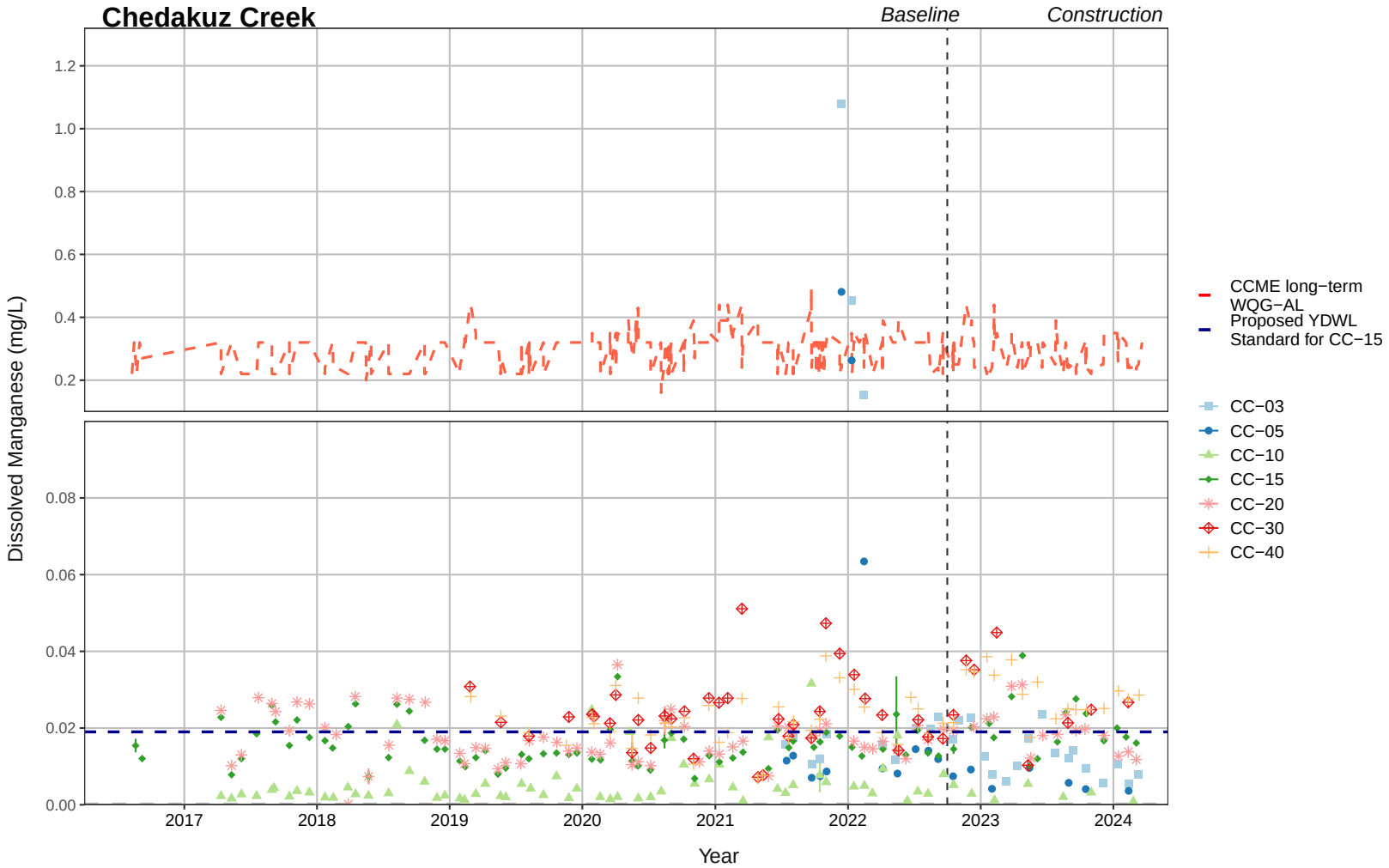
Figure C.46.a: Monthly Mean Dissolved Manganese Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

CCME WQG−AL long−term guideline for dissolved manganese is pH and hardness−dependent.

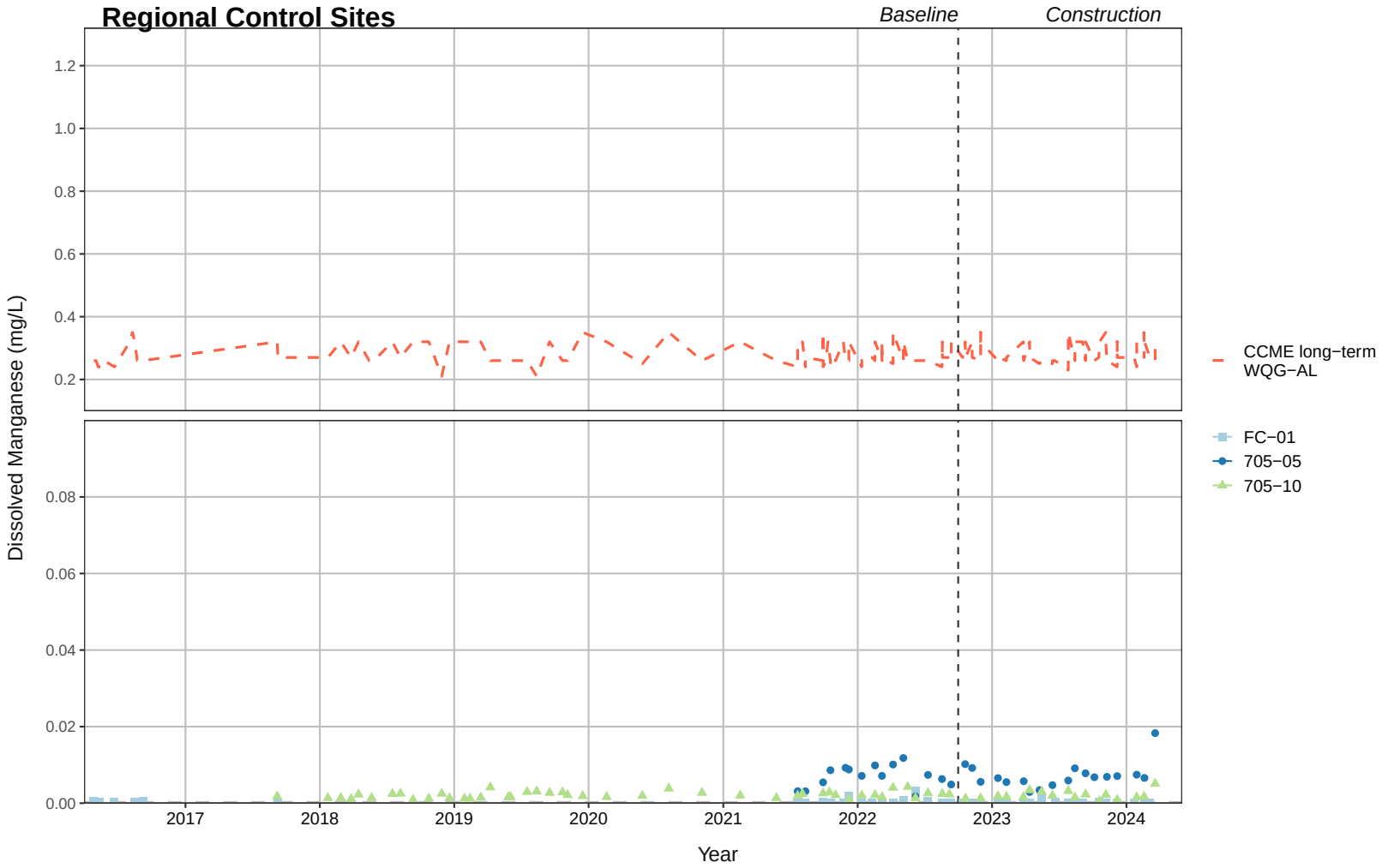
Figure C.46.b: Monthly Mean Dissolved Manganese Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.

CCME WQG−AL long−term guideline for dissolved manganese is pH and hardness−dependent.
Proposed YDWL Standard for dissolved manganese at CC−15 is 0.019 mg/L.

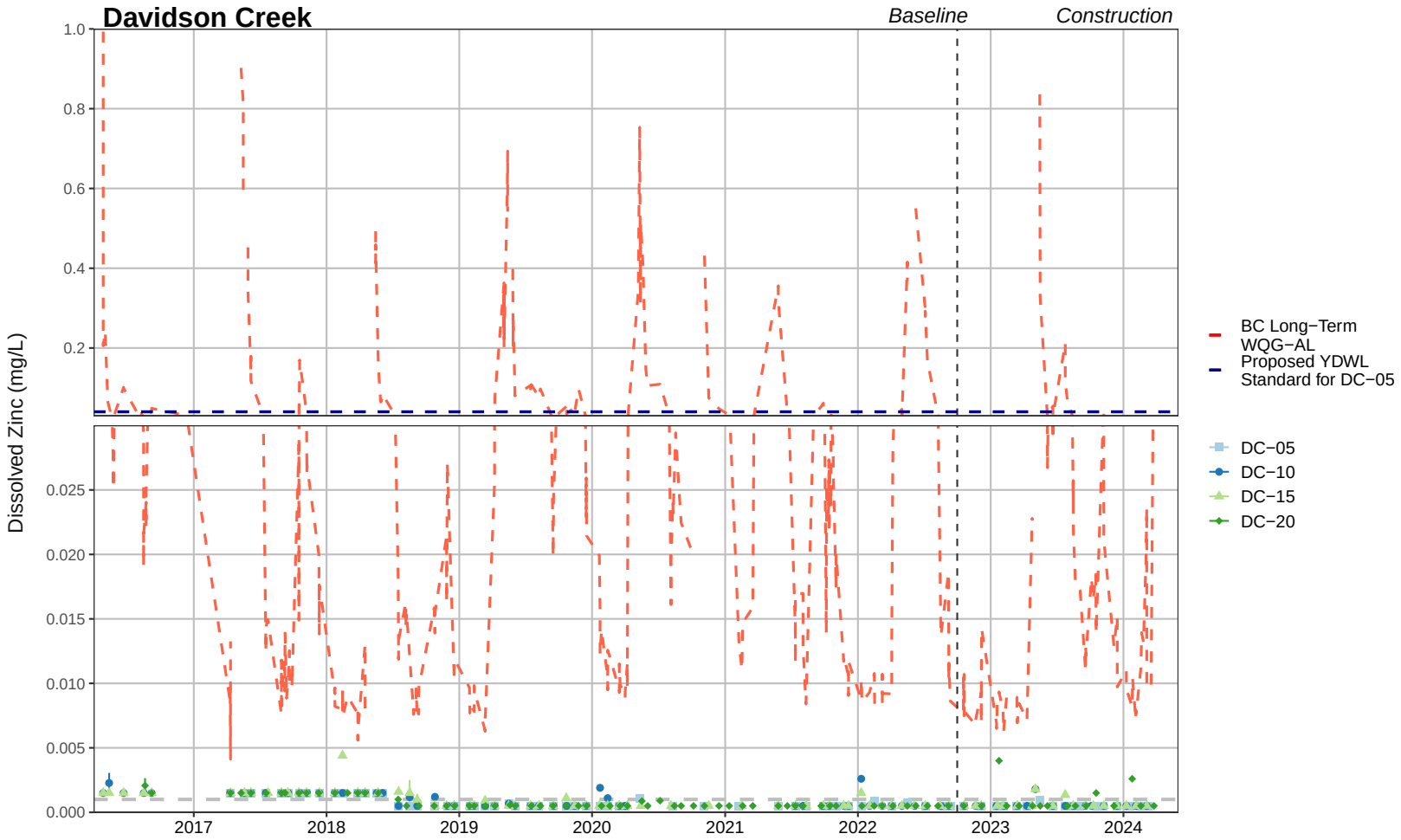
Figure C.46.c: Monthly Mean Dissolved Manganese Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

CCME WQG−AL long−term guideline for dissolved manganese is pH and hardness−dependent.

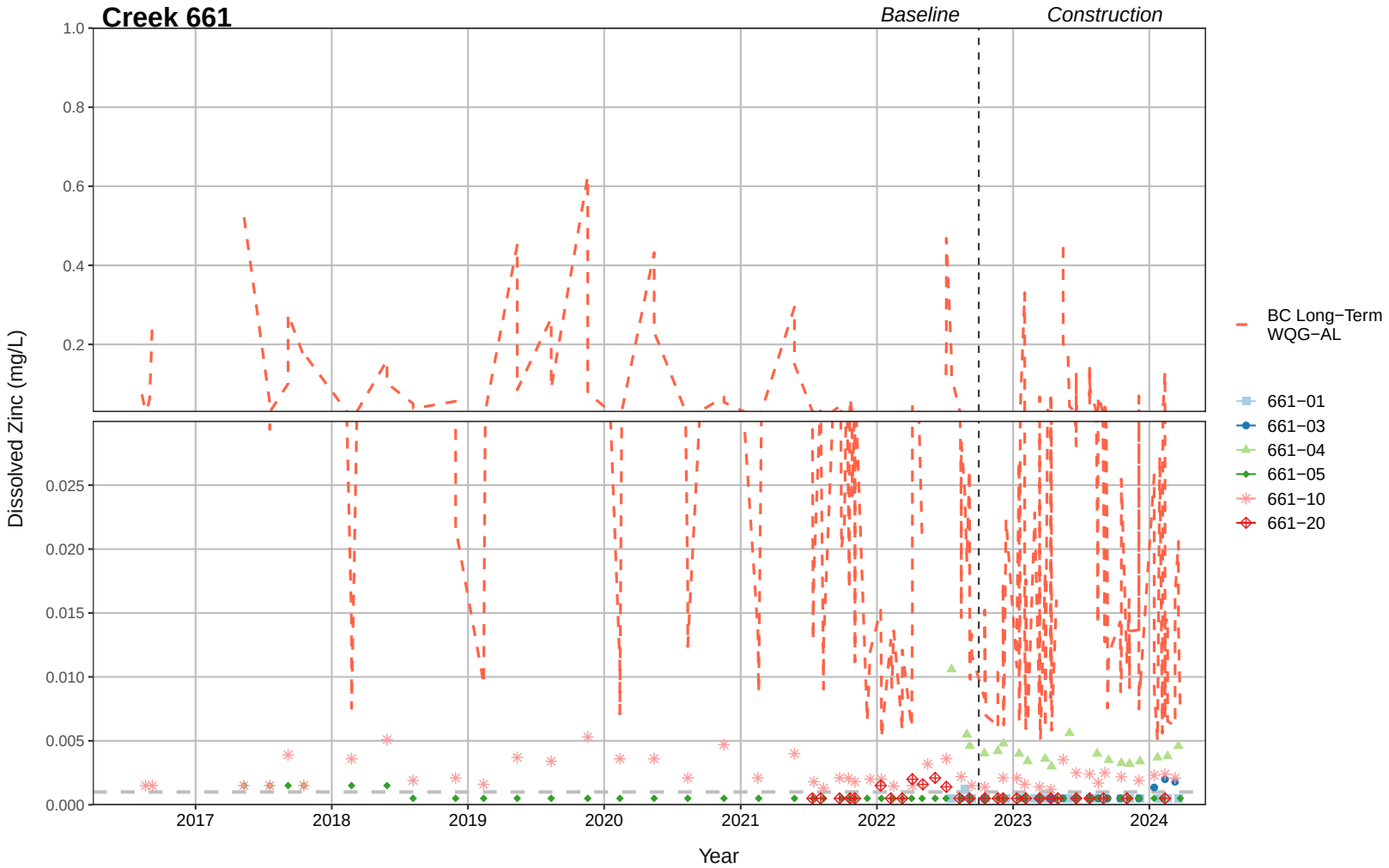
Figure C.46.d: Monthly Mean Dissolved Manganese Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024



DC−05 mean includes observations at WQ−10
Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term and short−term guideline for dissolved zinc is pH, hardness, and DOC dependent.
Proposed YDWL Standard for dissolved zinc at DC−05 is 0.04 mg/L.

Figure C.47.a: Monthly Mean Dissolved Zinc Concentrations, Davidson Creek AEMP Sites, 2016 to March 31, 2024



Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

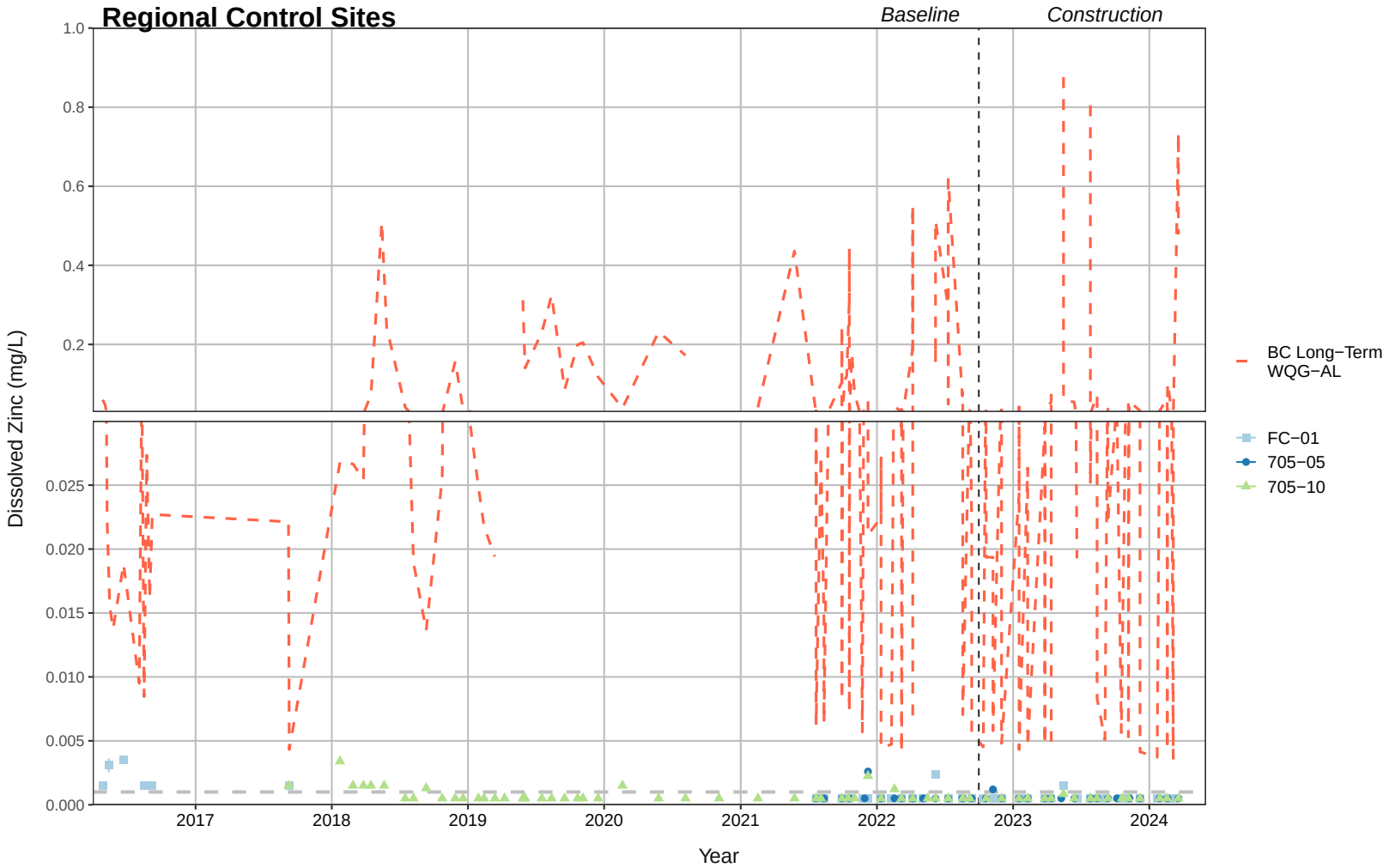
BC WQG−AL long−term and short−term guideline for dissolved zinc is pH, hardness, and DOC dependent.

Figure C.47.b: Monthly Mean Dissolved Zinc Concentrations, Creek 661 AEMP Sites, 2016 to March 31, 2024

Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term and short−term guideline for dissolved zinc is pH, hardness, and DOC dependent.
Proposed YDWL Standard for dissolved zinc at CC−15 is 0.017 mg/L.

Figure C.47.c: Monthly Mean Dissolved Zinc Concentrations, Chedakuz Creek AEMP Sites, 2016 to March 31, 2024

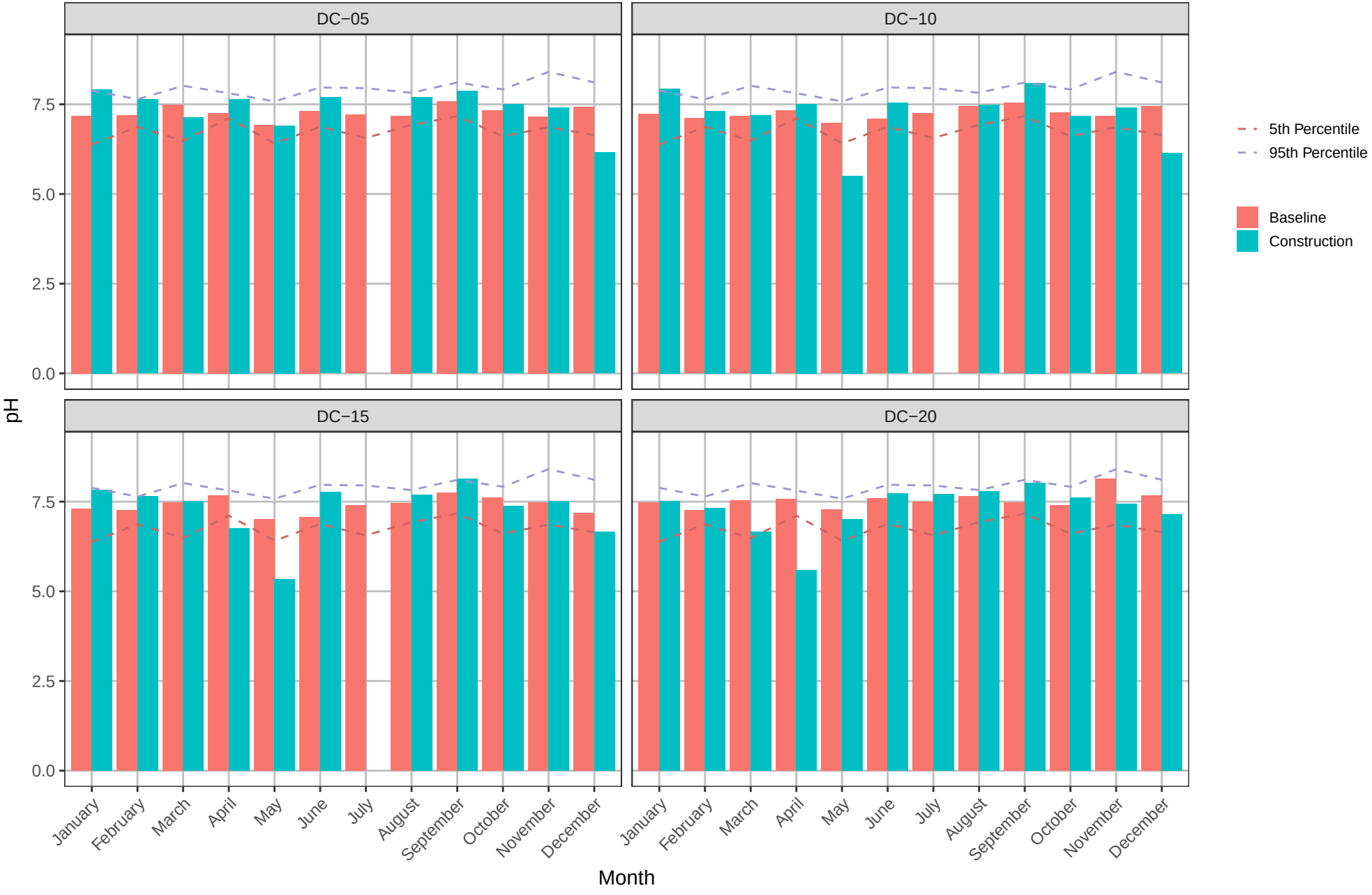


Error bars represent standard error of the mean.
Gray dashed line indicates minimum detection limit.
Concentrations below the detection limit were plotted as half the detection limit.

BC WQG−AL long−term and short−term guideline for dissolved zinc is pH, hardness, and DOC dependent.

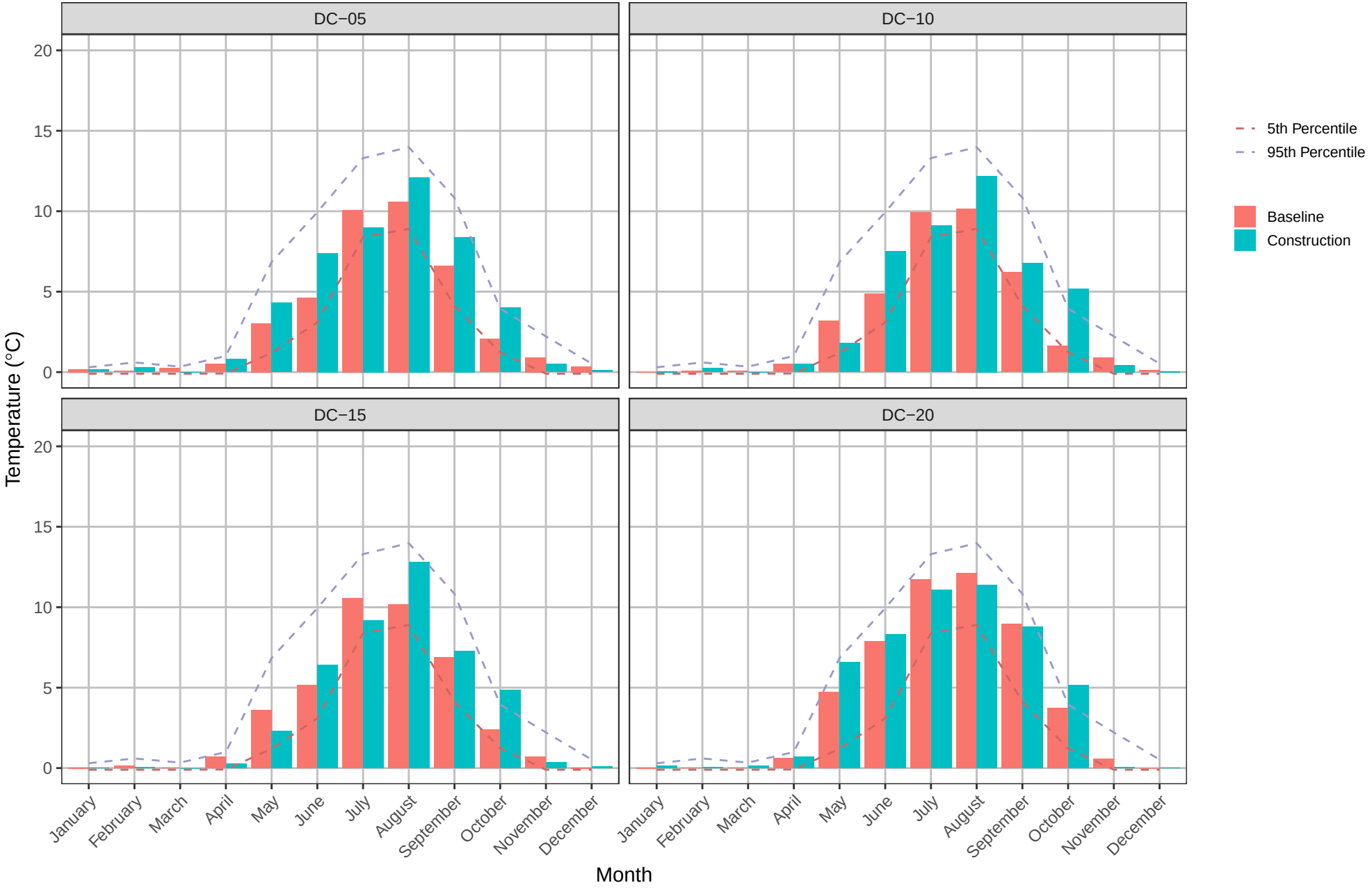
Figure C.47.d: Monthly Mean Dissolved Zinc Concentrations, Regional Control Sites AEMP Sites, 2016 to March 31, 2024

Appendix D Monthly Surface Water Field Parameters, (April 1, 2023 to March 31, 2024)



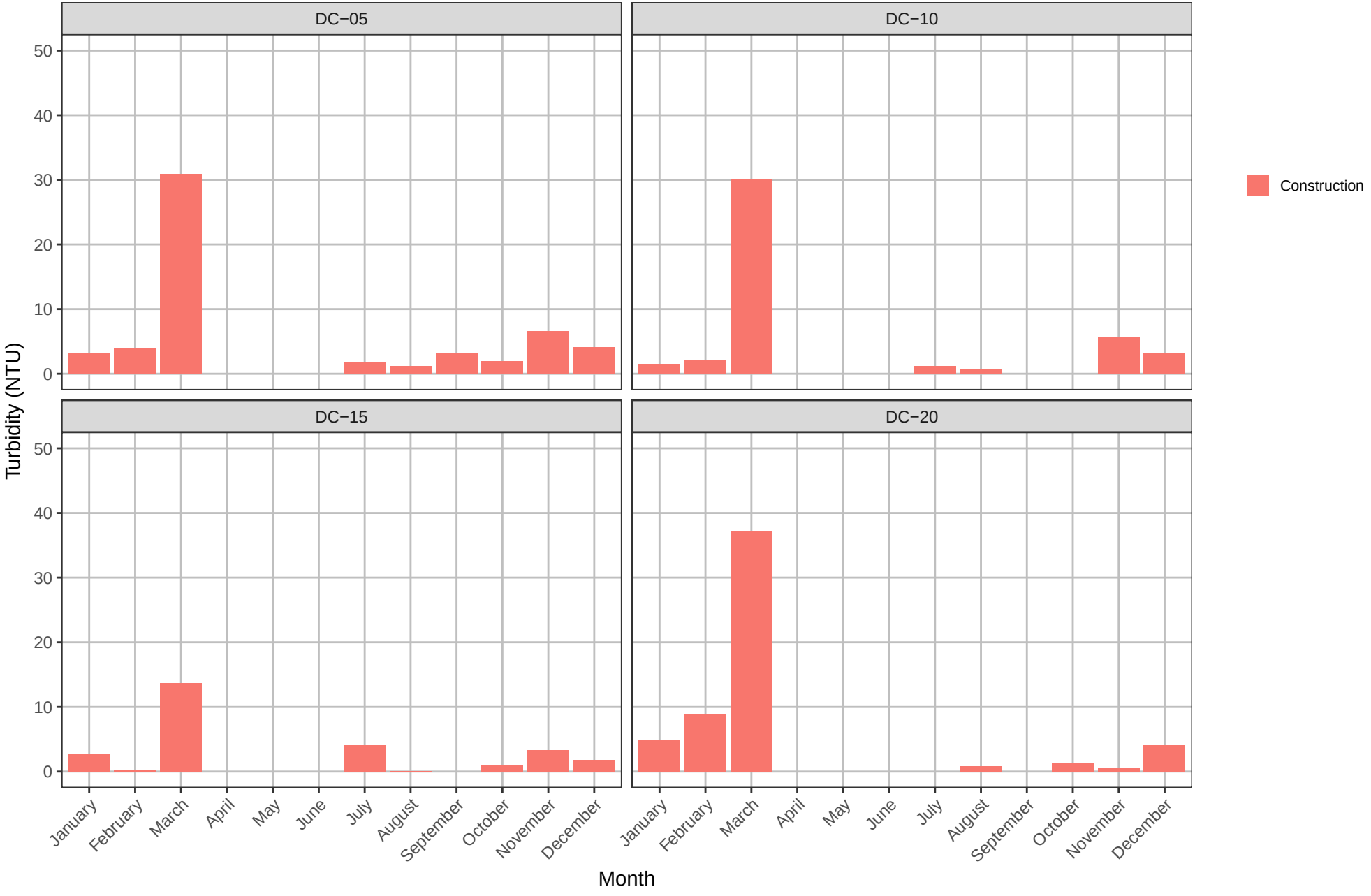
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−1a. Monthly Field pH at Davidson Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



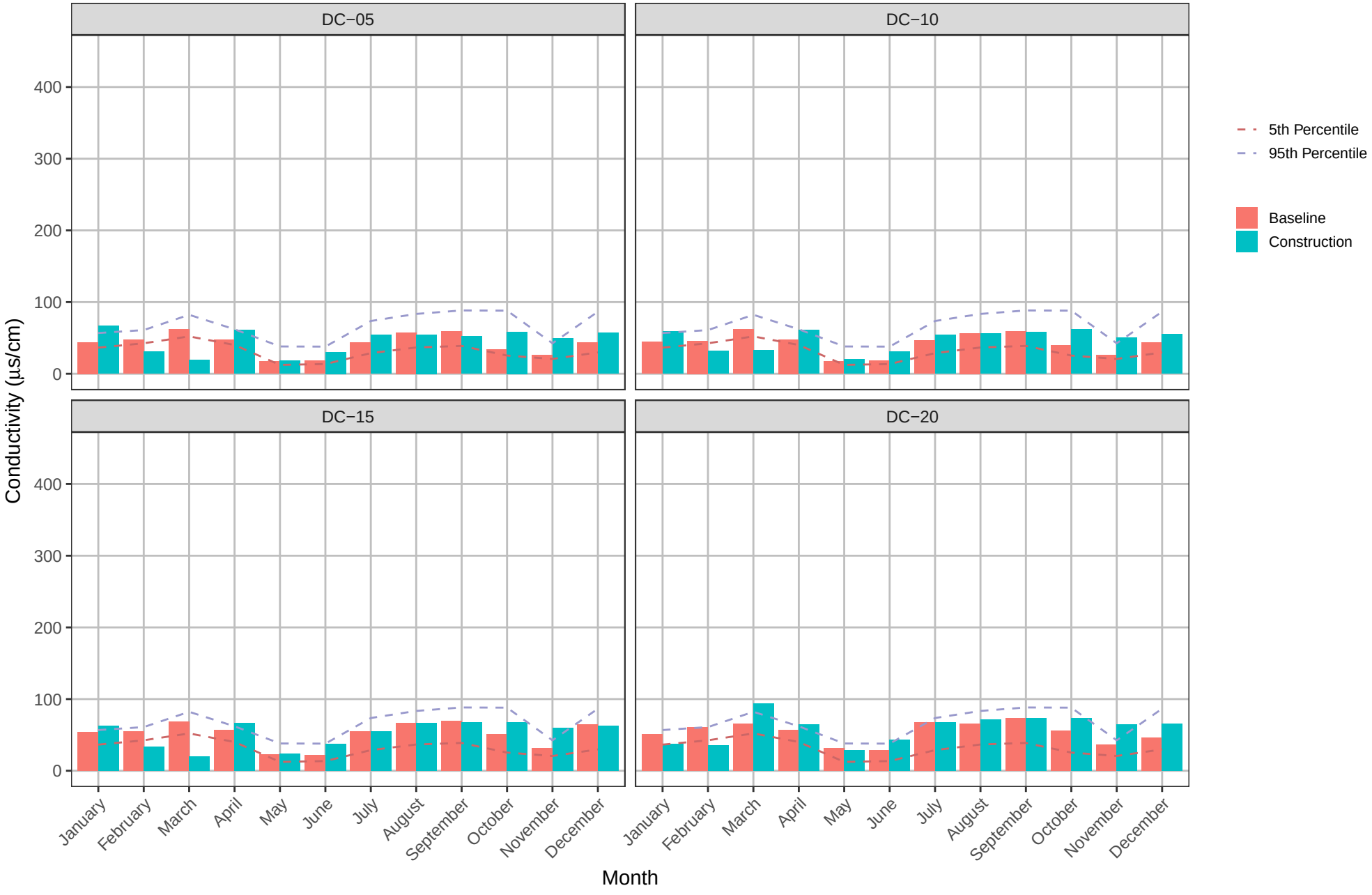
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−1b. Monthly Field Temperature at Davidson Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



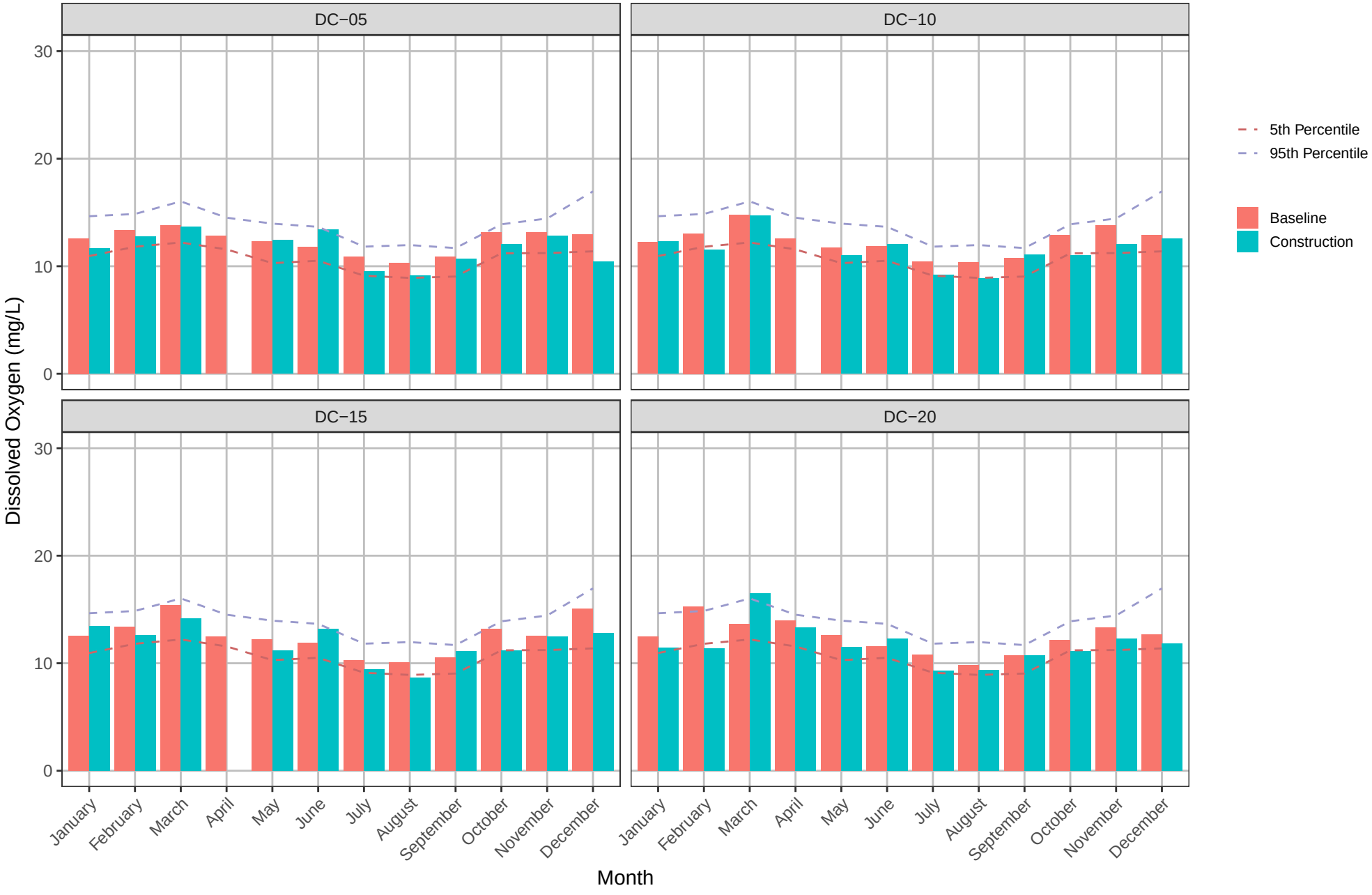
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−1c. Monthly Field Turbidity at Davidson Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



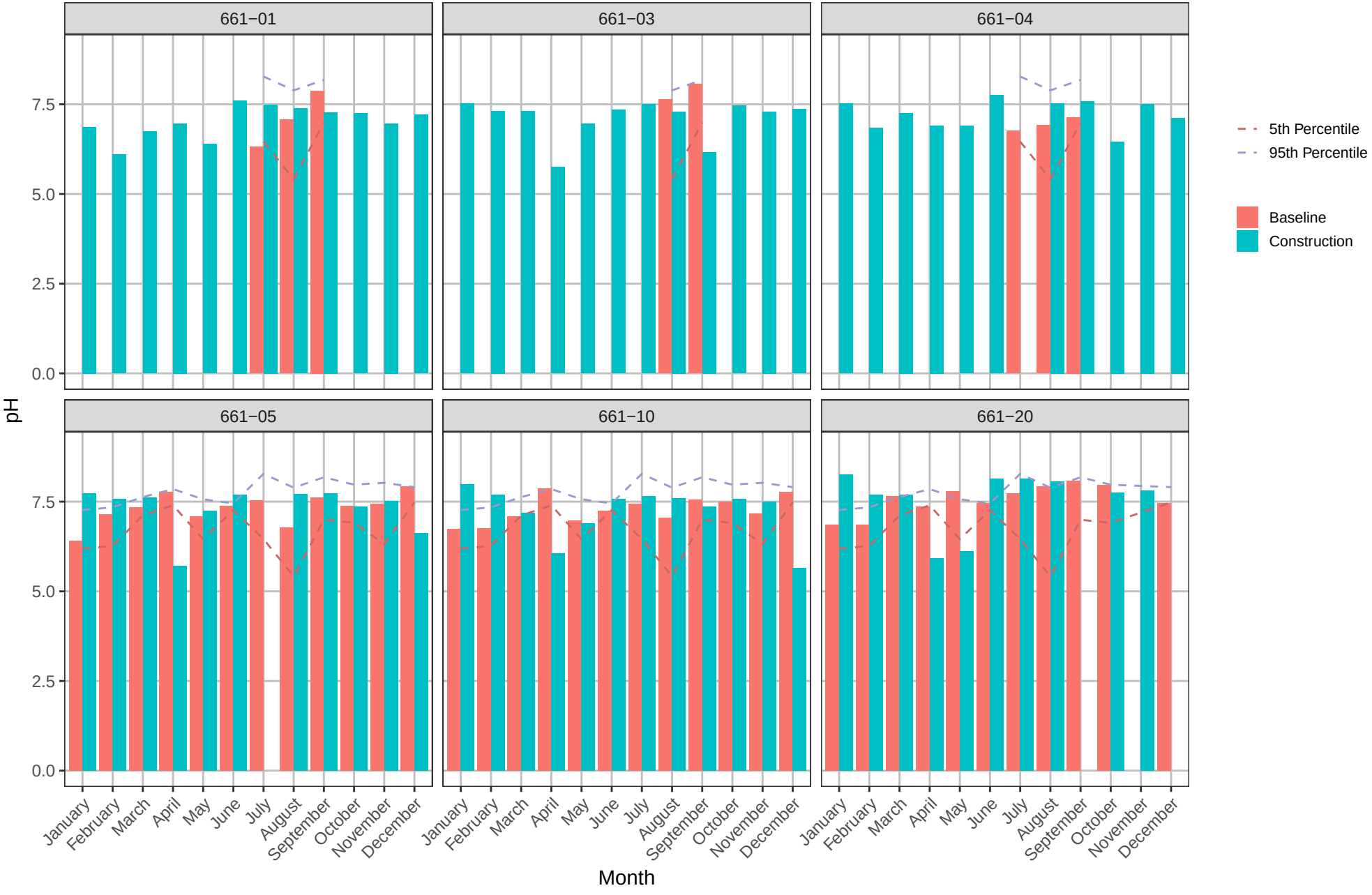
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−1d. Monthly Field Conductivity at Davidson Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



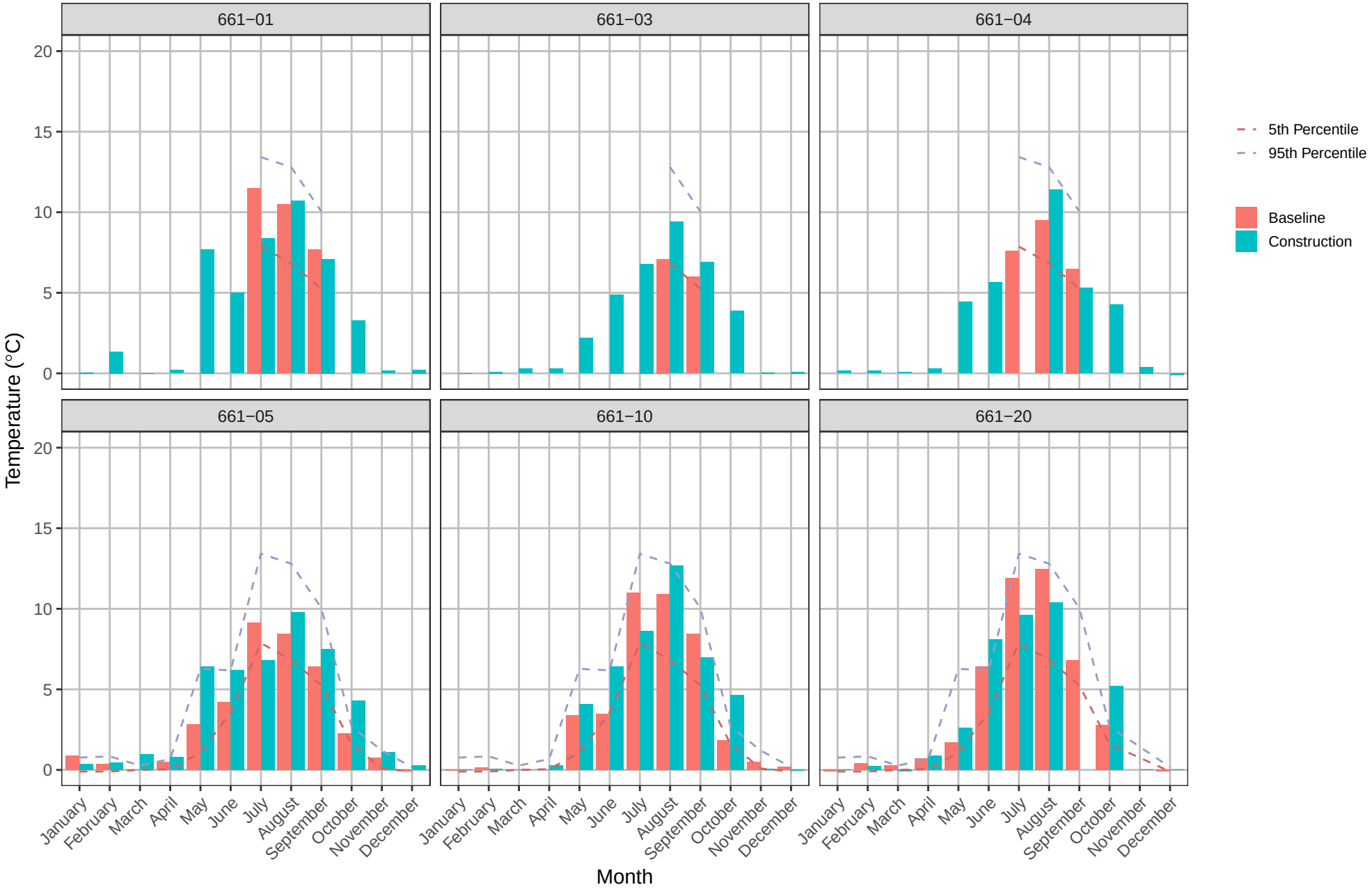
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed
Long−term BC WQG−AL for Buried Embyro/Alevin life stages = 11 mg/L in water column and for all other stages = 8 mg/L in water column

Figure D−1e. Monthly Field Dissolved Oxygen at Davidson Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



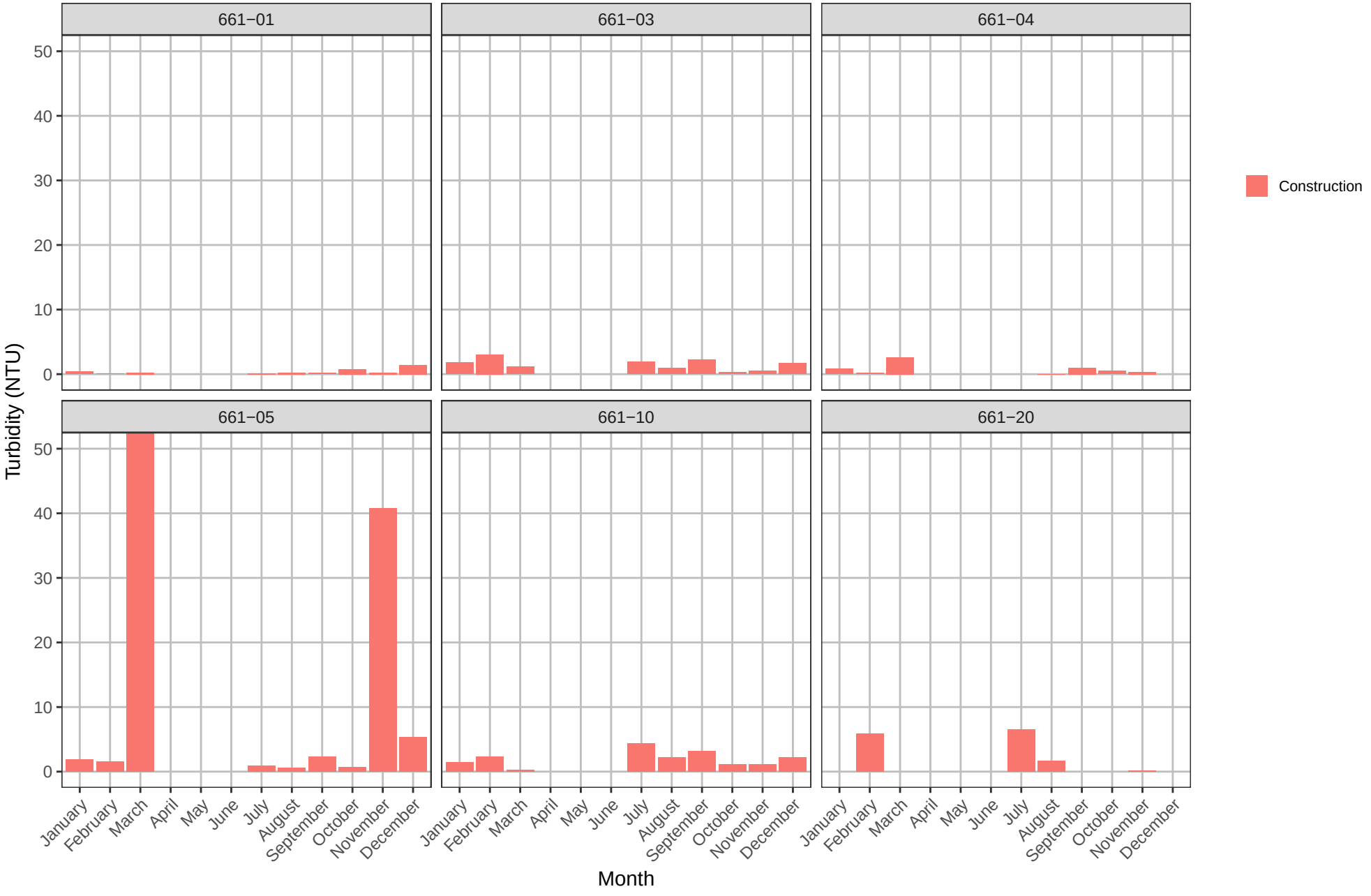
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−2a. Monthly Field pH at Creek 661 Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



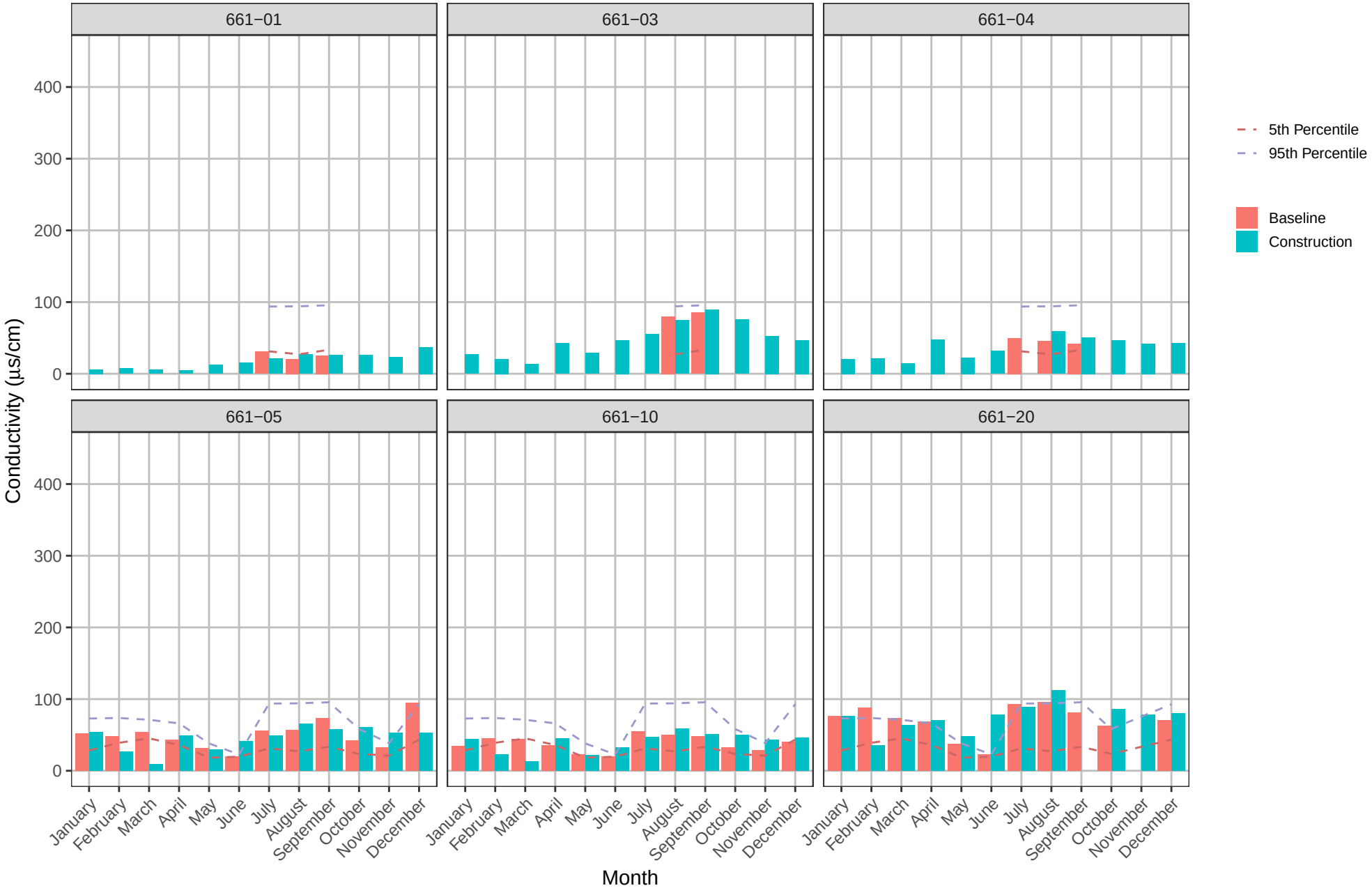
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−2b. Monthly Field Temperature at Creek 661 Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



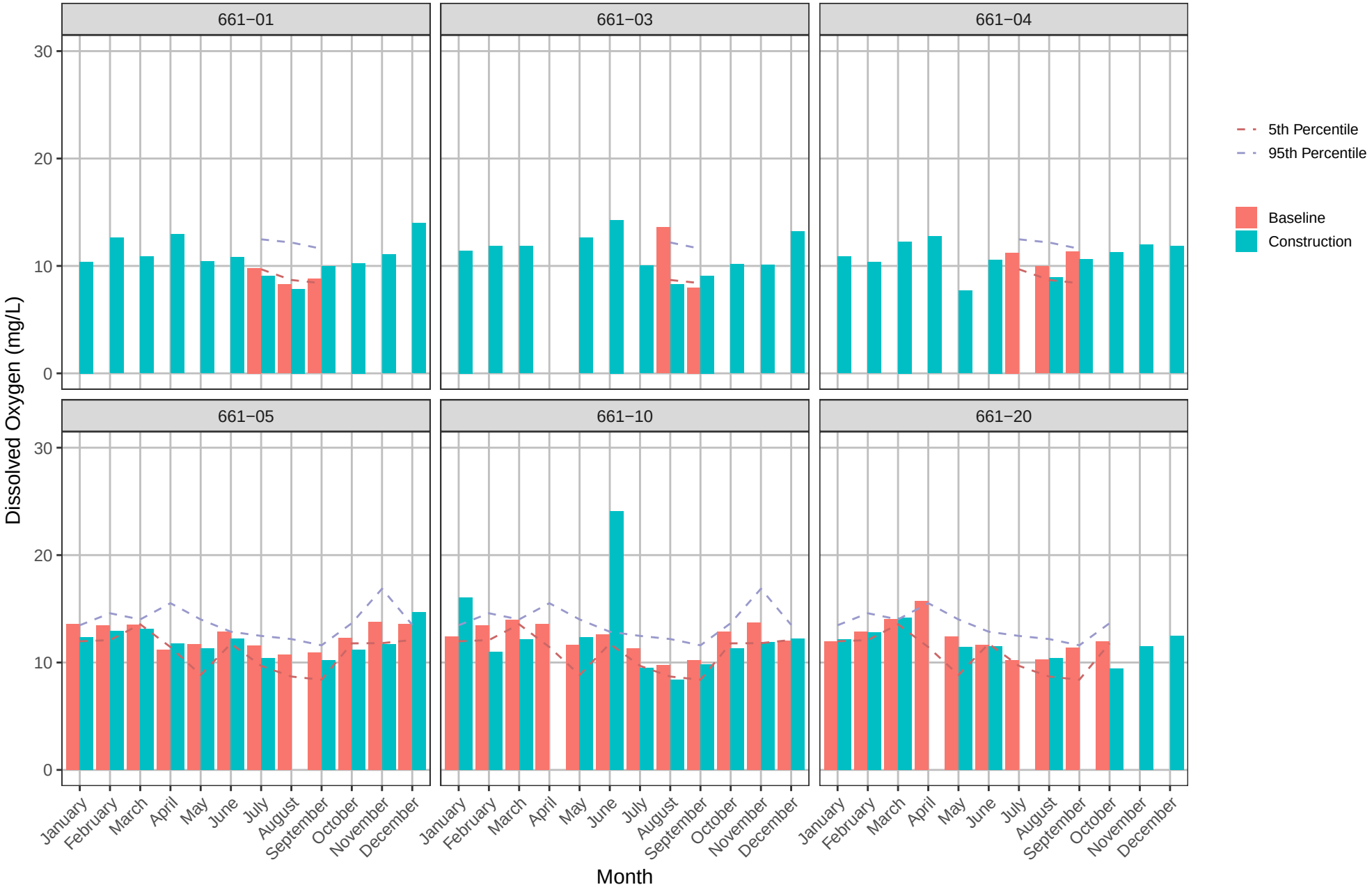
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−2c. Monthly Field Turbidity at Creek 661 Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



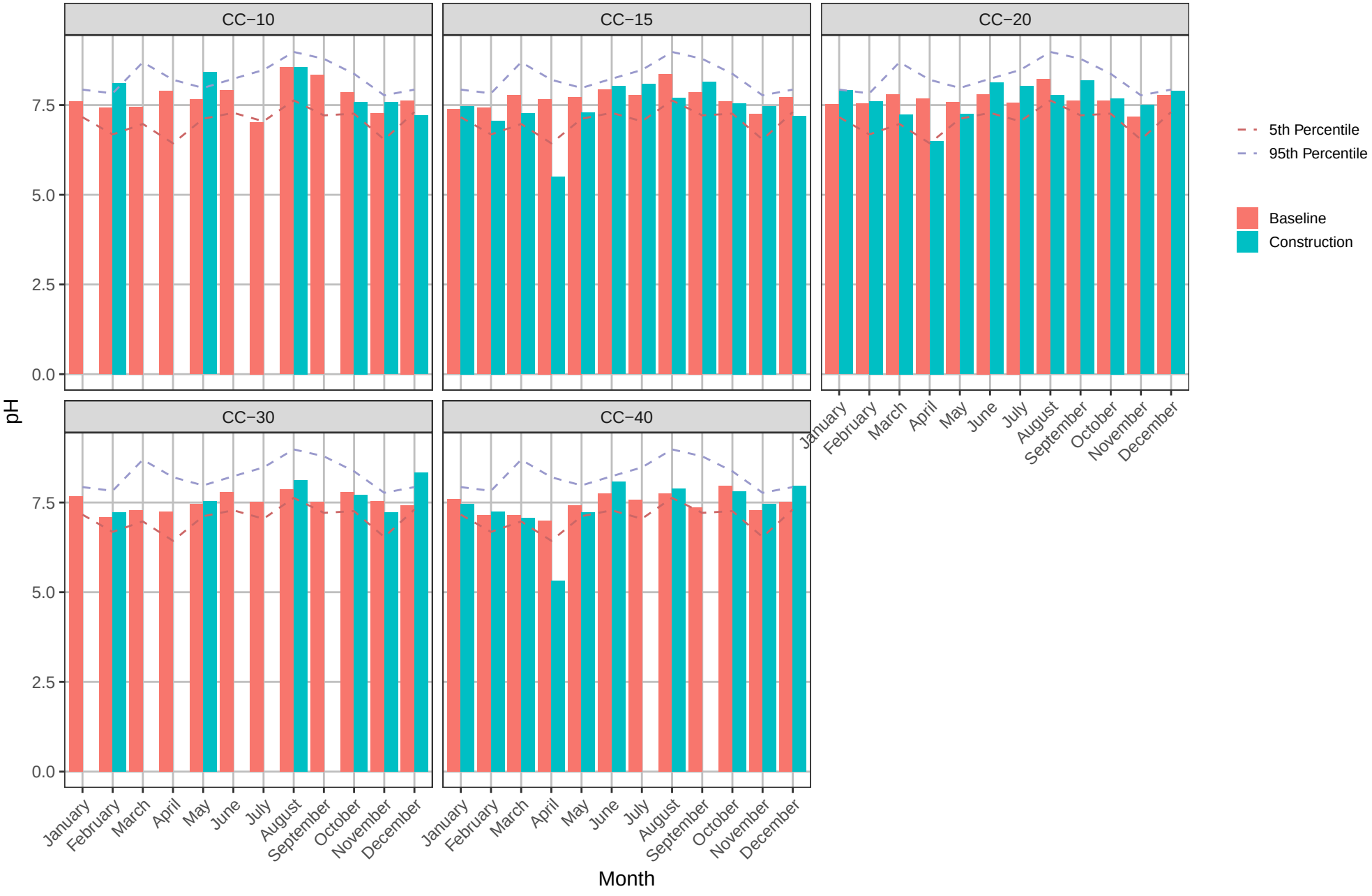
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−2d. Monthly Field Conductivity at Creek 661 Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



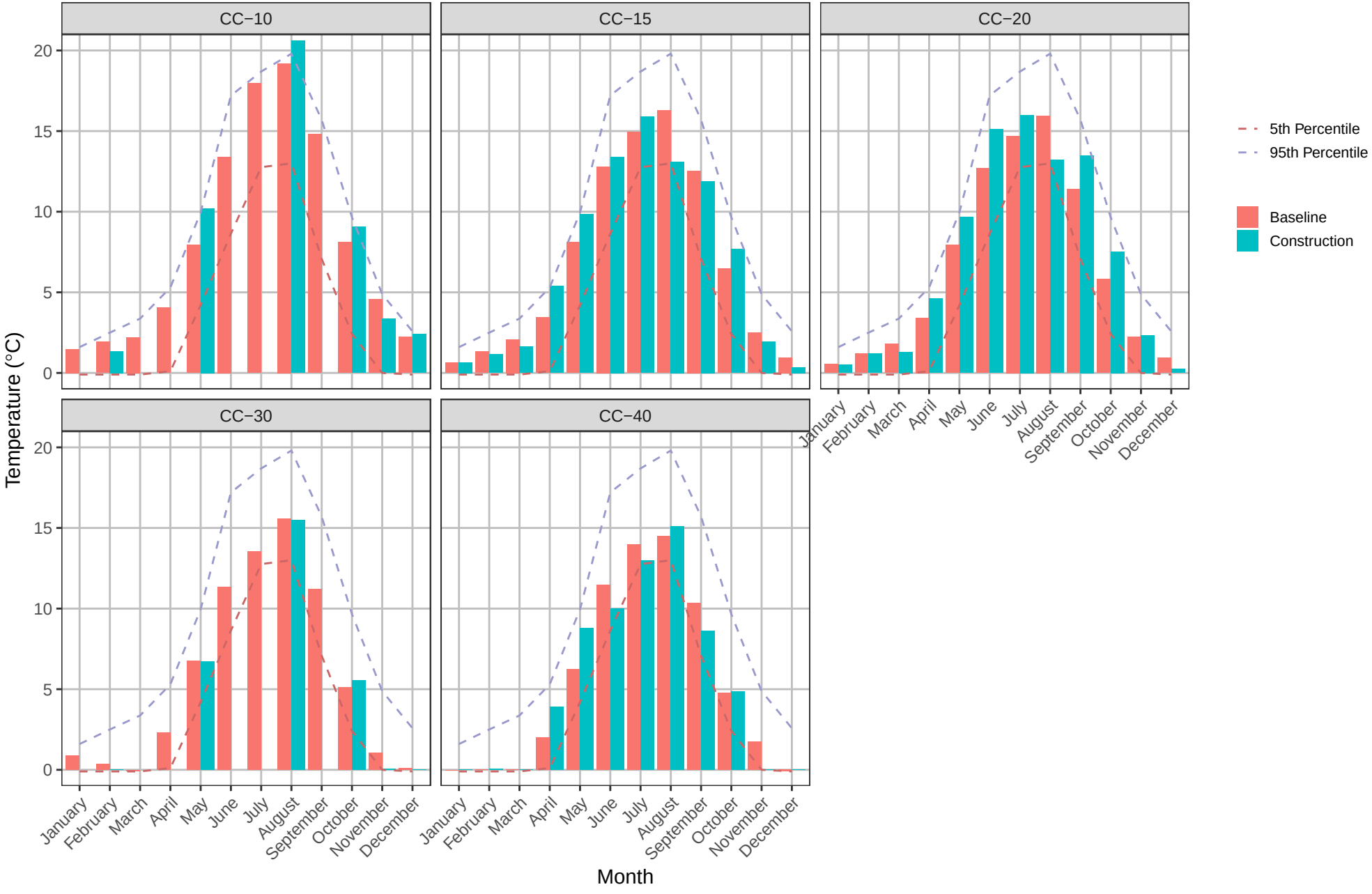
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed
Long−term BC WQG−AL for Buried Embyro/Alevin life stages = 11 mg/L in water column and for all other stages = 8 mg/L in water column

Figure D−2e. Monthly Field Dissolved Oxygen at Creek 661 Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



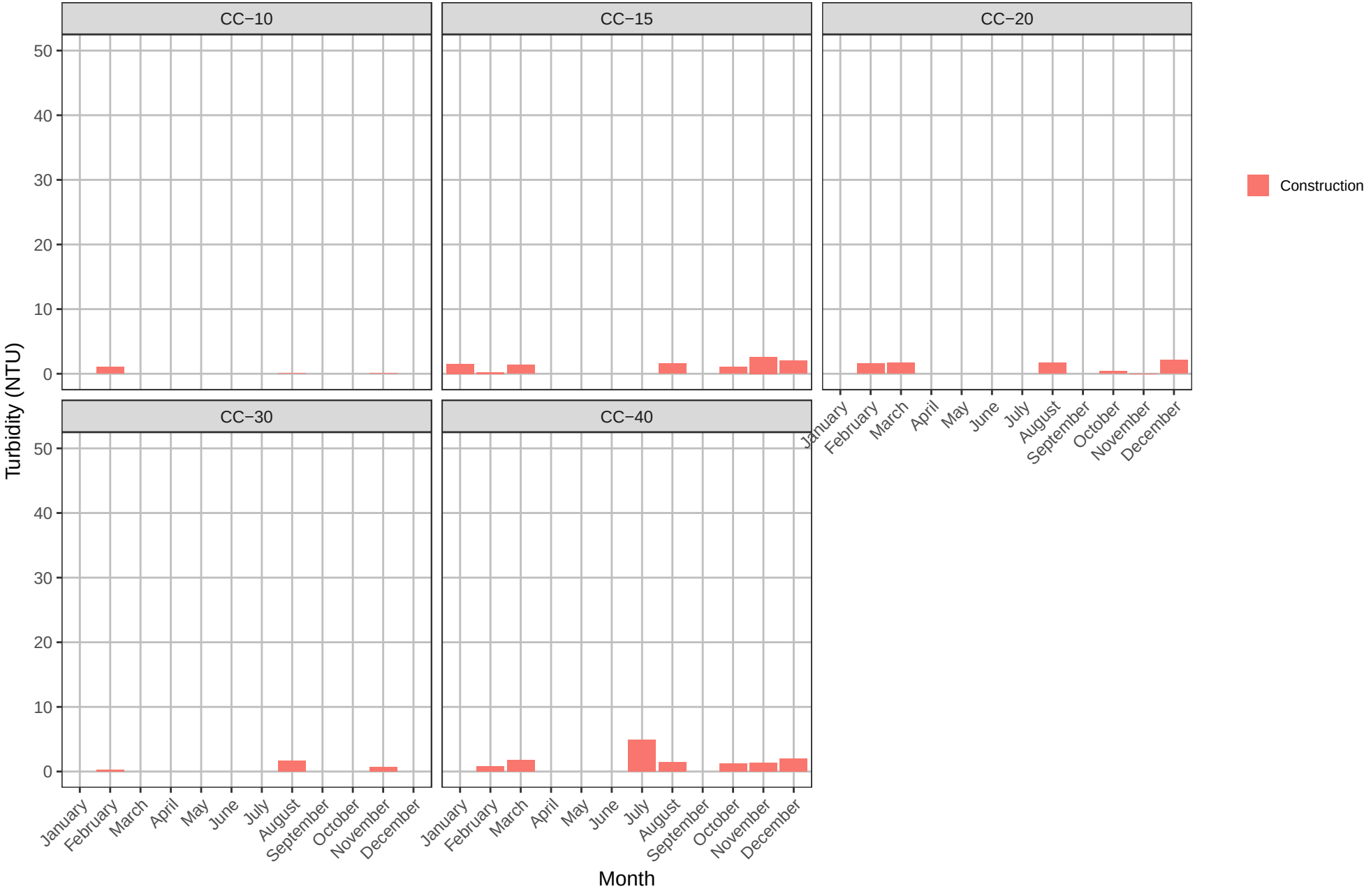
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−3a. Monthly Field pH at Lower Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



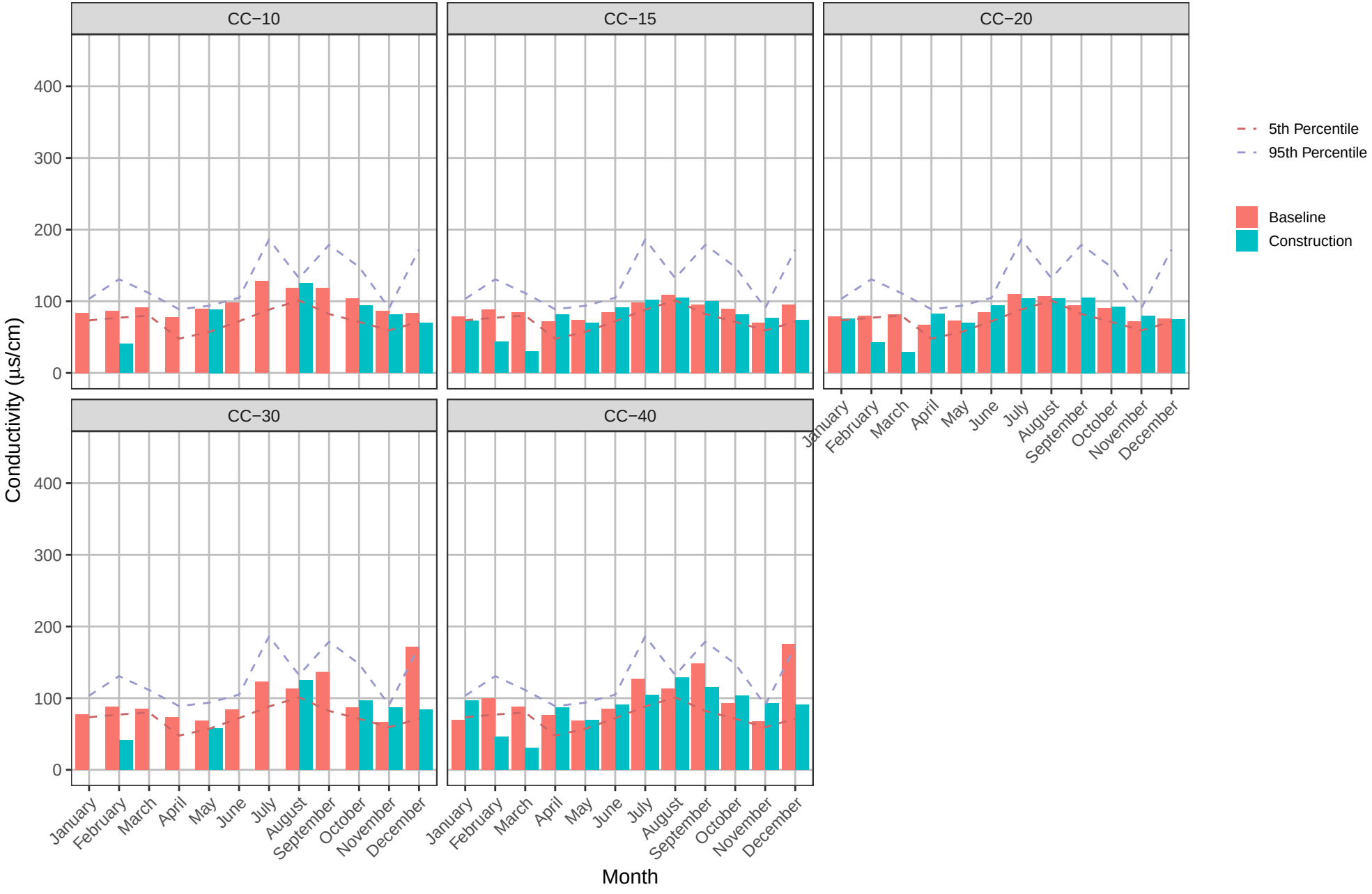
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−3b. Monthly Field Temperature at Lower Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



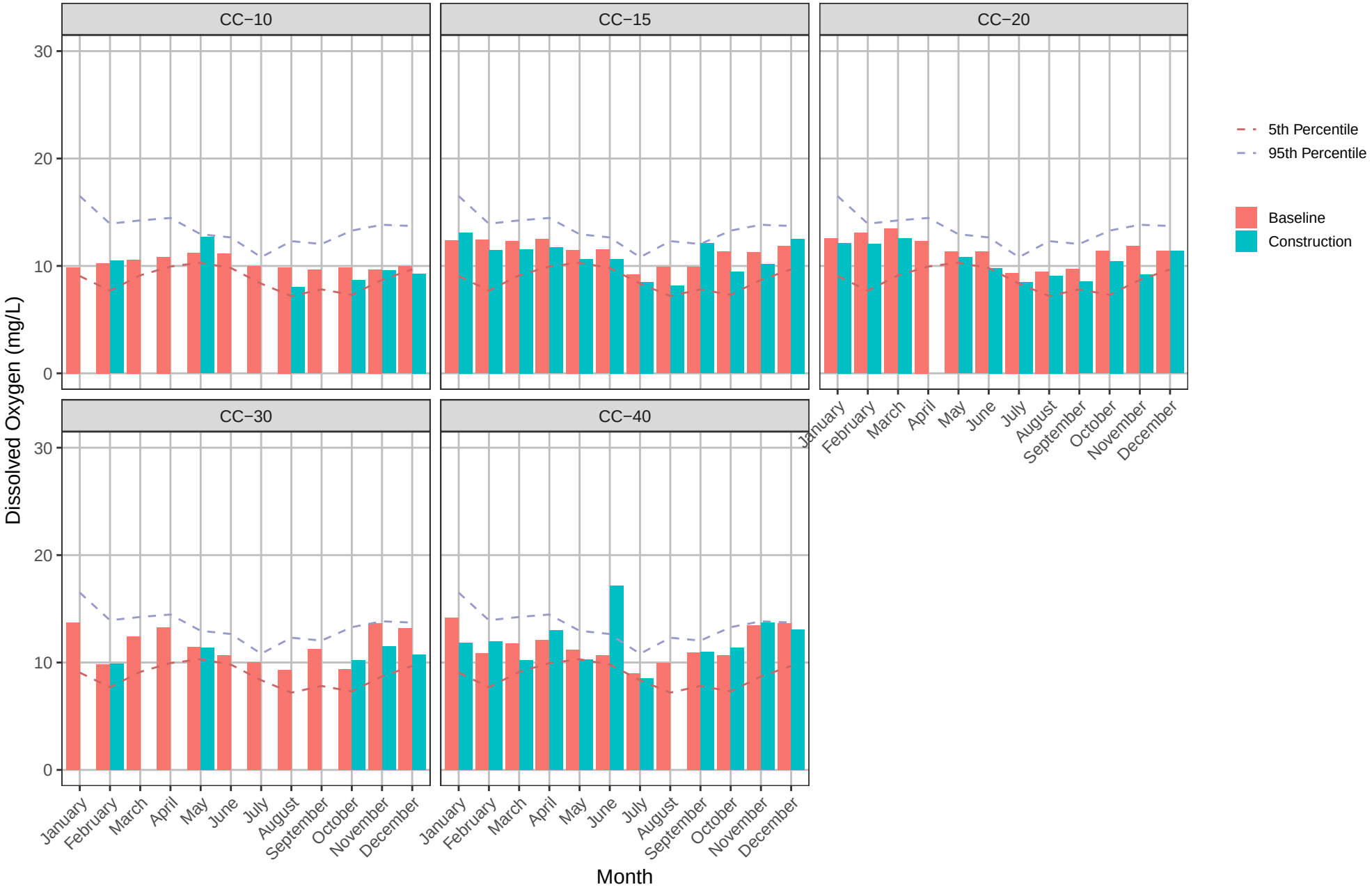
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−3c. Monthly Field Turbidity at Lower Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



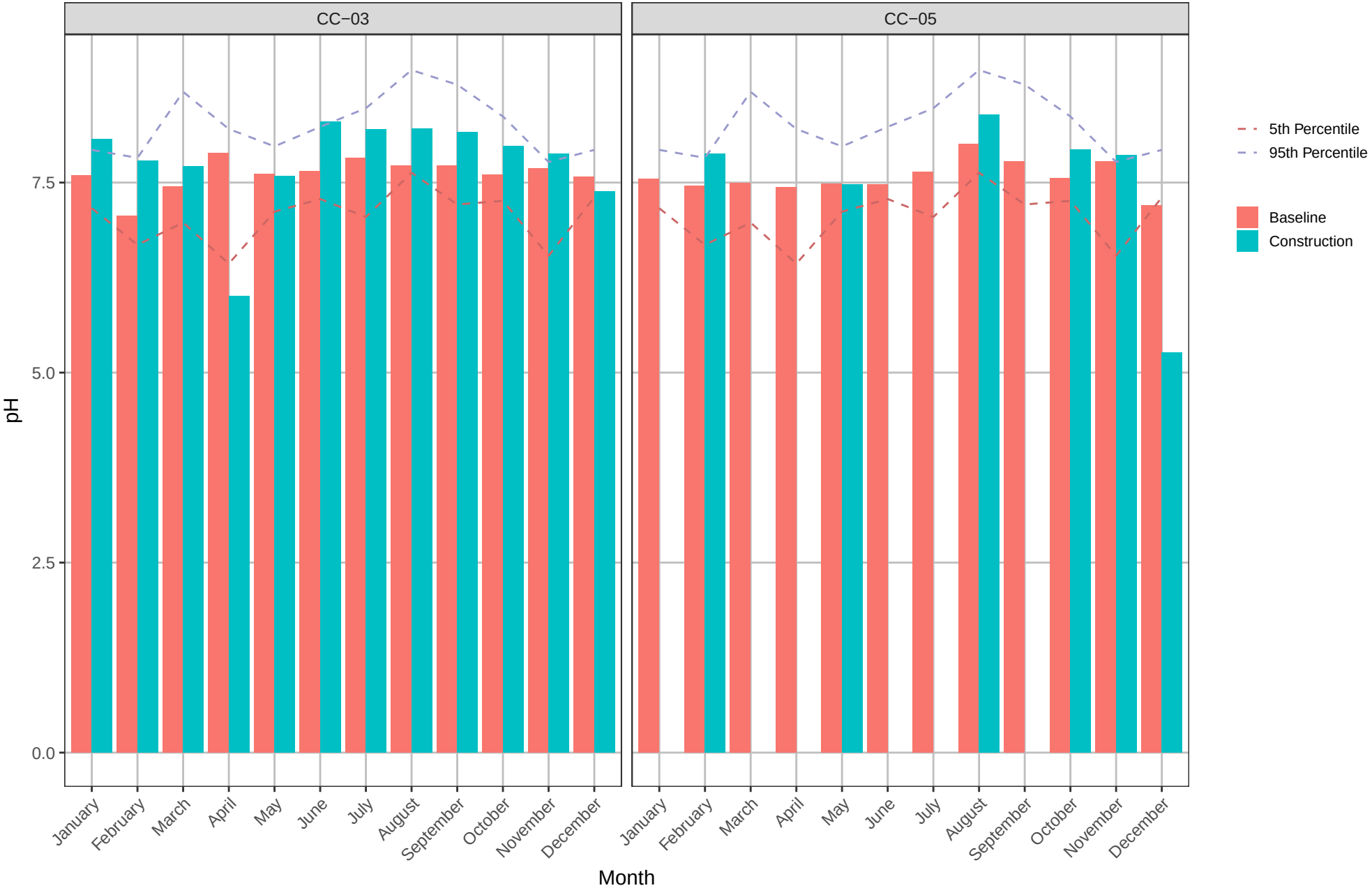
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−3d. Monthly Field Conductivity at Lower Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



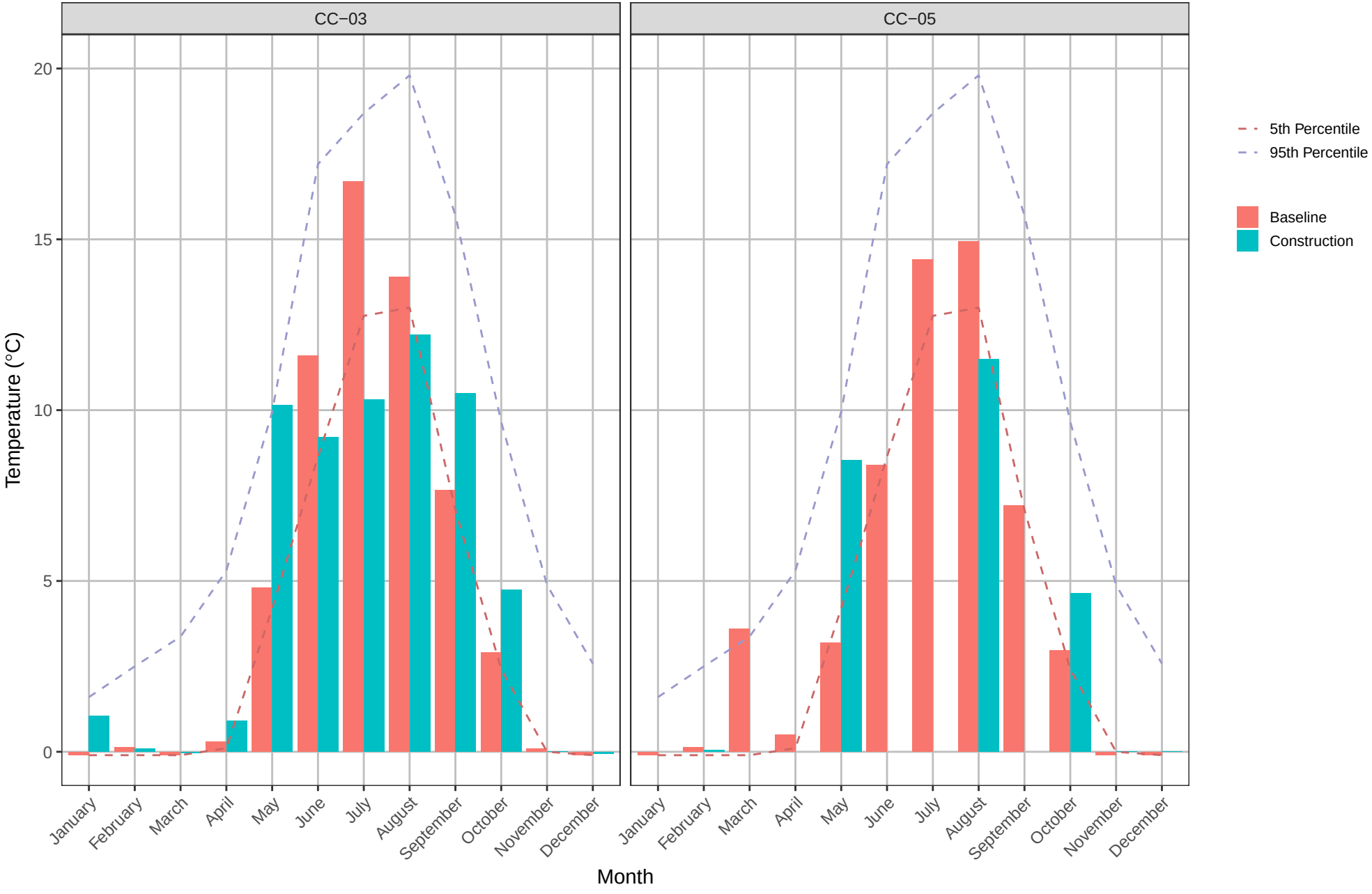
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed
Long−term BC WQG−AL for Buried Embyro/Alevin life stages = 11 mg/L in water column and for all other stages = 8 mg/L in water column

Figure D−3e. Monthly Field Dissolved Oxygen at Lower Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



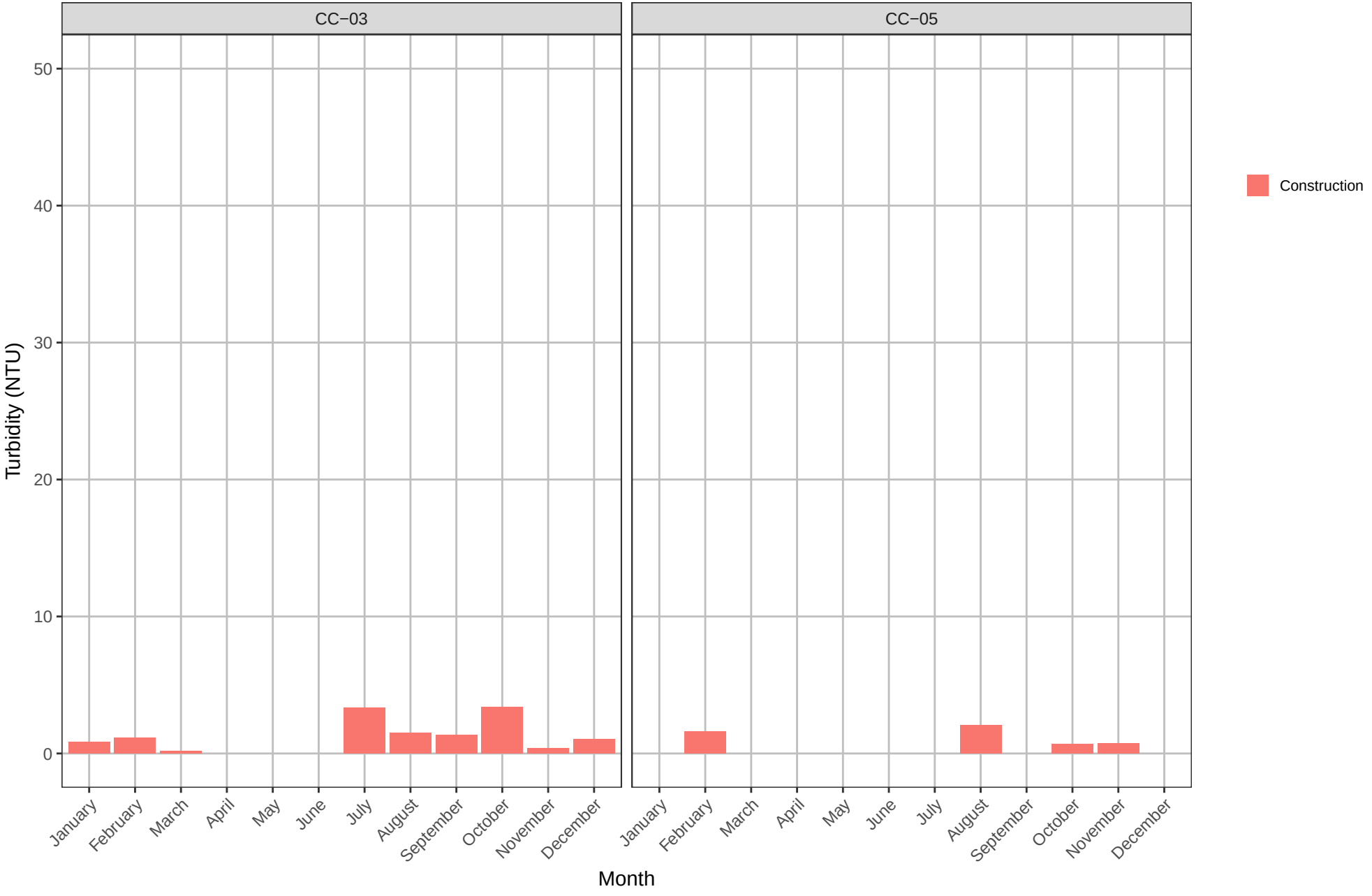
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−4a. Monthly Field pH at Upper Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



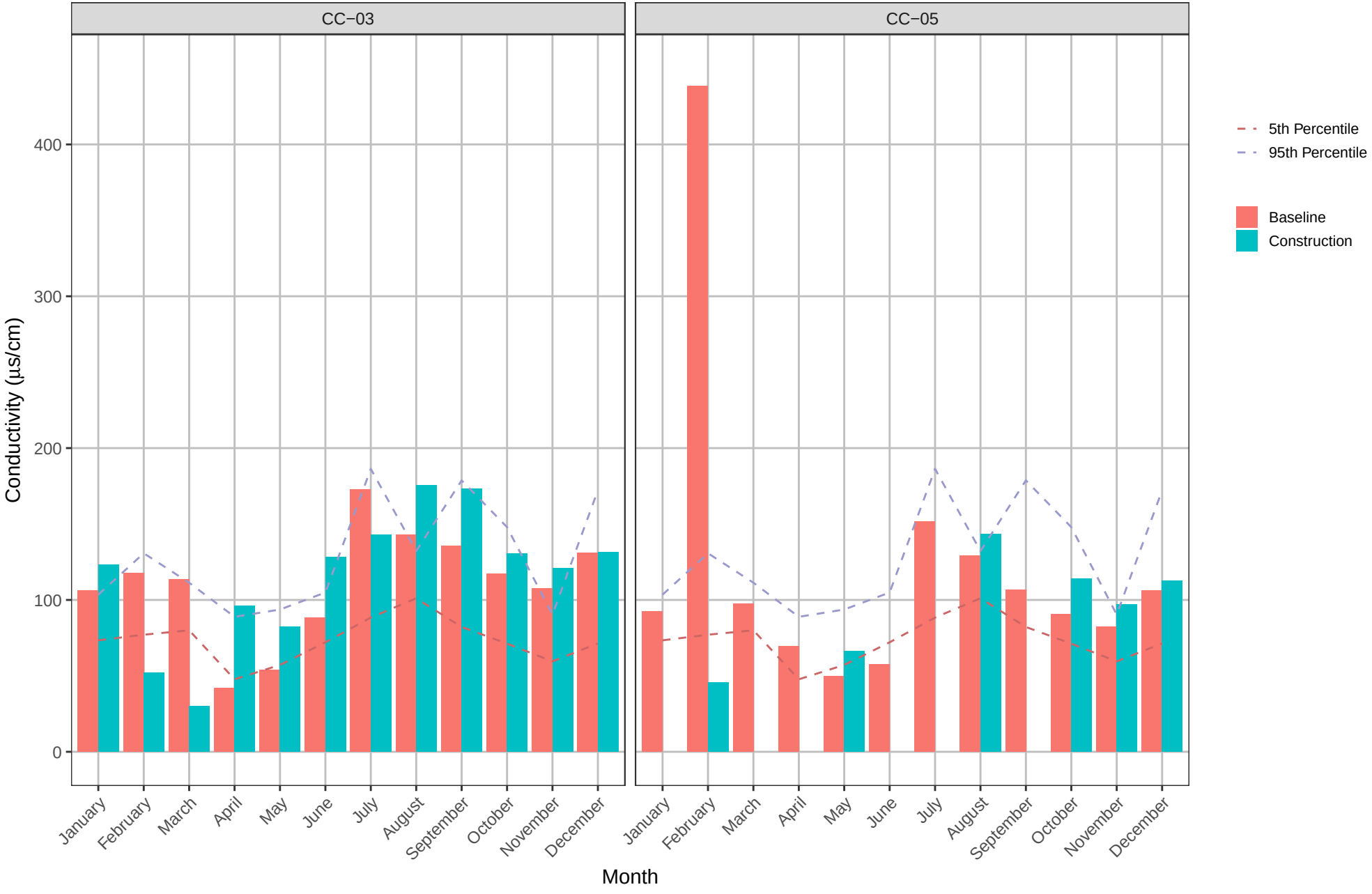
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−4b. Monthly Field Temperature at Upper Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



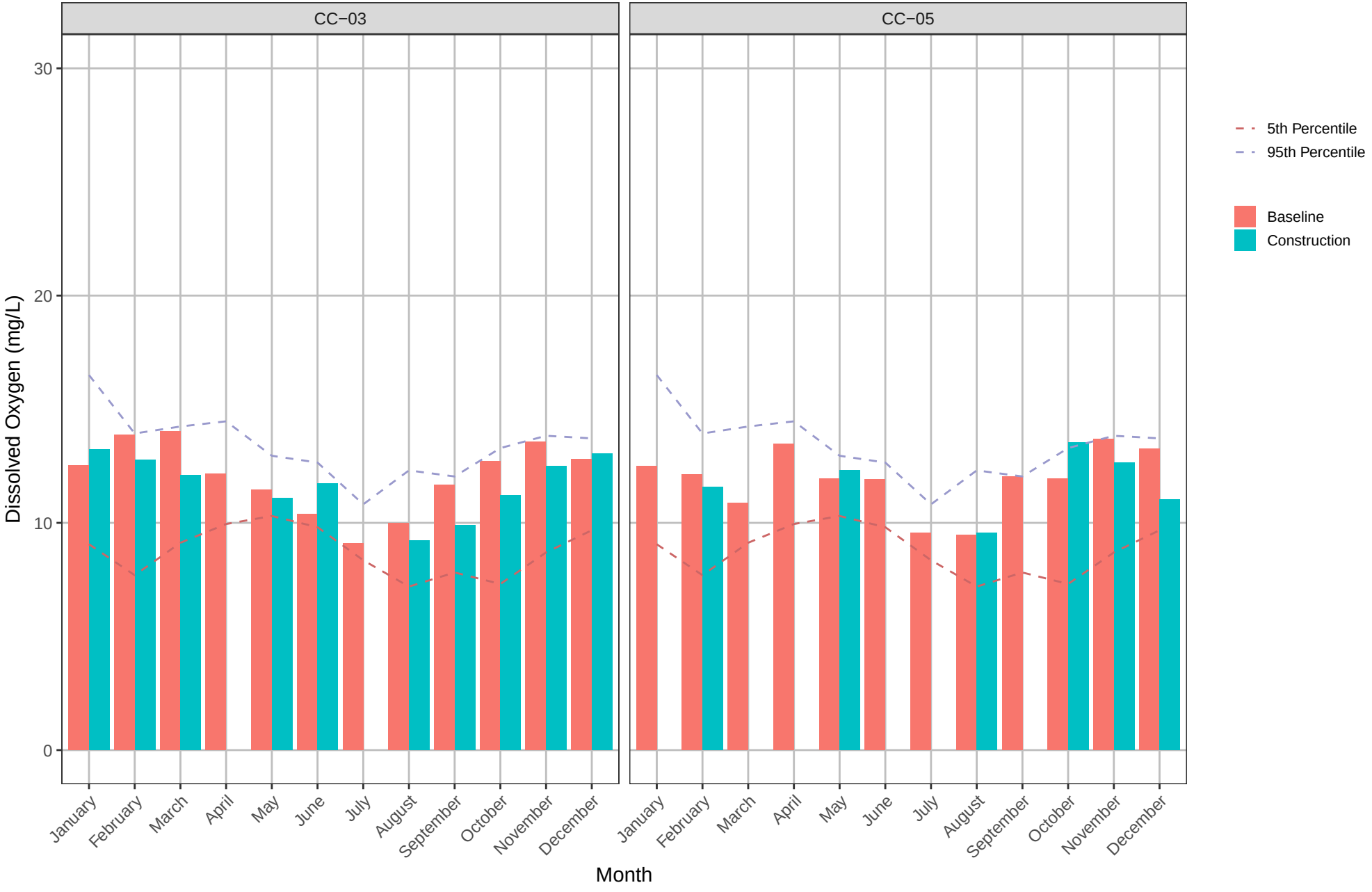
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−4c. Monthly Field Turbidity at Upper Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



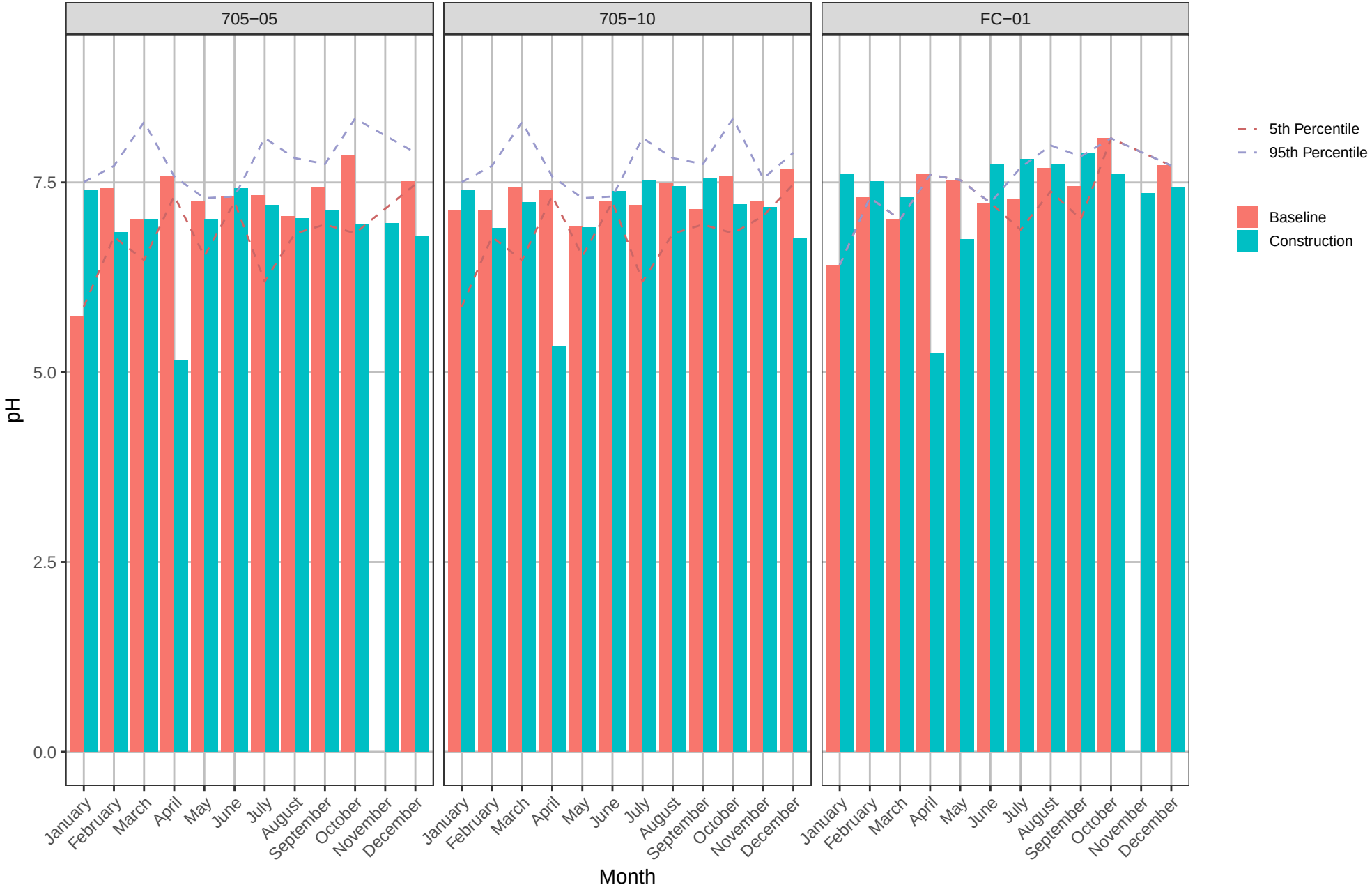
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−4d. Monthly Field Conductivity at Upper Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



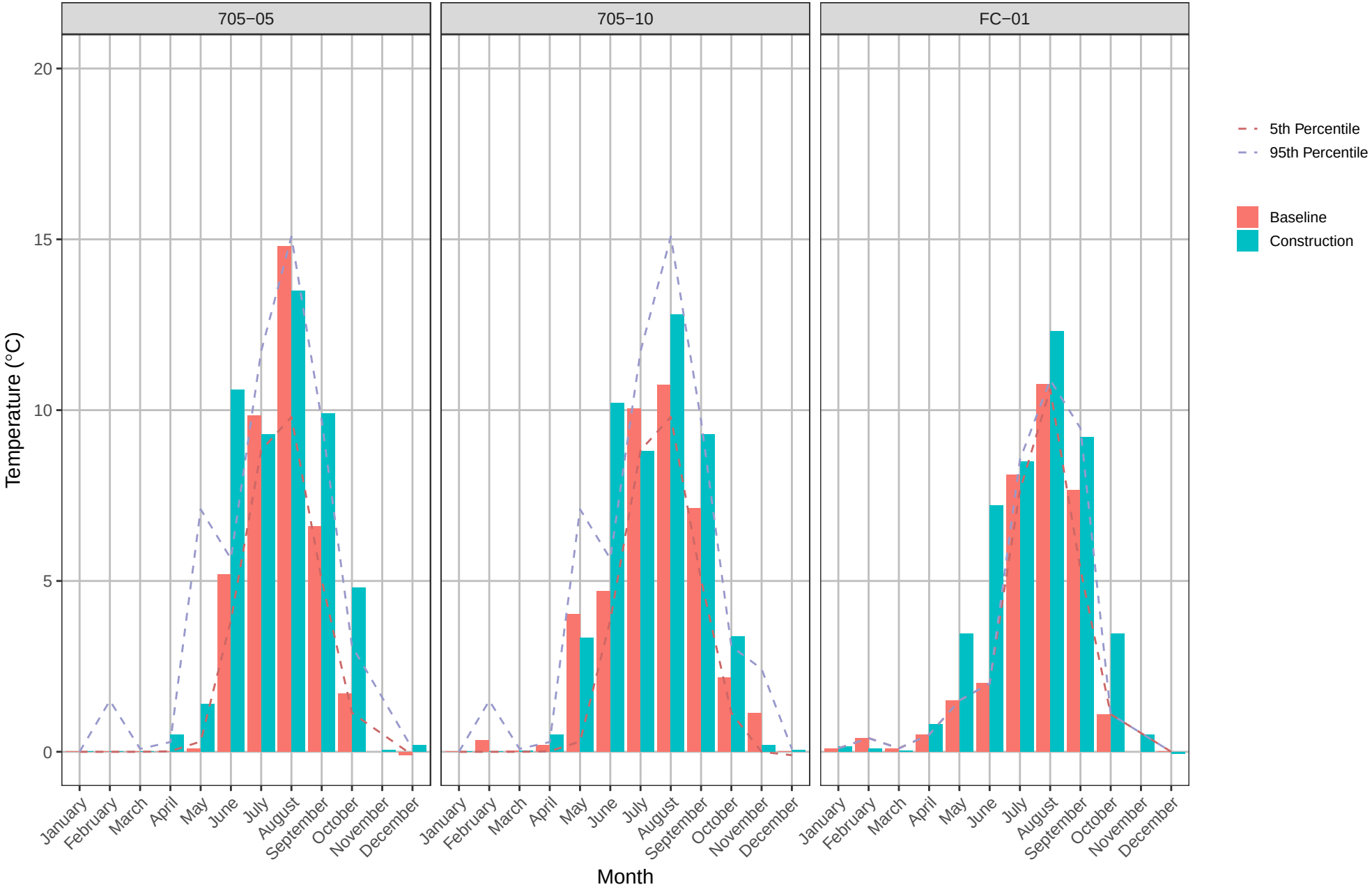
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed
Long−term BC WQG−AL for Buried Embyro/Alevin life stages = 11 mg/L in water column and for all other stages = 8 mg/L in water column

Figure D−4e. Monthly Field Dissolved Oxygen at Upper Chedakuz Creek Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



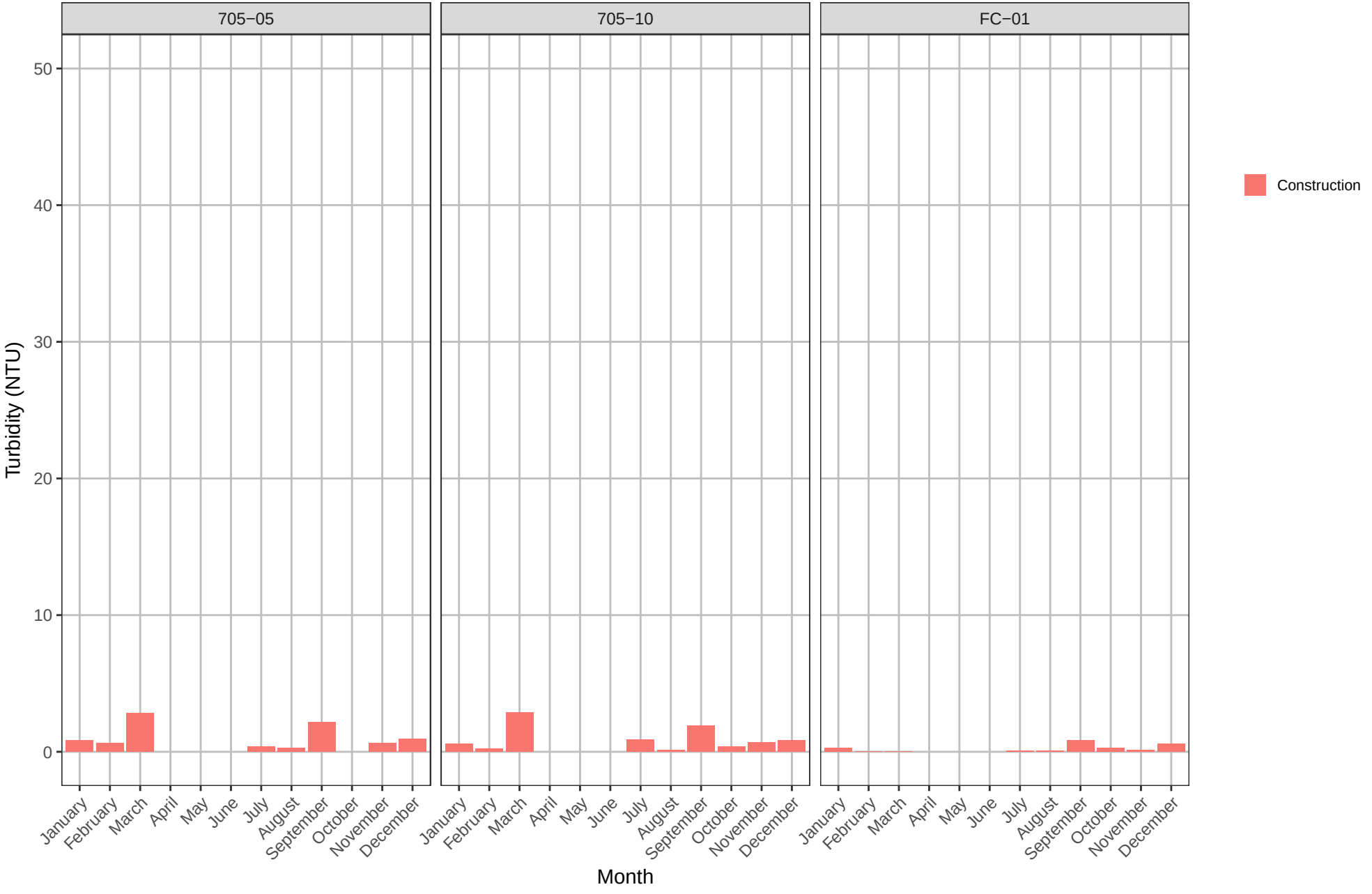
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−5a. Monthly Field pH at Regional Control Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



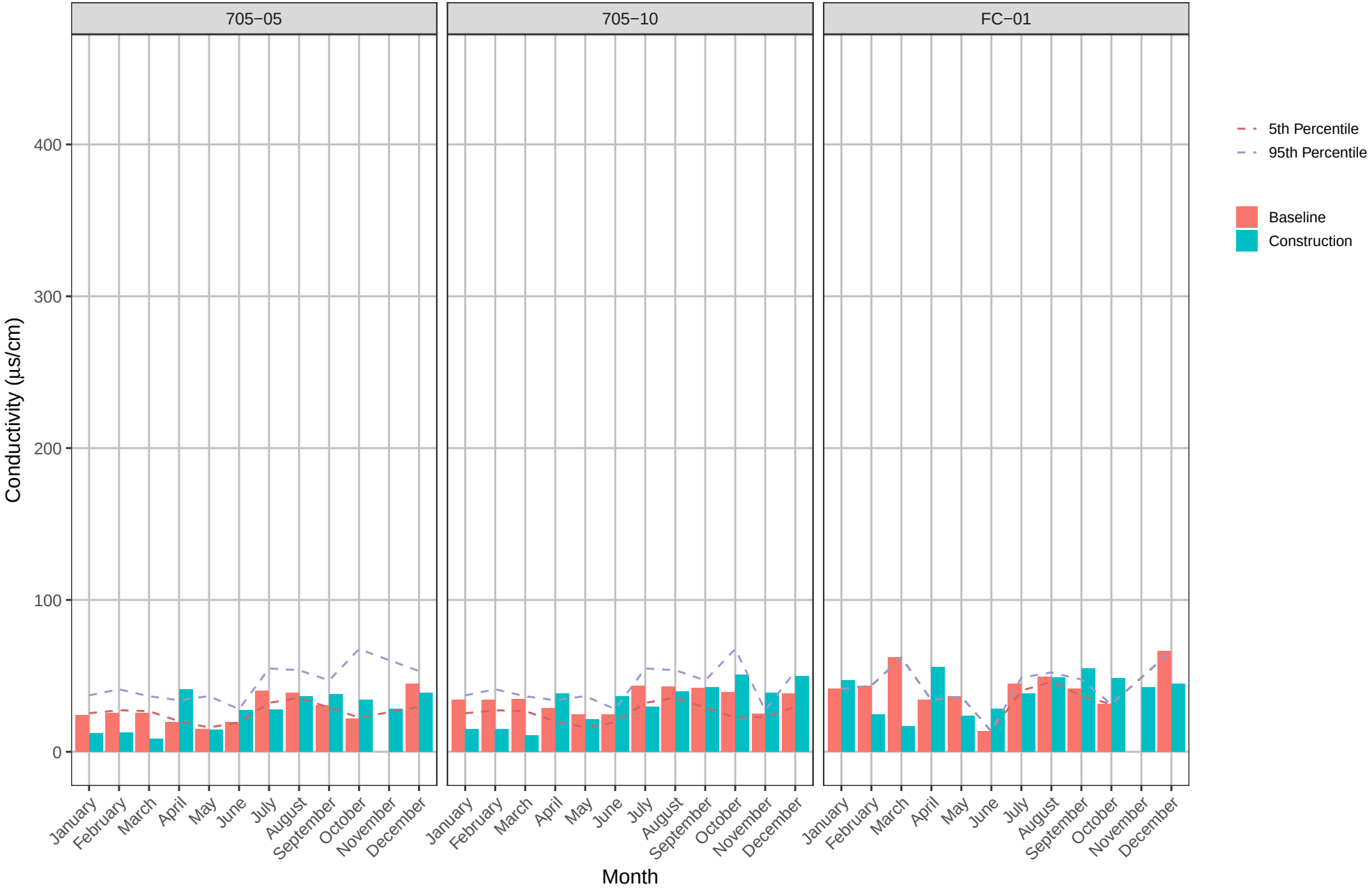
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−5b. Monthly Field Temperature at Regional Control Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



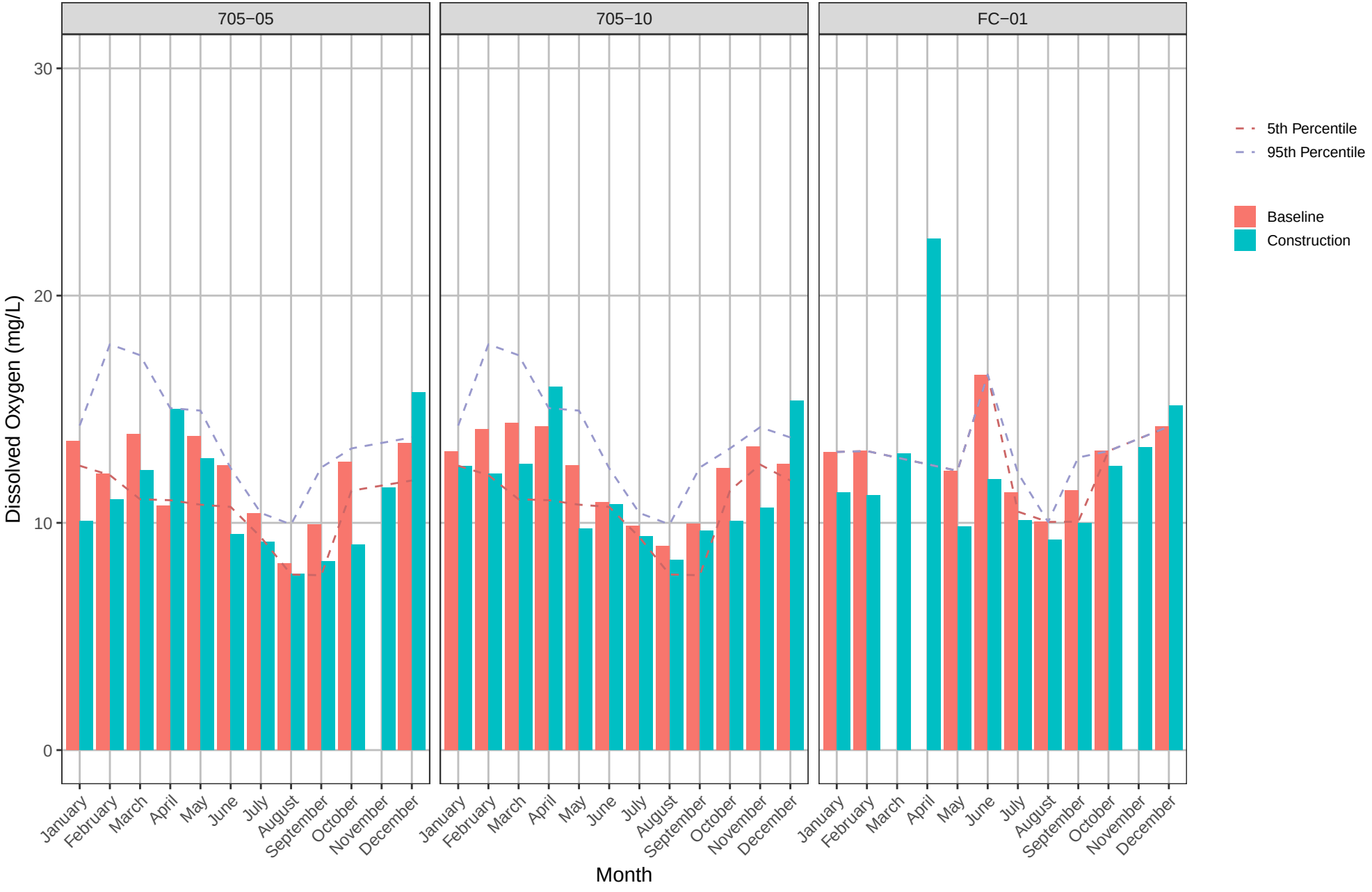
Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−5c. Monthly Field Turbidity at Regional Control Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed

Figure D−5d. Monthly Field Conductivity at Regional Control Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)



Dashed lines indicate the 95th and 5th Percentile for the Baseline within the Watershed
Long−term BC WQG−AL for Buried Embyro/Alevin life stages = 11 mg/L in water column and for all other stages = 8 mg/L in water column

Figure D−5e. Monthly Field Dissolved Oxygen at Regional Control Sites, Baseline (2016 to September 2022) and Construction Monitoring Period (October 2022 to March 2024)

Appendix E Surface Water Quality Analysis

Appendix E-1: Mean Monthly Surface Water Quality (October 2022 to December 2023) and Comparison to the 95th Percentile Baseline+ 20% (2016 to September 2022)

Appendix E-2: Results of Before-After-Control-Impact Analysis

Appendix E-3: Comparison of Mean Monthly Surface Water Quality (October 2022 to March 2024) to the Environmental Assessment Predicted Surface Water Quality

Appendix E-4: Comparison of Mean Monthly Surface Water Quality (October 2022 to March 2024) to the 2022 Model Predictions

Appendix E-1 Mean Monthly Surface Water Quality (October 2022 to December 2023) and Comparison to the 95th Percentile Baseline+ 20% (2016 to September 2022)

Appendix E-1a: Comparison of Average Monthly Water Quality and Baseline for DC-05 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.32	7.49	7.62	7.4	6.9	6.72	7.19	7.46	7.56	7.48	7.08	7.23
pH (pH units) upper[3]	8.03	7.96	8.1	8.06	7.71	7.57	7.92	8.07	8.09	7.86	7.78	7.88
Total suspended solids	1.8	4.1	3.38	2.76	27.6	9.84	4.08	2.25	9.27	2.88	4.11	1.8
Turbidity (NTU)	0.62	0.52	0.37	2.86	3.8	1.93	0.68	0.88	0.58	1.16	2.68	1.09
Total dissolved solids	86.64	87.6	93.84	89.4	78.66	62.4	75.6	97.65	114	85.8	69.18	78.72
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.64	0.3	0.3
Fluoride	0.0552	0.0533	0.0552	0.0534	0.0455	0.0348	0.048	0.0492	0.0507	0.0593	0.0416	0.0444
Sulphate	3.42	3.63	3.73	3.61	1.61	1.01	2.25	3.45	3.32	2.95	2.32	2.75
Nutrients												
Ammonia-N	0.006	0.003	0.003	0.003	0.0124	0.003	0.0115	0.0068	0.0261	0.003	0.0047	0.0074
Nitrate-N	0.0437	0.0398	0.0505	0.0235	0.003	0.003	0.0041	0.14	0.003	0.003	0.0073	0.0183
Nitrite-N	0.0006	0.0006	0.0011	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Total Phosphorous	0.0108	0.0248	0.0131	0.0157	0.0342	0.0181	0.0109	0.0113	0.0108	0.0111	0.0147	0.0103
Orthophosphate	0.008	0.0078	0.0085	0.0079	0.0046	0.003	0.0052	0.0073	0.0068	0.0055	0.0051	0.0067
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.0673	0.0618	0.0424	0.24	0.54	0.34	0.21	0.15	0.0779	0.16	0.39	0.13
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00012	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Arsenic	0.00077	0.00074	0.00072	0.00072	0.00077	0.00064	0.00088	0.001	0.00092	0.00087	0.00068	0.0007
Barium	0.0089	0.0093	0.0094	0.0195	0.0088	0.0064	0.0086	0.012	0.0114	0.0078	0.0075	0.0075
Beryllium	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.0000036	0.0000057	0.0000036	0.000008	0.000022	0.000011	0.00001	0.0000077	0.0000042	0.000007	0.00001	0.0000053
Chromium	0.00035	0.00038	0.00038	0.00048	0.00076	0.00035	0.00034	0.00036	0.00038	0.00037	0.0005	0.0004
Cobalt	0.00006	0.00006	0.00006	0.00006	0.00013	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Copper	0.0003	0.0003	0.0003	0.0007	0.00097	0.00085	0.0012	0.00064	0.0003	0.00061	0.00086	0.00066
Iron	0.13	0.12	0.0938	0.25	0.4	0.24	0.16	0.18	0.16	0.24	0.28	0.15
Lead	0.000049	0.00014	0.00003	0.000054	0.00016	0.000075	0.000055	0.00003	0.00003	0.00015	0.000071	0.00003
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Manganese	0.0098	0.0065	0.0033	0.0085	0.038	0.0161	0.0091	0.01	0.0066	0.0095	0.0142	0.0071
Mercury	0.0000036	0.0000036	0.0000036	0.0000043	0.000013	0.000011	0.0000088	0.0000043	0.0000073	0.0000036	0.000012	0.0000059
Molybdenum	0.00098	0.001	0.0011	0.0012	0.00048	0.00038	0.0009	0.0013	0.001	0.00069	0.00068	0.00077
Nickel	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Selenium	0.00013	0.0001	0.00012	0.0001	0.000082	0.00007	0.000089	0.000087	0.00009	0.000079	0.000082	0.000084
Silver	0.0000096	0.000006	0.000006	0.000006	0.000023	0.00001	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Strontium	0.11	0.11	0.12	0.11	0.0683	0.0412	0.0917	0.13	0.12	0.0773	0.0781	0.0882
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.0000096	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Uranium	0.0003	0.00029	0.00039	0.0003	0.00026	0.00023	0.00022	0.00035	0.00028	0.00022	0.00021	0.00023
Vanadium	0.0009	0.00094	0.0009	0.0005	0.0011	0.00089	0.00079	0.00079	0.00041	0.00072	0.00083	0.00065
Zinc	0.0036	0.0031	0.0018	0.0018	0.0041	0.004	0.0018	0.0038	0.0021	0.0052	0.0018	0.0018

Appendix E-1a: Comparison of Average Monthly Water Quality and Baseline for DC-05 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0571	0.0408	0.0258	0.16	0.29	0.25	0.18	0.12	0.0724	0.11	0.29	0.0885
Cadmium	0.0000036	0.0000052	0.0000036	0.0000036	0.000013	0.000013	0.000007	0.0000036	0.0000036	0.000005	0.0000084	0.0000072
Copper	0.00031	0.0003	0.0003	0.00048	0.00089	0.00068	0.00059	0.00031	0.00045	0.00058	0.00078	0.00059
Iron	0.0958	0.0835	0.0872	0.17	0.2	0.13	0.1	0.13	0.12	0.17	0.18	0.11
Manganese	0.0046	0.0034	0.0024	0.0046	0.0068	0.0042	0.0055	0.0057	0.0042	0.0046	0.0049	0.0039
Zinc	0.0018	0.0018	0.0018	0.0018	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-05 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1a: Comparison of Average Monthly Water Quality and Baseline for DC-05 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.91	7.96	7.84	7.81	7.17	7.52	7.45	7.64	7.68	7.85	7.68	7.85
pH (pH units) upper[3]	7.91	7.96	7.84	7.81	7.17	7.52	7.45	7.64	7.68	7.85	7.68	7.85
Total suspended solids	1.5	2.1	3.1	1.5	3.04	1.5	1.5	1.5	1.5	1.62	1.5	1.5
Turbidity (NTU)	2.61	24.3	29.88	0.17	2.23	0.43	1.36	1.22	0.38	1.57	18.98	1.81
Total dissolved solids	85.83	95.5	96.33	70	49.8	38	126	64	73	69.63	72	70
Chloride	0.25	0.4	0.77	0.25	0.3	0.25	2.01	0.84	0.7	0.42	0.99	0.42
Fluoride	0.0397	0.0452	0.0442	0.05	0.0238	0.029	0.032	0.035	0.039	0.041	0.034	0.0385
Sulphate	3.58	3.57	3.37	3.48	0.97	1.35	13	4.44	3.38	3.02	3.48	3.17
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.003	0.0025	0.0025	0.0025	0.0025	0.003	0.0025	0.005
Nitrate-N	0.0493	0.052	0.0376	0.0127	0.0025	0.0025	0.0025	0.0025	0.0025	0.0028	0.0599	0.0388
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.0082	0.0094	0.009	0.008	0.0229	0.0094	0.019	0.0122	0.0084	0.0095	0.0193	0.0117
Orthophosphate	0.0064	0.0045	0.008	0.0057	0.0019	0.0021	0.0032	0.0034	0.0022	0.0037	0.004	0.0036
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0055	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.15	1.04	1.69	0.013	0.35	0.1	0.15	0.0809	0.0404	0.091	1.46	0.1
Antimony	0.00005	0.000092	0.00011	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.000075	0.00005
Arsenic	0.00065	0.0013	0.0015	0.00058	0.00064	0.00062	0.00076	0.00095	0.00074	0.00069	0.0012	0.00066
Barium	0.0101	0.0196	0.0233	0.0076	0.0063	0.0053	0.0123	0.0089	0.0083	0.0089	0.02	0.0089
Beryllium	0.00001	0.000048	0.000064	0.00001	0.000033	0.000026	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.0000039	0.000011	0.000016	0.000003	0.000011	0.000003	0.000011	0.0000081	0.000003	0.0000036	0.000013	0.0000043
Chromium	0.00034	0.0009	0.0012	0.00025	0.00034	0.00025	0.00025	0.00025	0.00025	0.00027	0.0011	0.00049
Cobalt	0.00005	0.00039	0.00052	0.00005	0.000068	0.00005	0.00011	0.00005	0.00005	0.000054	0.00036	0.00005
Copper	0.00034	0.0015	0.0019	0.00025	0.00065	0.00025	0.00061	0.00025	0.00025	0.0003	0.0012	0.00025
Iron	0.13	1.01	1.38	0.03	0.25	0.09	0.16	0.22	0.075	0.12	1	0.13
Lead	0.000067	0.00064	0.00081	0.000025	0.000082	0.000025	0.000025	0.000025	0.000025	0.00005	0.00059	0.000058
Lithium	0.0005	0.00082	0.00073	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0008	0.0005
Manganese	0.0053	0.0299	0.0391	0.002	0.0129	0.0041	0.0116	0.0066	0.0042	0.0059	0.0277	0.0062
Mercury	0.000003	0.0000053	0.0000053	0.000003	0.0000098	0.000003	0.000003	0.000003	0.000003	0.000003	0.0000078	0.000003
Molybdenum	0.00095	0.00098	0.001	0.001	0.00025	0.00046	0.00038	0.0027	0.00072	0.00088	0.00068	0.00085
Nickel	0.00025	0.00087	0.0012	0.00025	0.00032	0.00025	0.00025	0.00025	0.00025	0.00025	0.0008	0.00025
Selenium	0.00008	0.000085	0.000093	0.0001	0.000044	0.000073	0.000062	0.000067	0.000062	0.000069	0.000072	0.000063
Silver	0.000005	0.000012	0.000014	0.000005	0.000014	0.000005	0.000005	0.000005	0.000005	0.000005	0.00001	0.000005
Strontium	0.1	0.1	0.1	0.0974	0.0315	0.0474	0.078	0.0746	0.0773	0.0934	0.0819	0.0937
Thallium	0.000005	0.000015	0.000022	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000019	0.000005
Uranium	0.00039	0.00041	0.0004	0.00038	0.00018	0.00015	0.00011	0.00015	0.00016	0.00025	0.00026	0.00027
Vanadium	0.0005	0.002	0.0027	0.00025	0.00084	0.00055	0.00058	0.00071	0.00025	0.00049	0.0023	0.00044
Zinc	0.0015	0.005	0.0064	0.0015	0.0019	0.0015	0.0015	0.0015	0.0015	0.0015	0.0042	0.0015

Appendix E-1a: Comparison of Average Monthly Water Quality and Baseline for DC-05 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0149	0.014	0.0227	0.0093	0.2	0.0806	0.0678	0.0373	0.025	0.0239	0.052	0.019
Cadmium	0.000003	0.000003	0.000003	0.000003	0.0000067	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.00021	0.00023	0.0001	0.00061	0.00042	0.00052	0.00034	0.00025	0.00017	0.00031	0.00017
Iron	0.0267	0.025	0.0273	0.02	0.12	0.07	0.079	0.13	0.051	0.0526	0.066	0.0415
Manganese	0.0027	0.0025	0.005	0.0014	0.0046	0.0021	0.0038	0.0027	0.0021	0.0035	0.0042	0.0025
Zinc	0.0005	0.0005	0.0005	0.0005	0.00094	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-05 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1b: Comparison of Average Monthly Water Quality and Baseline for DC-10 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.62	7.62	7.61	7.2	7	6.88	7.26	7.49	7.53	7.54	7.46	7.3
pH (pH units) upper[3]	7.95	7.97	8.14	8.03	7.74	7.69	7.91	8.02	8.07	7.79	7.81	7.92
Total suspended solids	1.8	1.8	1.8	3.3	14.8	4.7	1.8	3.2	3.8	1.8	2.6	1.8
Turbidity (NTU)	0.4	0.3	0.3	1	4.4	2.4	0.6	0.8	0.6	1.2	1.1	0.6
Total dissolved solids	80.2	144.7	86.2	88.8	72	69.1	78.5	93.6	109.8	86.5	69.4	80.5
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.58	0.3	0.3
Fluoride	0.053	0.054	0.054	0.052	0.043	0.035	0.046	0.048	0.052	0.064	0.039	0.045
Sulphate	3.5	3.6	3.8	3.6	1.6	1	2.7	3.4	3.4	2.9	2.4	2.8
Nutrients												
Ammonia-N	0.0075	0.003	0.003	0.0094	0.0036	0.0064	0.0124	0.0058	0.0053	0.0088	0.0142	0.003
Nitrate-N	0.0434	0.0396	0.0583	0.0237	0.003	0.003	0.003	0.0109	0.0064	0.003	0.0103	0.0194
Nitrite-N	0.0006	0.0069	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0017	0.0006	0.0006	0.0006
Total Phosphorous	0.0106	0.0135	0.0108	0.0162	0.0538	0.0177	0.0089	0.0102	0.0103	0.0094	0.009	0.0095
Orthophosphate	0.0073	0.008	0.0074	0.0067	0.0048	0.0032	0.0045	0.0057	0.0063	0.0044	0.005	0.0056
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.05	0.035	0.032	0.24	0.63	0.35	0.2	0.12	0.078	0.15	0.14	0.11
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Arsenic	0.0007	0.0007	0.0007	0.0007	0.0009	0.0007	0.0008	0.0009	0.0008	0.0008	0.0007	0.0006
Barium	0.0091	0.0089	0.0095	0.0092	0.0102	0.006	0.0092	0.0118	0.0118	0.0075	0.0072	0.0076
Beryllium	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.000004	0.000004	0.000004	0.000008	0.000025	0.000012	0.000012	0.000007	0.000004	0.000007	0.0000036	0.000028
Chromium	0.00033	0.0003	0.0003	0.00038	0.00079	0.00033	0.00033	0.00031	0.00031	0.00048	0.00033	0.00033
Cobalt	0.00006	0.00006	0.00006	0.00006	0.00018	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Copper	0.0003	0.0003	0.0003	0.00078	0.0011	0.0009	0.00076	0.00045	0.0003	0.00074	0.0003	0.0003
Iron	0.091	0.086	0.065	0.21	0.5	0.24	0.16	0.15	0.15	0.24	0.12	0.15
Lead	0.00003	0.00003	0.00003	0.000059	0.00022	0.000076	0.000058	0.00003	0.00003	0.00003	0.00003	0.0001
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Manganese	0.0048	0.0046	0.0027	0.0081	0.0375	0.0152	0.0073	0.0068	0.0062	0.0082	0.0054	0.0065
Mercury	0.0000036	0.0000036	0.0000036	0.000013	0.000014	0.000011	0.0000079	0.0000036	0.0000084	0.0000036	0.0000048	0.0000036
Molybdenum	0.001	0.00098	0.0011	0.001	0.00049	0.00038	0.00089	0.0011	0.0011	0.00067	0.00067	0.00073
Nickel	0.0003	0.0003	0.0003	0.0003	0.00071	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Selenium	0.000087	0.00012	0.0001	0.00011	0.00007	0.00008	0.00012	0.000074	0.000078	0.000068	0.000072	0.0001
Silver	0.000006	0.000006	0.000006	0.000006	0.000018	0.000011	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Strontium	0.11	0.1	0.12	0.11	0.055	0.046	0.092	0.12	0.12	0.078	0.077	0.085
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.000012	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Uranium	0.00028	0.00029	0.00037	0.0003	0.00028	0.00024	0.00021	0.00029	0.00027	0.00021	0.00019	0.0002
Vanadium	0.0009	0.0008	0.0003	0.0005	0.0015	0.0008	0.0007	0.0007	0.0006	0.0008	0.0008	0.0006
Zinc	0.0018	0.0057	0.0018	0.0018	0.0018	0.0018	0.0018	0.0027	0.0031	0.0048	0.0018	0.0018

Appendix E-1b: Comparison of Average Monthly Water Quality and Baseline for DC-10 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.042	0.028	0.021	0.18	0.31	0.22	0.16	0.095	0.066	0.1	0.12	0.073
Cadmium	0.000004	0.000004	0.000004	0.000008	0.000012	0.000006	0.000004	0.000006	0.000004	0.000004	0.000004	0.000012
Copper	0.0003	0.0003	0.0003	0.00068	0.00087	0.00067	0.00054	0.0003	0.00038	0.00034	0.00088	0.00043
Iron	0.074	0.056	0.049	0.14	0.19	0.12	0.095	0.12	0.12	0.15	0.093	0.093
Manganese	0.0026	0.0025	0.0019	0.0026	0.0056	0.003	0.0043	0.0046	0.0039	0.0038	0.0026	0.0023
Zinc	0.003	0.0017	0.0016	0.0018	0.0025	0.0018	0.0016	0.002	0.0018	0.0018	0.0016	0.0016

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-10 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1b: Comparison of Average Monthly Water Quality and Baseline for DC-10 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.89	7.95	7.75	7.81	7.07	7.52	7.46	7.67	7.86	7.84	7.74	7.83
pH (pH units) upper[3]	7.89	7.95	7.75	7.81	7.07	7.52	7.46	7.67	7.86	7.84	7.74	7.83
Total suspended solids	1.5	1.5	1.5	1.5	6.1	14	7.6	1.5	1.5	1.5	1.5	2.6
Turbidity (NTU)	1.32	0.78	14.89	0.18	4.74	1.75	1.69	0.89	0.37	1.89	3.47	1.27
Total dissolved solids	75	79.25	74	75	73	42	106	66	71	64.5	73.25	76
Chloride	0.25	0.25	0.41	0.25	0.52	0.25	1.96	0.85	0.56	0.43	0.61	0.42
Fluoride	0.0375	0.0437	0.0435	0.05	0.026	0.031	0.033	0.036	0.039	0.041	0.0402	0.0385
Sulphate	3.42	3.65	3.4	3.55	1.34	1.39	12.7	4.51	2.73	2.92	3.41	3.24
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0189	0.0025	0.0025	0.0025	0.005	0.0025	0.0025
Nitrate-N	0.0454	0.0599	0.0394	0.0183	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0412	0.0378
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.0075	0.0088	0.0087	0.0076	0.0466	0.0087	0.0188	0.009	0.0063	0.0092	0.0109	0.0094
Orthophosphate	0.006	0.0061	0.0075	0.0039	0.0041	0.0018	0.0032	0.0034	0.0035	0.0027	0.0049	0.0051
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0653	0.0567	0.75	0.0148	0.66	0.0996	0.15	0.0755	0.0283	0.0751	0.26	0.0867
Antimony	0.00005	0.00005	0.000075	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Arsenic	0.00053	0.00055	0.001	0.00056	0.00085	0.00058	0.00076	0.00089	0.00066	0.00066	0.00064	0.00062
Barium	0.0087	0.0094	0.0154	0.008	0.0106	0.0057	0.0117	0.0088	0.0086	0.0092	0.0093	0.0091
Beryllium	0.00001	0.00001	0.000039	0.00001	0.000048	0.00001	0.00001	0.00001	0.00001	0.00001	0.000016	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000075	0.000003	0.000022	0.0000064	0.0000093	0.0000071	0.000003	0.000003	0.0000051	0.000003
Chromium	0.00025	0.00025	0.00068	0.00025	0.00064	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00046
Cobalt	0.00005	0.00005	0.00024	0.00005	0.00014	0.00005	0.00012	0.00005	0.00005	0.00005	0.000085	0.00005
Copper	0.00025	0.00025	0.001	0.00025	0.0011	0.00054	0.00061	0.00025	0.00025	0.00025	0.00041	0.00025
Iron	0.0595	0.048	0.67	0.021	0.55	0.087	0.15	0.18	0.067	0.11	0.2	0.1
Lead	0.000025	0.000025	0.00039	0.000025	0.00023	0.000025	0.00005	0.000025	0.000025	0.000044	0.00011	0.000049
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Manganese	0.0033	0.0023	0.0178	0.0019	0.0294	0.0043	0.0116	0.0055	0.0037	0.005	0.0064	0.0044
Mercury	0.000003	0.000003	0.000004	0.000003	0.000016	0.000003	0.000003	0.000003	0.000003	0.000003	0.0000046	0.000003
Molybdenum	0.0012	0.00097	0.00094	0.001	0.00022	0.00048	0.0004	0.002	0.00079	0.00089	0.00075	0.00086
Nickel	0.00025	0.00025	0.00065	0.00025	0.00062	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Selenium	0.000045	0.000071	0.00007	0.000069	0.000075	0.000062	0.000065	0.000061	0.00007	0.000043	0.000041	0.00007
Silver	0.000005	0.000005	0.0000085	0.000005	0.00003	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Strontium	0.0973	0.1	0.0965	0.0988	0.0377	0.0478	0.0782	0.077	0.086	0.0929	0.0812	0.0968
Thallium	0.000005	0.000005	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Uranium	0.00033	0.0004	0.00037	0.0004	0.00021	0.00014	0.00011	0.00013	0.00018	0.00023	0.00022	0.00027
Vanadium	0.00025	0.00032	0.0014	0.00025	0.0012	0.0006	0.00063	0.00063	0.00025	0.00047	0.00058	0.00041
Zinc	0.0015	0.0015	0.0033	0.0015	0.0034	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015

Appendix E-1b: Comparison of Average Monthly Water Quality and Baseline for DC-10 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.014	0.0241	0.019	0.0088	0.33	0.0673	0.058	0.0338	0.0168	0.0234	0.0291	0.018
Cadmium	0.000003	0.000003	0.000003	0.000003	0.000017	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0002	0.0001	0.00086	0.00039	0.0005	0.00033	0.0002	0.00018	0.00023	0.00016
Iron	0.0215	0.0222	0.026	0.013	0.24	0.062	0.071	0.1	0.04	0.0568	0.0435	0.0348
Manganese	0.0025	0.0015	0.0016	0.0014	0.0093	0.0017	0.0034	0.0026	0.0023	0.0029	0.0026	0.002
Zinc	0.0005	0.0005	0.0005	0.0005	0.0018	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-10 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1c: Comparison of Average Monthly Water Quality and Baseline for DC-15 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.65	7.65	7.69	7.28	7.04	7.02	7.41	7.61	7.64	7.56	7.41	7.39
pH (pH units) upper[3]	8.14	8.03	8.19	8.11	7.88	7.69	8.01	8.11	8.13	8.02	7.89	8.01
Total suspended solids	1.8	1.8	1.8	5	22.6	9.2	1.8	2.9	5	10.8	3.2	1.8
Turbidity (NTU)	0.5	0.4	0.3	1.3	5.5	2.4	0.6	0.9	0.5	2.2	1.2	0.9
Total dissolved solids	90.8	98.2	99.7	98.1	73.9	73.8	88.6	107.5	261.6	96.7	77.8	86.2
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fluoride	0.058	0.054	0.06	0.057	0.048	0.038	0.052	0.053	0.057	0.047	0.048	0.05
Sulphate	3.3	3.5	3.6	3.5	1.7	1.1	2.3	3	3.1	2.6	2.7	2.8
Nutrients												
Ammonia-N	0.003	0.003	0.0053	0.0068	0.0085	0.0091	0.003	0.0063	0.0075	0.0089	0.0058	0.0059
Nitrate-N	0.0431	0.0426	0.0716	0.0248	0.004	0.003	0.003	0.003	0.003	0.003	0.0091	0.0305
Nitrite-N	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Total Phosphorous	0.0091	0.0259	0.0092	0.019	0.0311	0.0193	0.0092	0.0098	0.0097	0.027	0.0113	0.0087
Orthophosphate	0.0061	0.0066	0.0061	0.0053	0.0038	0.0038	0.0043	0.0054	0.0062	0.0044	0.0045	0.0054
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.035	0.039	0.02	0.3	0.67	0.34	0.23	0.097	0.055	0.27	0.23	0.084
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00013	0.00006	0.00006	0.00006	0.00006	0.00006
Arsenic	0.0007	0.0007	0.0007	0.0007	0.0009	0.0007	0.0008	0.0008	0.0008	0.001	0.0007	0.0006
Barium	0.0097	0.01	0.0101	0.01	0.011	0.0064	0.0098	0.0116	0.0118	0.01	0.008	0.0087
Beryllium	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.000004	0.000004	0.000004	0.00001	0.00002	0.000009	0.000011	0.000005	0.000004	0.00002	0.0000081	0.0000064
Chromium	0.0003	0.0003	0.00035	0.00052	0.00085	0.00039	0.00033	0.00036	0.0003	0.00054	0.00043	0.00031
Cobalt	0.00006	0.00006	0.00006	0.00006	0.00022	0.00006	0.00006	0.00006	0.00006	0.00014	0.00006	0.00006
Copper	0.0003	0.0298	0.0003	0.00086	0.0012	0.00091	0.0007	0.00054	0.0024	0.00071	0.0003	0.00066
Iron	0.067	0.068	0.044	0.27	0.59	0.25	0.18	0.12	0.11	0.43	0.2	0.13
Lead	0.00003	0.00003	0.00003	0.000092	0.00022	0.000094	0.00003	0.00003	0.000062	0.00012	0.000086	0.00003
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Manganese	0.0057	0.006	0.005	0.014	0.0424	0.0135	0.0141	0.0097	0.0079	0.0505	0.0162	0.007
Mercury	0.0000036	0.0000036	0.0000036	0.000011	0.000016	0.000012	0.0000074	0.0000036	0.0000036	0.000014	0.0000036	0.0000036
Molybdenum	0.00092	0.00098	0.0019	0.001	0.00057	0.00043	0.00087	0.0011	0.001	0.0013	0.00071	0.00078
Nickel	0.0003	0.0083	0.0003	0.0003	0.00039	0.0055	0.0003	0.0003	0.0003	0.0007	0.0003	0.0003
Selenium	0.000077	0.000076	0.000086	0.00014	0.000094	0.000065	0.00012	0.000077	0.000067	0.000082	0.000072	0.000084
Silver	0.000006	0.000006	0.000006	0.00001	0.000022	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Strontium	0.12	0.12	0.13	0.12	0.067	0.055	0.1	0.12	0.12	0.086	0.088	0.097
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Uranium	0.00024	0.00027	0.00032	0.00026	0.0003	0.00023	0.00021	0.00024	0.00023	0.00019	0.00018	0.00018
Vanadium	0.0009	0.0009	0.0006	0.0009	0.0017	0.001	0.0009	0.0008	0.0009	0.0013	0.0008	0.0007
Zinc	0.0018	0.0089	0.0018	0.0018	0.004	0.0026	0.0018	0.0032	0.0029	0.0018	0.0018	0.0018

Appendix E-1c: Comparison of Average Monthly Water Quality and Baseline for DC-15 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.029	0.021	0.012	0.15	0.25	0.21	0.13	0.066	0.043	0.082	0.11	0.053
Cadmium	0.000004	0.000004	0.000004	0.000008	0.000009	0.000004	0.000006	0.000004	0.000004	0.00001	0.000004	0.0000036
Copper	0.00031	0.0003	0.0003	0.00065	0.00083	0.00068	0.00056	0.00032	0.0016	0.00088	0.00043	0.00073
Iron	0.051	0.042	0.031	0.13	0.16	0.13	0.082	0.089	0.086	0.11	0.094	0.077
Manganese	0.0051	0.0042	0.0036	0.0046	0.0047	0.0036	0.0071	0.0065	0.0048	0.0079	0.0047	0.004
Zinc	0.0018	0.0043	0.0017	0.0018	0.0018	0.0018	0.0019	0.0023	0.002	0.0017	0.0016	0.0016

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-15 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1c: Comparison of Average Monthly Water Quality and Baseline for DC-15 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.78	7.97	8.04	7.99	7.24	7.65	7.58	7.79	7.96	7.94	7.82	7.89
pH (pH units) upper[3]	7.78	7.97	8.04	7.99	7.24	7.65	7.58	7.79	7.96	7.94	7.82	7.89
Total suspended solids	1.5	1.5	1.5	1.5	12.1	1.5	9.5	1.5	1.5	1.5	1.5	2.6
Turbidity (NTU)	0.77	0.22	7.16	1.13	6.18	0.28	2.2	0.42	0.18	0.3	1.8	0.59
Total dissolved solids	81	80.25	77	112	71	41	83.5	69	80	76.5	77.5	85
Chloride	0.25	0.25	0.25	0.25	0.54	0.25	1.51	0.78	0.25	0.42	0.53	0.38
Fluoride	0.045	0.047	0.0495	0.045	0.029	0.035	0.036	0.04	0.044	0.0455	0.0455	0.041
Sulphate	3.09	3.24	3.34	2.34	1.42	1.45	9.27	4.06	2.58	2.76	3.17	3.07
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0088	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate-N	0.036	0.046	0.0415	0.0114	0.0052	0.0025	0.0025	0.0025	0.0025	0.0041	0.0281	0.0339
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.008	0.008	0.0088	0.0096	0.0519	0.0085	0.0253	0.01	0.006	0.0064	0.0086	0.0075
Orthophosphate	0.0054	0.0054	0.0057	0.0036	0.0036	0.002	0.0025	0.0028	0.0027	0.0022	0.0039	0.0042
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0738	0.0174	0.39	0.0178	0.64	0.0621	0.22	0.0356	0.0175	0.0216	0.0998	0.0403
Antimony	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Arsenic	0.00058	0.00056	0.00081	0.00049	0.0009	0.00059	0.00082	0.00078	0.00062	0.00064	0.0006	0.00058
Barium	0.0086	0.0094	0.0123	0.0088	0.0109	0.0062	0.011	0.0083	0.0087	0.0093	0.0088	0.0093
Beryllium	0.00001	0.00001	0.000022	0.00001	0.000049	0.00001	0.000016	0.00001	0.00001	0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000049	0.000003	0.000022	0.000003	0.000016	0.000003	0.000003	0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00044	0.00025	0.00074	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00048
Cobalt	0.00005	0.00005	0.00012	0.00005	0.00017	0.00005	0.00014	0.00005	0.00005	0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00058	0.00025	0.0012	0.00025	0.00081	0.00025	0.00025	0.00025	0.00025	0.00025
Iron	0.0665	0.0253	0.34	0.046	0.6	0.064	0.26	0.092	0.042	0.0485	0.11	0.0555
Lead	0.000025	0.000025	0.00019	0.000025	0.00027	0.000025	0.00012	0.000025	0.000025	0.000025	0.000068	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Manganese	0.0047	0.0034	0.0096	0.0058	0.0374	0.0043	0.0343	0.0052	0.0042	0.0052	0.0066	0.0056
Mercury	0.000003	0.000003	0.000003	0.000003	0.000013	0.000003	0.0000041	0.000003	0.000003	0.000003	0.000003	0.000003
Molybdenum	0.00089	0.00091	0.00091	0.0008	0.00029	0.00081	0.00059	0.00073	0.0008	0.00091	0.00077	0.00084
Nickel	0.00025	0.00025	0.00039	0.00025	0.00066	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Selenium	0.000054	0.00004	0.000068	0.000025	0.000081	0.000055	0.000065	0.000067	0.000025	0.000025	0.000025	0.000059
Silver	0.000005	0.000005	0.000005	0.000005	0.000027	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Strontium	0.1	0.11	0.1	0.0967	0.0423	0.0562	0.0743	0.084	0.0935	0.1	0.0899	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Uranium	0.00026	0.00031	0.0003	0.00026	0.00025	0.00011	0.00013	0.0001	0.00015	0.00021	0.00019	0.00022
Vanadium	0.0004	0.00025	0.00092	0.00052	0.0014	0.00056	0.00092	0.0006	0.00025	0.00039	0.00044	0.00053
Zinc	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015

Appendix E-1c: Comparison of Average Monthly Water Quality and Baseline for DC-15 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0124	0.0076	0.0128	0.0082	0.29	0.0395	0.0423	0.0216	0.011	0.0111	0.0236	0.0103
Cadmium	0.000003	0.000003	0.000003	0.000003	0.00001	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.00016	0.0001	0.00087	0.00037	0.00044	0.00028	0.0002	0.00017	0.00019	0.0001
Iron	0.02	0.0105	0.022	0.029	0.23	0.047	0.0585	0.062	0.026	0.032	0.0365	0.021
Manganese	0.0035	0.0024	0.0021	0.0039	0.0076	0.002	0.0049	0.0025	0.0024	0.0036	0.0037	0.003
Zinc	0.0005	0.0005	0.0005	0.0005	0.0018	0.0005	0.0014	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-15 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1d: Comparison of Average Monthly Water Quality and Baseline for DC-20 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.44	7.61	7.75	7.53	7.09	6.9	7.43	7.54	7.09	7.58	7.38	7.49
pH (pH units) upper[3]	8.08	8.02	8.07	8	7.81	7.83	7.99	8.06	8.14	8.06	7.86	7.9
Total suspended solids	1.8	1.8	4.78	18.87	69.07	12.14	6.69	7.22	4.68	10.46	10.03	1.8
Turbidity (NTU)	1.13	0.61	0.7	4.34	14.3	3.07	1.16	1.33	1.47	4.1	2.07	1.89
Total dissolved solids	90.36	98.4	98.16	104.7	83.28	70.56	352.2	102.72	100.62	94.74	89.64	84.48
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fluoride	0.0521	0.0638	0.0598	0.0672	0.054	0.0444	0.0555	0.0521	0.0569	0.0564	0.055	0.0547
Sulphate	3.22	3.5	3.64	3.22	1.52	1.2	2.17	2.49	2.8	2.8	2.87	2.85
Nutrients												
Ammonia-N	0.003	0.003	0.0073	0.0063	0.0077	0.003	0.0104	0.013	0.0139	0.003	0.0298	0.003
Nitrate-N	0.0366	0.035	0.0412	0.0142	0.0041	0.003	0.003	0.0043	0.003	0.003	0.003	0.018
Nitrite-N	0.0006	0.0018	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Total Phosphorous	0.0109	0.0102	0.0097	0.0343	0.0596	0.0236	0.0141	0.0142	0.0136	0.0267	0.0196	0.0122
Orthophosphate	0.0046	0.0064	0.0077	0.0053	0.0045	0.0029	0.0048	0.0061	0.0065	0.0086	0.0046	0.0042
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.0096	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.0591	0.0399	0.0295	0.36	1.45	0.35	0.16	0.0972	0.0641	0.3	0.32	0.11
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Arsenic	0.00063	0.00063	0.00059	0.00069	0.0012	0.00068	0.00078	0.00084	0.00089	0.0012	0.00067	0.00063
Barium	0.0109	0.0123	0.0106	0.0112	0.019	0.0075	0.0103	0.0118	0.0123	0.0131	0.0087	0.0092
Beryllium	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.0000036	0.000012	0.0000055	0.000011	0.000028	0.000014	0.0000086	0.000006	0.0000067	0.000025	0.0000099	0.0000036
Chromium	0.0003	0.0003	0.00029	0.00055	0.002	0.0005	0.0004	0.0003	0.0003	0.00061	0.00049	0.00036
Cobalt	0.00006	0.00006	0.00006	0.00015	0.00063	0.00014	0.00006	0.00006	0.00006	0.00026	0.00013	0.00006
Copper	0.00067	0.0003	0.0003	0.0061	0.002	0.00093	0.00076	0.00044	0.00067	0.0006	0.00089	0.0003
Iron	0.17	0.16	0.22	0.44	1.49	0.36	0.21	0.27	0.28	0.88	0.35	0.19
Lead	0.00003	0.00003	0.00003	0.00032	0.00055	0.00011	0.00003	0.00003	0.00003	0.00013	0.000095	0.000055
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0017
Manganese	0.0226	0.0197	0.0238	0.0279	0.0595	0.0177	0.0178	0.0213	0.0228	0.0678	0.0224	0.019
Mercury	0.0000036	0.0000036	0.0000036	0.0000062	0.000016	0.0000099	0.0000089	0.0000036	0.0000036	0.000014	0.0000071	0.000011
Molybdenum	0.00093	0.0011	0.00097	0.0013	0.00053	0.00045	0.00085	0.00099	0.001	0.0009	0.00068	0.00087
Nickel	0.0003	0.0003	0.0003	0.00059	0.0017	0.00056	0.0003	0.0003	0.0003	0.00057	0.0003	0.0003
Selenium	0.000074	0.000089	0.00011	0.000083	0.000095	0.000094	0.0001	0.000089	0.000067	0.0001	0.00008	0.000078
Silver	0.000006	0.000006	0.000006	0.000006	0.000022	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Strontium	0.12	0.12	0.13	0.12	0.0765	0.0592	0.093	0.11	0.12	0.097	0.0894	0.11
Thallium	0.000006	0.000006	0.000006	0.000006	0.000014	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Uranium	0.00026	0.00028	0.00034	0.0003	0.00037	0.00023	0.00018	0.00016	0.00022	0.00019	0.00018	0.0002
Vanadium	0.00072	0.0011	0.00067	0.0012	0.0041	0.0013	0.001	0.001	0.0011	0.0015	0.0012	0.00075
Zinc	0.0018	0.0018	0.0018	0.0044	0.0051	0.0018	0.0018	0.0018	0.0018	0.0053	0.0018	0.0018

Appendix E-1d: Comparison of Average Monthly Water Quality and Baseline for DC-20 in Davidson Creek

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0264	0.0167	0.0114	0.0965	0.21	0.16	0.09	0.0533	0.0268	0.0518	0.2	0.0454
Cadmium	0.0000036	0.0000036	0.0000059	0.0000036	0.000011	0.0000036	0.0000078	0.0000055	0.0000036	0.000014	0.0000065	0.0000036
Copper	0.00038	0.0003	0.0003	0.00058	0.00085	0.00071	0.00065	0.00078	0.00051	0.00038	0.00067	0.00047
Iron	0.0996	0.0929	0.11	0.15	0.18	0.11	0.13	0.18	0.2	0.14	0.16	0.11
Manganese	0.0187	0.0173	0.0193	0.0174	0.0128	0.0075	0.0149	0.0173	0.0177	0.0143	0.0147	0.0157
Zinc	0.0016	0.0013	0.0016	0.0018	0.0019	0.0016	0.0016	0.0029	0.0018	0.0014	0.0016	0.0016

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-20 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1d: Comparison of Average Monthly Water Quality and Baseline for DC-20 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.99	7.89	7.81	8.12	7.44	7.62	7.63	7.83	8.04	8.01		7.68
pH (pH units) upper[3]	7.99	7.89	7.81	8.12	7.44	7.62	7.63	7.83	8.04	8.01		7.68
Total suspended solids	1.5	1.5	3.15	15.1	12.32	1.5	1.5	5.5	1.5	2.16		1.5
Turbidity (NTU)	1.17	4.79	21.06	3.02	3.68	0.41	0.96	0.77	0.6	0.86		1.67
Total dissolved solids	95.5	95	101	90	54.6	65	83	80	68.5	80.7		87.5
Chloride	0.25	0.25	0.92	0.25	0.33	0.25	1.19	0.6	0.25	0.31		0.41
Fluoride	0.046	0.0465	0.0467	0.05	0.034	0.035	0.041	0.039	0.0455	0.0465		0.045
Sulphate	3.16	3.19	3.5	1.86	1.04	1.09	6.86	2.97	2.3	2.34		3.28
Nutrients												
Ammonia-N	0.0025	0.0066	0.0025	0.0025	0.0046	0.0025	0.0025	0.0025	0.0025	0.0037		0.008
Nitrate-N	0.0413	0.0271	0.0512	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0133
Nitrite-N	0.0005	0.00095	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0248	0.0125	0.0075	0.0199	0.027	0.0075	0.0123	0.013	0.0105	0.0094		0.0112
Orthophosphate	0.0018	0.0026	0.0041	0.0034	0.0016	0.0016	0.0029	0.0061	0.0034	0.004		0.0028
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.083	0.26	1.06	0.18	0.34	0.0486	0.0572	0.0318	0.0224	0.025		0.0746
Antimony	0.00012	0.00005	0.00009	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00059	0.00065	0.0013	0.0007	0.00066	0.00053	0.00069	0.00076	0.00069	0.00063		0.00048
Barium	0.0108	0.0116	0.0177	0.0109	0.0073	0.0068	0.0091	0.0089	0.0089	0.0095		0.0097
Beryllium	0.00001	0.00001	0.000048	0.00001	0.000031	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.0000076	0.0000067	0.000012	0.0000057	0.0000082	0.000003	0.000003	0.000003	0.000003	0.0000032		0.000003
Chromium	0.00025	0.00025	0.00089	0.00025	0.00045	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Cobalt	0.00008	0.0001	0.00035	0.00012	0.00012	0.00005	0.00005	0.00005	0.00005	0.000053		0.00005
Copper	0.0004	0.00041	0.0014	0.00056	0.00084	0.0503	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.35	0.4	1.11	0.41	0.38	0.15	0.21	0.28	0.28	0.27		0.22
Lead	0.000058	0.00011	0.0006	0.000069	0.00012	0.000025	0.000025	0.000025	0.000025	0.000025		0.000052
Lithium	0.0005	0.0005	0.00062	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0354	0.0309	0.0454	0.043	0.0219	0.0108	0.0175	0.016	0.022	0.0234		0.0333
Mercury	0.000003	0.000003	0.0000054	0.000003	0.0000071	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00087	0.00087	0.00082	0.00069	0.0004	0.00053	0.00077	0.00074	0.00082	0.00084		0.00077
Nickel	0.00025	0.00025	0.00088	0.00025	0.00045	0.0045	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000071	0.00004	0.00009	0.000065	0.000065	0.000025	0.000066	0.000063	0.000025	0.000033		0.00004
Silver	0.000005	0.000005	0.000013	0.000005	0.000011	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.11	0.11	0.0933	0.0914	0.041	0.0574	0.0796	0.0866	0.0938	0.11		0.1
Thallium	0.000005	0.000005	0.000014	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00029	0.00032	0.0003	0.00027	0.00018	0.000099	0.000096	0.00011	0.00013	0.00022		0.00021
Vanadium	0.00076	0.00086	0.0021	0.00093	0.0012	0.0006	0.0007	0.00069	0.0005	0.00054		0.00042
Zinc	0.0086	0.0015	0.0048	0.0015	0.0019	0.0015	0.0015	0.0015	0.0015	0.0015		0.0015

Appendix E-1d: Comparison of Average Monthly Water Quality and Baseline for DC-20 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0061	0.0062	0.0351	0.0139	0.0997	0.0243	0.0204	0.0139	0.009	0.0122		0.0127
Cadmium	0.0000043	0.000003	0.000003	0.000003	0.0000044	0.000003	0.000003	0.000003	0.000003	0.000003		0.0000041
Copper	0.00025	0.0001	0.00028	0.00024	0.00061	0.0004	0.00041	0.00032	0.00026	0.00019		0.00022
Iron	0.082	0.0715	0.09	0.11	0.12	0.088	0.14	0.21	0.21	0.22		0.11
Manganese	0.0204	0.0201	0.018	0.0267	0.0089	0.009	0.011	0.0126	0.0173	0.0203		0.0318
Zinc	0.0033	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00061		0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at DC-20 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1e: Comparison of Average Monthly Water Quality and Baseline for 661-05 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.85	7.5	7.93	7.72	7.14	7.15	7.41	7.55	7.68	7.58	7.43	7.78
pH (pH units) upper[3]	8.03	7.98	8.11	7.9	7.86	7.33	7.93	8.02	7.95	7.91	7.87	7.96
Total suspended solids	1.8	6.1	1.8	1.8	12.9	10.4	108.2	3.8	5.5	9.3	1.8	1.8
Turbidity (NTU)	0.8	1.5	0.6	0.6	4.2	1.6	1.1	1.6	1.3	1.6	1.7	0.9
Total dissolved solids	82.8	90	91.2	72	80.7	68.4	109.2	101.3	117.5	87.1	81.1	88.8
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.84	0.3	0.3
Fluoride	0.066	0.082	0.065	0.071	0.06	0.038	0.06	0.068	0.067	0.072	0.069	0.067
Sulphate	1.5	2.7	1.5	1.6	1.1	0.7	1	1.2	1.3	1.5	1.3	1.4
Nutrients												
Ammonia-N	0.003	0.0104	0.003	0.003	0.0094	0.0095	0.0191	0.0118	0.008	0.003	0.0164	0.0173
Nitrate-N	0.067	0.0768	0.0587	0.023	0.0267	0.003	0.0067	0.0332	0.0221	0.0275	0.0343	0.0559
Nitrite-N	0.0006	0.0016	0.0006	0.0006	0.0006	0.0006	0.0006	0.0013	0.0006	0.0006	0.0006	0.0006
Total Phosphorous	0.053	0.0558	0.0538	0.0455	0.059	0.0408	0.0546	0.08	0.0586	0.0531	0.0569	0.0557
Orthophosphate	0.0425	0.0415	0.0448	0.0372	0.0313	0.0187	0.0404	0.059	0.0467	0.0397	0.0418	0.0402
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.072	0.065	0.05	0.032	0.46	0.2	0.13	0.089	0.13	0.67	0.17	0.067
Antimony	0.00006	0.00014	0.00013	0.00006	0.00006	0.00006	0.00014	0.00006	0.00006	0.00006	0.00018	0.00006
Arsenic	0.0015	0.0014	0.0016	0.0014	0.0014	0.0008	0.0018	0.0026	0.0021	0.0022	0.0015	0.0013
Barium	0.0069	0.0058	0.006	0.0052	0.0092	0.0043	0.0062	0.0069	0.0079	0.0123	0.0056	0.0054
Beryllium	0.000012	0.00006	0.000012	0.000012	0.00006	0.000032	0.000055	0.00006	0.000055	0.000058	0.00006	0.000012
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.000004	0.000004	0.000004	0.000004	0.000015	0.000009	0.00001	0.000011	0.00001	0.000021	0.000011	0.0000036
Chromium	0.001	0.00093	0.0011	0.0029	0.0015	0.00073	0.0013	0.001	0.0016	0.0024	0.00087	0.00092
Cobalt	0.00006	0.00006	0.00006	0.00006	0.00017	0.00006	0.00006	0.00006	0.00006	0.00033	0.00006	0.00006
Copper	0.0003	0.0003	0.0003	0.0003	0.001	0.00091	0.00075	0.0003	0.00085	0.0011	0.0003	0.0003
Iron	0.2	0.22	0.14	0.13	0.55	0.23	0.23	0.5	0.33	0.85	0.31	0.21
Lead	0.00003	0.000066	0.00003	0.00003	0.00014	0.00003	0.00003	0.00003	0.00003	0.00033	0.00009	0.00003
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Manganese	0.018	0.0145	0.0104	0.0083	0.0377	0.0071	0.0104	0.0206	0.015	0.0778	0.018	0.0151
Mercury	0.0000036	0.0000036	0.0000036	0.0000036	0.0000099	0.0000097	0.0000036	0.0000036	0.0000036	0.0000036	0.0000068	0.0000036
Molybdenum	0.00097	0.001	0.0012	0.001	0.00069	0.00034	0.0014	0.0012	0.0014	0.00089	0.00083	0.0009
Nickel	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.00072	0.0003	0.0003
Selenium	0.000085	0.00012	0.000096	0.000074	0.00012	0.0001	0.00016	0.00012	0.0002	0.0002	0.00015	0.000094
Silver	0.000006	0.000006	0.000006	0.000006	0.000012	0.000006	0.000006	0.000006	0.000006	0.000014	0.000019	0.000006
Strontium	0.095	0.098	0.11	0.1	0.08	0.039	0.09	0.096	0.1	0.086	0.09	0.1
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000076	0.000006
Uranium	0.00027	0.00022	0.00025	0.0002	0.00027	0.00019	0.00025	0.00023	0.00029	0.00045	0.00019	0.00022
Vanadium	0.0022	0.0022	0.0022	0.0019	0.0027	0.0019	0.0039	0.0024	0.0031	0.0035	0.002	0.0018
Zinc	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0073	0.0018	0.0018

Appendix E-1e: Comparison of Average Monthly Water Quality and Baseline for 661-05 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.017	0.025	0.013	0.013	0.16	0.13	0.077	0.061	0.082	0.07	0.1	0.019
Cadmium	0.000004	0.000004	0.000004	0.000004	0.000006	0.000004	0.000008	0.000008	0.000009	0.000006	0.000004	0.0000036
Copper	0.00012	0.0003	0.00012	0.00012	0.00079	0.00072	0.0006	0.00033	0.0007	0.00029	0.0006	0.00012
Iron	0.068	0.11	0.05	0.065	0.19	0.15	0.15	0.37	0.24	0.19	0.22	0.095
Manganese	0.0084	0.0091	0.0054	0.0053	0.0068	0.0024	0.0064	0.0112	0.0089	0.0086	0.0087	0.0091
Zinc	0.0006	0.0016	0.0006	0.0006	0.0018	0.0006	0.0017	0.0006	0.0017	0.0017	0.0006	0.0006

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-05 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1e: Comparison of Average Monthly Water Quality and Baseline for 661-05 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.68	7.88	7.94	7.96	7.54	7.67	7.76	7.89	7.84	7.95	7.83	7.83
pH (pH units) upper[3]	7.68	7.88	7.94	7.96	7.54	7.67	7.76	7.89	7.84	7.95	7.83	7.83
Total suspended solids	2.25	2.35	3	5.8	7.3	1.5	4.8	1.5	1.5	1.5	2.33	3
Turbidity (NTU)	1.52	1.09	12.24	2.04	1.81	0.54	1.7	1.06	0.92	0.86	23.46	3.64
Total dissolved solids	82	71	79.5	59	65	45	76	73	69	66	88.25	75
Chloride	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1.44	0.25	0.25
Fluoride	0.0565	0.0585	0.061	0.051	0.039	0.046	0.053	0.054	0.059	0.062	0.0567	0.06
Sulphate	1.33	1.32	1.35	2.15	0.85	0.86	0.68	0.9	1.07	1.92	1.16	1.22
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0074	0.0025	0.0025	0.0025	0.0042	0.0025	0.0068
Nitrate-N	0.0593	0.0587	0.0544	0.0343	0.0111	0.0025	0.0025	0.0025	0.0025	0.0151	0.0447	0.0541
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0011	0.0005	0.0025	0.0005	0.0005
Total Phosphorous	0.0494	0.0485	0.05	0.0592	0.0385	0.0351	0.048	0.0499	0.0492	0.0514	0.0701	0.0591
Orthophosphate	0.0394	0.0401	0.0398	0.0371	0.0167	0.024	0.0298	0.0376	0.0369	0.038	0.0383	0.0402
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.1	0.0639	0.67	0.15	0.18	0.099	0.0633	0.065	0.034	0.0318	1.54	0.25
Antimony	0.00005	0.00005	0.00009	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00011	0.00005
Arsenic	0.0013	0.0013	0.0016	0.0012	0.00085	0.0011	0.0012	0.0015	0.0015	0.0014	0.0021	0.0014
Barium	0.0056	0.0051	0.0098	0.0052	0.0049	0.005	0.0051	0.0053	0.0051	0.0048	0.0168	0.0064
Beryllium	0.00001	0.00001	0.000029	0.00001	0.000022	0.00001	0.00001	0.00001	0.00001	0.00001	0.000063	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000068	0.0000054	0.0000067	0.0000056	0.000003	0.000003	0.000003	0.000003	0.000011	0.000004
Chromium	0.00095	0.00095	0.0013	0.00096	0.00072	0.00077	0.00073	0.00075	0.00074	0.00079	0.0018	0.0011
Cobalt	0.00005	0.00005	0.0002	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00046	0.000075
Copper	0.00025	0.00025	0.00088	0.00025	0.00063	0.00025	0.00025	0.00025	0.00025	0.00025	0.0016	0.00025
Iron	0.17	0.13	0.64	0.28	0.24	0.17	0.18	0.22	0.18	0.16	1.38	0.3
Lead	0.000046	0.000025	0.00037	0.000066	0.000058	0.000025	0.000025	0.000025	0.000025	0.000025	0.0008	0.000095
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00095	0.0005
Manganese	0.0098	0.0077	0.0183	0.0152	0.0097	0.0085	0.0102	0.0102	0.01	0.0113	0.0385	0.0132
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000078	0.000003	0.000003	0.000003	0.000003	0.000003	0.000008	0.000003
Molybdenum	0.00091	0.00094	0.00086	0.00069	0.00036	0.00062	0.00069	0.0009	0.00091	0.00086	0.00081	0.0009
Nickel	0.00025	0.00025	0.00054	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0013	0.00025
Selenium	0.000092	0.000087	0.00011	0.000096	0.000054	0.000079	0.000025	0.000056	0.000072	0.000076	0.000074	0.00008
Silver	0.000005	0.00002	0.000009	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000015	0.000005
Strontium	0.0877	0.0864	0.0819	0.0718	0.0436	0.0617	0.0697	0.0888	0.0895	0.0887	0.083	0.0858
Thallium	0.000005	0.000005	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000022	0.000005
Uranium	0.0002	0.00021	0.00024	0.00018	0.00016	0.00013	0.00012	0.00018	0.00021	0.0002	0.00024	0.00024
Vanadium	0.002	0.002	0.0028	0.002	0.0019	0.0018	0.0018	0.0019	0.002	0.0019	0.0039	0.0022
Zinc	0.0015	0.0015	0.0034	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0057	0.0015

Appendix E-1e: Comparison of Average Monthly Water Quality and Baseline for 661-05 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0122	0.0126	0.0222	0.0195	0.1	0.0403	0.0303	0.027	0.0135	0.0106	0.0118	0.0204
Cadmium	0.000003	0.0000048	0.000003	0.000003	0.0000051	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0001	0.0001	0.00063	0.00037	0.0003	0.0001	0.0001	0.0001	0.00017	0.0001
Iron	0.045	0.043	0.0425	0.094	0.11	0.098	0.12	0.13	0.078	0.087	0.0395	0.056
Manganese	0.0056	0.0043	0.0037	0.0056	0.003	0.004	0.0052	0.0065	0.006	0.0062	0.0043	0.0059
Zinc	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-05 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1f: Comparison of Average Monthly Water Quality and Baseline for 661-10 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.69	7.57	7.6	7.7	6.92	6.84	7.27	7.29	7.24	7.34	7.13	7.67
pH (pH units) upper[3]	7.91	7.91	7.78	7.88	7.58	7.02	7.88	7.93	7.8	7.81	7.62	7.85
Total suspended solids	1.8	3.1	1.8	1.8	27.3	10	10	4.9	4.5	3.2	1.8	3.8
Turbidity (NTU)	1.3	1.8	0.7	0.7	7.5	3.6	1.1	1.6	1.2	1.6	1.6	1.2
Total dissolved solids	81.1	79.3	70.8	70.8	83.3	67.2	88.3	92.6	96.2	77.3	72.8	90
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fluoride	0.061	0.067	0.065	0.056	0.049	0.036	0.052	0.062	0.054	0.058	0.055	0.053
Sulphate	2.4	2.7	2.3	2.6	1.8	1.2	0.8	1.5	3	2.8	2.4	2.5
Nutrients												
Ammonia-N	0.0137	0.016	0.0071	0.003	0.0071	0.0065	0.0063	0.0084	0.003	0.003	0.0171	0.0127
Nitrate-N	0.0446	0.0712	0.0395	0.0301	0.0627	0.003	0.0068	0.0216	0.012	0.0077	0.0135	0.0414
Nitrite-N	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0015	0.0006	0.0006	0.0011	0.0006
Total Phosphorous	0.0287	0.0447	0.0246	0.0234	0.0448	0.0348	0.037	0.0452	0.0372	0.0286	0.0284	0.0258
Orthophosphate	0.0188	0.0213	0.0178	0.0169	0.0121	0.0082	0.0212	0.0267	0.0209	0.0132	0.0144	0.0151
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Total Metals												
Aluminum	0.11	0.24	0.056	0.067	0.63	0.41	0.2	0.15	0.14	0.18	0.3	0.073
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00011	0.00006	0.00006
Arsenic	0.0012	0.0013	0.0011	0.0011	0.0012	0.0008	0.002	0.0022	0.0023	0.0011	0.0011	0.0012
Barium	0.007	0.0082	0.0054	0.0053	0.0084	0.0051	0.0071	0.0062	0.007	0.0052	0.0051	0.0059
Beryllium	0.000012	0.00006	0.000012	0.000012	0.00006	0.000034	0.000055	0.00006	0.00006	0.00005	0.00006	0.000012
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Cadmium	0.000018	0.00002	0.000008	0.000007	0.000043	0.000031	0.000027	0.000038	0.000034	0.000014	0.000022	0.000013
Chromium	0.0003	0.00076	0.0003	0.0003	0.00091	0.00066	0.00068	0.00062	0.00082	0.0003	0.00058	0.0003
Cobalt	0.00006	0.00014	0.00006	0.00006	0.00021	0.00006	0.00006	0.00006	0.00014	0.00006	0.00006	0.00006
Copper	0.0003	0.0014	0.0003	0.0003	0.0011	0.00094	0.00069	0.00065	0.0007	0.0003	0.0007	0.0003
Iron	0.24	0.44	0.17	0.24	0.7	0.34	0.37	0.45	0.65	0.29	0.3	0.23
Lead	0.00003	0.00016	0.00003	0.00003	0.00069	0.0002	0.00016	0.00003	0.00008	0.00003	0.000091	0.00003
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0012	0.0006	0.0006
Manganese	0.0241	0.043	0.0111	0.0149	0.0561	0.0132	0.0209	0.0287	0.0553	0.0214	0.02	0.0235
Mercury	0.0000036	0.0000036	0.0000036	0.0000036	0.000013	0.000008	0.0000036	0.0000036	0.0000056	0.0000036	0.0000071	0.0000036
Molybdenum	0.0012	0.00093	0.0008	0.00067	0.00039	0.00023	0.00079	0.0011	0.0008	0.00052	0.0005	0.00068
Nickel	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Selenium	0.00003	0.000091	0.00003	0.00003	0.000089	0.00003	0.00008	0.000071	0.0001	0.000087	0.000085	0.00003
Silver	0.000006	0.000006	0.000006	0.000006	0.000026	0.000023	0.000006	0.000006	0.000011	0.000006	0.000015	0.000006
Strontium	0.079	0.11	0.079	0.074	0.059	0.03	0.079	0.084	0.076	0.069	0.065	0.074
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006
Uranium	0.00013	0.00017	0.00011	0.00012	0.00021	0.0002	0.00018	0.00015	0.00016	0.00011	0.00012	0.00012
Vanadium	0.0016	0.0018	0.0018	0.0012	0.0021	0.0014	0.0018	0.0017	0.0027	0.0014	0.0014	0.0012
Zinc	0.0038	0.0066	0.0018	0.0018	0.0091	0.0082	0.0053	0.0102	0.0082	0.0042	0.0073	0.0018

Appendix E-1f: Comparison of Average Monthly Water Quality and Baseline for 661-10 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.038	0.054	0.029	0.034	0.21	0.22	0.13	0.12	0.085	0.1	0.25	0.033
Cadmium	0.000007	0.000009	0.000007	0.000004	0.000018	0.000017	0.000016	0.000017	0.000017	0.00001	0.000016	0.0000067
Copper	0.00012	0.0003	0.00012	0.00026	0.00076	0.00073	0.0006	0.00035	0.00057	0.00035	0.00067	0.00012
Iron	0.12	0.2	0.096	0.15	0.32	0.15	0.22	0.32	0.4	0.19	0.23	0.13
Manganese	0.0135	0.0144	0.0085	0.0095	0.0199	0.0036	0.0091	0.0177	0.0111	0.0133	0.0124	0.0138
Zinc	0.0024	0.0043	0.0016	0.0018	0.0056	0.006	0.0041	0.0035	0.0044	0.0027	0.0063	0.0024

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-10 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1f: Comparison of Average Monthly Water Quality and Baseline for 661-10 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.68	7.75	7.83	7.8	7.21	7.59	7.63	7.63	7.6	7.76		7.56
pH (pH units) upper[3]	7.68	7.75	7.83	7.8	7.21	7.59	7.63	7.63	7.6	7.76		7.56
Total suspended solids	1.5	1.5	1.5	1.5	12.18	3.1	4.2	1.5	1.5	1.71		1.5
Turbidity (NTU)	1	0.64	0.9	0.36	2.85	2.08	1.01	0.88	0.65	0.84		0.9
Total dissolved solids	54	68.5	64	68.5	53.4	57	74	72	81	69.17		67
Chloride	0.25	0.42	0.25	0.25	0.39	0.25	0.61	0.25	0.25	0.46		0.41
Fluoride	0.0445	0.051	0.0575	0.052	0.0356	0.039	0.046	0.046	0.045	0.0467		0.0455
Sulphate	2.2	2.48	2.08	2.21	1.76	1.24	3.49	1.34	1.37	1.43		2.09
Nutrients												
Ammonia-N	0.0062	0.0037	0.0025	0.0025	0.0051	0.0025	0.0077	0.0025	0.0025	0.0025		0.0088
Nitrate-N	0.0374	0.0318	0.0352	0.0257	0.028	0.0025	0.0025	0.0098	0.0025	0.0032		0.0377
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0281	0.0235	0.0256	0.0224	0.0315	0.0223	0.0241	0.0311	0.0257	0.021		0.0208
Orthophosphate	0.0151	0.0149	0.0174	0.018	0.0057	0.0067	0.0088	0.0172	0.0119	0.0108		0.0112
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.0623	0.0445	0.0412	0.0388	0.36	0.15	0.12	0.0702	0.0469	0.0474		0.0572
Antimony	0.00005	0.00005	0.00005	0.00005	0.000076	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00089	0.00093	0.00094	0.00096	0.00086	0.00099	0.0012	0.0013	0.0013	0.0011		0.00081
Barium	0.0054	0.0048	0.0048	0.0045	0.0054	0.0049	0.0056	0.0053	0.0051	0.0049		0.0051
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000028	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.000011	0.0000094	0.000008	0.000006	0.000024	0.000018	0.000021	0.000014	0.000012	0.000011		0.000012
Chromium	0.00042	0.00038	0.00025	0.00025	0.00048	0.00025	0.00025	0.00025	0.00025	0.00028		0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.000094	0.00005	0.00005	0.00005	0.00005	0.000056		0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0008	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.16	0.12	0.11	0.087	0.31	0.22	0.2	0.25	0.28	0.22		0.14
Lead	0.000025	0.000025	0.000025	0.000025	0.00017	0.000074	0.000064	0.000025	0.000025	0.000032		0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0147	0.0092	0.0086	0.0073	0.0175	0.0144	0.017	0.0104	0.0076	0.0134		0.012
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000058	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00064	0.00065	0.00068	0.00067	0.0003	0.0004	0.00048	0.00061	0.00062	0.00064		0.00061
Nickel	0.00025	0.00025	0.00025	0.00025	0.0003	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000044	0.000025	0.000025	0.000061	0.000065	0.000025	0.000056	0.000059	0.000025	0.000033		0.000025
Silver	0.000005	0.000005	0.000005	0.000005	0.000015	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.0732	0.068	0.0707	0.0667	0.0329	0.0479	0.0592	0.0659	0.0704	0.07		0.0712
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00012	0.00012	0.00012	0.00014	0.00014	0.0001	0.000097	0.00011	0.000097	0.00011		0.000092
Vanadium	0.001	0.0009	0.00088	0.0011	0.0015	0.0012	0.0011	0.0012	0.001	0.0009		0.0008
Zinc	0.0023	0.0015	0.0015	0.0015	0.0057	0.0043	0.0043	0.0015	0.0015	0.0018		0.0015

Appendix E-1f: Comparison of Average Monthly Water Quality and Baseline for 661-10 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0214	0.0187	0.0188	0.0237	0.14	0.0511	0.0375	0.0337	0.0319	0.0211		0.0212
Cadmium	0.0000088	0.0000086	0.0000051	0.0000062	0.000013	0.000012	0.00001	0.0000098	0.000013	0.0000087		0.0000081
Copper	0.0001	0.0001	0.0001	0.0001	0.00066	0.00041	0.00036	0.00036	0.00046	0.00019		0.00015
Iron	0.0895	0.061	0.06	0.055	0.13	0.095	0.1	0.18	0.22	0.15		0.088
Manganese	0.0101	0.0059	0.0062	0.0055	0.0075	0.0051	0.0058	0.0049	0.0051	0.006		0.0086
Zinc	0.0022	0.002	0.0017	0.0012	0.0035	0.0025	0.0024	0.0017	0.0025	0.0018		0.002

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-10 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1g: Comparison of Average Monthly Water Quality and Baseline for 661-20 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	7.74	7.83	8.06	7.96	7.55	7.09	7.52	7.87	7.84	7.76	7.67	
pH (pH units) upper[3]	7.92	8.01	8.24	8.13	7.73	7.27	8.1	8.16	8.11	7.94	7.85	
Total suspended solids	1.8	1.8	1.8	1.8	1.8	5.64	5.9	5.33	1.8	1.8	15.96	
Turbidity (NTU)	1.18	0.58	0.72	1.55	6.88	3.2	2.24	0.83	0.82	0.95	4.69	
Total dissolved solids	114	112.8	93.6	103.8	85.2	70.8	112.56	134.52	131.46	100.8	88.8	
Chloride	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Fluoride	0.0708	0.0768	0.066	0.0666	0.0552	0.042	0.0745	0.0659	0.0671	0.0756	0.0648	
Sulphate	3.01	2.84	2.88	2.5	1.8	0.79	1.91	1.62	2.22	2.68	2.42	
Nutrients												
Ammonia-N	0.003	0.003	0.003	0.003	0.0065	0.009	0.003	0.0089	0.003	0.003	0.003	
Nitrate-N	0.0581	0.0461	0.0386	0.0116	0.11	0.003	0.003	0.0119	0.0061	0.003	0.0079	
Nitrite-N	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	
Total Phosphorous	0.0337	0.0272	0.0286	0.0294	0.0542	0.0307	0.0303	0.0325	0.0302	0.0252	0.0485	
Orthophosphate	0.0262	0.0223	0.0218	0.0161	0.0096	0.0074	0.0193	0.0225	0.0208	0.0151	0.0181	
Cyanides												
Total Cyanide	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
Cyanide, Weak Acid Dissociable	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
Total Metals												
Aluminum	0.0535	0.0386	0.0284	0.0913	0.66	0.36	0.18	0.0384	0.0562	0.0894	0.19	
Antimony	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	
Arsenic	0.001	0.0011	0.0011	0.001	0.0014	0.00084	0.0015	0.0015	0.0015	0.0011	0.0012	
Barium	0.009	0.0076	0.0079	0.0079	0.0109	0.0058	0.0086	0.009	0.0078	0.0069	0.009	
Beryllium	0.000012	0.000012	0.000012	0.000012	0.000037	0.000032	0.000025	0.000012	0.000012	0.000012	0.000012	
Boron	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	
Cadmium	0.0000064	0.0000036	0.0000036	0.0000053	0.000022	0.000017	0.0000099	0.0000062	0.0000077	0.0000036	0.000008	
Chromium	0.0003	0.0003	0.0003	0.0003	0.0011	0.00065	0.00064	0.0003	0.0003	0.0003	0.0003	
Cobalt	0.00006	0.00006	0.00006	0.00006	0.00025	0.00013	0.00006	0.00006	0.00006	0.00006	0.00013	
Copper	0.0003	0.0003	0.0003	0.0003	0.0012	0.0014	0.00092	0.0003	0.00094	0.0003	0.0003	
Iron	0.26	0.18	0.15	0.24	0.89	0.37	0.34	0.22	0.26	0.24	0.42	
Lead	0.00003	0.00003	0.00003	0.00003	0.00017	0.000074	0.00003	0.00003	0.000079	0.00003	0.00007	
Lithium	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	
Manganese	0.0174	0.0105	0.008	0.0103	0.0494	0.0145	0.0162	0.0118	0.0145	0.0119	0.0455	
Mercury	0.0000036	0.0000036	0.0000036	0.0000036	0.0000036	0.0000086	0.0000036	0.0000036	0.0000036	0.0000036	0.0000036	
Molybdenum	0.0011	0.0011	0.0013	0.00098	0.00072	0.00042	0.0011	0.0012	0.0013	0.00089	0.00083	
Nickel	0.0003	0.0003	0.0003	0.0003	0.00062	0.0003	0.0003	0.0003	0.00065	0.0003	0.0003	
Selenium	0.00018	0.0001	0.000097	0.000088	0.00012	0.000088	0.000081	0.000077	0.000094	0.000088	0.0001	
Silver	0.000006	0.000006	0.000006	0.000006	0.000014	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	
Strontium	0.13	0.1	0.12	0.1	0.0708	0.0365	0.1	0.11	0.11	0.0936	0.0919	
Thallium	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	0.000006	
Uranium	0.0004	0.00034	0.00038	0.00028	0.00026	0.00021	0.00029	0.0003	0.0003	0.00019	0.00027	
Vanadium	0.001	0.00088	0.001	0.0011	0.0026	0.0017	0.0014	0.0015	0.0012	0.0012	0.0014	
Zinc	0.0018	0.0018	0.0018	0.0018	0.0018	0.0065	0.0018	0.0018	0.0018	0.0018	0.0018	

Appendix E-1g: Comparison of Average Monthly Water Quality and Baseline for 661-20 in Creek 661

Parameter	95th Percentile plus 20% Baseline Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0119	0.0139	0.0145	0.0535	0.26	0.21	0.11	0.0294	0.0255	0.0506	0.0202	
Cadmium	0.0000036	0.0000036	0.0000036	0.0000036	0.0000083	0.0000064	0.0000098	0.0000036	0.0000036	0.0000036	0.0000036	
Copper	0.00012	0.00012	0.00012	0.00035	0.00096	0.0011	0.00085	0.00035	0.00039	0.00038	0.00025	
Iron	0.17	0.11	0.096	0.15	0.32	0.19	0.19	0.2	0.18	0.18	0.13	
Manganese	0.0076	0.0055	0.0044	0.006	0.0099	0.0046	0.0085	0.0074	0.0065	0.0063	0.0057	
Zinc	0.0018	0.0006	0.0006	0.0024	0.0019	0.0025	0.0016	0.0006	0.0006	0.0006	0.0006	

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-20 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-1g: Comparison of Average Monthly Water Quality and Baseline for 661-20 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Physical Parameters and Dissolved Anions												
pH (pH units) lower[3]	8.01	8.1	8.1	8.03	7.58	8.05	8.01	8.07		8.1	8.07	7.77
pH (pH units) upper[3]	8.01	8.1	8.1	8.03	7.58	8.05	8.01	8.07		8.1	8.07	7.77
Total suspended solids	1.5	1.5	1.5	1.5	40.3	1.5	4.2	1.5		1.5	1.5	3.6
Turbidity (NTU)	0.62	0.71	0.44	1.28	13.2	1.31	1.68	0.48		0.47	0.69	3.45
Total dissolved solids	95	93.5	89	92	89	90	127	95		96	92.75	99
Chloride	0.25	0.25	0.25	0.25	0.75	0.25	0.25	0.25		0.25	0.25	0.25
Fluoride	0.056	0.06	0.068	0.06	0.048	0.051	0.061	0.063		0.058	0.0578	0.06
Sulphate	2.48	2.79	2.62	2.25	2.35	1.37	1.08	1.78		1.61	2.22	2.31
Nutrients												
Ammonia-N	0.0073	0.0043	0.0025	0.0025	0.0068	0.0025	0.0025	0.0123		0.0025	0.0025	0.0093
Nitrate-N	0.0782	0.075	0.0517	0.0158	0.25	0.0025	0.0025	0.0064		0.0025	0.0244	0.0454
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0015	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Total Phosphorous	0.0285	0.025	0.0243	0.0331	0.0779	0.0271	0.0297	0.0293		0.0239	0.0224	0.0269
Orthophosphate	0.0234	0.0217	0.0227	0.0186	0.0094	0.0157	0.0141	0.0197		0.0172	0.0188	0.0166
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0227	0.0253	0.0228	0.19	0.64	0.22	0.11	0.0305		0.0163	0.024	0.0234
Antimony	0.00005	0.00005	0.00005	0.00012	0.00005	0.00005	0.00005	0.00005		0.00005	0.00005	0.00005
Arsenic	0.00092	0.00095	0.00087	0.00088	0.0016	0.0012	0.0012	0.0011		0.001	0.00093	0.00084
Barium	0.007	0.0067	0.0067	0.0071	0.0118	0.009	0.008	0.0077		0.0067	0.0069	0.0073
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000036	0.00001	0.00001	0.00001		0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.000003	0.0000067	0.00003	0.00001	0.000005	0.000003		0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00025	0.00025	0.0012	0.00064	0.00025	0.00025		0.00025	0.00025	0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.00034	0.00012	0.00005	0.00005		0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0015	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Iron	0.18	0.14	0.13	0.27	0.99	0.41	0.3	0.13		0.15	0.16	0.13
Lead	0.000025	0.000025	0.000025	0.000025	0.00028	0.00011	0.000025	0.000025		0.000025	0.000025	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Manganese	0.0071	0.0055	0.0057	0.0078	0.0821	0.0333	0.0121	0.0069		0.0071	0.0087	0.0092
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000083	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Molybdenum	0.00093	0.00099	0.00097	0.0009	0.00067	0.00093	0.00089	0.0012		0.00095	0.00096	0.00096
Nickel	0.00025	0.00025	0.00025	0.00025	0.00086	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Selenium	0.000093	0.000069	0.000073	0.000065	0.000096	0.0001	0.000064	0.000068		0.000056	0.00006	0.00006
Silver	0.000005	0.000005	0.000005	0.000005	0.000017	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Strontium	0.097	0.0947	0.0941	0.0853	0.0602	0.0936	0.0926	0.11		0.1	0.099	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Uranium	0.00035	0.00034	0.00031	0.00032	0.0003	0.00033	0.00024	0.00035		0.00027	0.00035	0.00035
Vanadium	0.00081	0.00078	0.00068	0.001	0.003	0.0016	0.0011	0.00089		0.0007	0.00065	0.00065
Zinc	0.0015	0.0015	0.0015	0.0015	0.0045	0.0015	0.0015	0.0015		0.0015	0.0015	0.0015

Appendix E-1g: Comparison of Average Monthly Water Quality and Baseline for 661-20 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Metals												
Aluminum	0.0101	0.0116	0.0081	0.0884	0.13	0.0194	0.0609	0.0147		0.0099	0.0069	0.0063
Cadmium	0.000003	0.000003	0.000003	0.000003	0.0000056	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0001	0.00033	0.00077	0.00031	0.00036	0.00023		0.0001	0.0001	0.0001
Iron	0.13	0.0875	0.086	0.16	0.21	0.11	0.21	0.12		0.11	0.1	0.083
Manganese	0.004	0.0028	0.0029	0.0042	0.0119	0.0052	0.005	0.0041		0.0043	0.0043	0.0047
Zinc	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] *95th percentile concentration measured in baseline studies at 661-20 between 2016 and September 30, 2022.*

[2] *Mean monthly concentration October 2022 to March 31, 2024, Construction.*

[3] *The lower and upper 95th percentile pH value was calculated based on the hydrogen ion concentration + 20%.*

Appendix E-2 Results of Before-After-Control-Impact Analysis

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E-2.1.1.22 Total Silver . . . B-13.72
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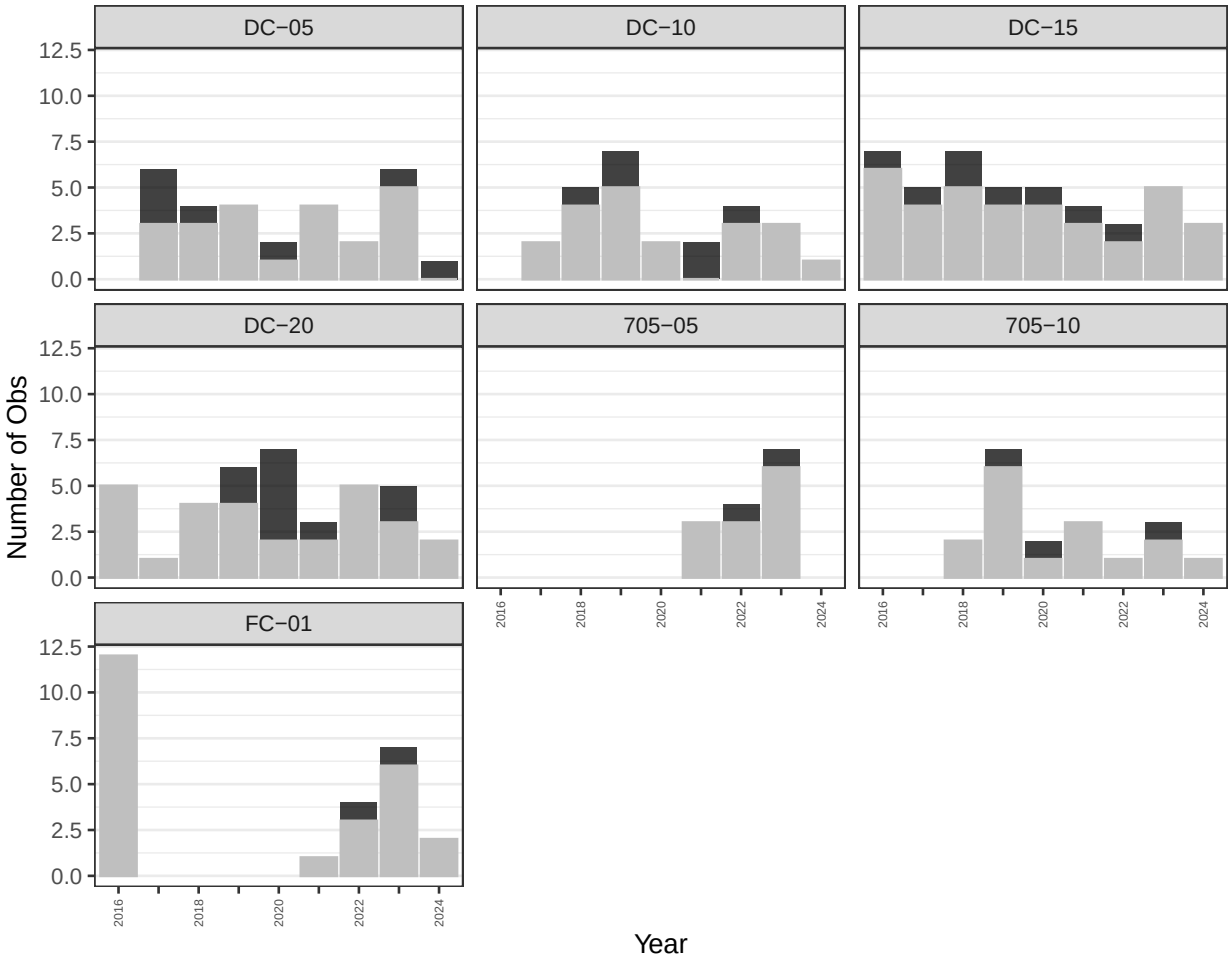
Appendix E-2

E-2.1.1 Davidson Creek

E-2.1.1.1 Total Suspended Solids

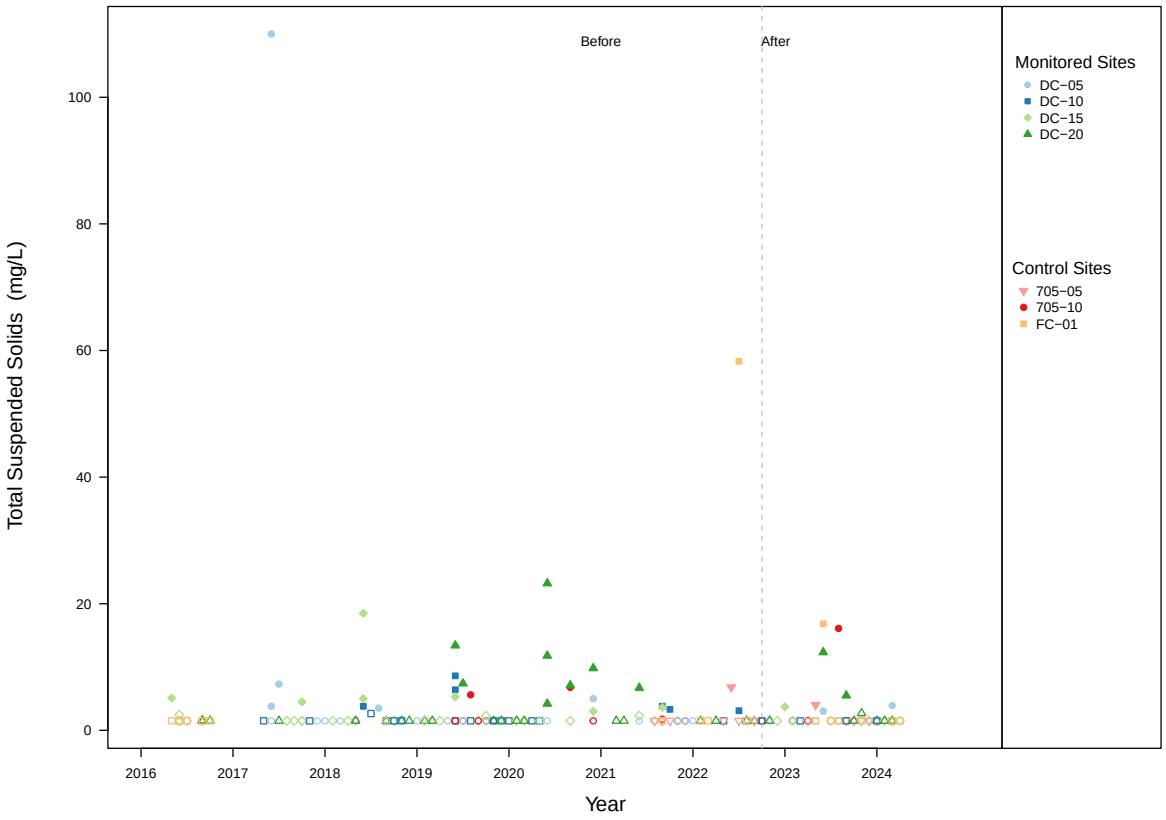
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

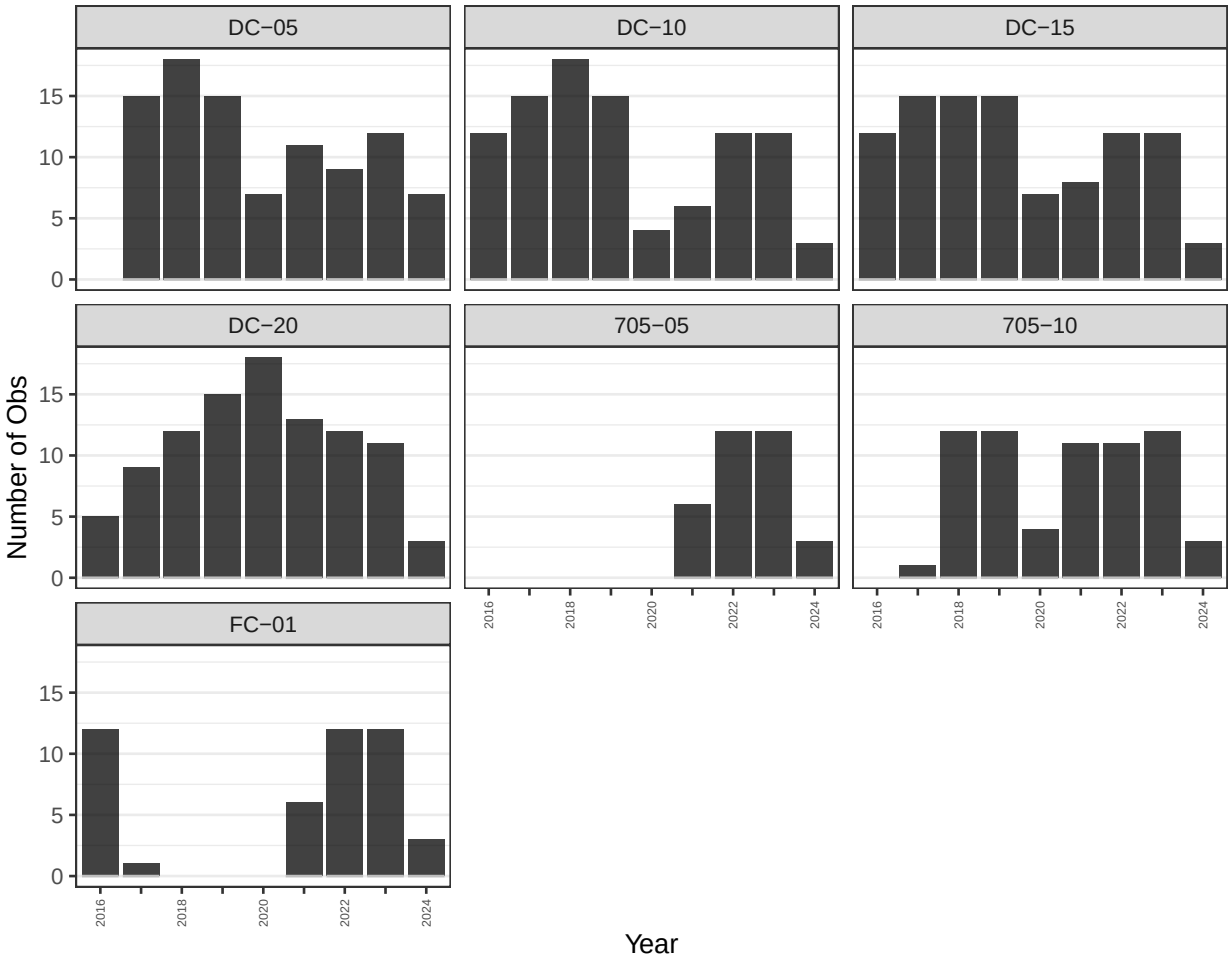
Variable	Total Suspended Solids
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.2 Total Dissolved Solids

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

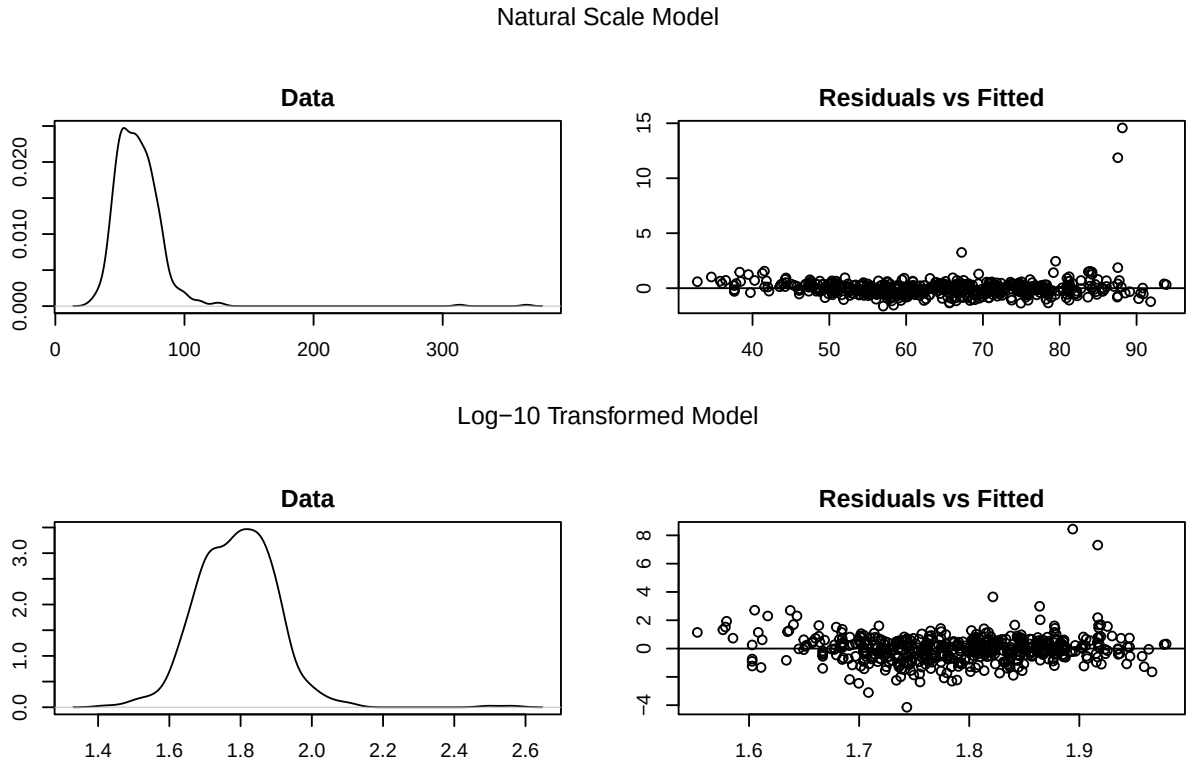
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	60.00	0
Davidson Creek	DC-05	after	21	79.00	0
Davidson Creek	DC-10	before	79	61.00	0
Davidson Creek	DC-10	after	18	72.75	0
Davidson Creek	DC-15	before	81	68.00	0
Davidson Creek	DC-15	after	18	77.75	0
Davidson Creek	DC-20	before	81	69.00	0
Davidson Creek	DC-20	after	17	86.00	0
Creek 705	705-05	before	15	50.00	0
Creek 705	705-05	after	18	48.50	0
Creek 705	705-10	before	49	56.00	0
Creek 705	705-10	after	17	54.00	0
Fawnie Creek (reference)	FC-01	before	28	50.50	0
Fawnie Creek (reference)	FC-01	after	18	56.25	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-20	2017	7	monit	before	365	88.15	14.571	Y
Davidson Creek	DC-15	2017	9	monit	before	313	87.56	11.866	Y
Davidson Creek	DC-10	2022	2	monit	before	129	67.22	3.251	Y

Outliers on log scale:

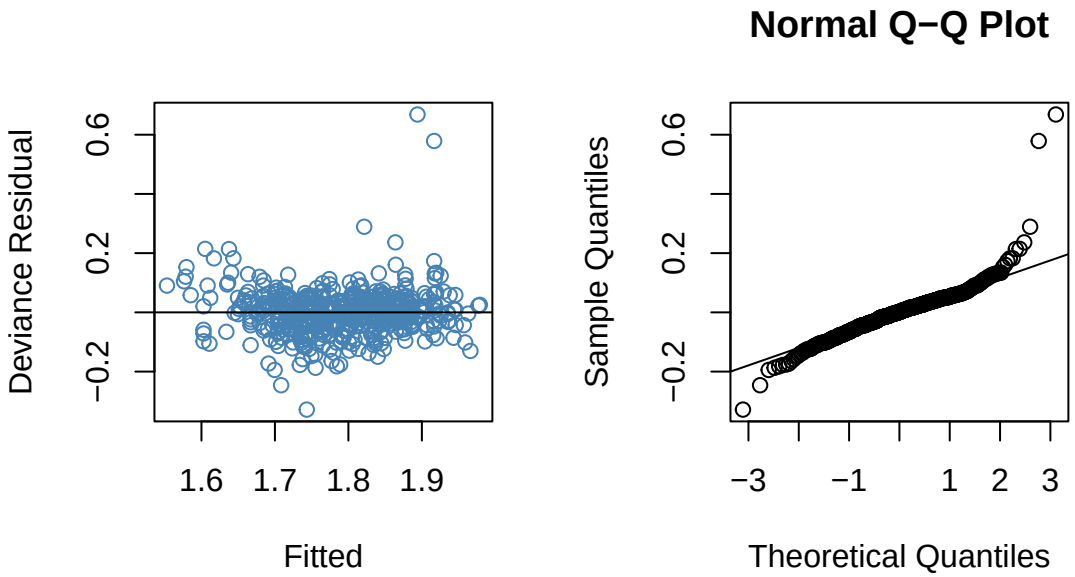
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-20	2017	7	monit	before	2.562	1.894	8.441	Y
Davidson Creek	DC-15	2017	9	monit	before	2.495	1.917	7.311	Y
Davidson Creek	DC-15	2018	5	monit	before	1.415	1.743	-4.148	Y
Davidson Creek	DC-10	2022	2	monit	before	2.111	1.821	3.651	Y
Davidson Creek	DC-05	2017	6	monit	before	1.462	1.708	-3.108	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.18811	0.18811	1	5.354	30.01	0.00223	
period	0.07647	0.07647	1	33.109	12.20	0.00138	
class:period	0.15623	0.15623	1	516.146	24.93	<0.001	8.16e-07

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

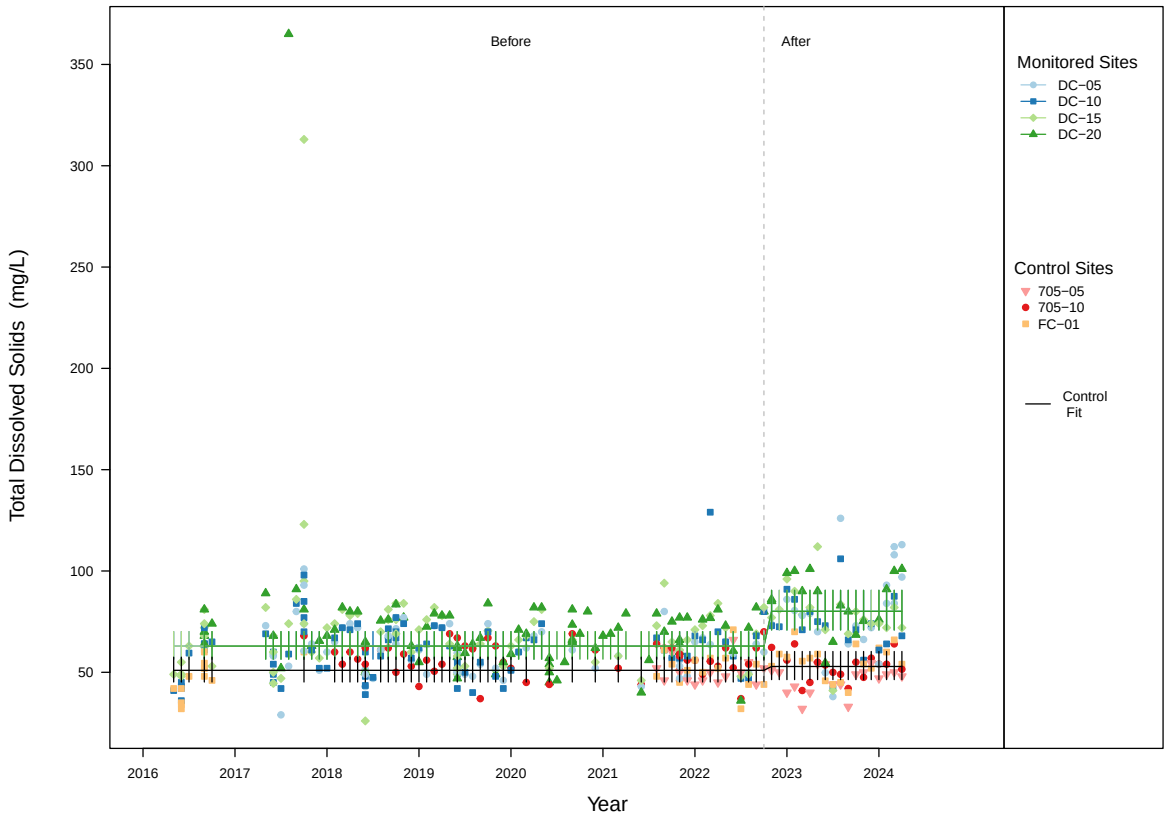
Monitored vs.	Estimate	Significance
control sites	0.0888	significant

Conclusion:

The change in Total Dissolved Solids concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 8.16×10^{-7}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

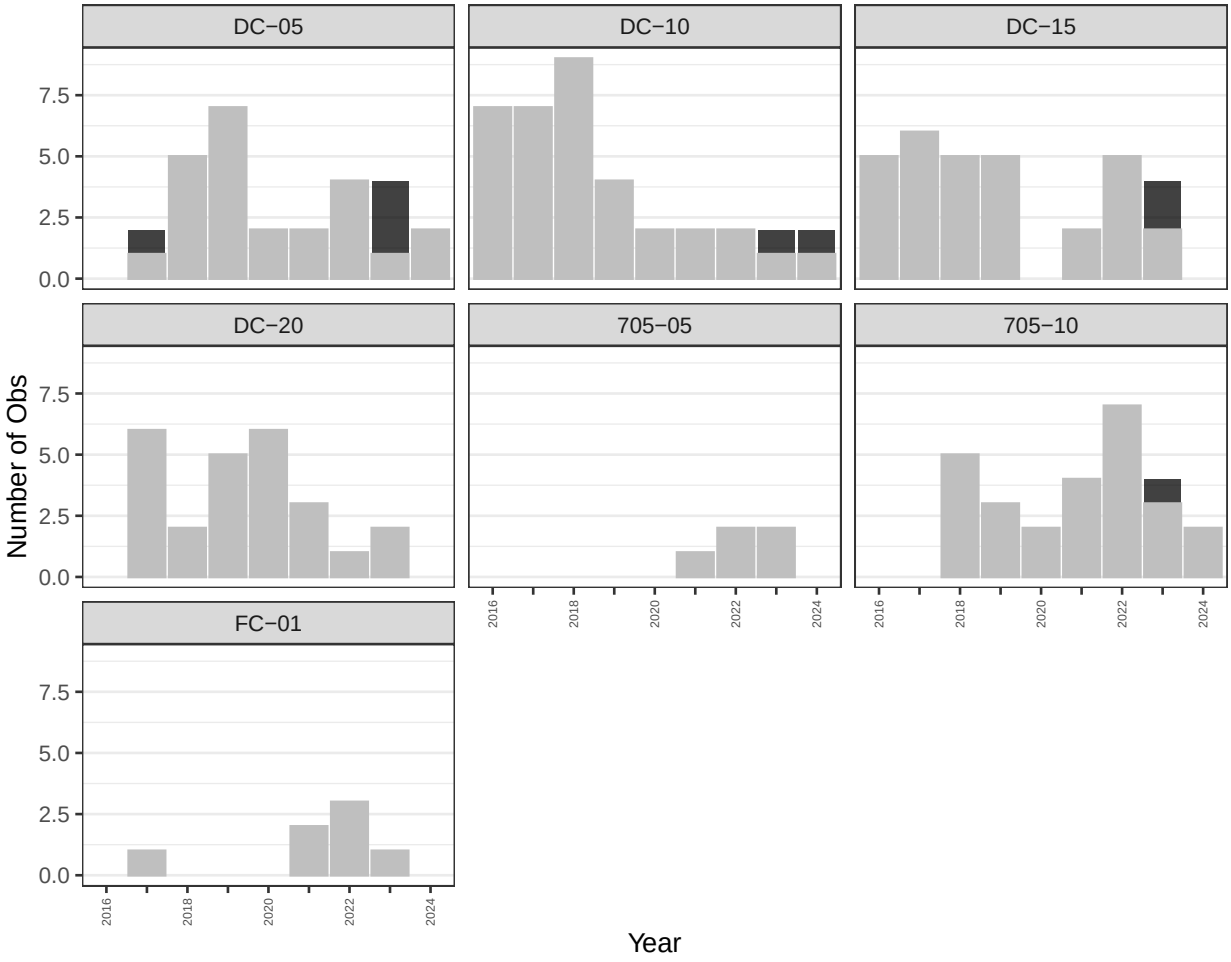
Final Summary Table

Variable	Total Dissolved Solids
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.3 Chloride

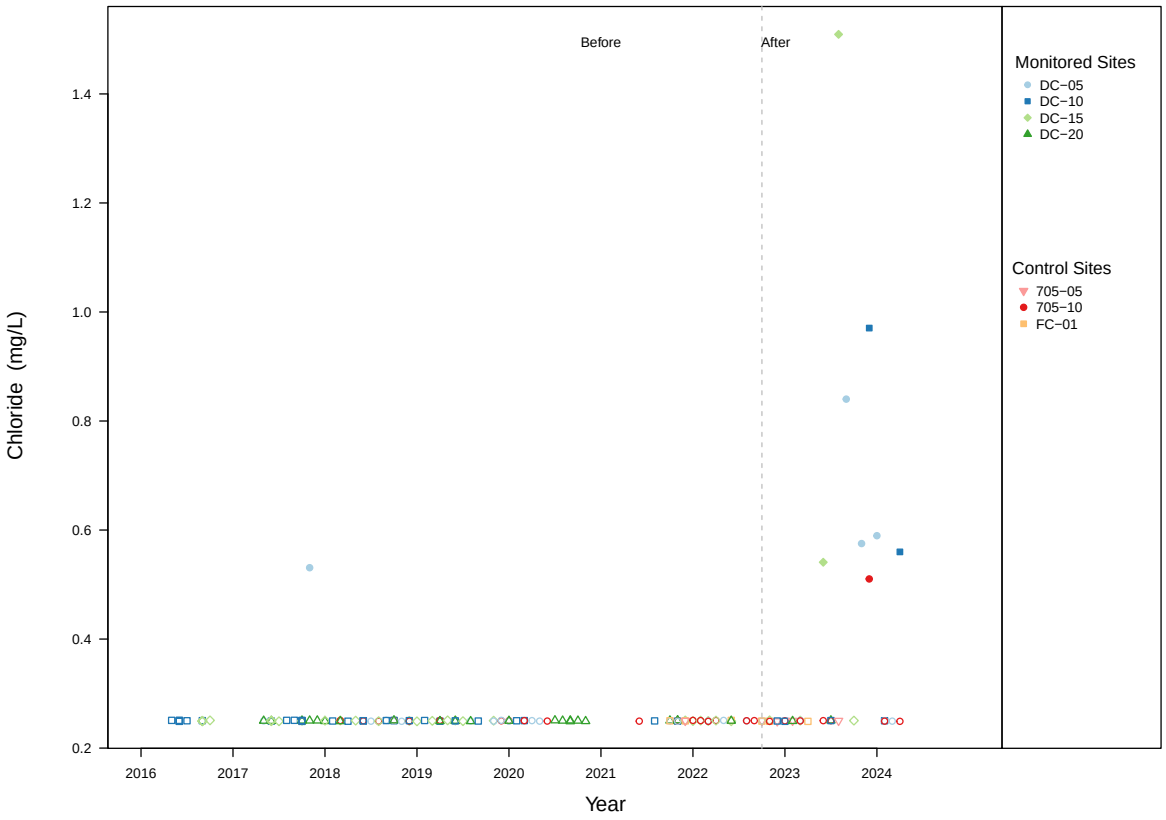
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

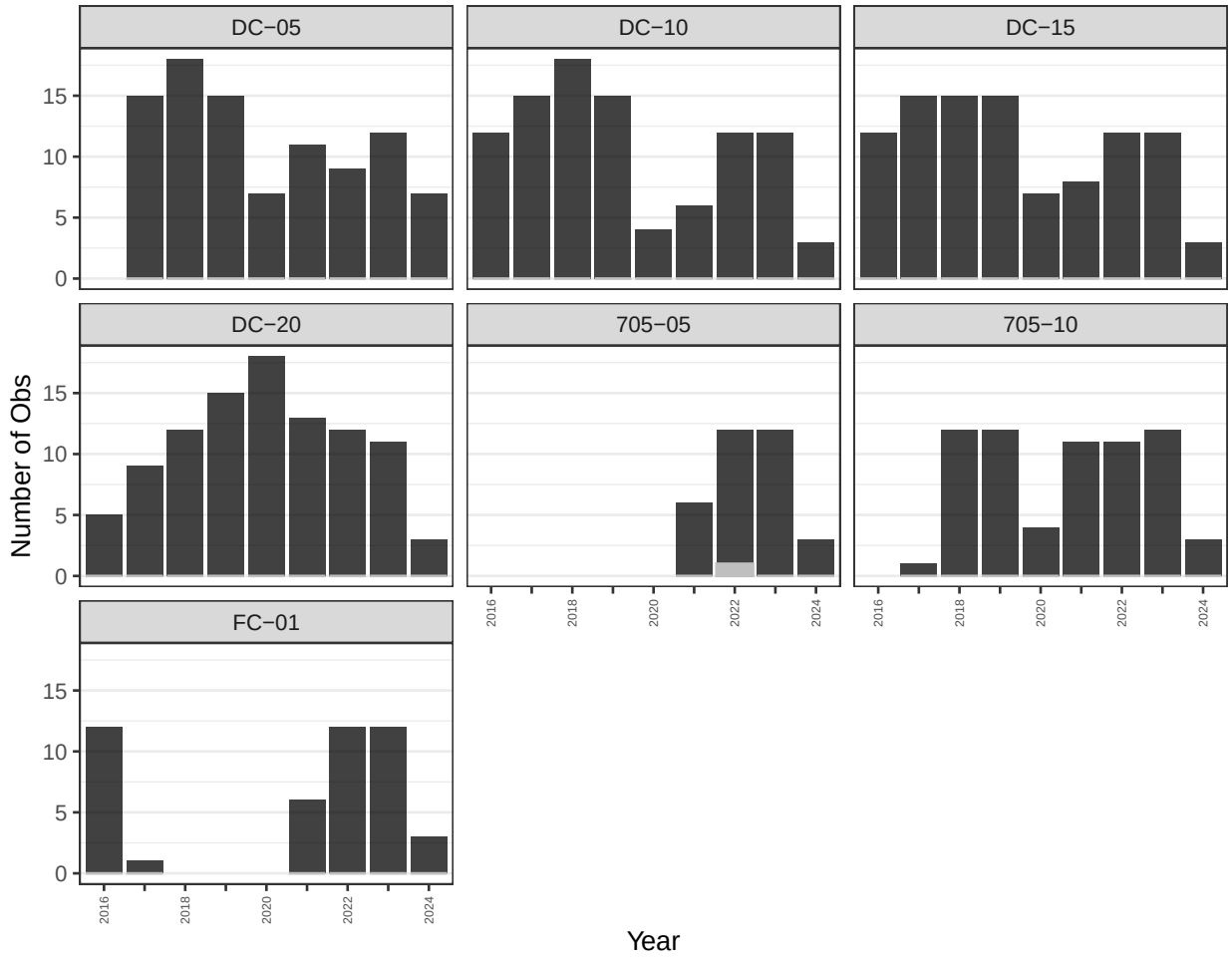
Variable	Chloride
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.4 Sulphate

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

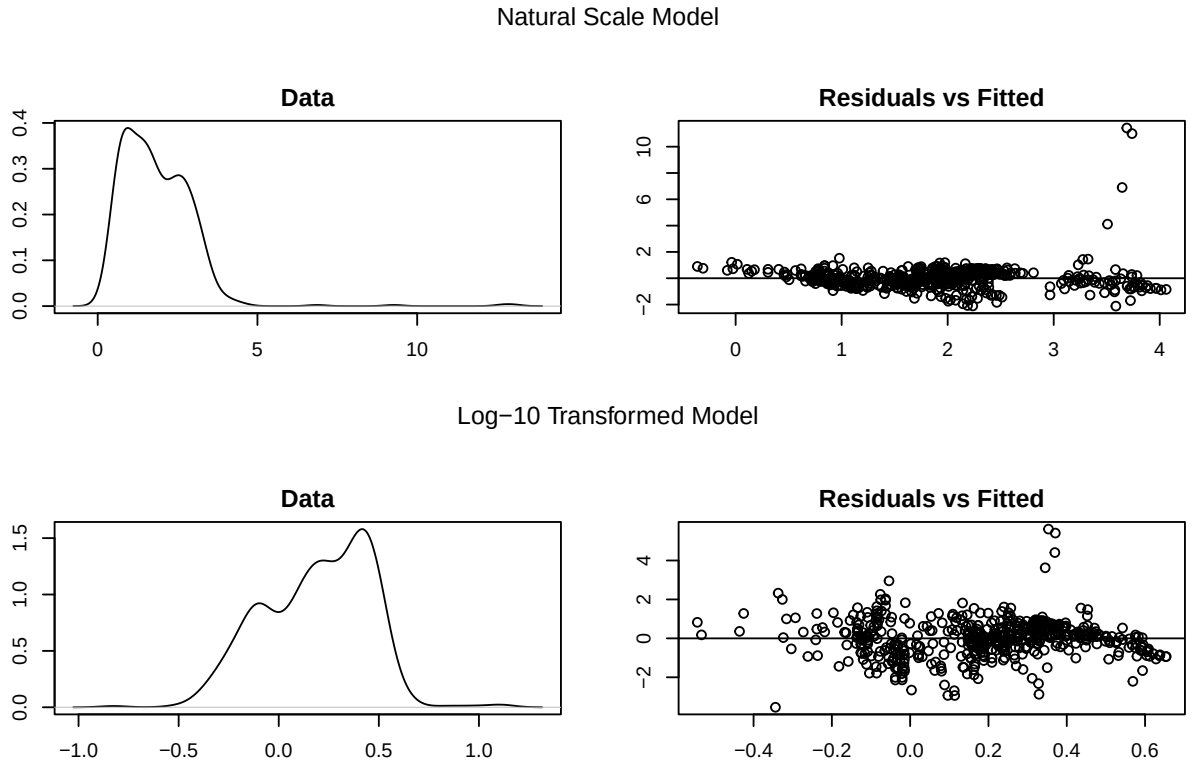
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	1.760	0.000
Davidson Creek	DC-05	after	21	3.380	0.000
Davidson Creek	DC-10	before	79	1.680	0.000
Davidson Creek	DC-10	after	18	3.333	0.000
Davidson Creek	DC-15	before	81	1.715	0.000
Davidson Creek	DC-15	after	18	3.130	0.000
Davidson Creek	DC-20	before	81	1.670	0.000
Davidson Creek	DC-20	after	17	2.970	0.000
Creek 705	705-05	before	15	0.560	6.667
Creek 705	705-05	after	18	0.915	0.000
Creek 705	705-10	before	49	1.010	0.000
Creek 705	705-10	after	17	1.275	0.000
Fawnie Creek (reference)	FC-01	before	28	1.518	0.000
Fawnie Creek (reference)	FC-01	after	18	2.542	0.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2023	7	monit	after	13.00	3.689	11.423	Y
Davidson Creek	DC-10	2023	7	monit	after	12.70	3.739	10.995	Y
Davidson Creek	DC-15	2023	7	monit	after	9.27	3.646	6.900	Y
Davidson Creek	DC-20	2023	7	monit	after	6.86	3.508	4.113	Y

Outliers on log scale:

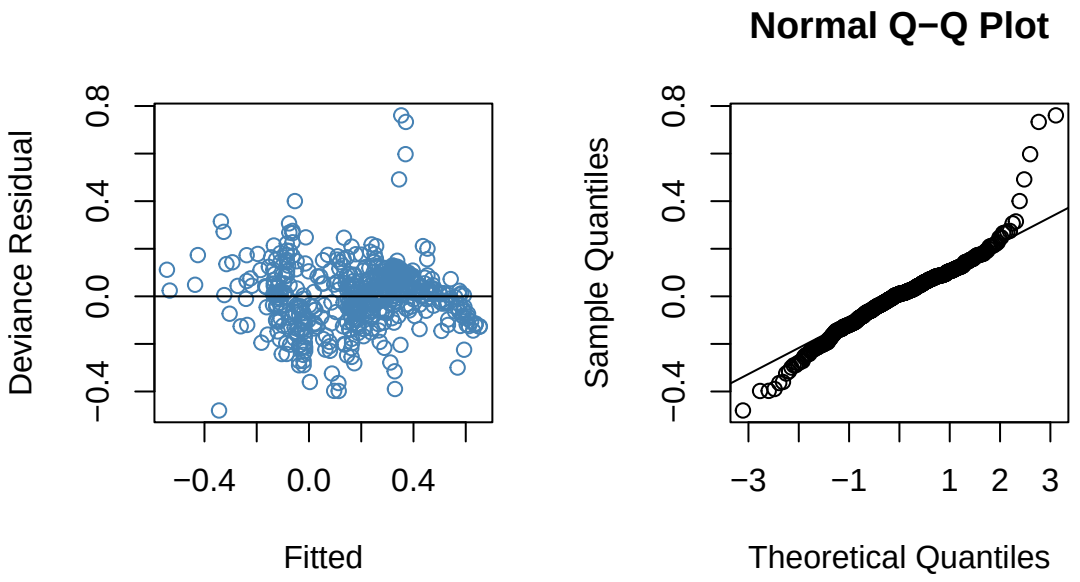
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2023	7	monit	after	1.1139	0.3533	5.612	Y
Davidson Creek	DC-10	2023	7	monit	after	1.1038	0.3708	5.408	Y
Davidson Creek	DC-15	2023	7	monit	after	0.9671	0.3696	4.408	Y
Davidson Creek	DC-20	2023	7	monit	after	0.8363	0.3449	3.626	Y
Creek 705	705-05	2022	7	control	before	-0.8239	-0.3441	-3.540	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.1054	0.1054	1	5.043	5.739	0.0615	
period	0.5405	0.5405	1	29.201	29.423	<0.001	
class:period	0.4411	0.4411	1	513.102	24.012	<0.001	1.29e-06

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

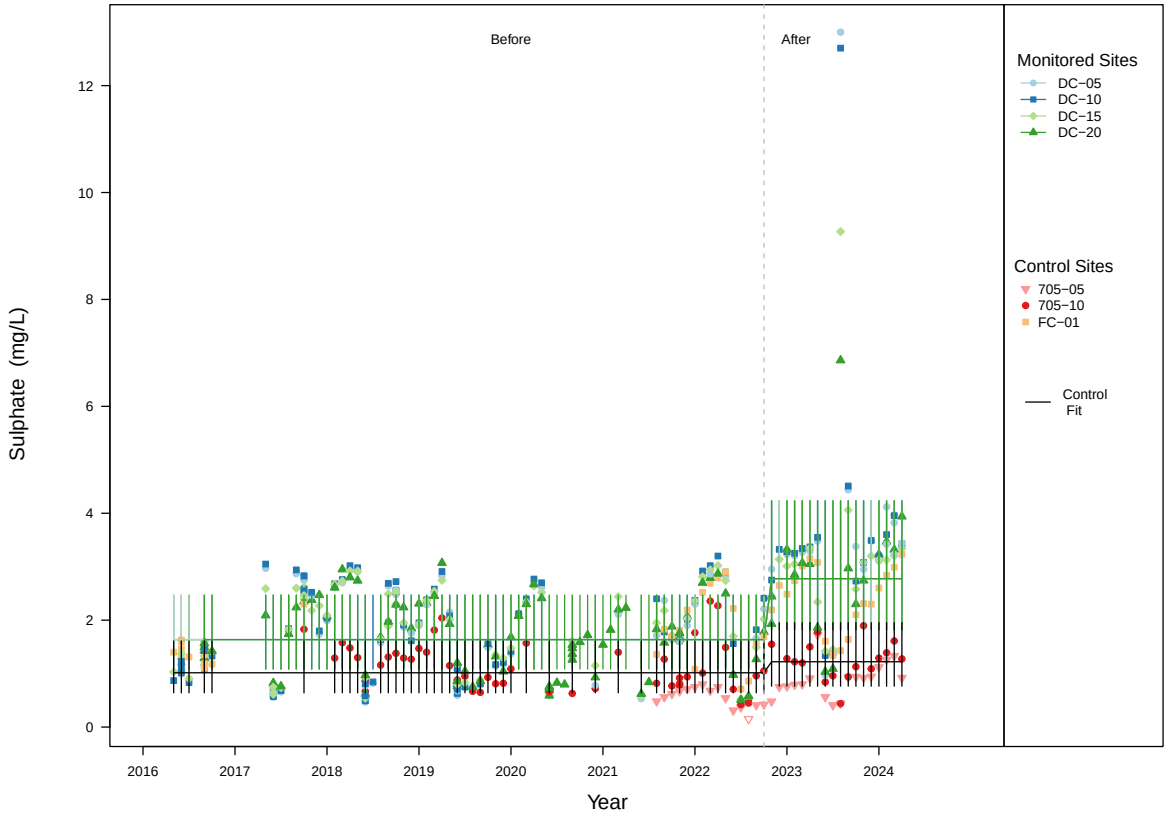
Monitored vs.	Estimate	Significance
control sites	0.1493	significant

Conclusion:

The change in Sulphate concentrations at the monitored sites from *before* to *after* was significantly (*adjusted* $p = 1.29 \times 10^{-6}$) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

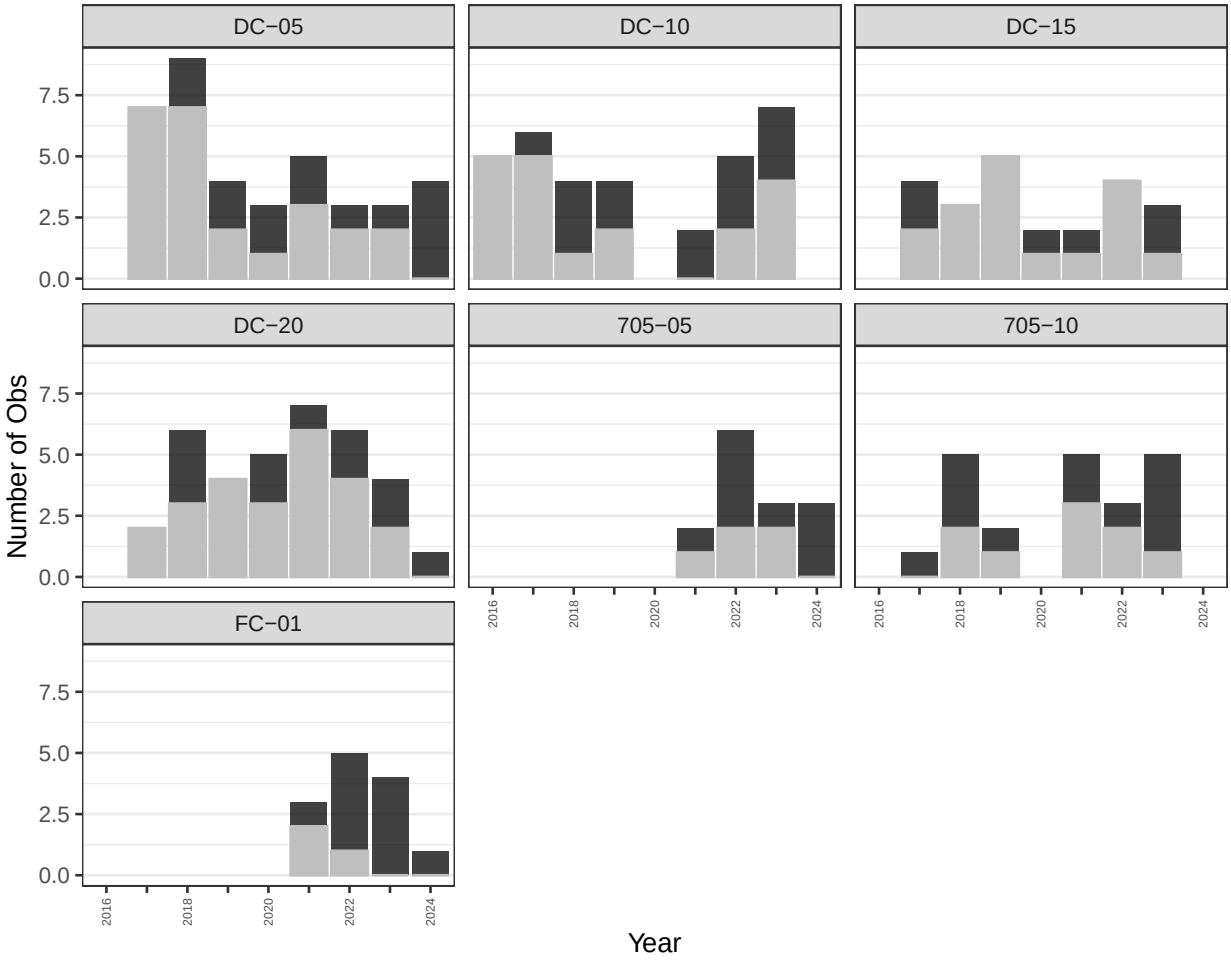
Final Summary Table

Variable	Sulphate
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.5 Nitrate-N

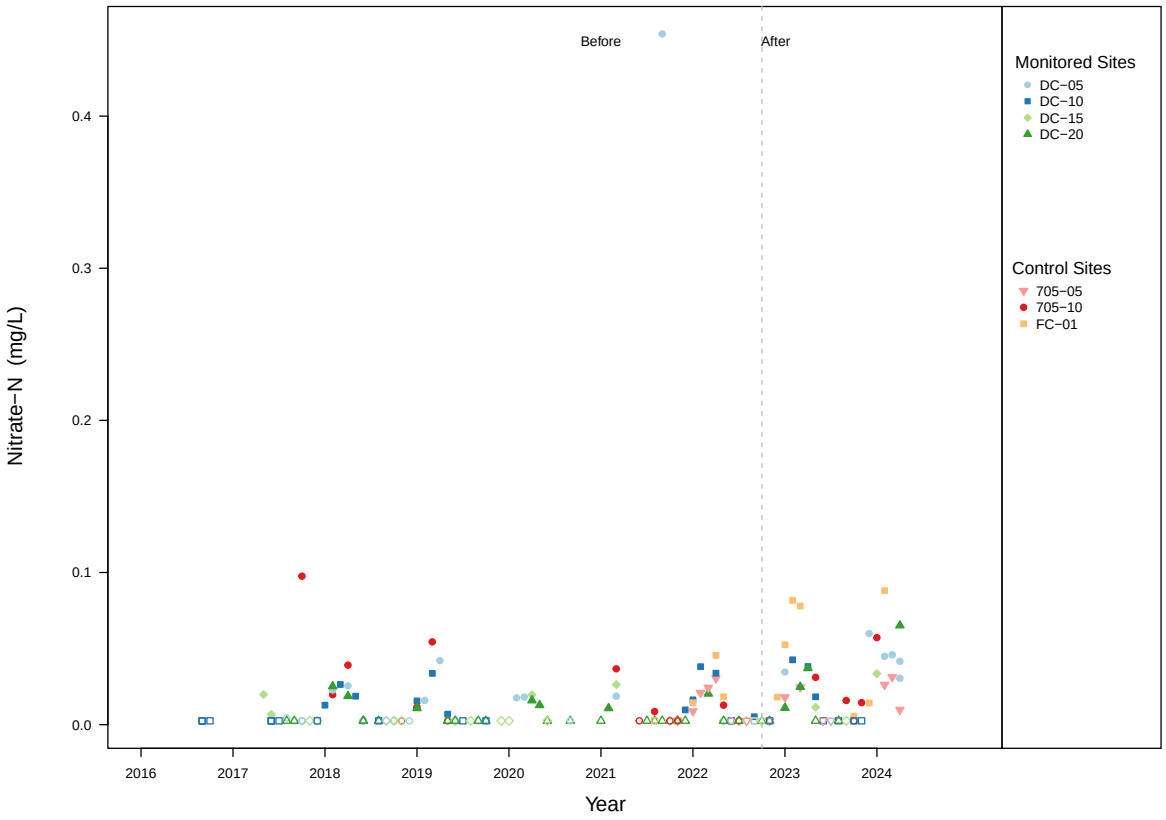
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

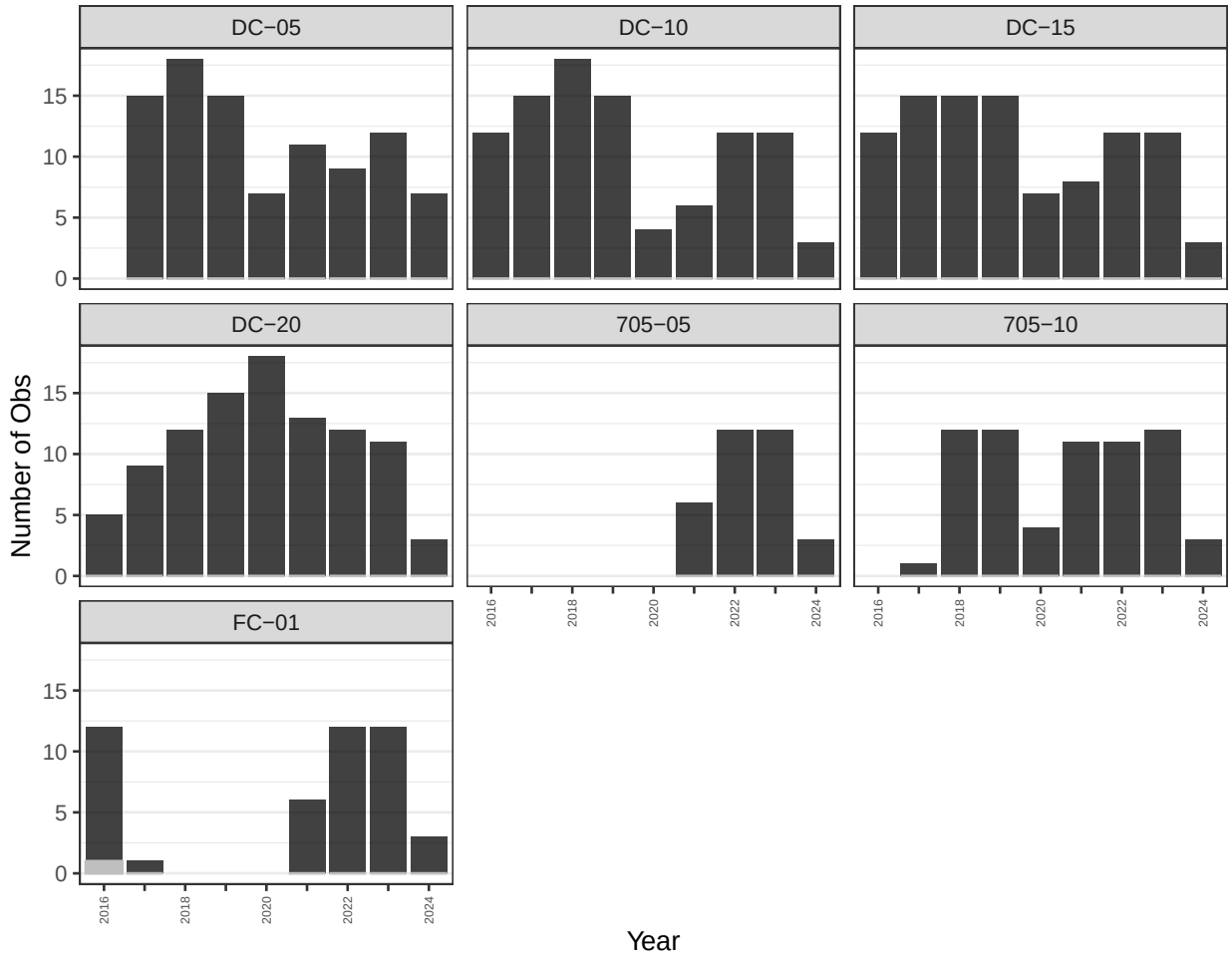
Variable	Nitrate-N
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.6 Total Phosphorus

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

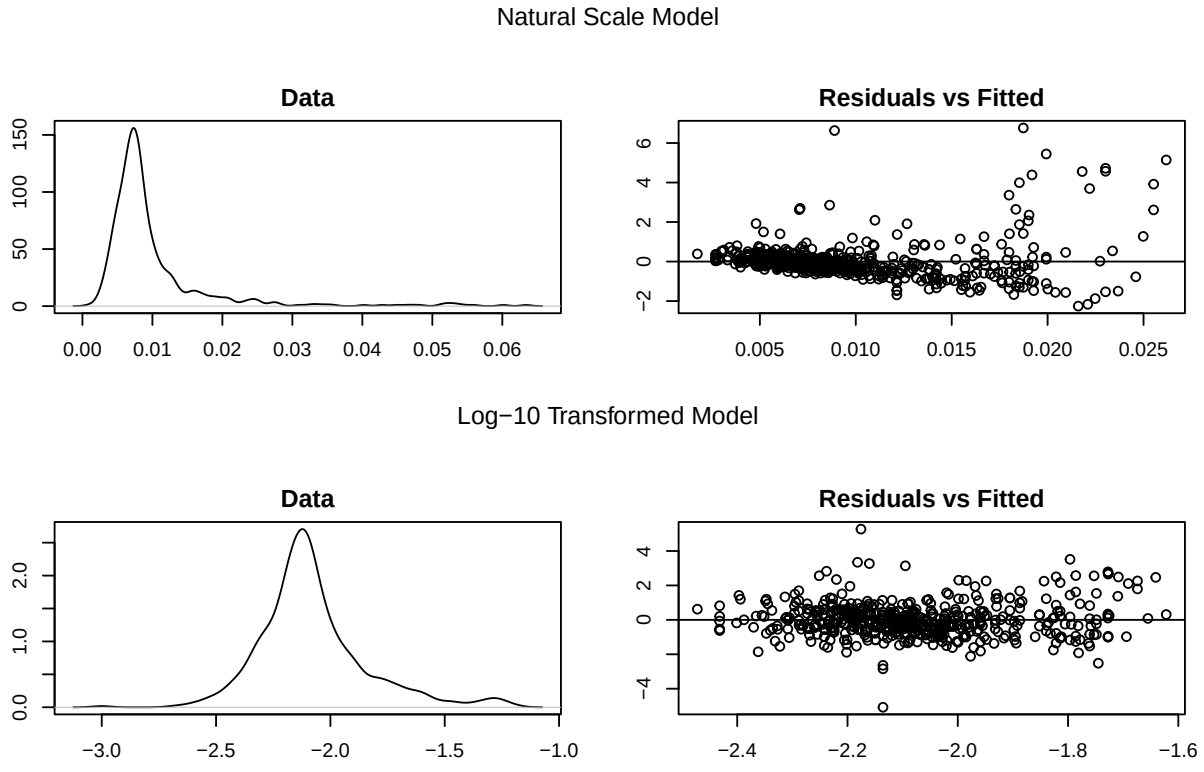
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0083	0.000
Davidson Creek	DC-05	after	21	0.0122	0.000
Davidson Creek	DC-10	before	79	0.0077	0.000
Davidson Creek	DC-10	after	18	0.0089	0.000
Davidson Creek	DC-15	before	81	0.0074	0.000
Davidson Creek	DC-15	after	18	0.0084	0.000
Davidson Creek	DC-20	before	81	0.0085	0.000
Davidson Creek	DC-20	after	17	0.0120	0.000
Creek 705	705-05	before	15	0.0079	0.000
Creek 705	705-05	after	18	0.0077	0.000
Creek 705	705-10	before	49	0.0059	0.000
Creek 705	705-10	after	17	0.0049	0.000
Fawnie Creek (reference)	FC-01	before	28	0.0042	3.571
Fawnie Creek (reference)	FC-01	after	18	0.0065	0.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-10	2019	5	monit	before	0.0634	0.0187	6.762	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0527	0.0089	6.631	Y
Davidson Creek	DC-20	2019	5	monit	before	0.0559	0.0199	5.445	Y
Davidson Creek	DC-20	2024	3	monit	after	0.0601	0.0262	5.142	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0542	0.0230	4.720	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0532	0.0230	4.569	Y
Davidson Creek	DC-15	2023	5	monit	after	0.0519	0.0218	4.556	Y
Davidson Creek	DC-20	2018	5	monit	before	0.0482	0.0192	4.385	Y
Davidson Creek	DC-05	2018	5	monit	before	0.0449	0.0185	3.992	Y
Davidson Creek	DC-05	2024	3	monit	after	0.0514	0.0255	3.917	Y
Davidson Creek	DC-10	2023	5	monit	after	0.0466	0.0222	3.695	Y
Davidson Creek	DC-10	2018	5	monit	before	0.0402	0.0180	3.362	Y

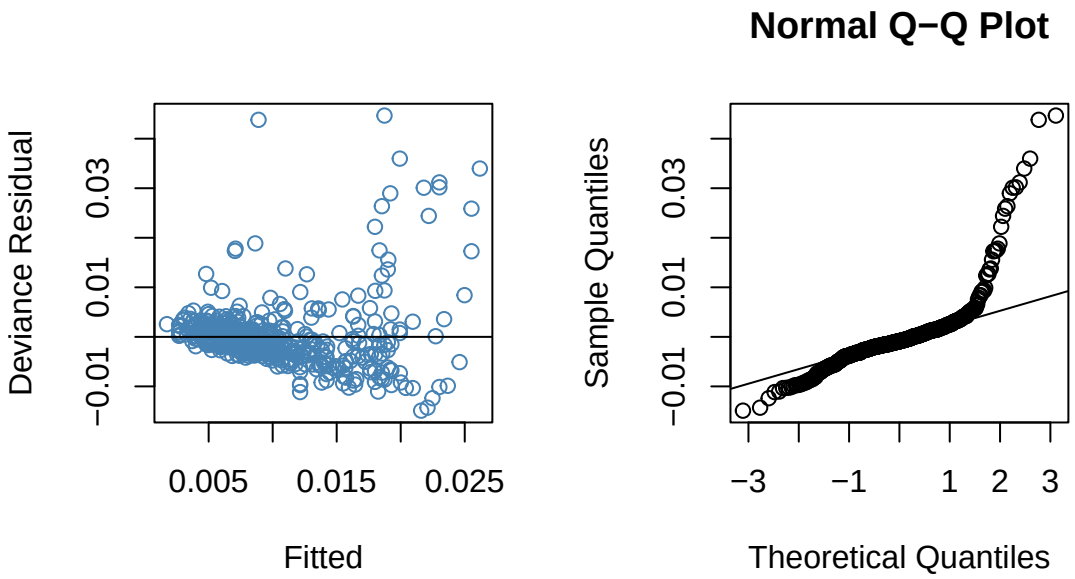
Outliers on log scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-1.278	-2.176	5.272	Y
Fawnie Creek (reference)	FC-01	2016	5	control	before	-3.000	-2.136	-5.078	N
Davidson Creek	DC-10	2019	5	monit	before	-1.198	-1.796	3.516	Y
Davidson Creek	DC-15	2017	10	monit	before	-1.613	-2.182	3.344	Y
Davidson Creek	DC-15	2020	2	monit	before	-1.604	-2.160	3.269	Y
Davidson Creek	DC-20	2017	10	monit	before	-1.561	-2.095	3.139	Y

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	9.27e-04	9.27e-04	1	7.26	21.243	0.0022	
period	2.44e-06	2.44e-06	1	185.37	0.056	0.8130	
class:period	4.38e-04	4.38e-04	1	502.93	10.036	0.0016	0.00163

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

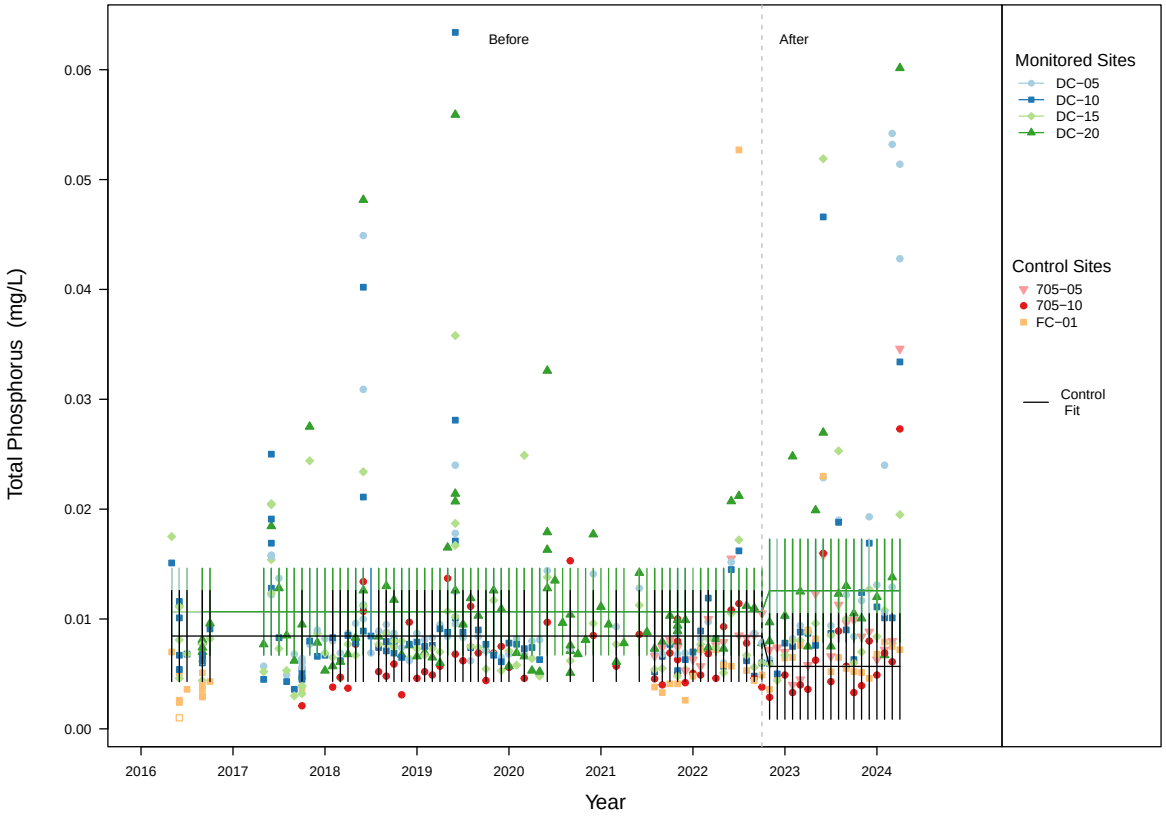
Monitored vs.	Estimate	Significance
control sites	0.0047	significant

Conclusion:

The change in Total Phosphorus concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0016) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals.

Final Summary Table

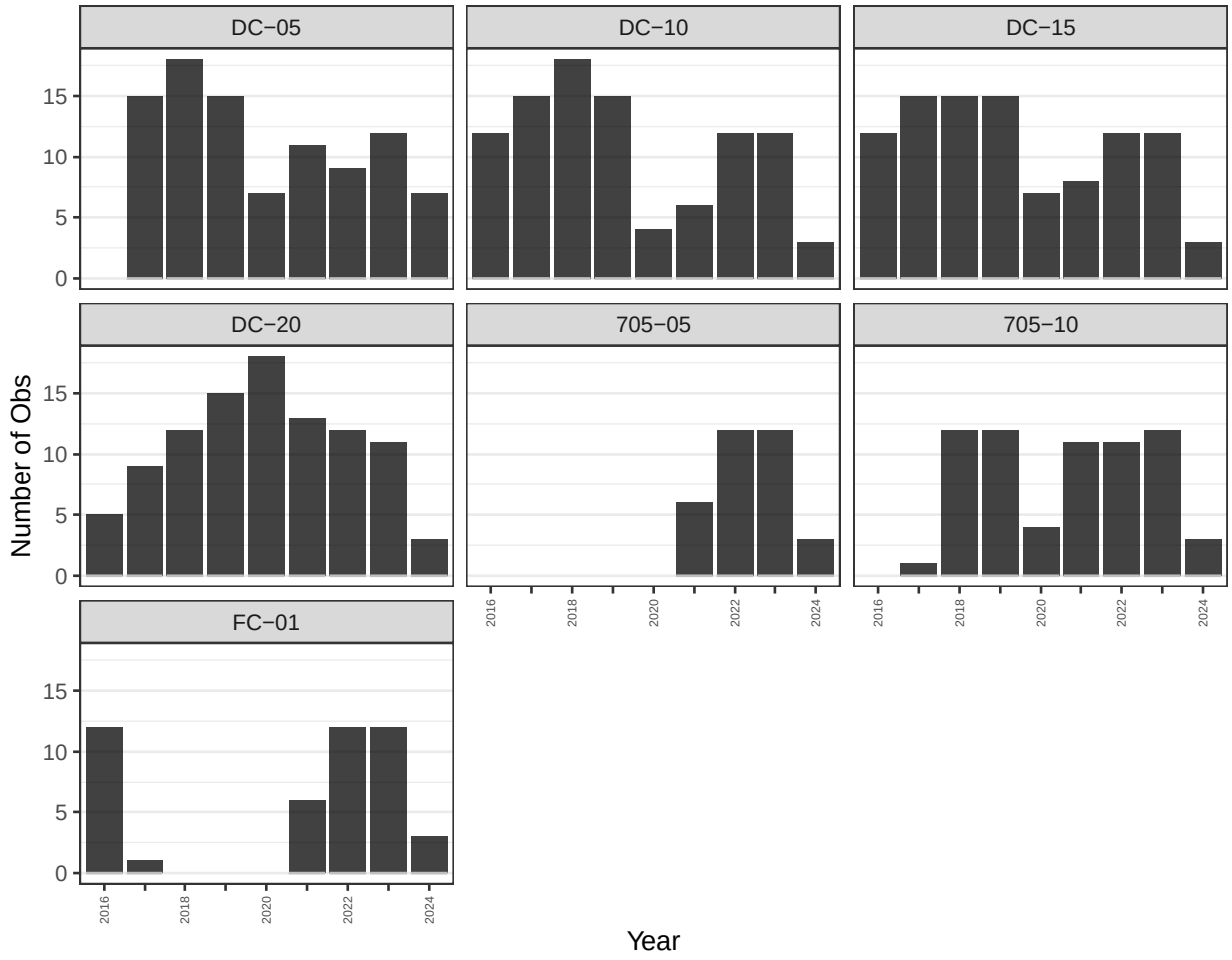
Variable	Total Phosphorus
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.7 Total Aluminum

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

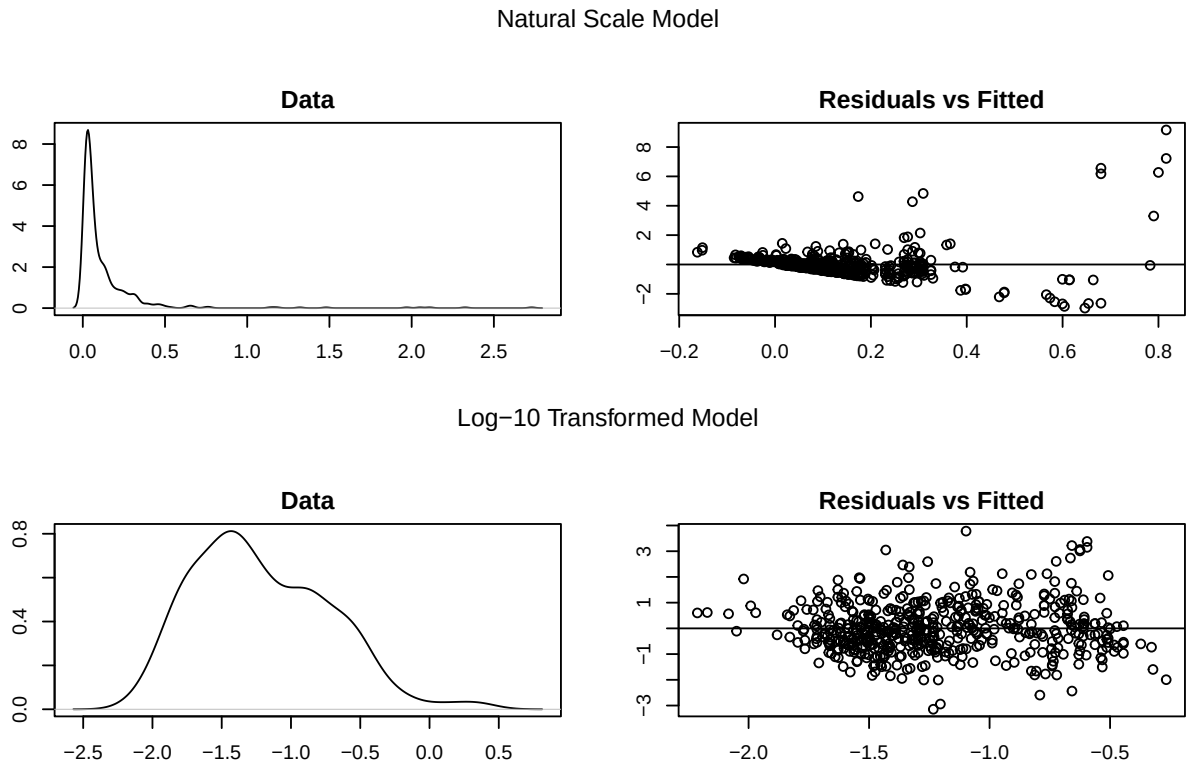
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0530	0
Davidson Creek	DC-05	after	21	0.1290	0
Davidson Creek	DC-10	before	79	0.0507	0
Davidson Creek	DC-10	after	18	0.0860	0
Davidson Creek	DC-15	before	81	0.0375	0
Davidson Creek	DC-15	after	18	0.0286	0
Davidson Creek	DC-20	before	81	0.0456	0
Davidson Creek	DC-20	after	17	0.0531	0
Creek 705	705-05	before	15	0.0940	0
Creek 705	705-05	after	18	0.0533	0
Creek 705	705-10	before	49	0.1050	0
Creek 705	705-10	after	17	0.0499	0
Fawnie Creek (reference)	FC-01	before	28	0.0398	0
Fawnie Creek (reference)	FC-01	after	18	0.0134	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	3	monit	after	2.730	0.8162	9.163	Y
Davidson Creek	DC-05	2024	3	monit	after	2.325	0.8162	7.224	Y
Davidson Creek	DC-05	2024	2	monit	after	2.050	0.6801	6.559	Y
Davidson Creek	DC-20	2024	3	monit	after	2.110	0.8000	6.272	Y
Davidson Creek	DC-05	2024	2	monit	after	1.970	0.6801	6.176	Y
Davidson Creek	DC-20	2019	5	monit	before	1.320	0.3091	4.840	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	1.140	0.1735	4.627	Y
Davidson Creek	DC-20	2018	5	monit	before	1.180	0.2867	4.277	Y
Davidson Creek	DC-10	2024	3	monit	after	1.480	0.7902	3.303	Y

Outliers on log scale:

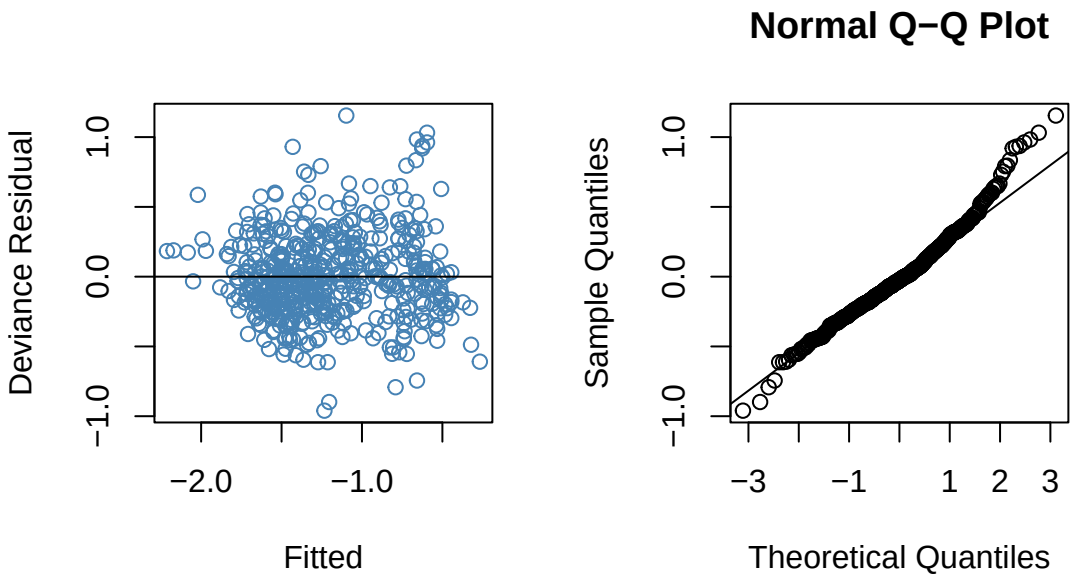
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0569	-1.0976	3.781	Y
Davidson Creek	DC-05	2024	3	monit	after	0.4362	-0.5954	3.379	Y
Davidson Creek	DC-20	2024	3	monit	after	0.3243	-0.6585	3.219	Y
Davidson Creek	DC-05	2024	3	monit	after	0.3664	-0.5954	3.150	Y
Fawnie Creek (reference)	FC-01	2024	2	control	after	-2.1938	-1.2336	-3.145	Y
Davidson Creek	DC-05	2024	2	monit	after	0.3118	-0.6249	3.068	Y
Davidson Creek	DC-15	2016	4	monit	before	-0.5003	-1.4306	3.047	Y
Davidson Creek	DC-05	2024	2	monit	after	0.2945	-0.6249	3.011	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.01108	0.01108	1	5.146	0.1188	0.744	
period	4.27099	4.27099	1	473.054	45.8150	<0.001	
class:period	2.16889	2.16889	1	508.349	23.2657	<0.001	2.49e-06

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

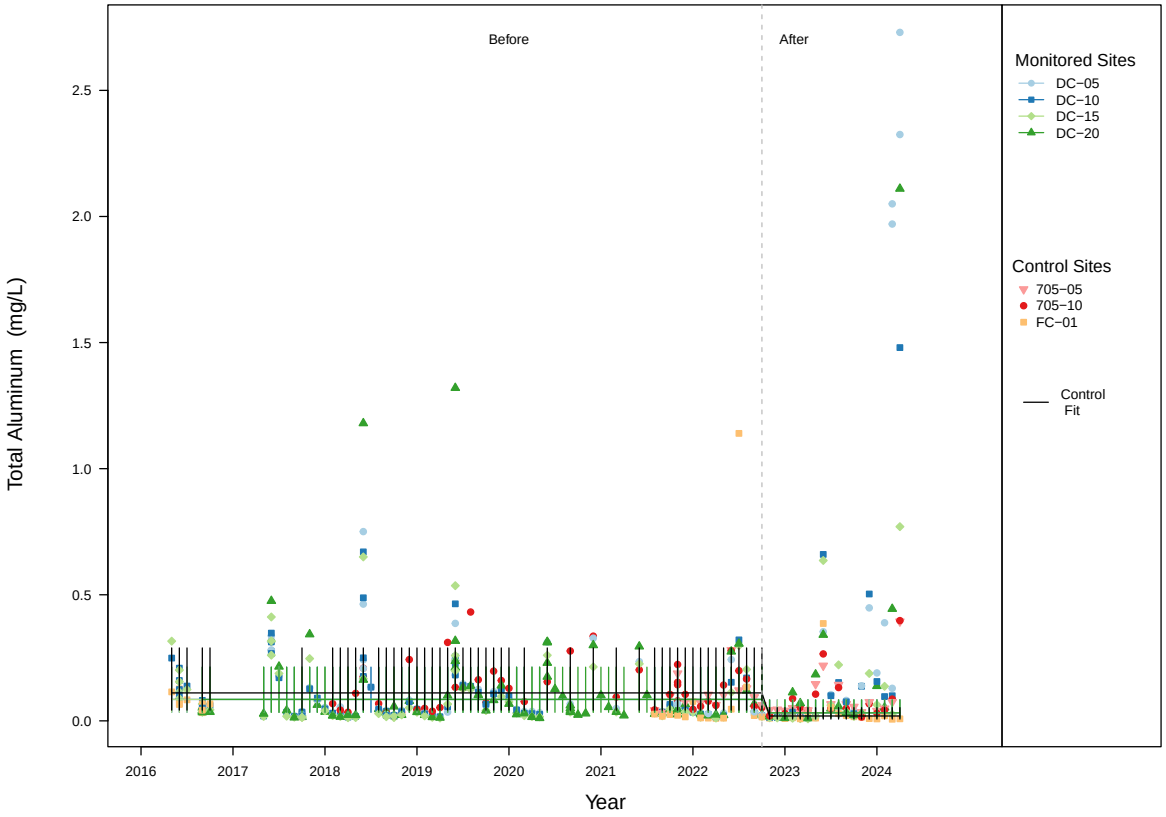
Monitored vs.	Estimate	Significance
control sites	0.332	significant

Conclusion:

The change in Total Aluminum concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 2.49×10^{-6}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

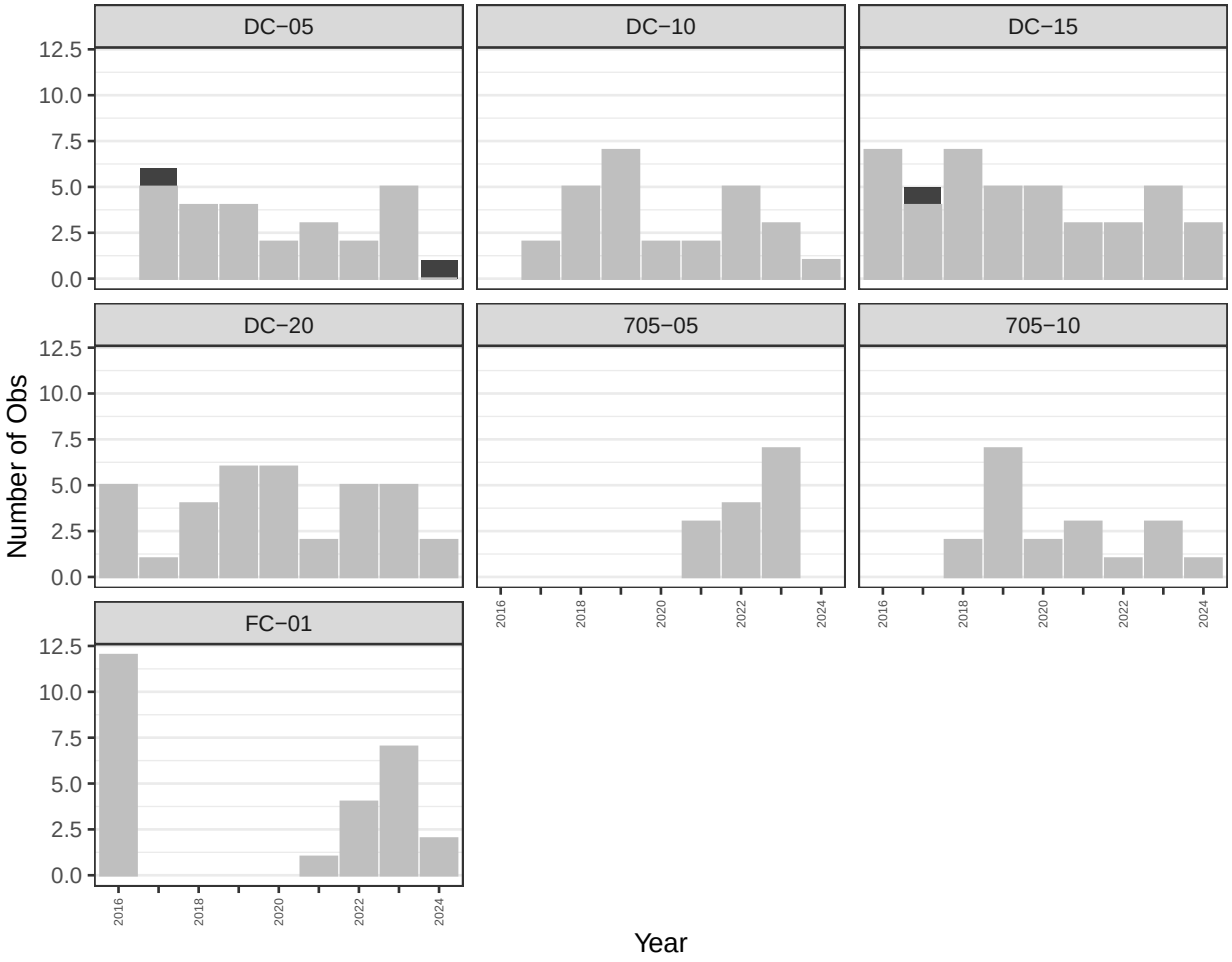
Final Summary Table

Variable	Total Aluminum
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.8 Total Antimony

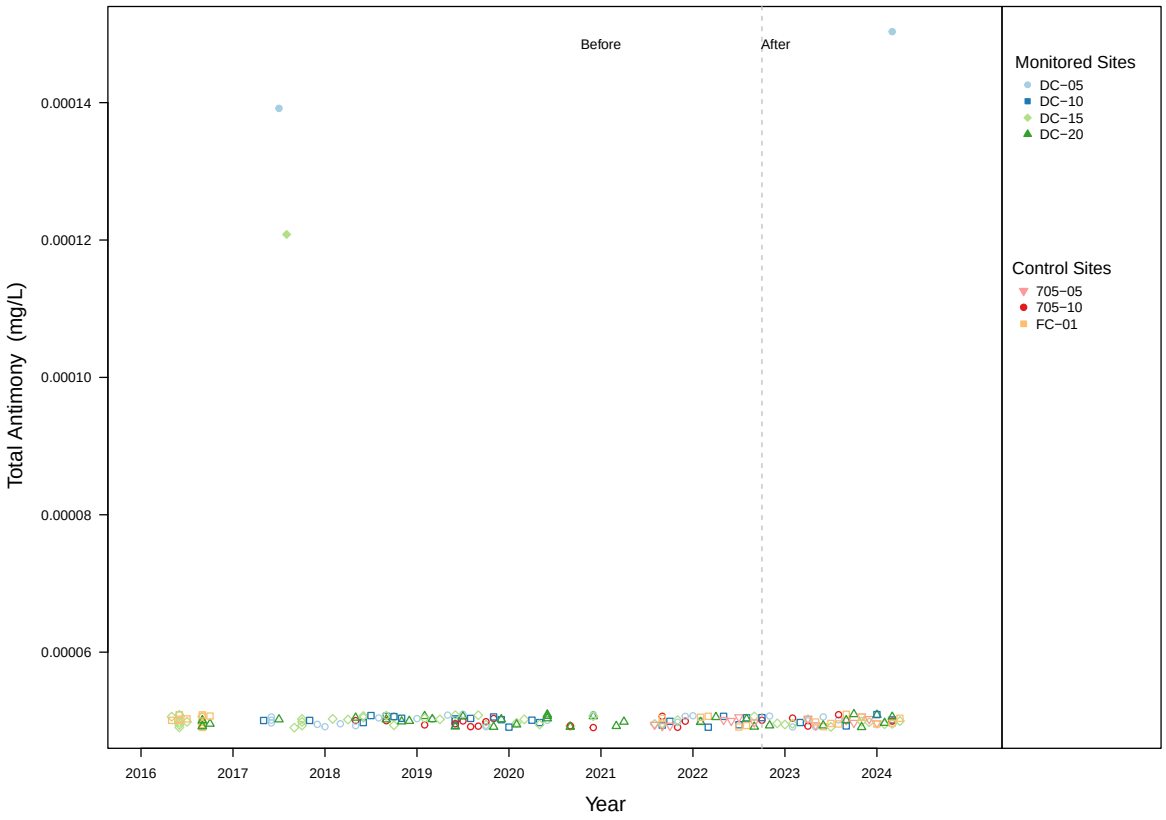
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

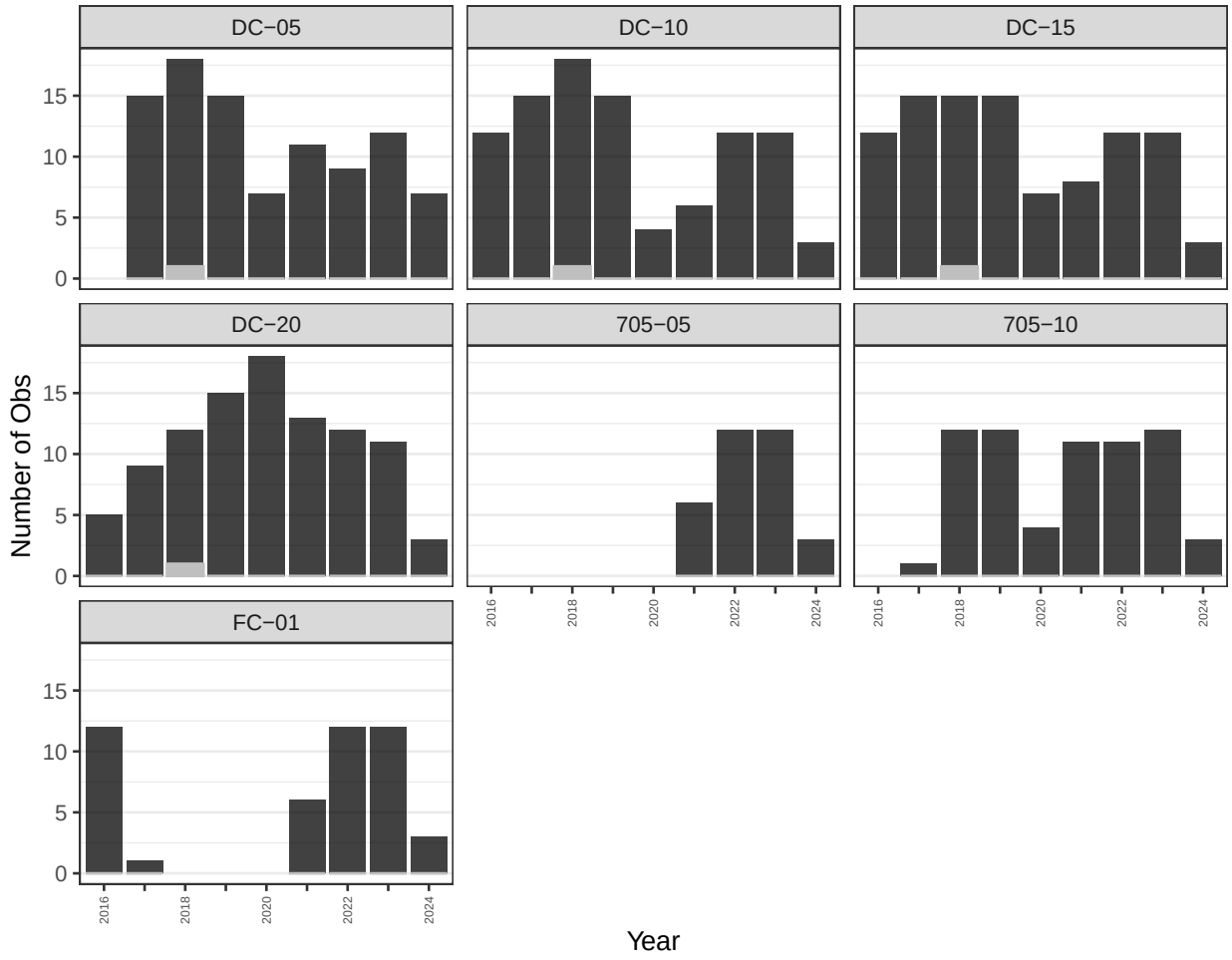
Variable	Total Antimony
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.9 Total Arsenic

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

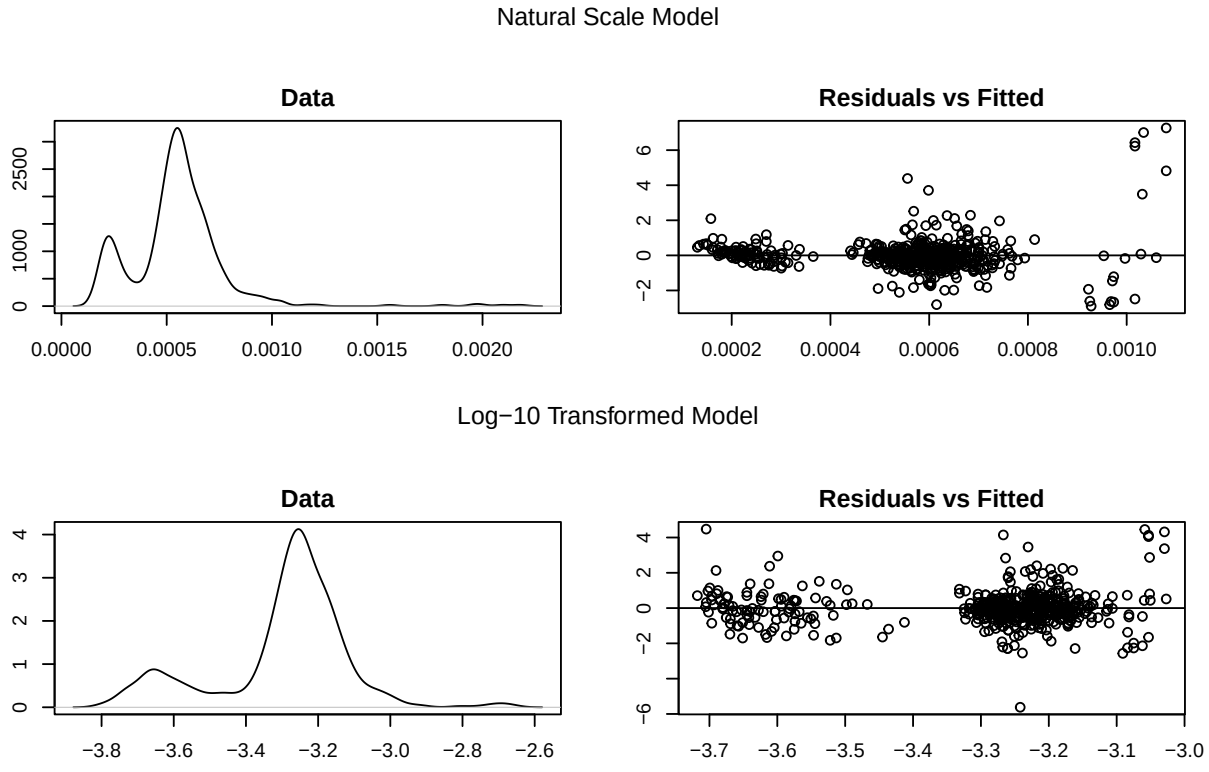
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0006	1.370
Davidson Creek	DC-05	after	21	0.0007	0.000
Davidson Creek	DC-10	before	79	0.0006	1.266
Davidson Creek	DC-10	after	18	0.0006	0.000
Davidson Creek	DC-15	before	81	0.0006	1.235
Davidson Creek	DC-15	after	18	0.0006	0.000
Davidson Creek	DC-20	before	81	0.0006	1.235
Davidson Creek	DC-20	after	17	0.0006	0.000
Creek 705	705-05	before	15	0.0003	0.000
Creek 705	705-05	after	18	0.0003	0.000
Creek 705	705-10	before	49	0.0002	0.000
Creek 705	705-10	after	17	0.0002	0.000
Fawnie Creek (reference)	FC-01	before	28	0.0006	0.000
Fawnie Creek (reference)	FC-01	after	18	0.0008	0.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	3	monit	after	0.0022	0.0011	7.265	Y
Davidson Creek	DC-20	2024	3	monit	after	0.0021	0.0010	7.006	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0020	0.0010	6.428	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0020	0.0010	6.230	Y
Davidson Creek	DC-05	2024	3	monit	after	0.0018	0.0011	4.821	Y
Davidson Creek	DC-20	2019	5	monit	before	0.0012	0.0006	4.385	Y
Davidson Creek	DC-20	2017	10	monit	before	0.0012	0.0006	3.708	Y
Davidson Creek	DC-10	2024	3	monit	after	0.0016	0.0010	3.490	Y

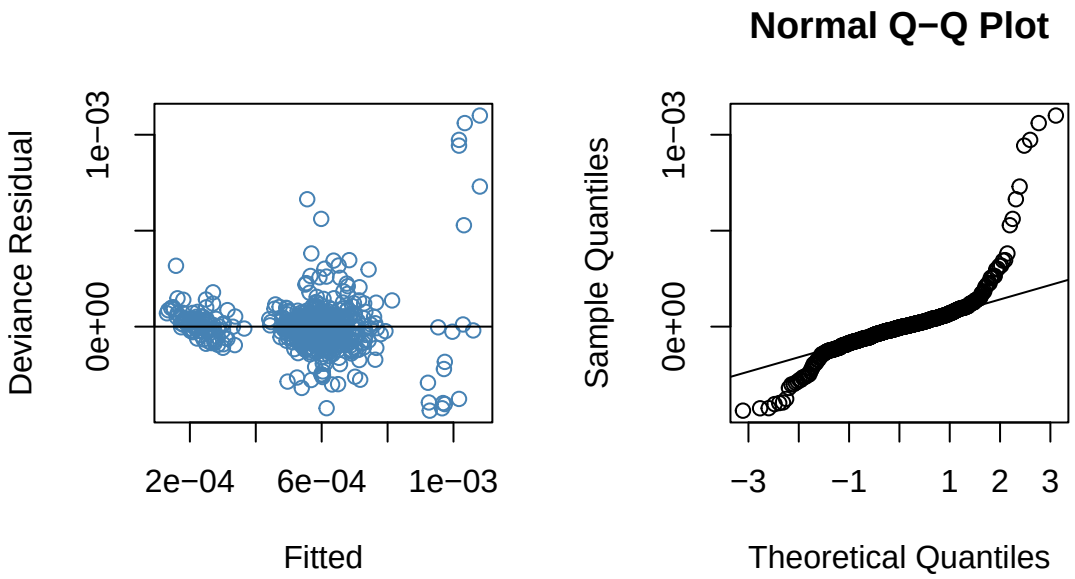
Outliers on log scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2021	12	control	before	-3.721	-3.242	-5.621	Y
Creek 705	705-10	2021	12	control	before	-3.323	-3.705	4.476	Y
Davidson Creek	DC-20	2024	3	monit	after	-2.679	-3.058	4.455	Y
Davidson Creek	DC-05	2024	3	monit	after	-2.662	-3.030	4.318	Y
Davidson Creek	DC-20	2019	5	monit	before	-2.914	-3.267	4.145	Y
Davidson Creek	DC-05	2024	2	monit	after	-2.701	-3.053	4.128	Y
Davidson Creek	DC-05	2024	2	monit	after	-2.708	-3.053	4.051	Y
Davidson Creek	DC-20	2017	10	monit	before	-2.936	-3.231	3.460	Y
Davidson Creek	DC-05	2024	3	monit	after	-2.742	-3.030	3.370	Y

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	8.29e-08	8.29e-08	1	5.047	3.6171	0.115	
period	1.85e-08	1.85e-08	1	253.314	0.8052	0.370	
class:period	1.16e-07	1.16e-07	1	508.119	5.0570	0.025	0.025

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

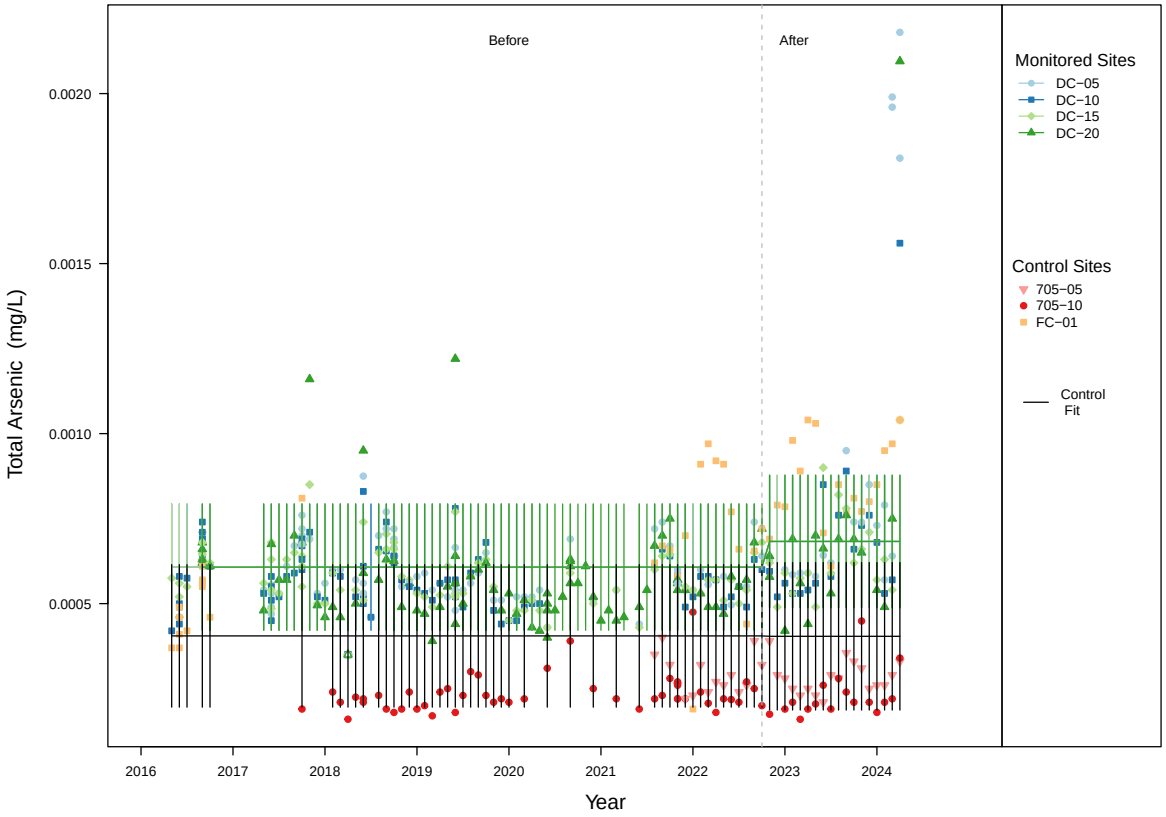
Monitored vs.	Estimate	Significance
control sites	1e-04	significant

Conclusion:

The change in Total Arsenic concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.025) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals.

Final Summary Table

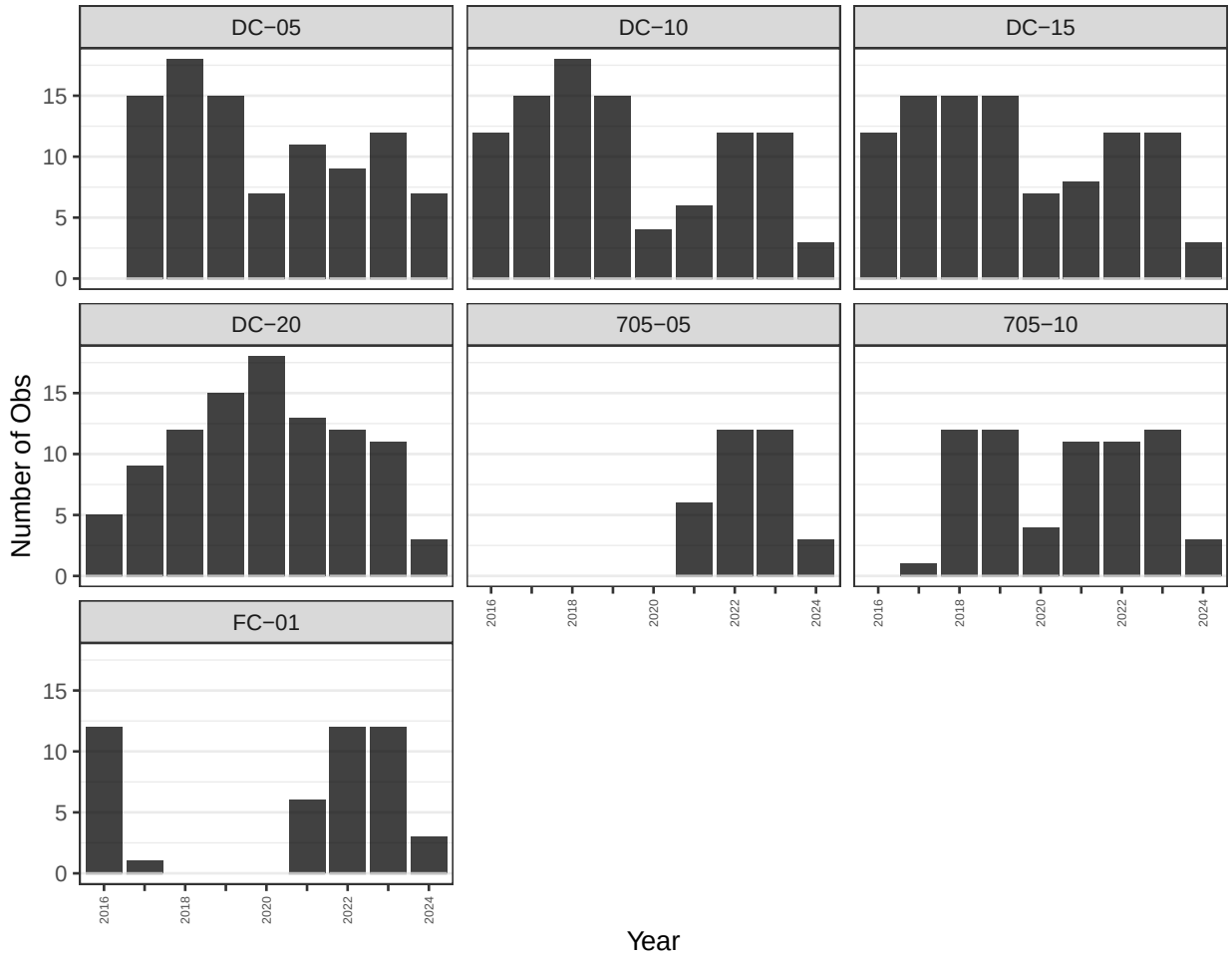
Variable	Total Arsenic
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.10 Total Barium

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

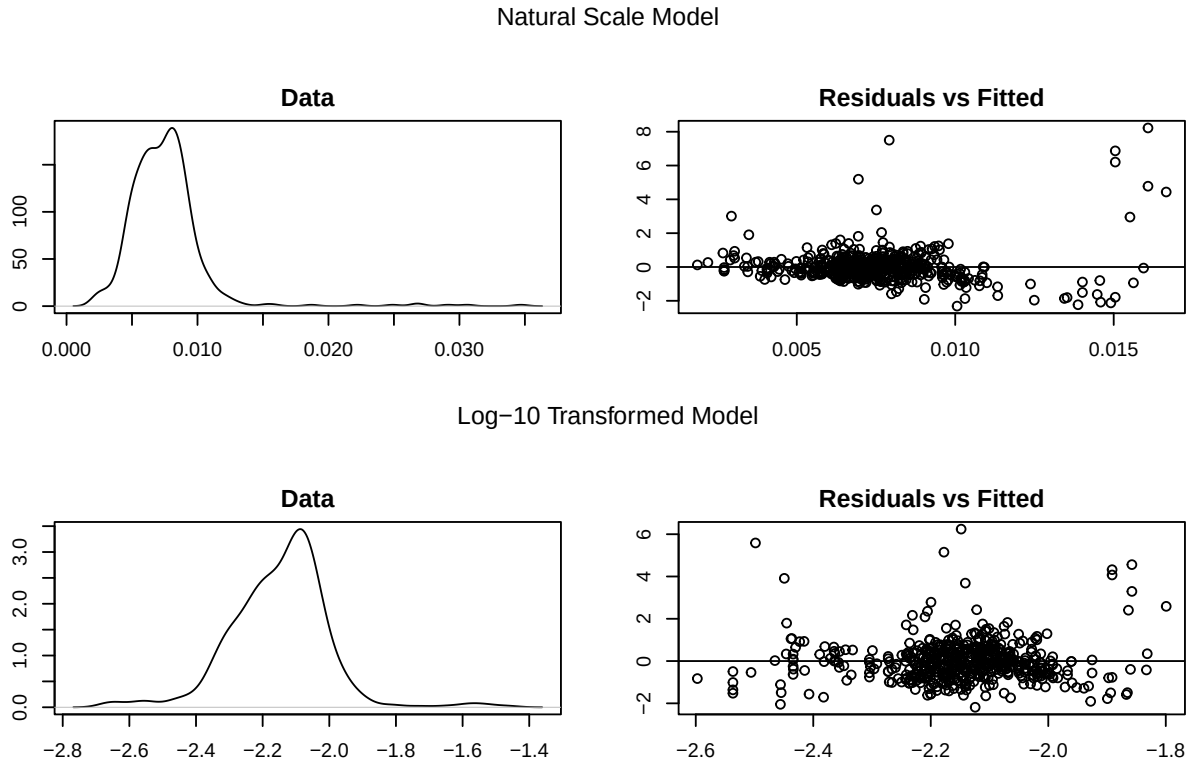
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0063	0
Davidson Creek	DC-05	after	21	0.0093	0
Davidson Creek	DC-10	before	79	0.0067	0
Davidson Creek	DC-10	after	18	0.0090	0
Davidson Creek	DC-15	before	81	0.0074	0
Davidson Creek	DC-15	after	18	0.0088	0
Davidson Creek	DC-20	before	81	0.0077	0
Davidson Creek	DC-20	after	17	0.0095	0
Creek 705	705-05	before	15	0.0060	0
Creek 705	705-05	after	18	0.0067	0
Creek 705	705-10	before	49	0.0087	0
Creek 705	705-10	after	17	0.0086	0
Fawnie Creek (reference)	FC-01	before	28	0.0036	0
Fawnie Creek (reference)	FC-01	after	18	0.0045	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	3	monit	after	0.0347	0.0161	8.222	Y
Davidson Creek	DC-05	2020	4	monit	before	0.0249	0.0079	7.500	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0306	0.0150	6.868	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0291	0.0150	6.205	Y
Davidson Creek	DC-20	2019	5	monit	before	0.0187	0.0069	5.191	Y
Davidson Creek	DC-05	2024	3	monit	after	0.0269	0.0161	4.777	Y
Davidson Creek	DC-20	2024	3	monit	after	0.0267	0.0167	4.435	Y
Davidson Creek	DC-20	2018	5	monit	before	0.0152	0.0075	3.372	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0098	0.0029	3.008	Y

Outliers on log scale:

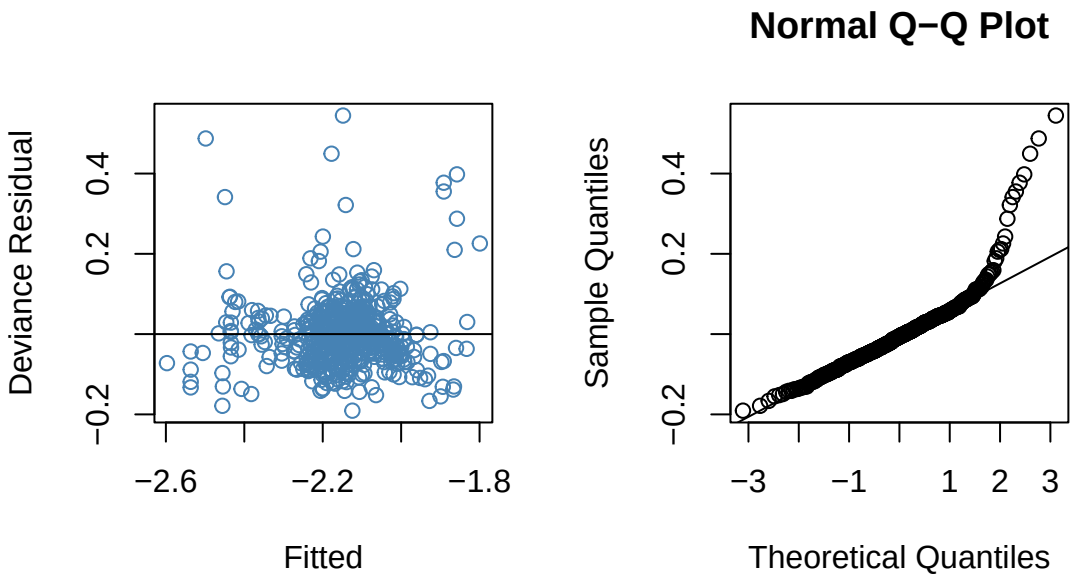
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2020	4	monit	before	-1.604	-2.148	6.241	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	-2.011	-2.498	5.586	Y
Davidson Creek	DC-20	2019	5	monit	before	-1.728	-2.178	5.151	Y
Davidson Creek	DC-05	2024	3	monit	after	-1.460	-1.858	4.561	Y
Davidson Creek	DC-05	2024	2	monit	after	-1.514	-1.891	4.322	Y
Davidson Creek	DC-05	2024	2	monit	after	-1.536	-1.891	4.072	Y
Fawnie Creek (reference)	FC-01	2021	12	control	before	-2.108	-2.449	3.912	Y
Davidson Creek	DC-20	2018	5	monit	before	-1.820	-2.141	3.686	Y
Davidson Creek	DC-05	2024	3	monit	after	-1.570	-1.858	3.294	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.01686	0.01686	1	5.033	2.215	0.196	
period	0.17848	0.17848	1	124.912	23.444	<0.001	
class:period	0.22591	0.22591	1	508.954	29.674	<0.001	4.78e-07

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

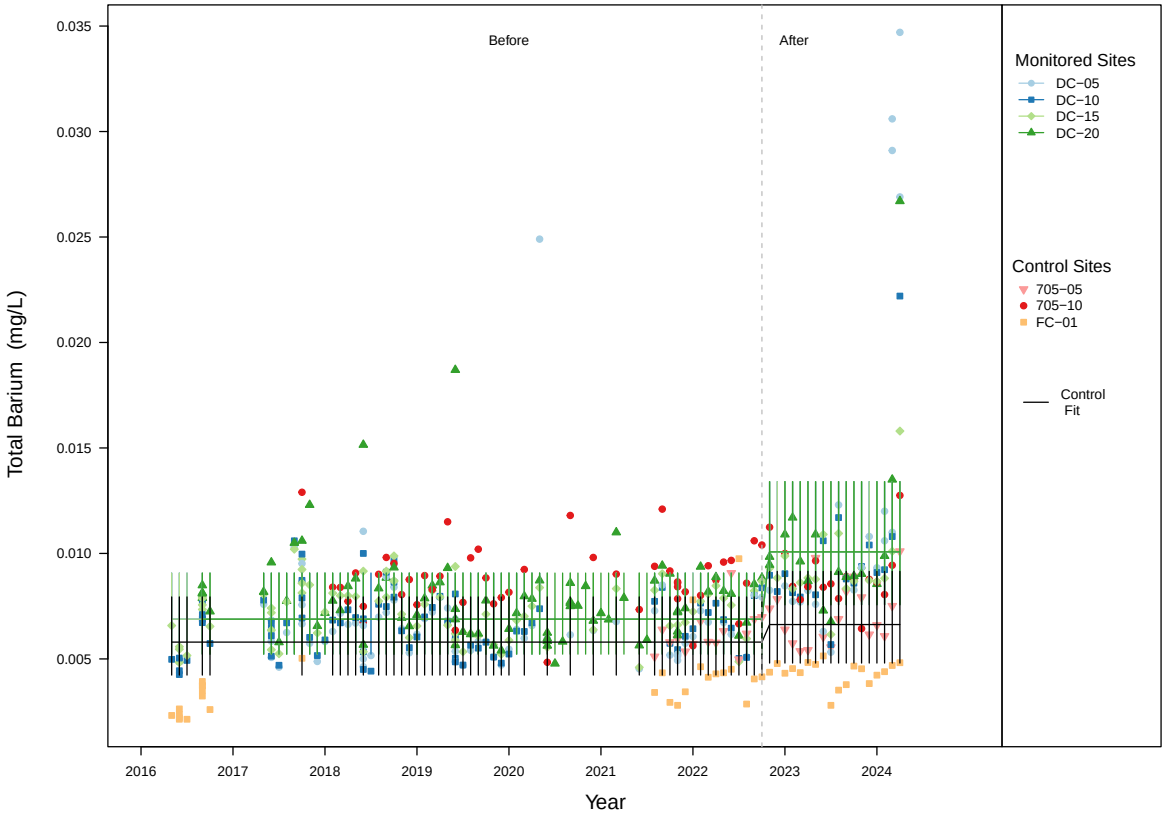
Monitored vs.	Estimate	Significance
control sites	0.1071	significant

Conclusion:

The change in Total Barium concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 4.78×10^{-7}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale. Guideline is at 1 (mg/L).

Final Summary Table

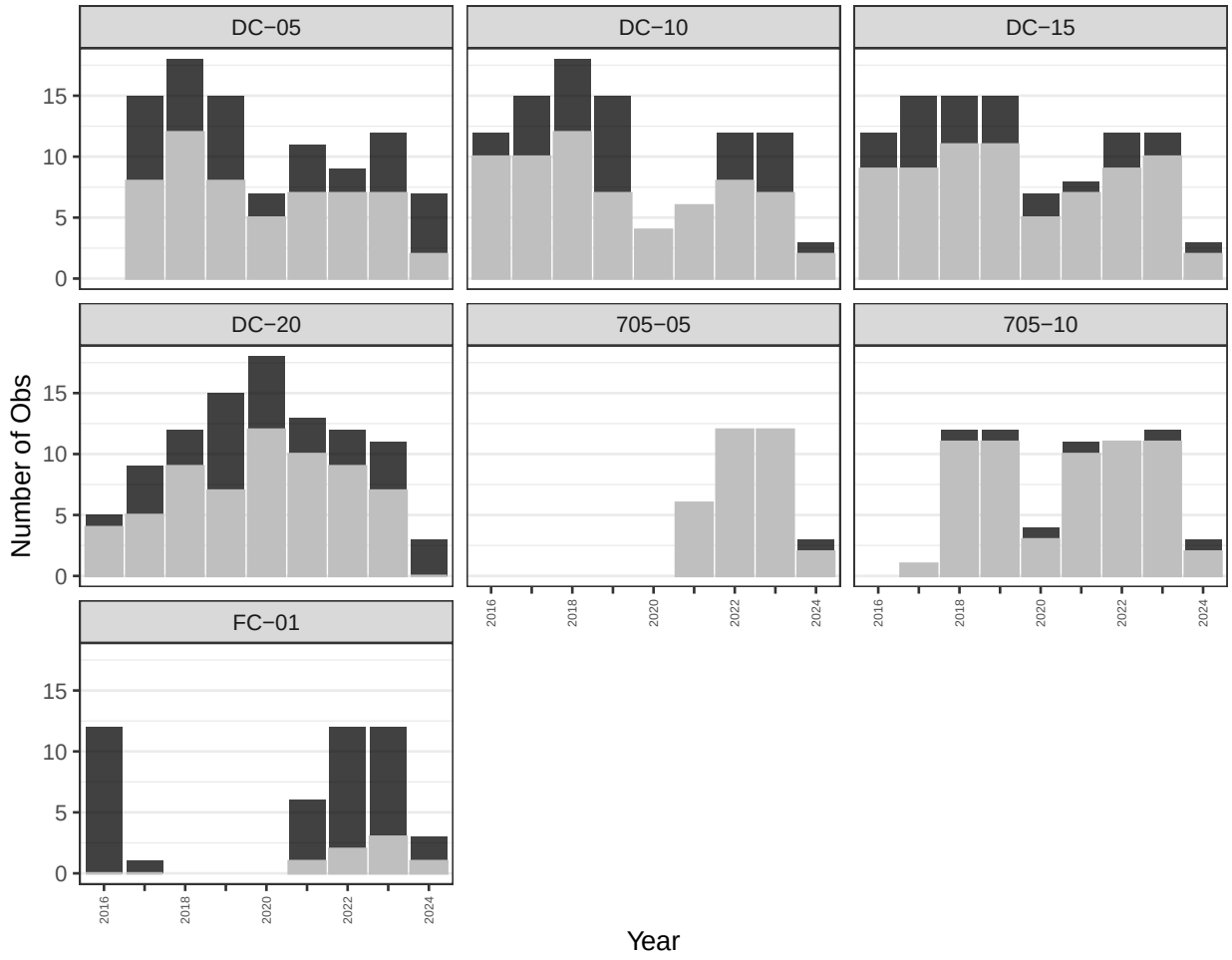
Variable	Total Barium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.11 Total Cadmium

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

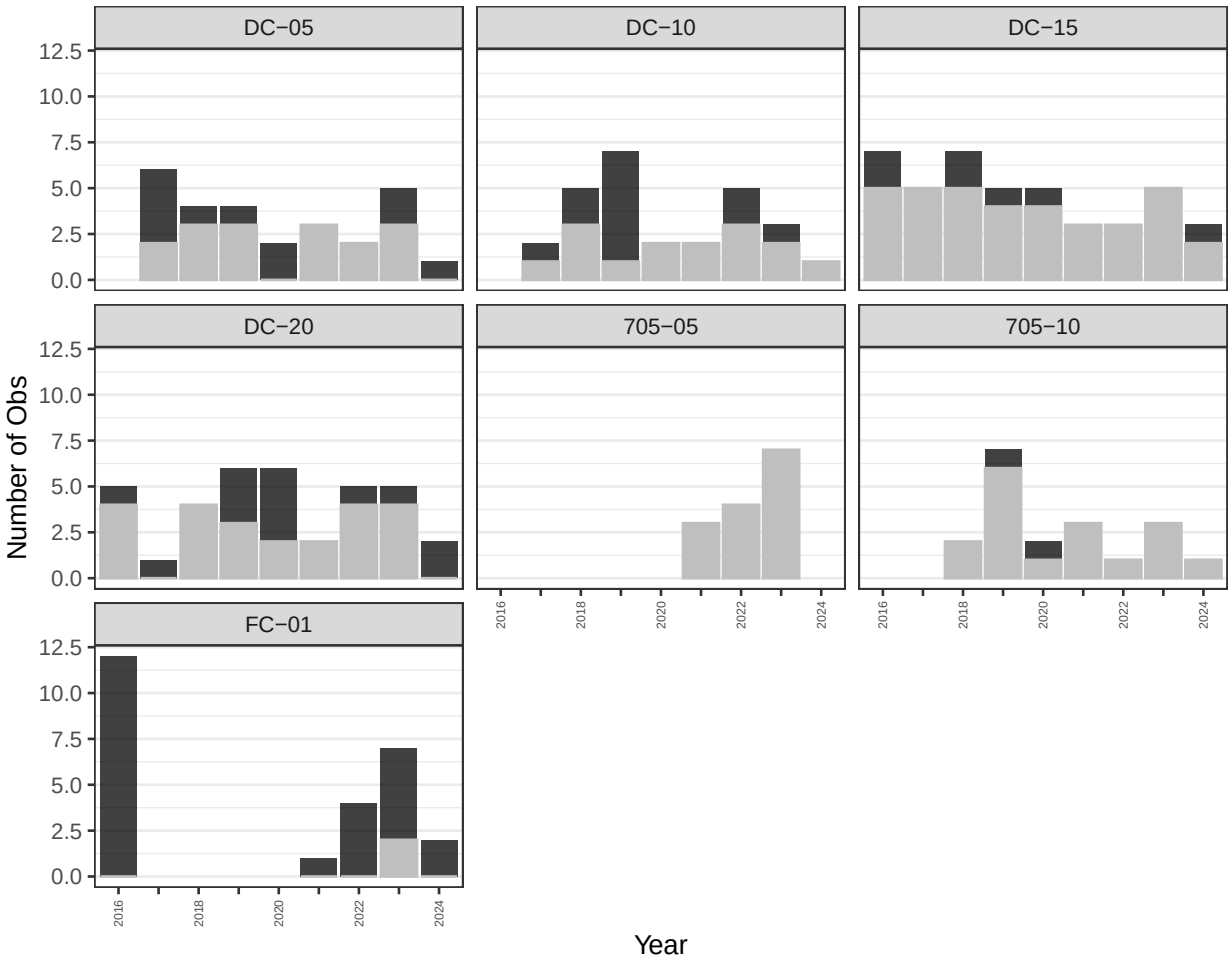
Watershed	Site	Year	Class	Period	#Obs Removed
Davidson Creek	DC-05	2017	monit	before	15
Davidson Creek	DC-05	2018	monit	before	18
Davidson Creek	DC-05	2019	monit	before	15
Davidson Creek	DC-05	2020	monit	before	7
Davidson Creek	DC-05	2021	monit	before	11
Davidson Creek	DC-05	2022	monit	before	9
Davidson Creek	DC-05	2022	monit	after	9

(Continued on Next Page...)

(continued)

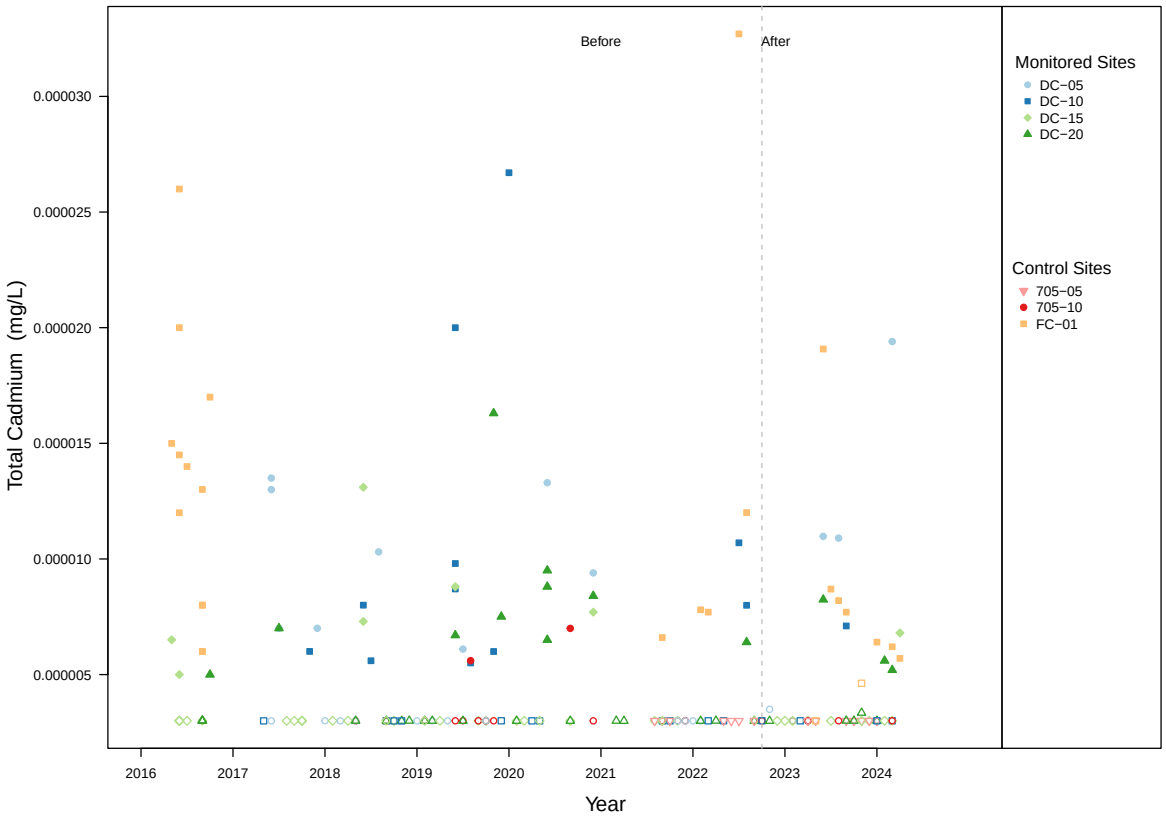
Watershed	Site	Year	Class	Period	#Obs Removed
Davidson Creek	DC-05	2023	monit	after	12
Davidson Creek	DC-10	2016	monit	before	12
Davidson Creek	DC-10	2017	monit	before	15
Davidson Creek	DC-10	2018	monit	before	18
Davidson Creek	DC-10	2020	monit	before	4
Davidson Creek	DC-10	2021	monit	before	6
Davidson Creek	DC-10	2022	monit	before	12
Davidson Creek	DC-10	2022	monit	after	12
Davidson Creek	DC-10	2023	monit	after	12
Davidson Creek	DC-10	2024	monit	after	3
Davidson Creek	DC-20	2016	monit	before	5
Davidson Creek	DC-20	2017	monit	before	9
Davidson Creek	DC-20	2018	monit	before	12
Davidson Creek	DC-20	2020	monit	before	18
Davidson Creek	DC-20	2021	monit	before	13
Davidson Creek	DC-20	2022	monit	before	12
Davidson Creek	DC-20	2022	monit	after	12
Davidson Creek	DC-20	2023	monit	after	11
Creek 705	705-05	2021	control	before	6
Creek 705	705-05	2022	control	before	12
Creek 705	705-05	2022	control	after	12
Creek 705	705-05	2023	control	after	12
Creek 705	705-05	2024	control	after	3
Creek 705	705-10	2017	control	before	1
Creek 705	705-10	2018	control	before	12
Creek 705	705-10	2019	control	before	12
Creek 705	705-10	2020	control	before	4
Creek 705	705-10	2021	control	before	11
Creek 705	705-10	2022	control	before	11
Creek 705	705-10	2022	control	after	11
Creek 705	705-10	2023	control	after	12
Creek 705	705-10	2024	control	after	3

1.2 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

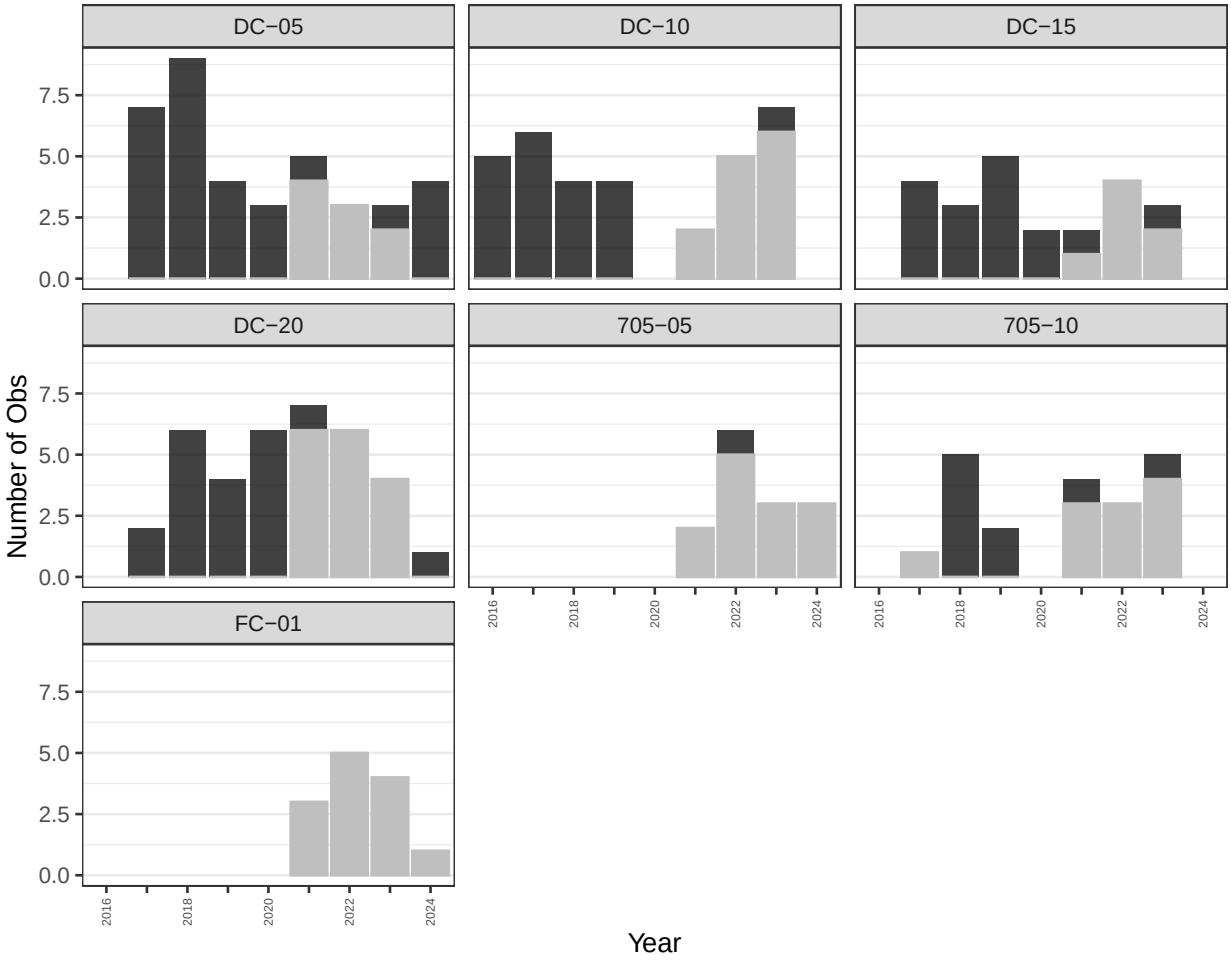
Final Summary Table

Variable	Total Cadmium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	DC-15, DC-05, DC-10, DC-15, DC-20, 705-05, 705-10
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.12 Total Chromium

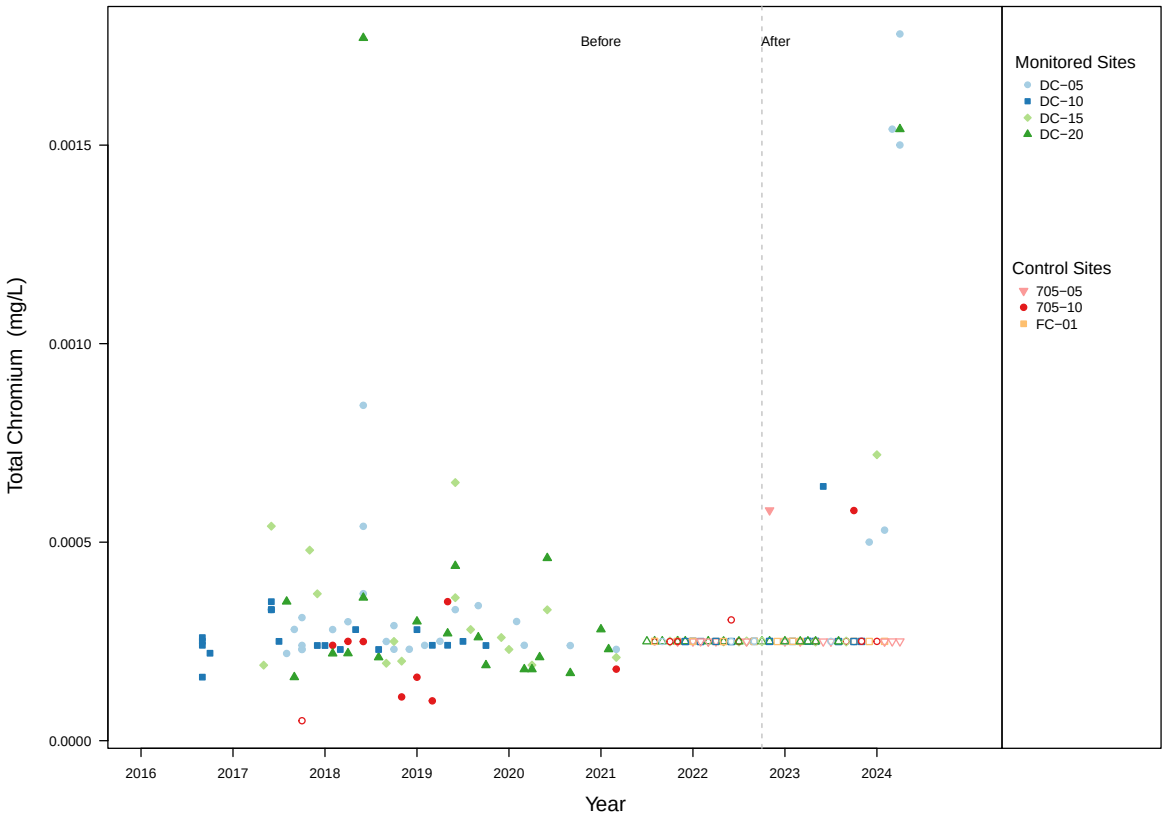
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

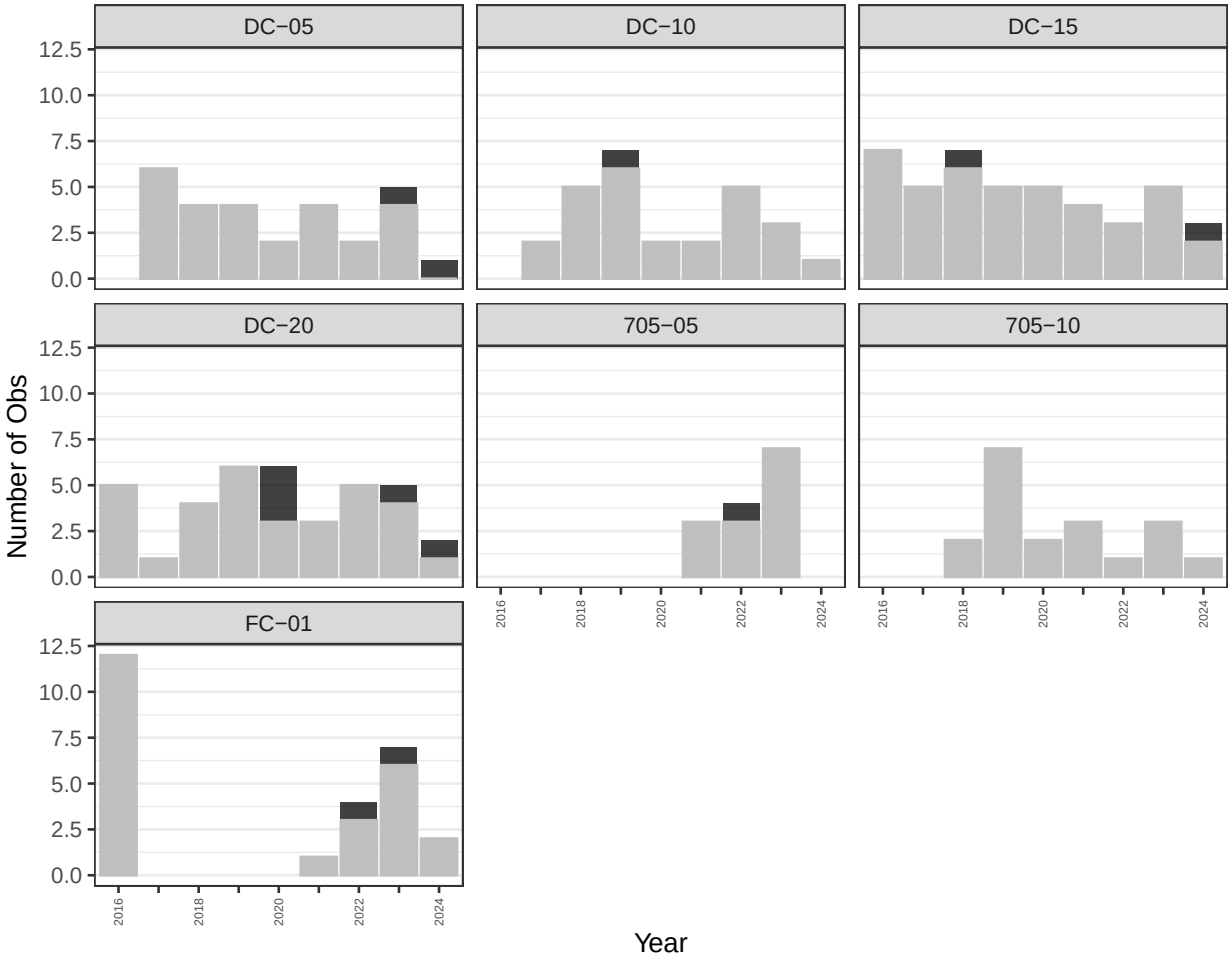
Final Summary Table

Variable	Total Chromium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.13 Total Cobalt

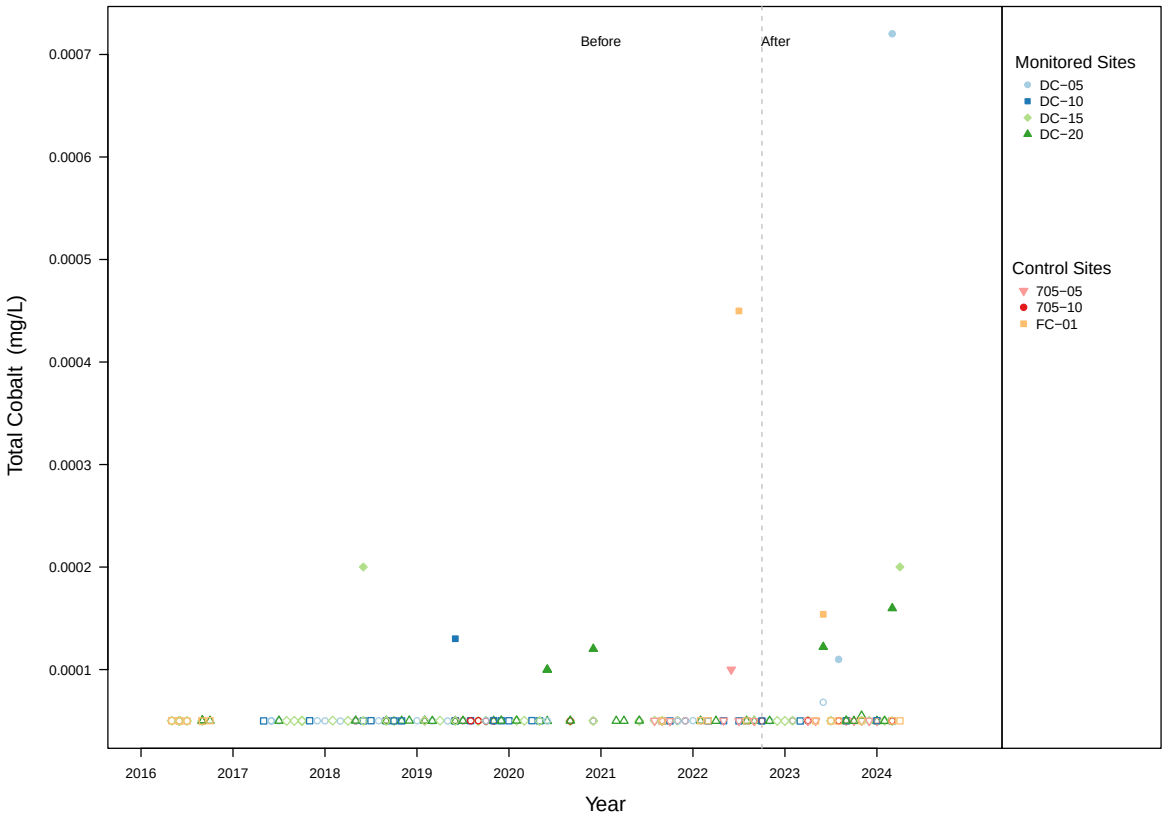
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

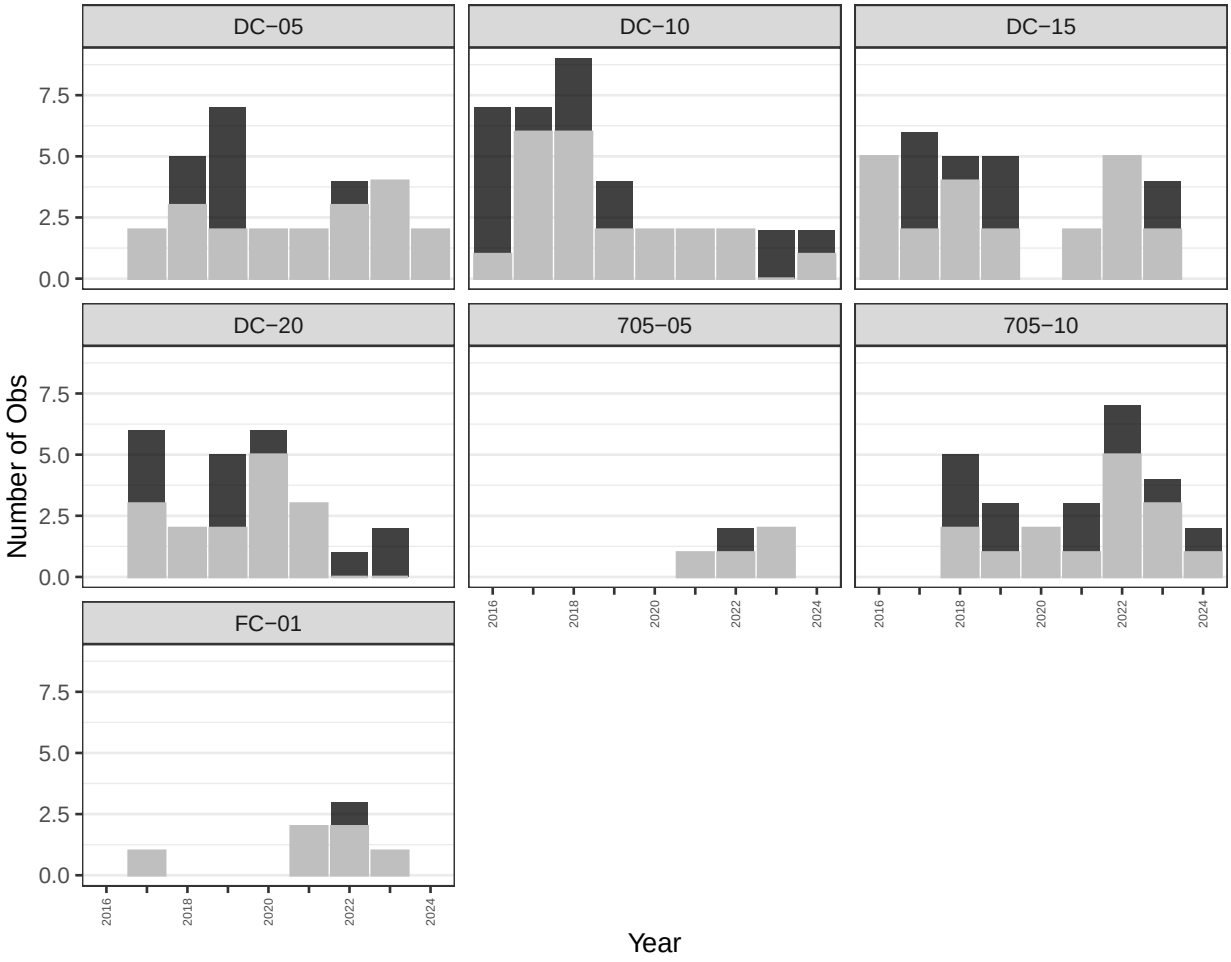
Final Summary Table

Variable	Total Cobalt
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.14 Total Copper

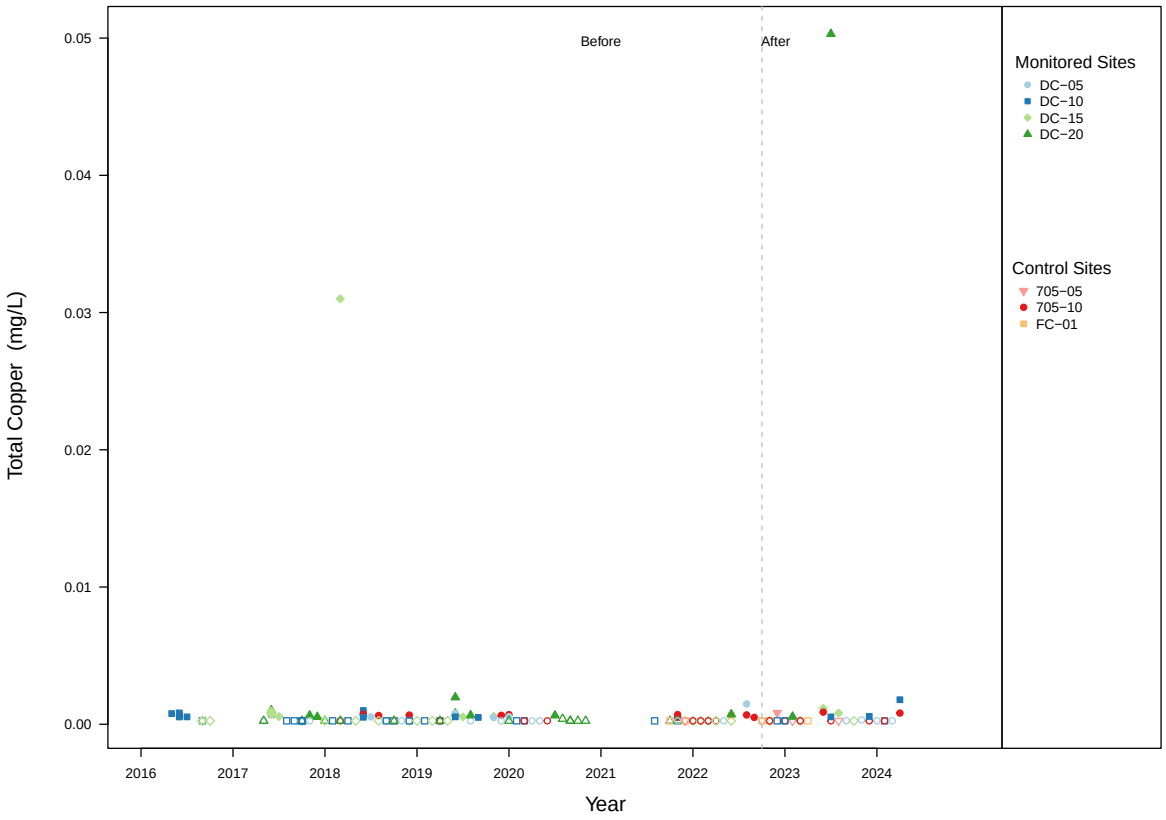
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

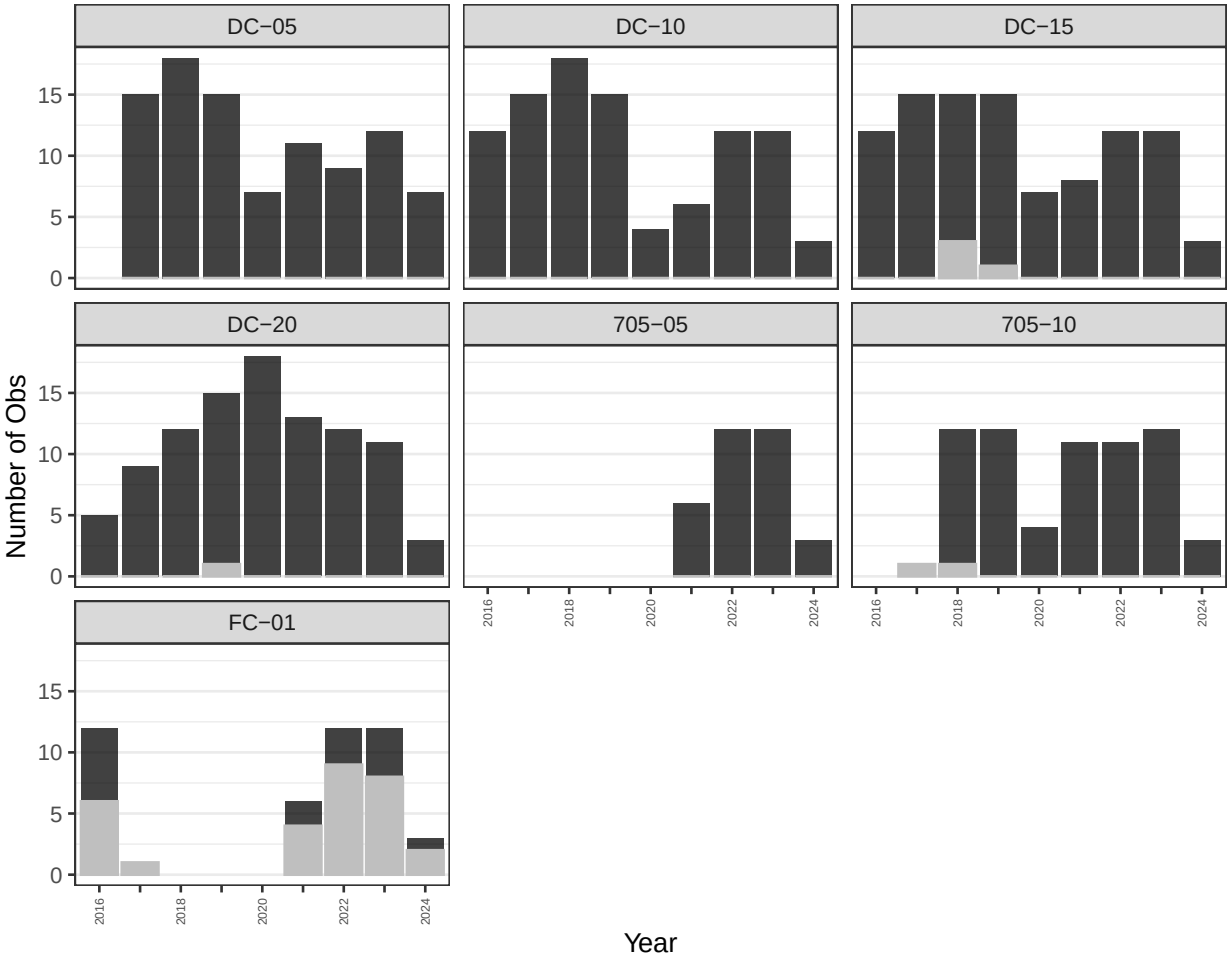
Variable	Total Copper
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.15 Total Iron

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 705	705-10	2017	control	before	1
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2021	control	before	6
Fawnie Creek (reference)	FC-01	2022	control	before	12
Fawnie Creek (reference)	FC-01	2022	control	after	12
Fawnie Creek (reference)	FC-01	2023	control	after	12
Fawnie Creek (reference)	FC-01	2024	control	after	3

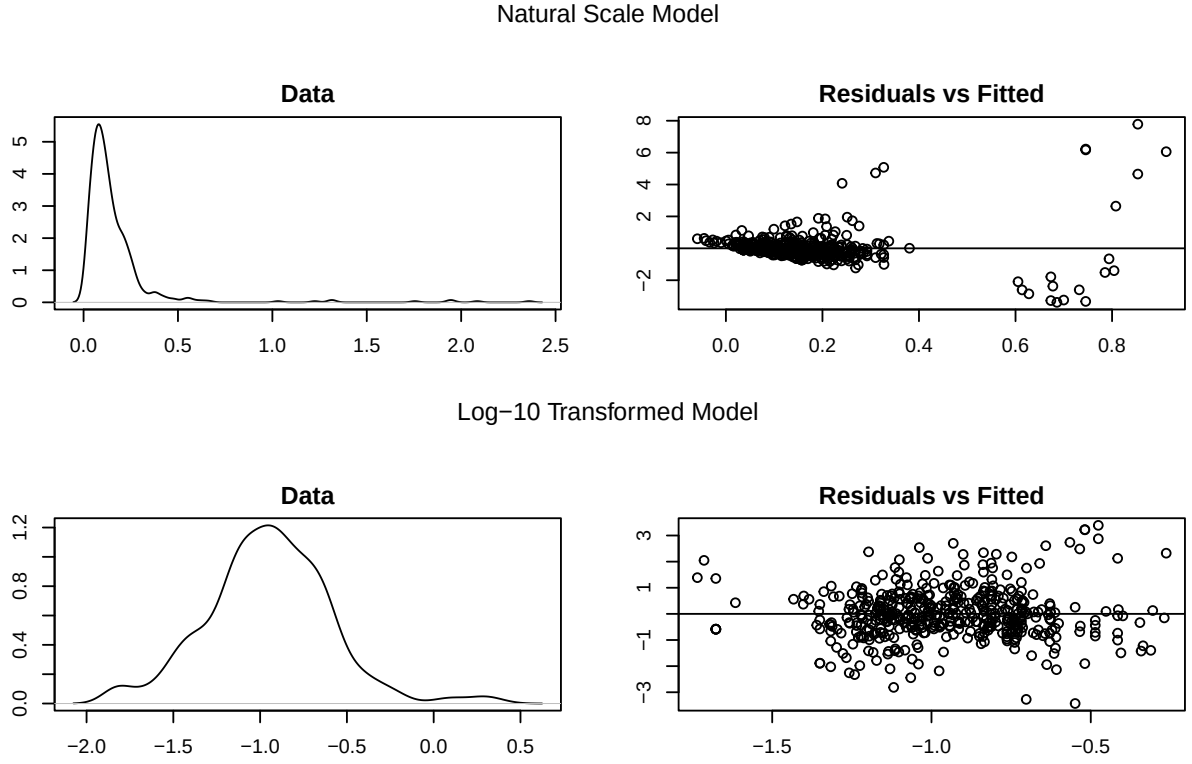
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0970	0.000
Davidson Creek	DC-05	after	21	0.1550	0.000
Davidson Creek	DC-10	before	79	0.0915	0.000
Davidson Creek	DC-10	after	18	0.0735	0.000
Davidson Creek	DC-15	before	81	0.0720	4.938
Davidson Creek	DC-15	after	18	0.0540	0.000
Davidson Creek	DC-20	before	81	0.1470	1.235
Davidson Creek	DC-20	after	17	0.2650	0.000
Creek 705	705-05	before	15	0.2100	0.000
Creek 705	705-05	after	18	0.1985	0.000
Creek 705	705-10	before	28	0.1090	3.571
Fawnie Creek (reference)	FC-01	before	12	0.0230	50.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	3	monit	after	2.360	0.8533	7.782	Y
Davidson Creek	DC-05	2024	2	monit	after	1.950	0.7454	6.222	Y
Davidson Creek	DC-05	2024	2	monit	after	1.940	0.7454	6.171	Y
Davidson Creek	DC-20	2024	3	monit	after	2.085	0.9121	6.058	Y
Davidson Creek	DC-20	2019	5	monit	before	1.310	0.3270	5.078	Y
Davidson Creek	DC-20	2018	5	monit	before	1.225	0.3101	4.726	Y
Davidson Creek	DC-05	2024	3	monit	after	1.755	0.8533	4.657	Y
Davidson Creek	DC-20	2017	10	monit	before	1.030	0.2408	4.077	Y
Davidson Creek	DC-15	2024	2	monit	after	0.030	0.6858	-3.387	Y
Davidson Creek	DC-05	2024	2	monit	after	0.101	0.7454	-3.328	Y
Davidson Creek	DC-05	2024	1	monit	after	0.039	0.6732	-3.276	Y
Davidson Creek	DC-10	2024	2	monit	after	0.072	0.6998	-3.243	Y

Outliers on log scale:

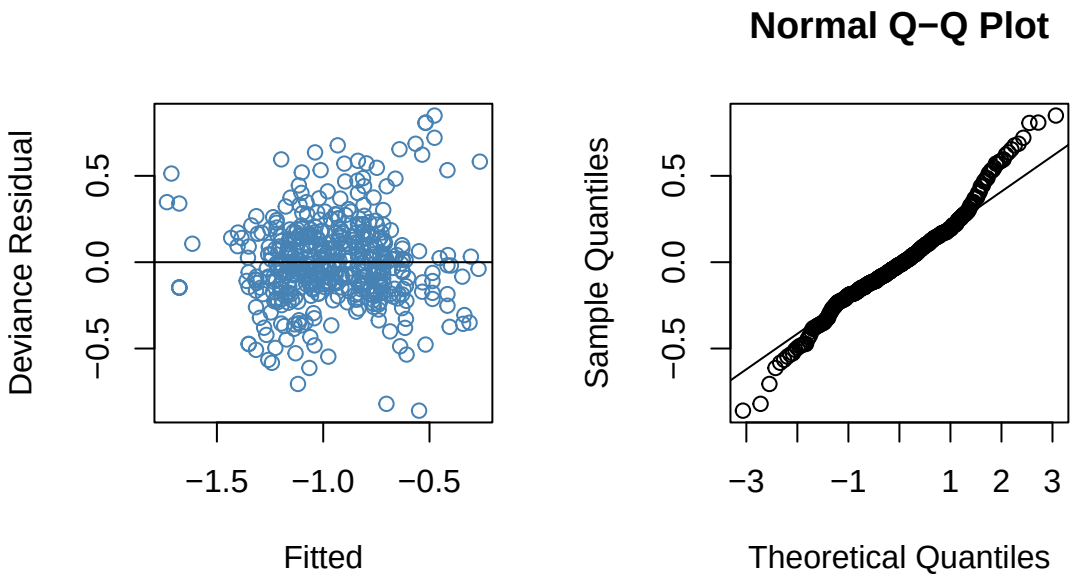
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	1	monit	after	-1.4089	-0.5491	-3.431	Y
Davidson Creek	DC-05	2024	3	monit	after	0.3729	-0.4764	3.388	Y
Davidson Creek	DC-15	2024	2	monit	after	-1.5229	-0.7026	-3.273	Y
Davidson Creek	DC-05	2024	2	monit	after	0.2900	-0.5186	3.226	Y
Davidson Creek	DC-05	2024	2	monit	after	0.2878	-0.5186	3.217	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.02168	0.02168	1	5.116	0.3451	0.5820	
period	0.37640	0.37640	1	324.955	5.9914	0.0149	
class:period	0.08448	0.08448	1	440.415	1.3447	0.2470	0.247

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

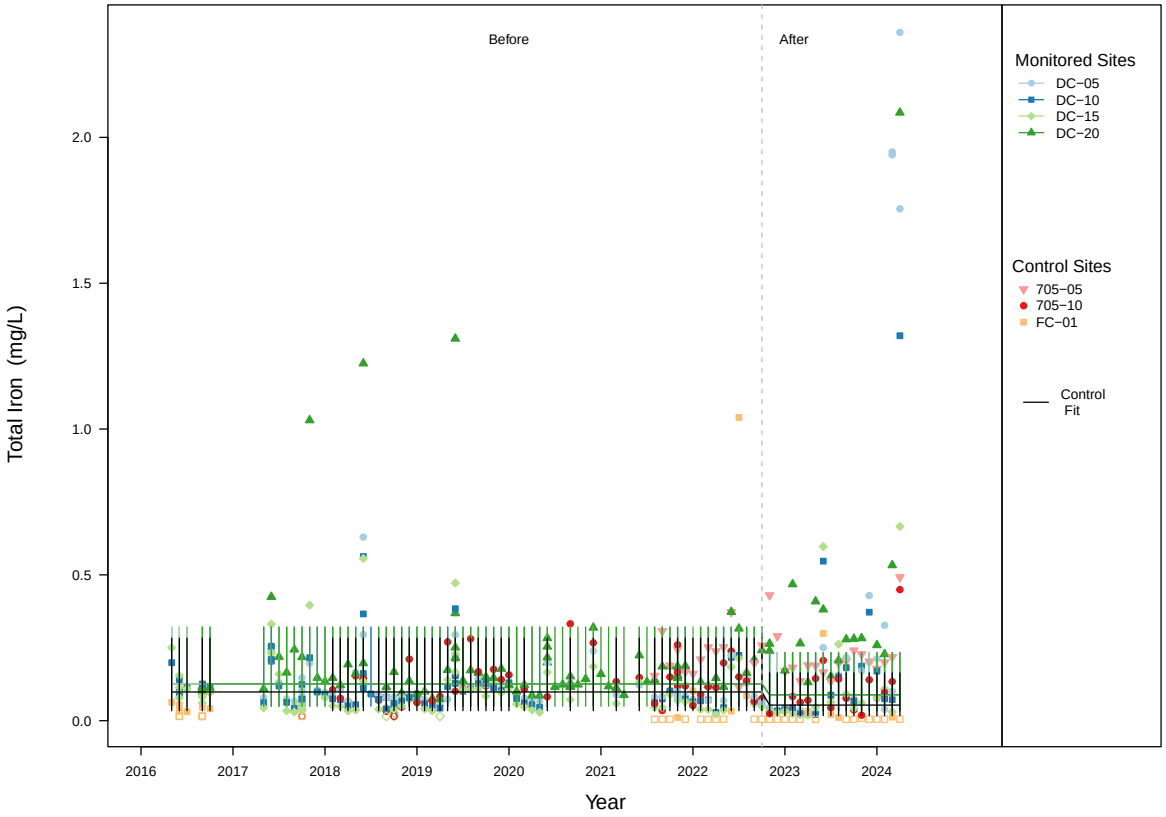
Monitored vs.	Estimate	Significance
control sites	0.1126	not significant

Conclusion:

The change in Total Iron concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.247) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

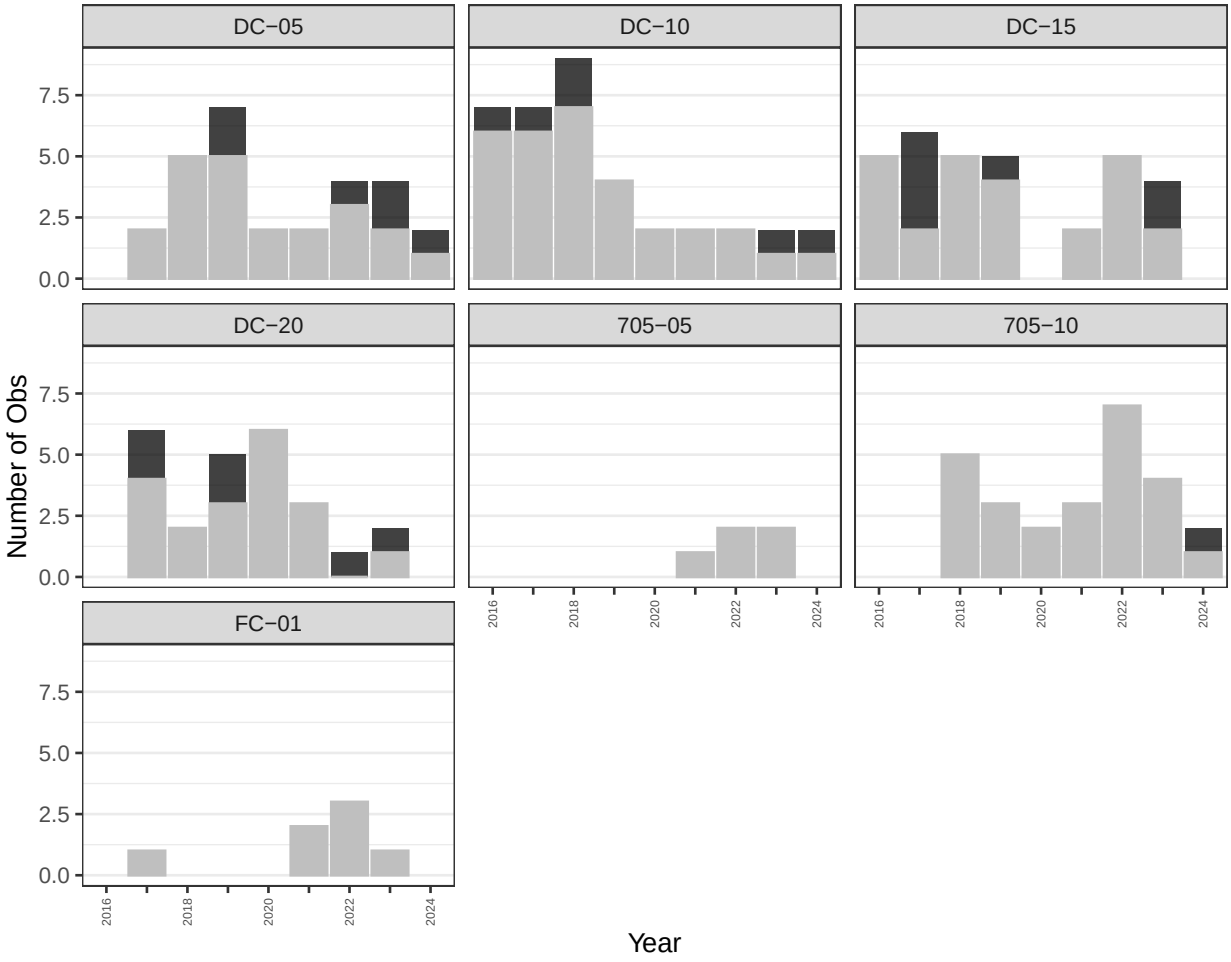
Final Summary Table

Variable	Total Iron
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.1.16 Total Lead

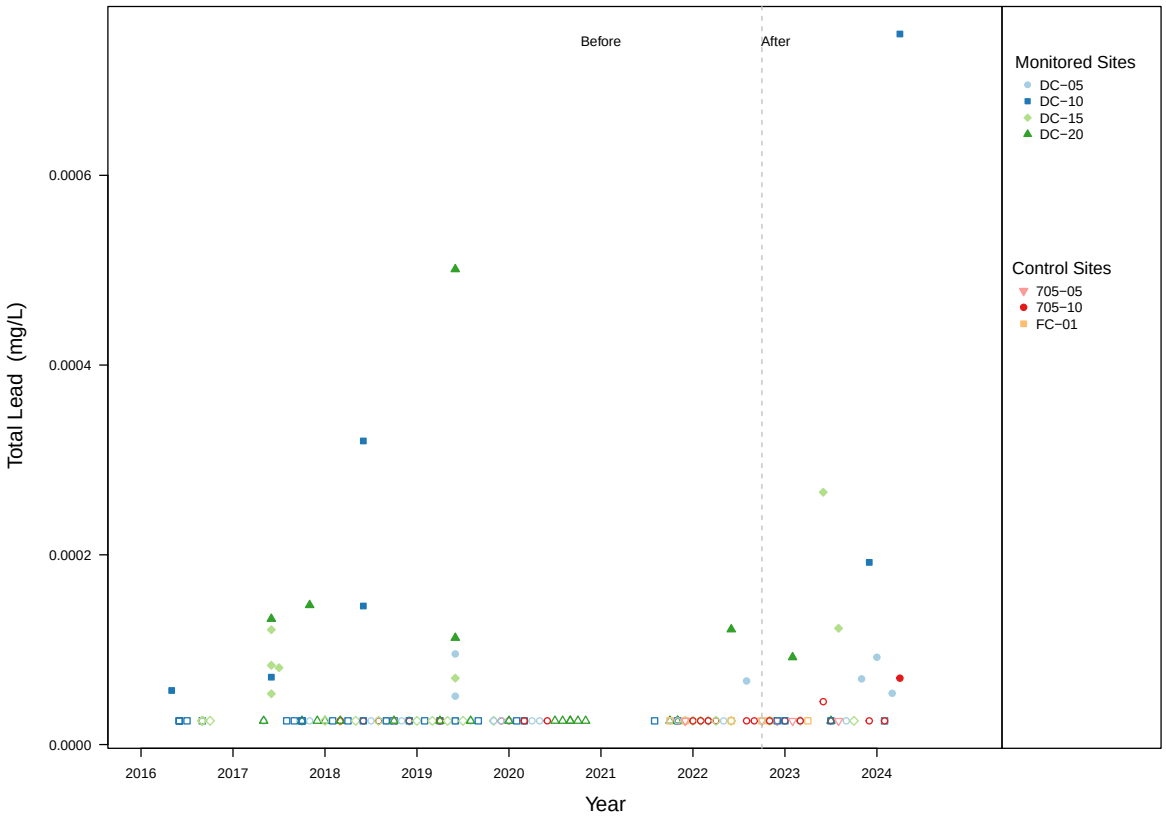
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

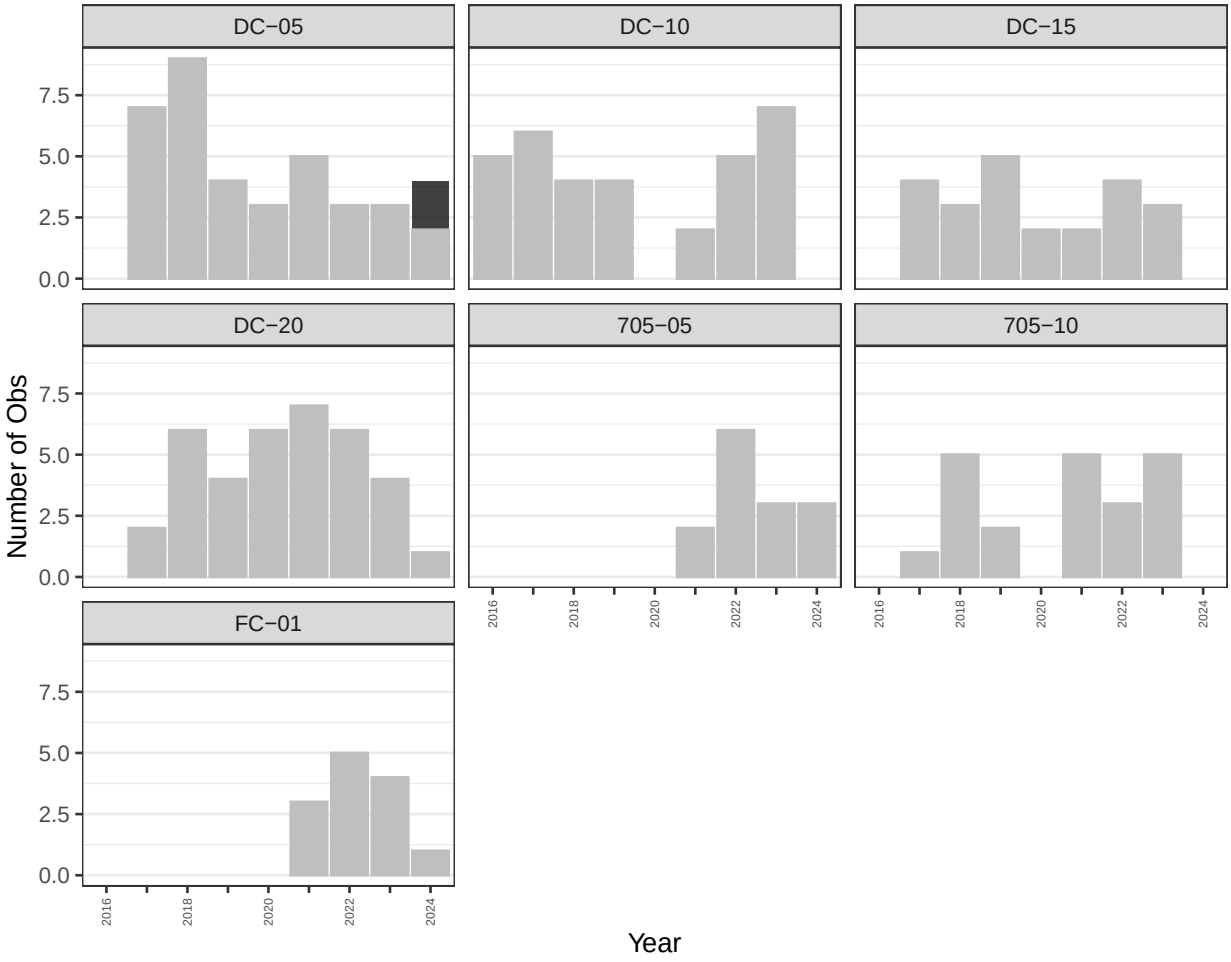
Final Summary Table

Variable	Total Lead
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.17 Total Lithium

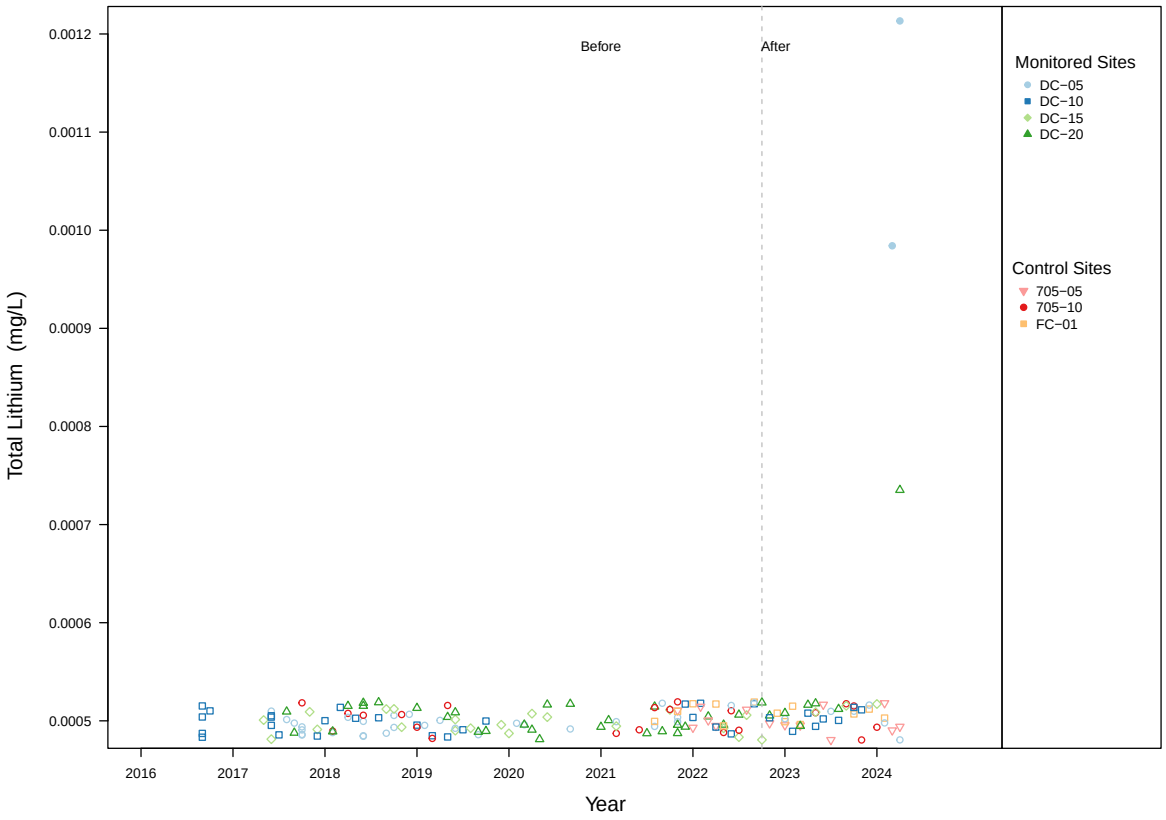
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

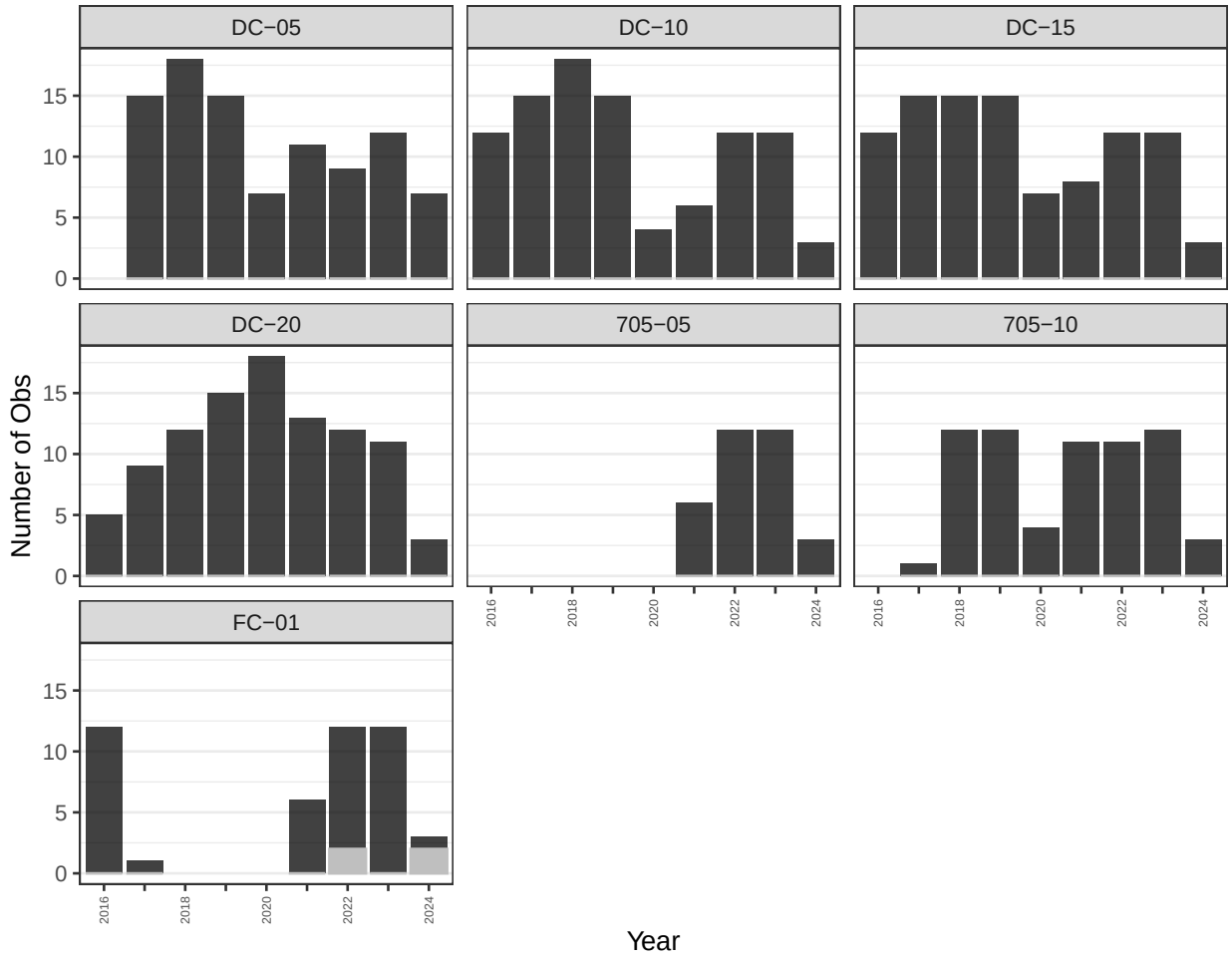
Variable	Total Lithium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.18 Total Manganese

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2024	control	after	3

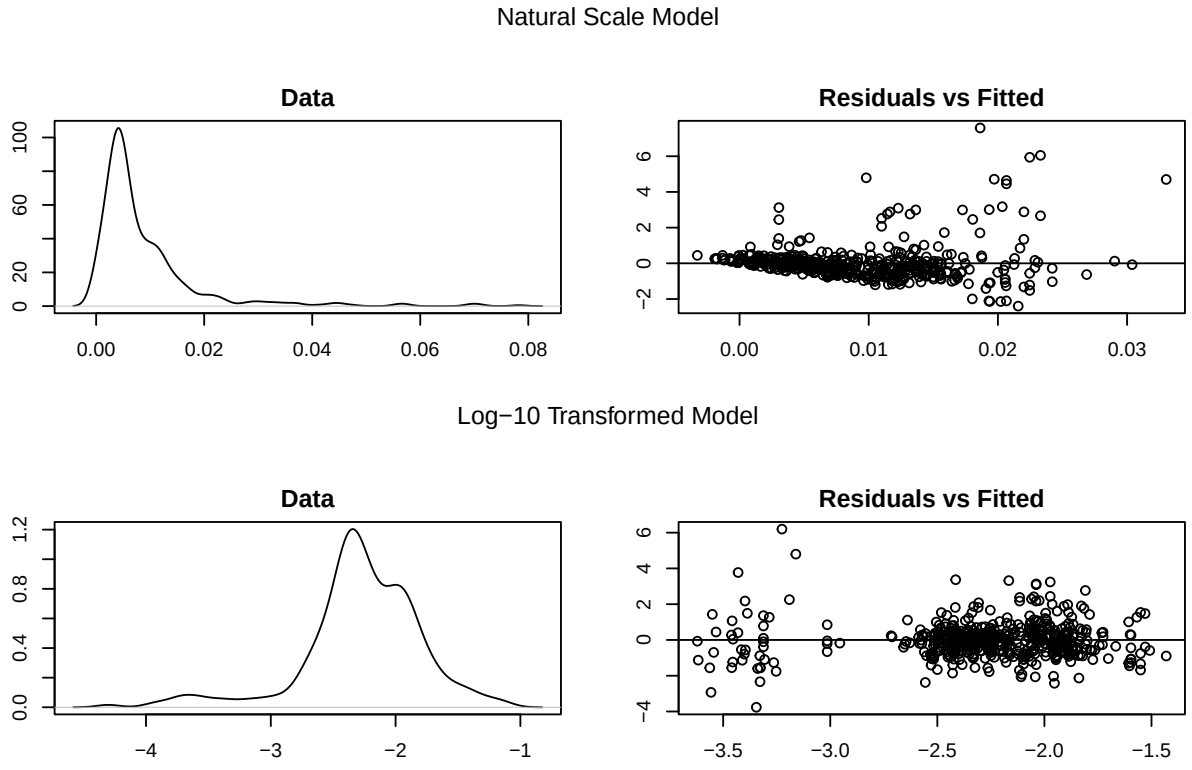
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0044	0.000
Davidson Creek	DC-05	after	21	0.0063	0.000
Davidson Creek	DC-10	before	79	0.0043	0.000
Davidson Creek	DC-10	after	18	0.0042	0.000
Davidson Creek	DC-15	before	81	0.0059	0.000
Davidson Creek	DC-15	after	18	0.0052	0.000
Davidson Creek	DC-20	before	81	0.0119	0.000
Davidson Creek	DC-20	after	17	0.0235	0.000
Creek 705	705-05	before	15	0.0111	0.000
Creek 705	705-05	after	18	0.0088	0.000
Creek 705	705-10	before	49	0.0039	0.000
Creek 705	705-10	after	17	0.0022	0.000
Fawnie Creek (reference)	FC-01	before	28	0.0005	3.571
Fawnie Creek (reference)	FC-01	after	15	0.0003	6.667

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-20	2017	10	monit	before	0.0783	0.0186	7.584	Y
Davidson Creek	DC-05	2024	3	monit	after	0.0709	0.0233	6.050	Y
Davidson Creek	DC-20	2019	5	monit	before	0.0692	0.0225	5.940	Y
Davidson Creek	DC-15	2017	10	monit	before	0.0475	0.0098	4.790	Y
Creek 705	705-05	2022	5	control	before	0.0568	0.0197	4.713	Y
Davidson Creek	DC-20	2024	3	monit	after	0.0700	0.0330	4.699	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0572	0.0207	4.644	Y
Davidson Creek	DC-05	2024	2	monit	after	0.0557	0.0207	4.453	Y
Davidson Creek	DC-20	2022	12	monit	after	0.0453	0.0203	3.172	Y
Creek 705	705-10	2020	8	control	before	0.0276	0.0030	3.120	Y
Davidson Creek	DC-05	2018	5	monit	before	0.0366	0.0123	3.090	Y
Davidson Creek	DC-20	2023	4	monit	after	0.0430	0.0193	3.009	Y

Outliers on log scale:

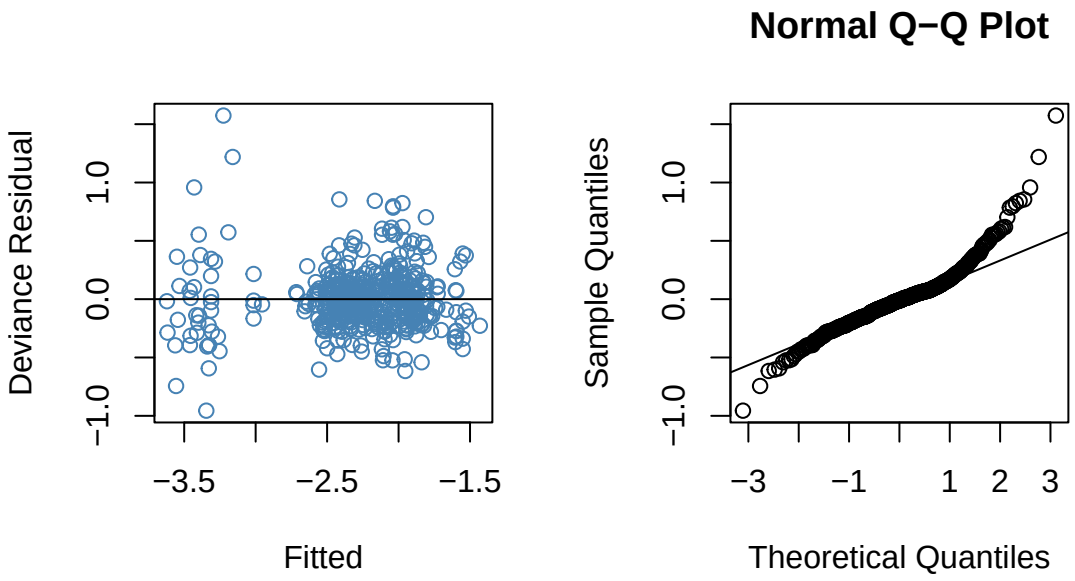
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-1.652	-3.226	6.197	Y
Fawnie Creek (reference)	FC-01	2023	5	control	after	-1.942	-3.161	4.799	Y
Fawnie Creek (reference)	FC-01	2021	12	control	before	-2.472	-3.430	3.771	Y
Fawnie Creek (reference)	FC-01	2022	3	control	before	-4.301	-3.345	-3.763	N
Creek 705	705-10	2020	8	control	before	-1.559	-2.414	3.367	Y
Davidson Creek	DC-15	2017	10	monit	before	-1.323	-2.166	3.319	Y
Davidson Creek	DC-05	2024	3	monit	after	-1.149	-1.973	3.242	Y
Davidson Creek	DC-05	2024	2	monit	after	-1.243	-2.039	3.134	Y
Davidson Creek	DC-05	2024	2	monit	after	-1.254	-2.039	3.088	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.1129	0.1129	1	5.016	1.749	0.243	
period	0.0369	0.0369	1	70.582	0.572	0.452	
class:period	1.7649	1.7649	1	507.728	27.360	<0.001	9.9e-07

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

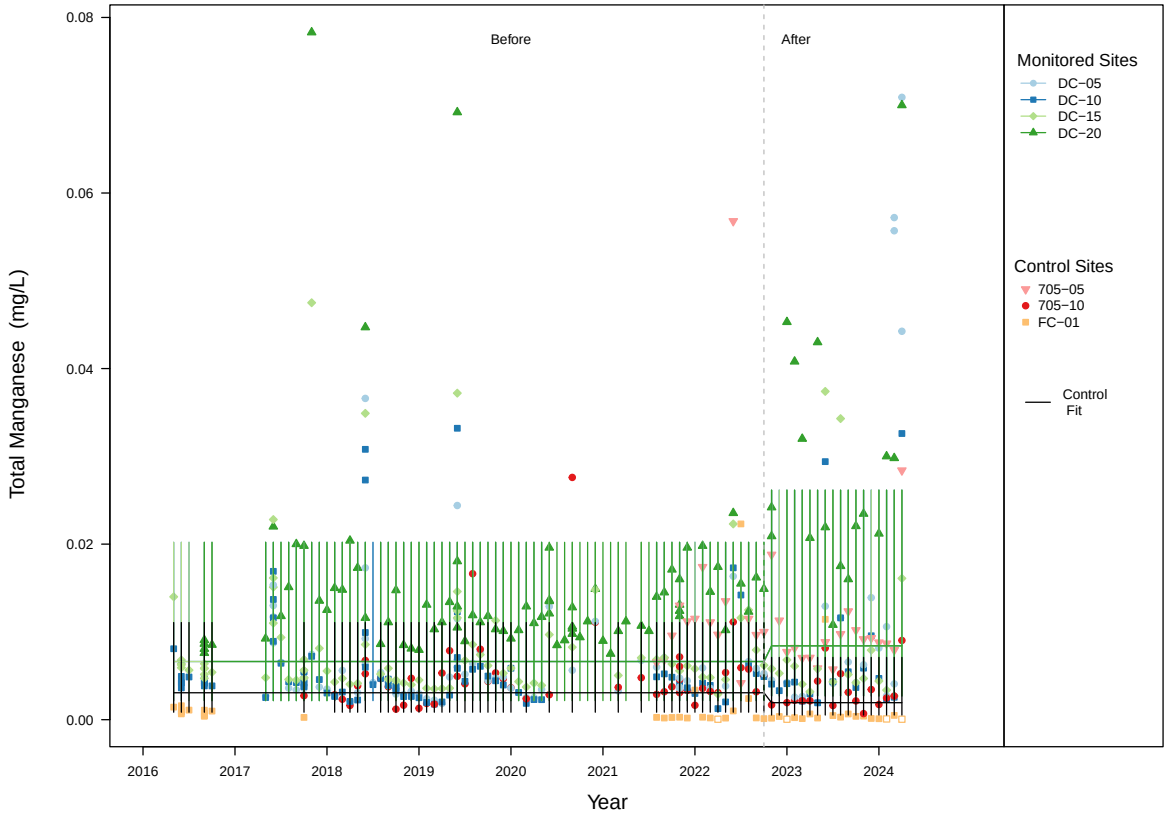
Monitored vs.	Estimate	Significance
control sites	0.3036	significant

Conclusion:

The change in Total Manganese concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 9.9×10^{-7}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

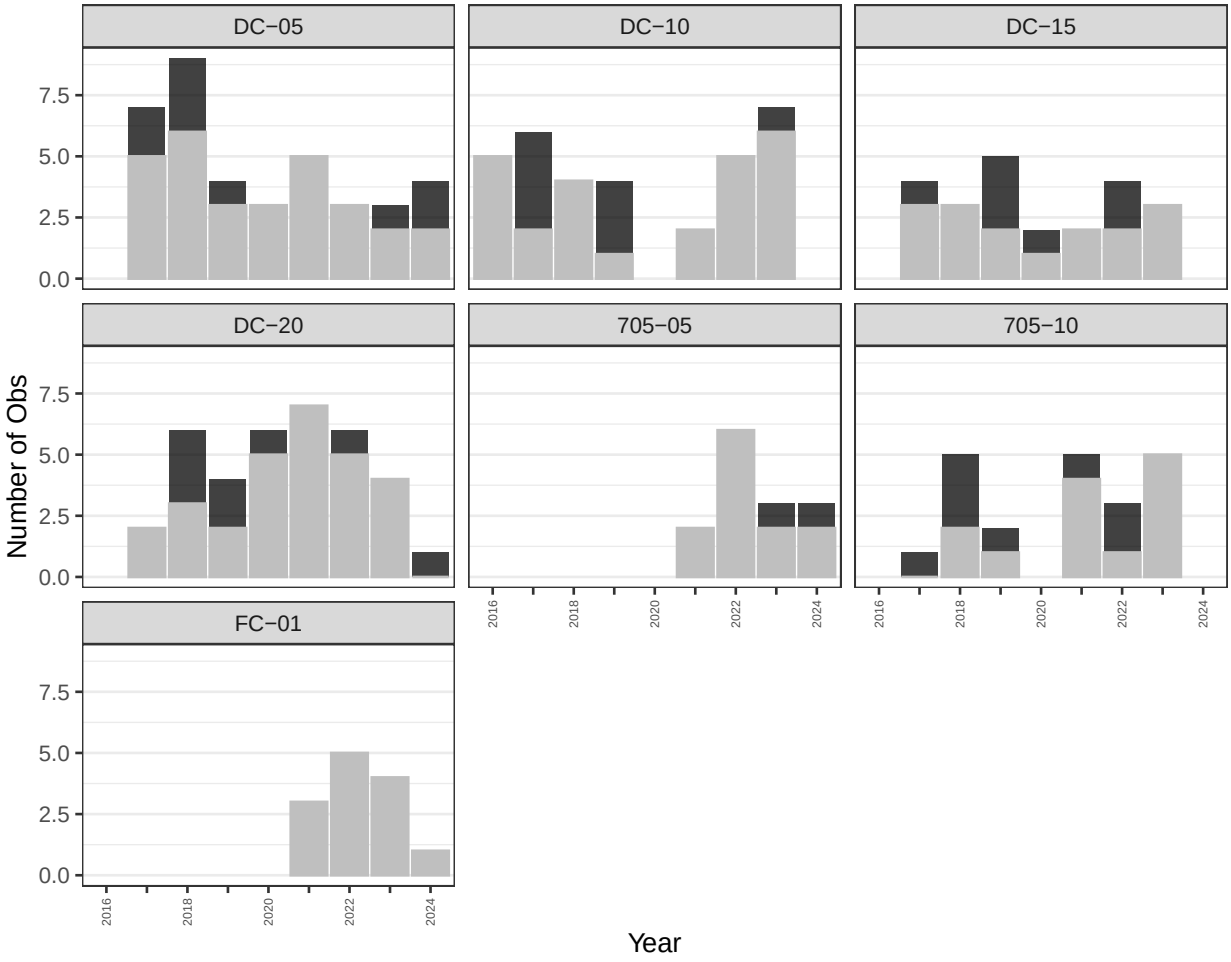
Final Summary Table

Variable	Total Manganese
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.19 Total Mercury

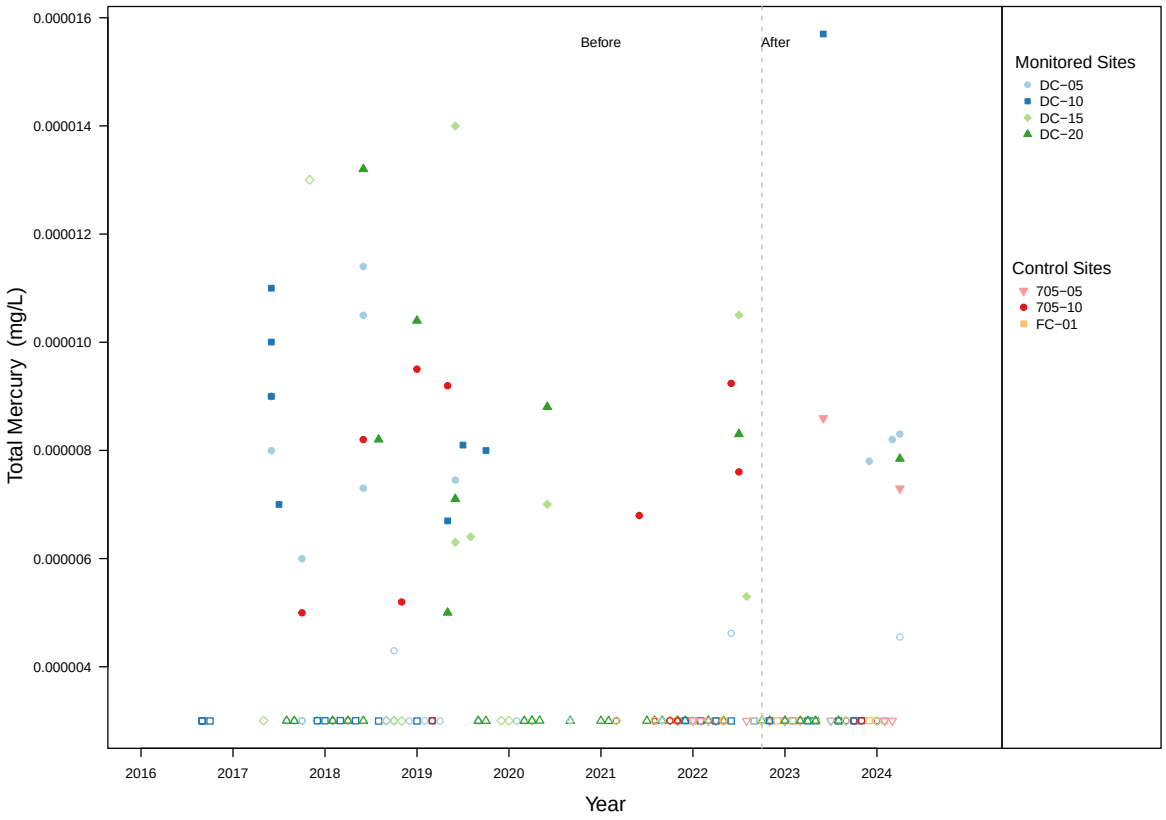
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

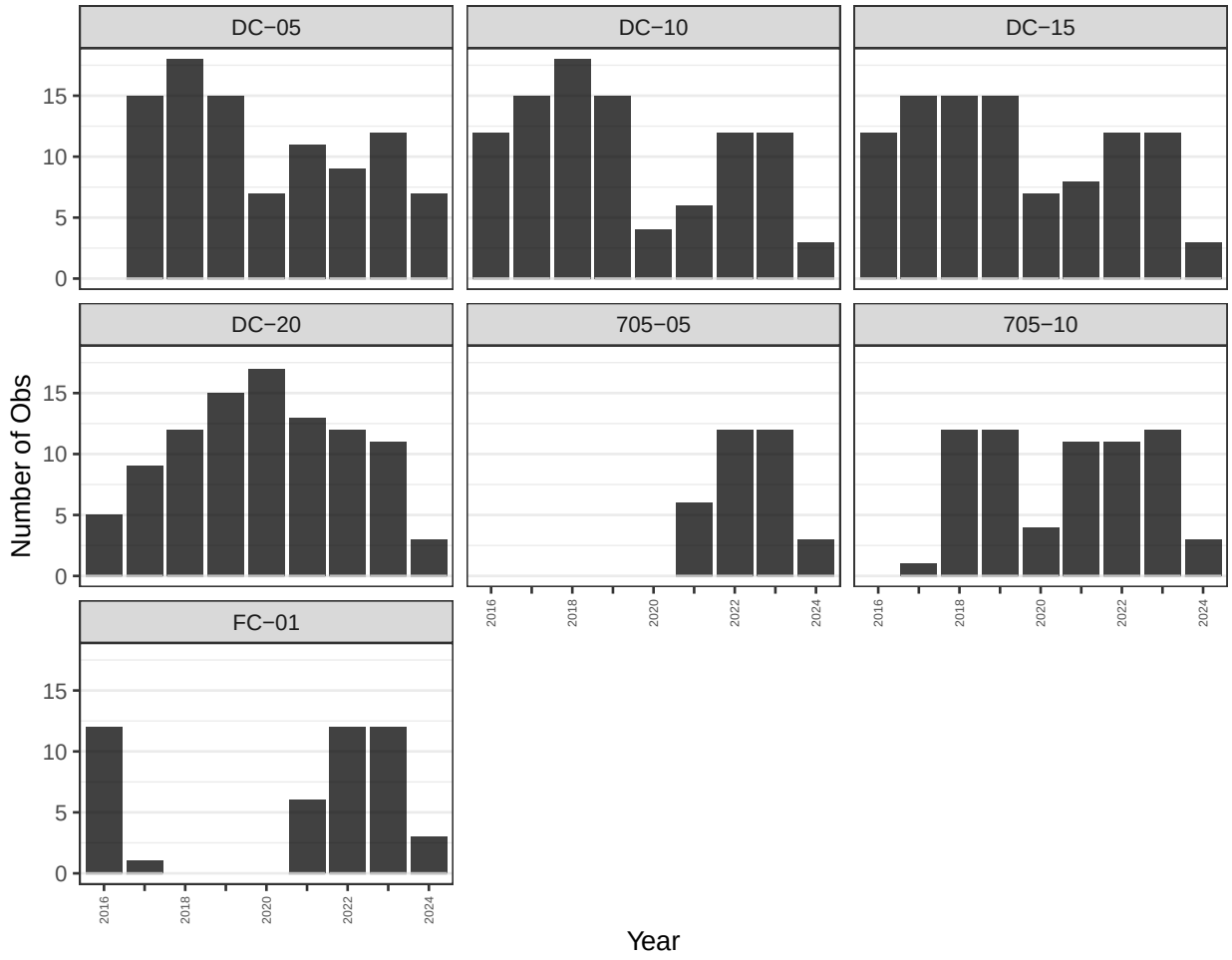
Variable	Total Mercury
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.20 Total Molybdenum

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

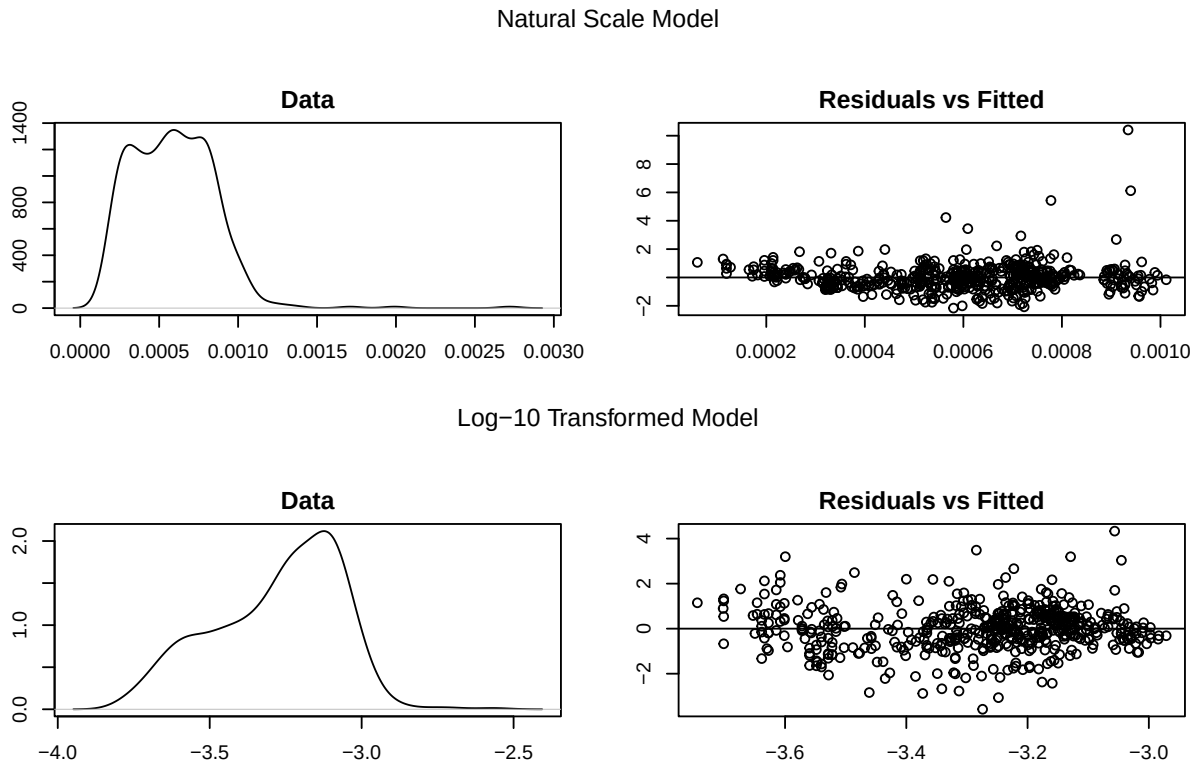
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0006	0
Davidson Creek	DC-05	after	21	0.0010	0
Davidson Creek	DC-10	before	79	0.0006	0
Davidson Creek	DC-10	after	18	0.0009	0
Davidson Creek	DC-15	before	81	0.0006	0
Davidson Creek	DC-15	after	18	0.0008	0
Davidson Creek	DC-20	before	80	0.0006	0
Davidson Creek	DC-20	after	17	0.0008	0
Creek 705	705-05	before	15	0.0005	0
Creek 705	705-05	after	18	0.0006	0
Creek 705	705-10	before	49	0.0004	0
Creek 705	705-10	after	17	0.0005	0
Fawnie Creek (reference)	FC-01	before	28	0.0004	0
Fawnie Creek (reference)	FC-01	after	18	0.0008	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2023	8	monit	after	0.0027	0.0009	10.405	Y
Davidson Creek	DC-10	2023	8	monit	after	0.0020	0.0009	6.120	Y
Davidson Creek	DC-15	2020	3	monit	before	0.0017	0.0008	5.432	Y
Creek 705	705-10	2020	2	control	before	0.0013	0.0006	4.227	Y
Davidson Creek	DC-15	2021	10	monit	before	0.0012	0.0006	3.443	Y

Outliers on log scale:

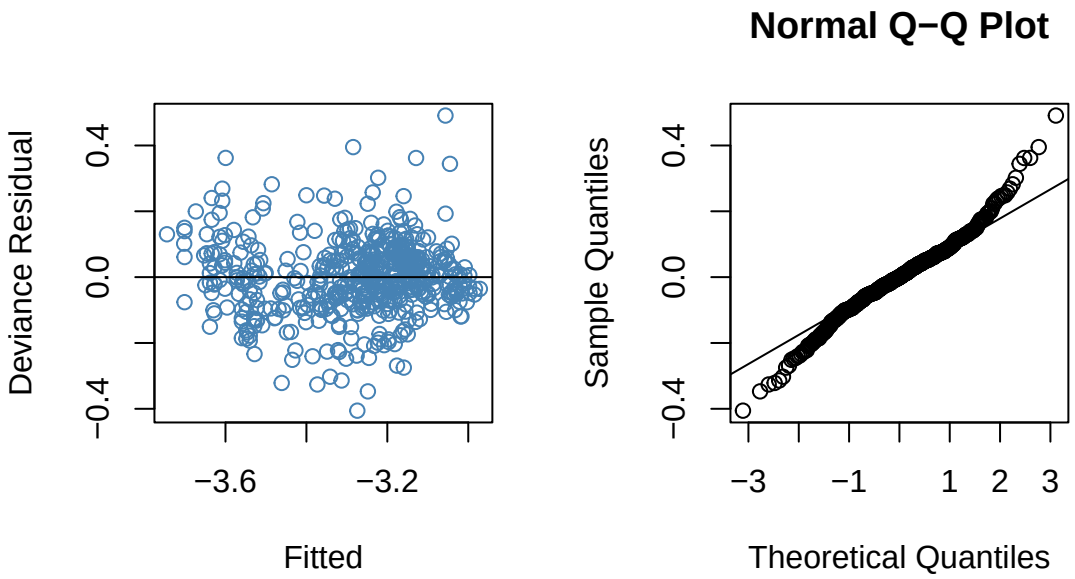
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2023	8	monit	after	-2.565	-3.056	4.332	Y
Davidson Creek	DC-10	2016	4	monit	before	-3.680	-3.274	-3.580	Y
Creek 705	705-10	2020	2	control	before	-2.889	-3.284	3.486	Y
Fawnie Creek (reference)	FC-01	2022	5	control	before	-3.237	-3.600	3.196	Y
Davidson Creek	DC-15	2020	3	monit	before	-2.767	-3.129	3.194	Y
Davidson Creek	DC-15	2016	4	monit	before	-3.595	-3.248	-3.063	Y
Davidson Creek	DC-10	2023	8	monit	after	-2.701	-3.045	3.036	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.36717	0.36717	1	6.091	28.587	0.00167	
period	0.47191	0.47191	1	61.422	36.743	<0.001	
class:period	0.02403	0.02403	1	511.699	1.871	0.172	0.193

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

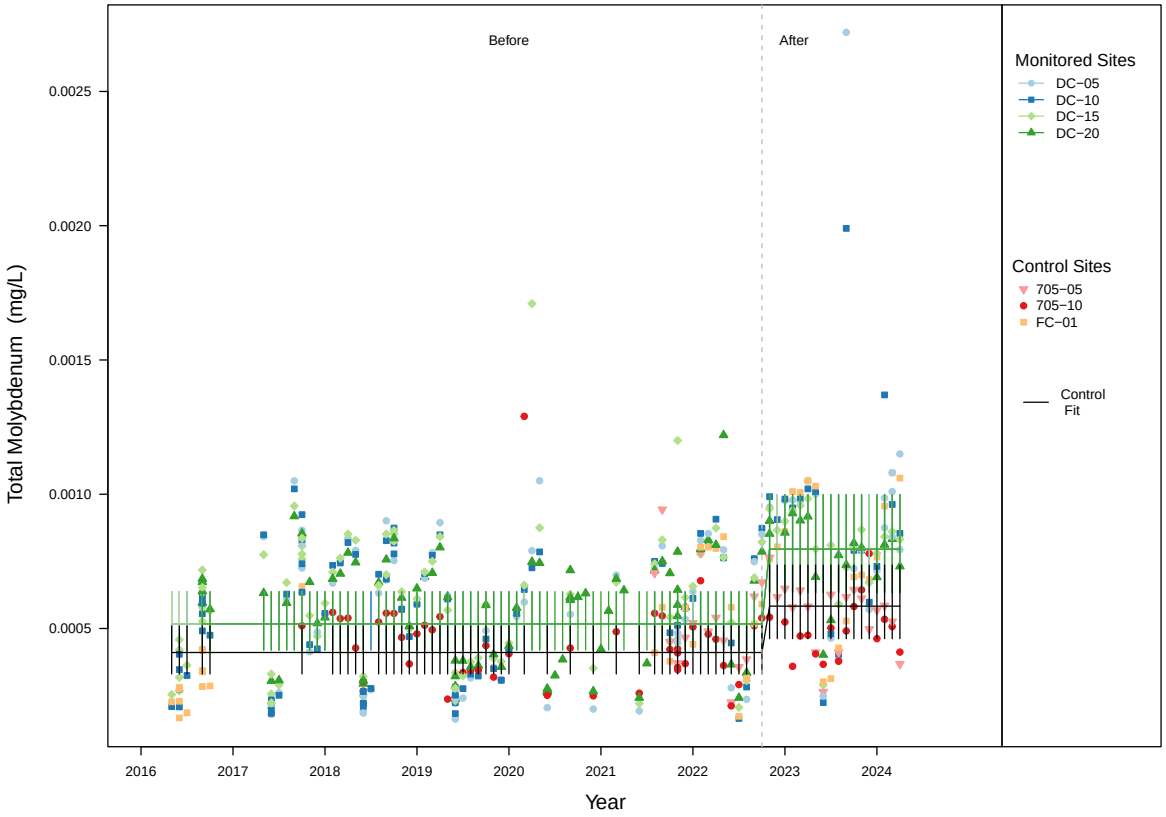
Monitored vs.	Estimate	Significance
control sites	0.0348	not significant

Conclusion:

The change in Total Molybdenum concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p =* 0.193) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale. Guideline is at 0.073 (mg/L).

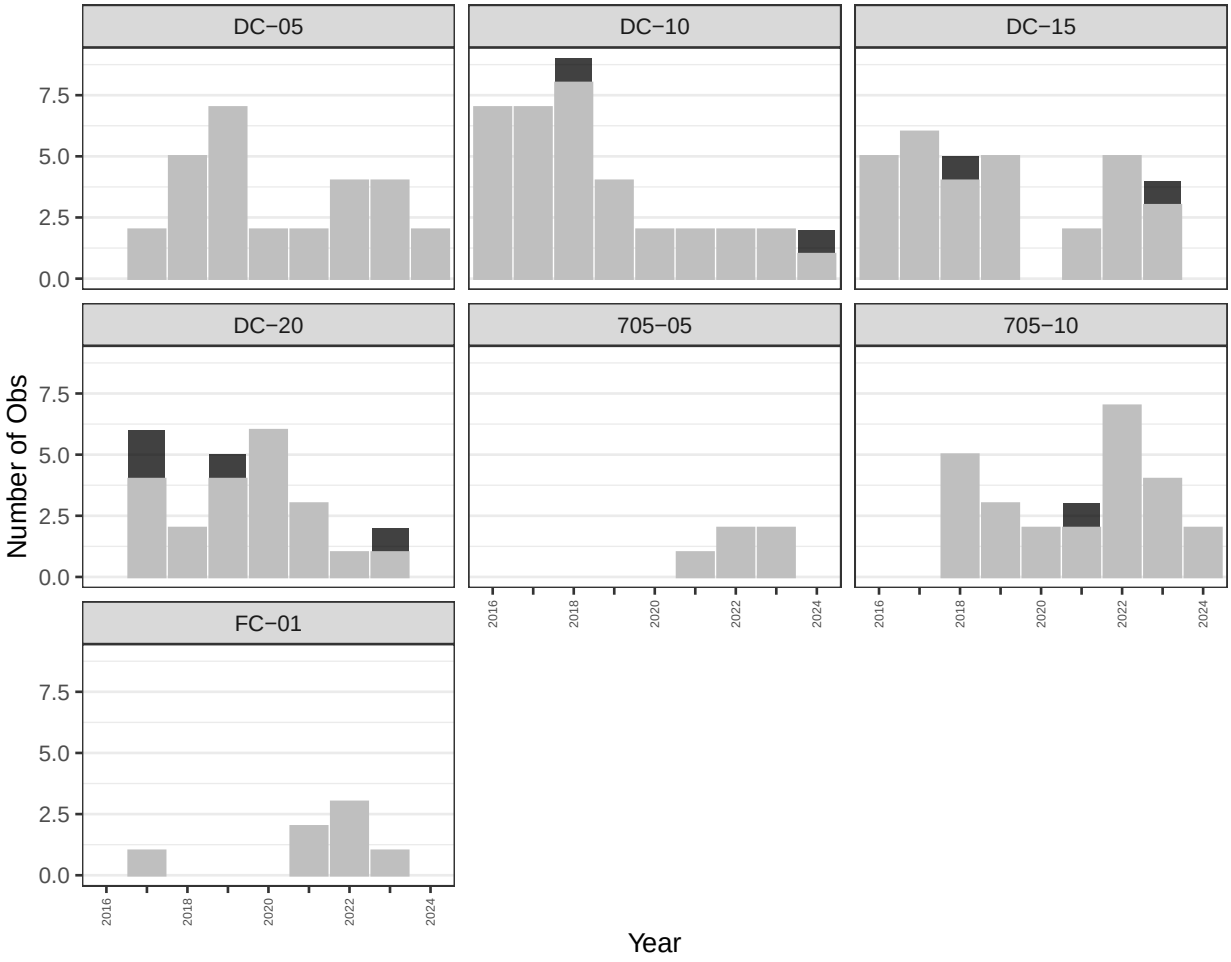
Final Summary Table

Variable	Total Molybdenum
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.1.21 Total Nickel

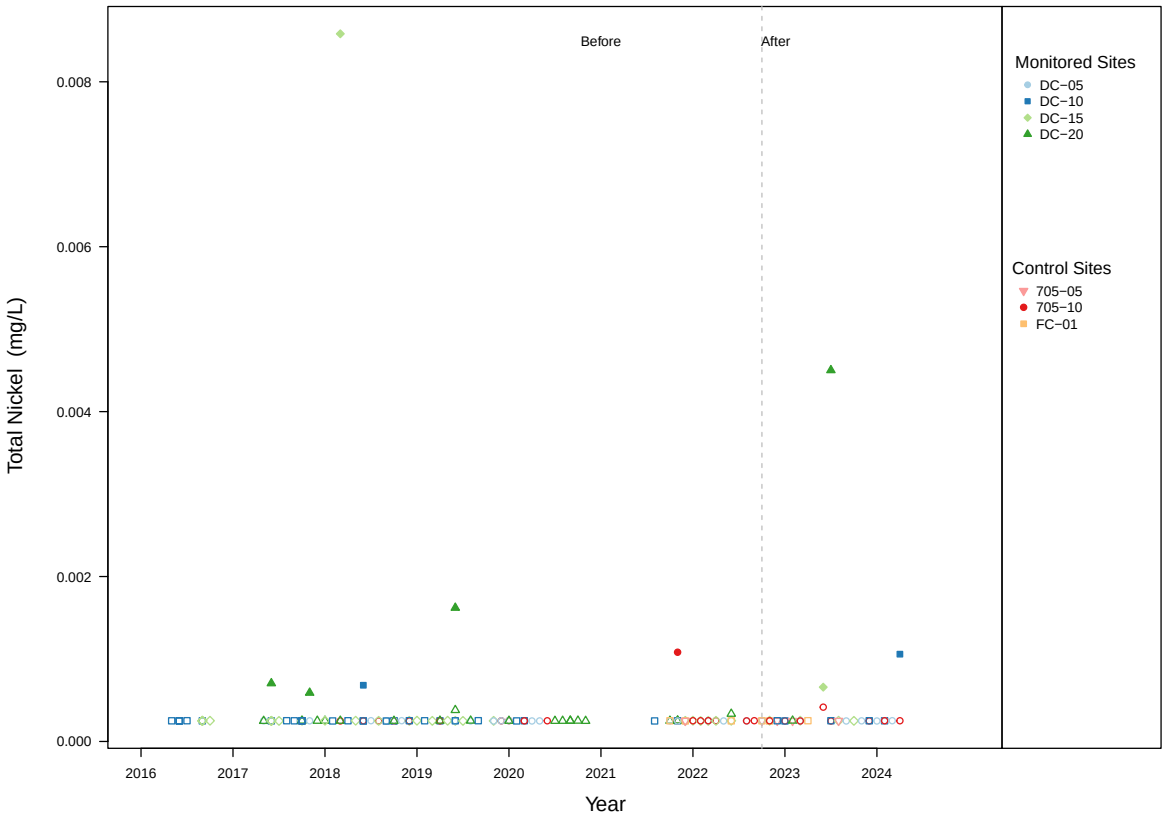
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

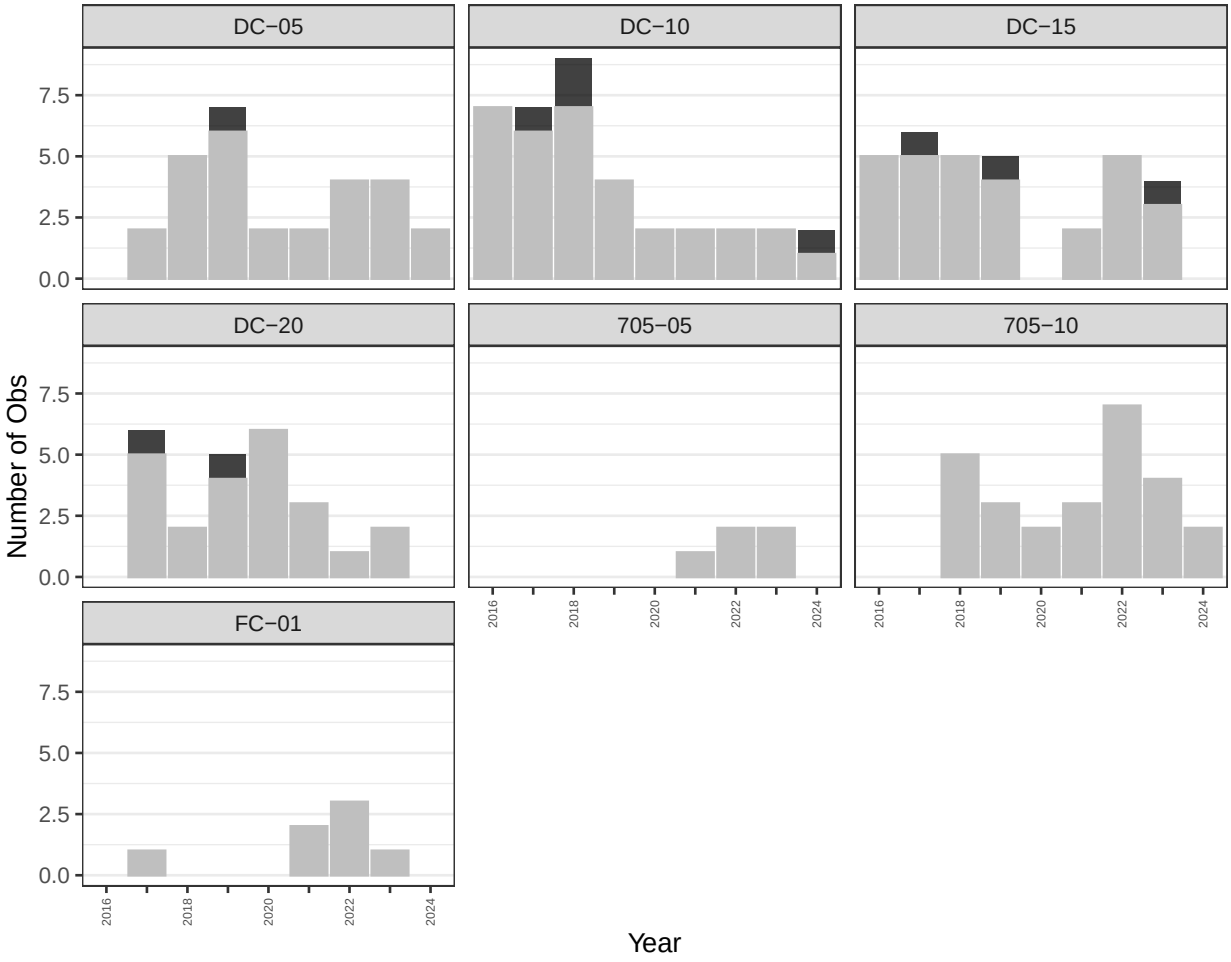
Final Summary Table

Variable	Total Nickel
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.22 Total Silver

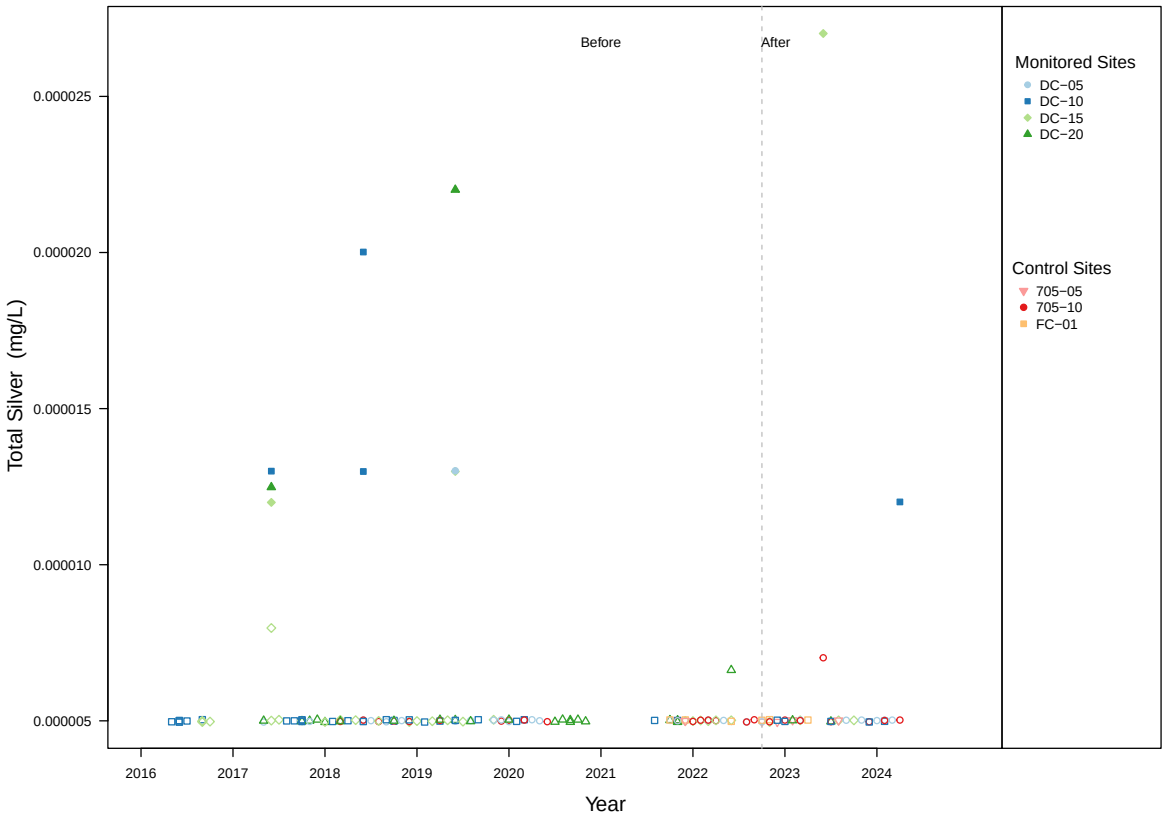
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

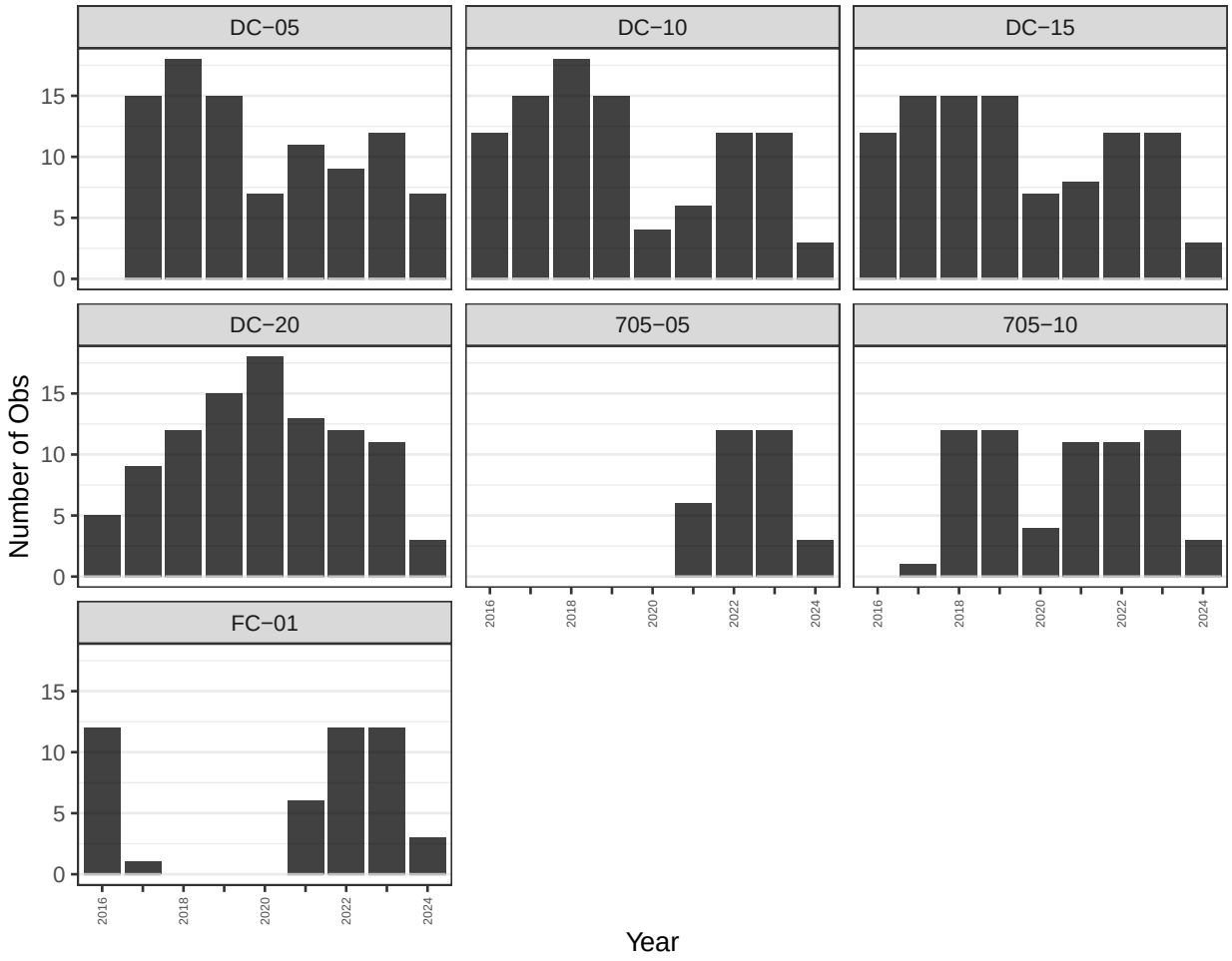
Variable	Total Silver
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.23 Total Strontium

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

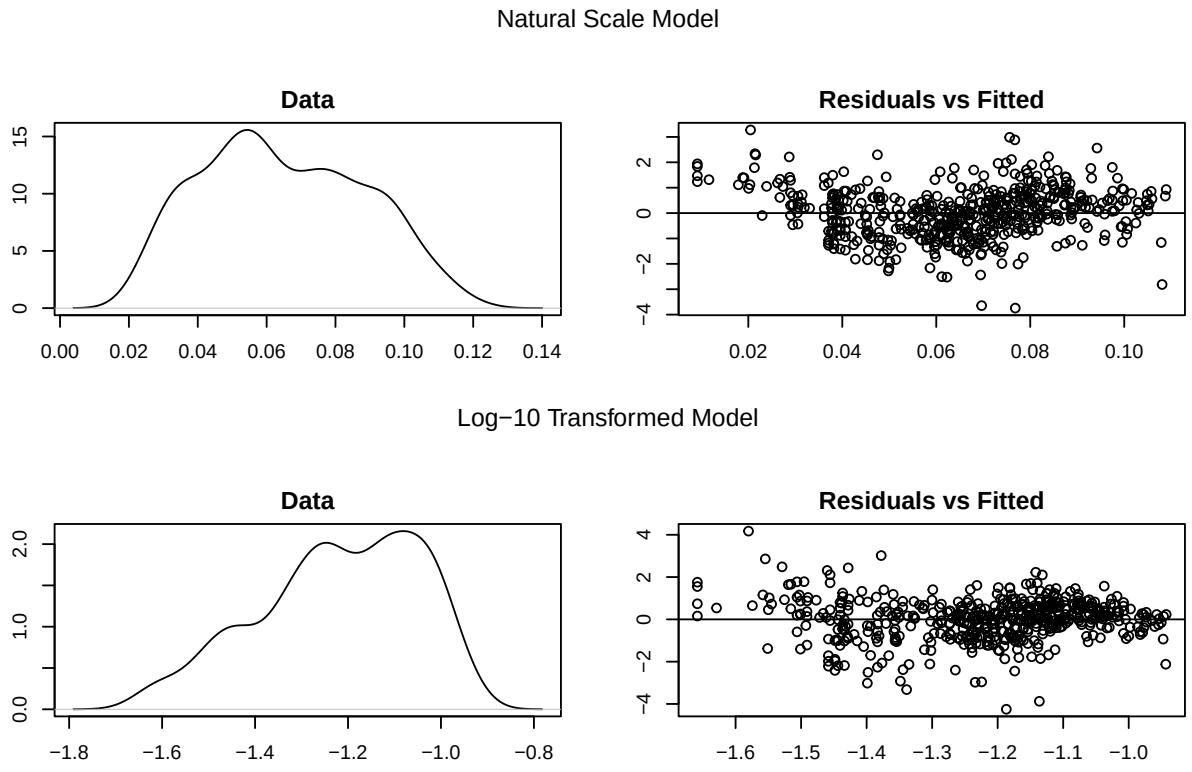
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0623	0
Davidson Creek	DC-05	after	21	0.0962	0
Davidson Creek	DC-10	before	79	0.0634	0
Davidson Creek	DC-10	after	18	0.0941	0
Davidson Creek	DC-15	before	81	0.0723	0
Davidson Creek	DC-15	after	18	0.0974	0
Davidson Creek	DC-20	before	81	0.0740	0
Davidson Creek	DC-20	after	17	0.0970	0
Creek 705	705-05	before	15	0.0490	0
Creek 705	705-05	after	18	0.0543	0
Creek 705	705-10	before	49	0.0557	0
Creek 705	705-10	after	17	0.0577	0
Fawnie Creek (reference)	FC-01	before	28	0.0400	0
Fawnie Creek (reference)	FC-01	after	18	0.0557	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-15	2016	4	monit	before	0.0362	0.0768	-3.744	Y
Davidson Creek	DC-10	2016	4	monit	before	0.0301	0.0697	-3.646	Y
Fawnie Creek (reference)	FC-01	2022	5	control	before	0.0560	0.0205	3.274	Y

Outliers on log scale:

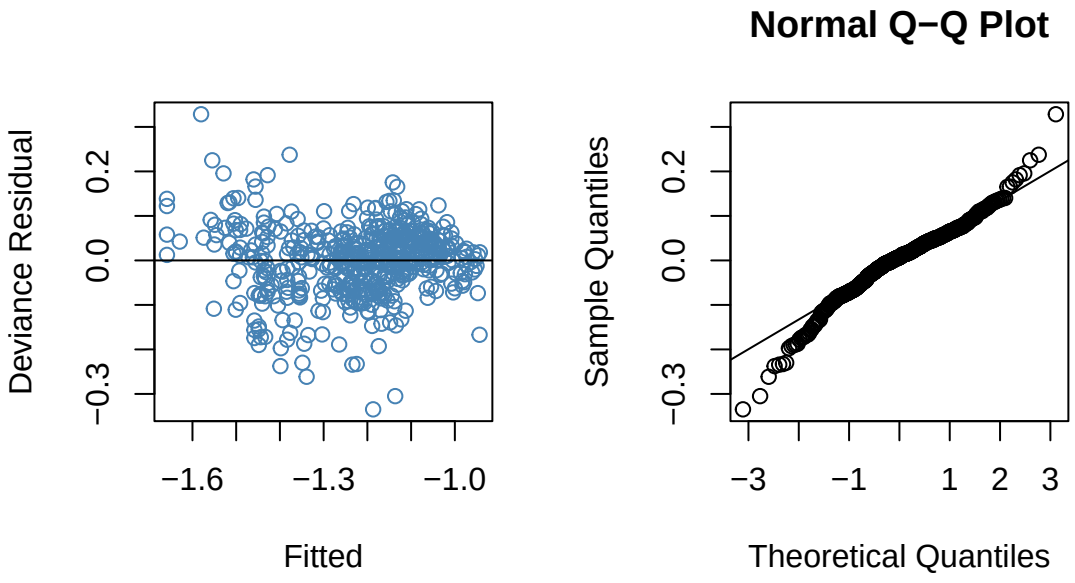
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-10	2016	4	monit	before	-1.521	-1.187	-4.251	Y
Fawnie Creek (reference)	FC-01	2022	5	control	before	-1.252	-1.580	4.173	Y
Davidson Creek	DC-15	2016	4	monit	before	-1.441	-1.136	-3.874	Y
Fawnie Creek (reference)	FC-01	2016	4	control	before	-1.600	-1.339	-3.321	Y
Davidson Creek	DC-10	2022	6	monit	before	-1.636	-1.399	-3.017	Y
Davidson Creek	DC-15	2022	5	monit	before	-1.140	-1.378	3.017	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.19002	0.19002	1	5.218	30.67	0.0023	
period	0.29012	0.29012	1	83.140	46.82	<0.001	
class:period	0.08587	0.08587	1	512.387	13.86	<0.001	0.000365

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

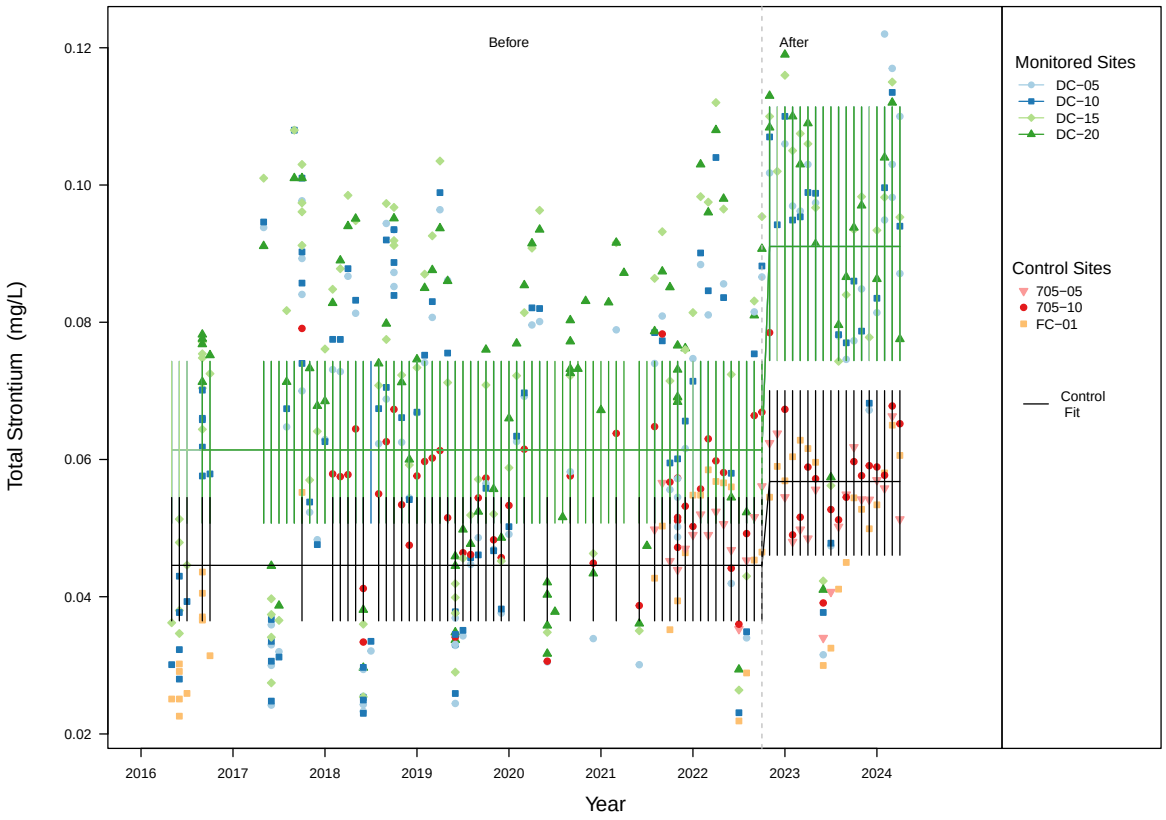
Monitored vs.	Estimate	Significance
control sites	0.066	significant

Conclusion:

The change in Total Strontium concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 3.65×10^{-4}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

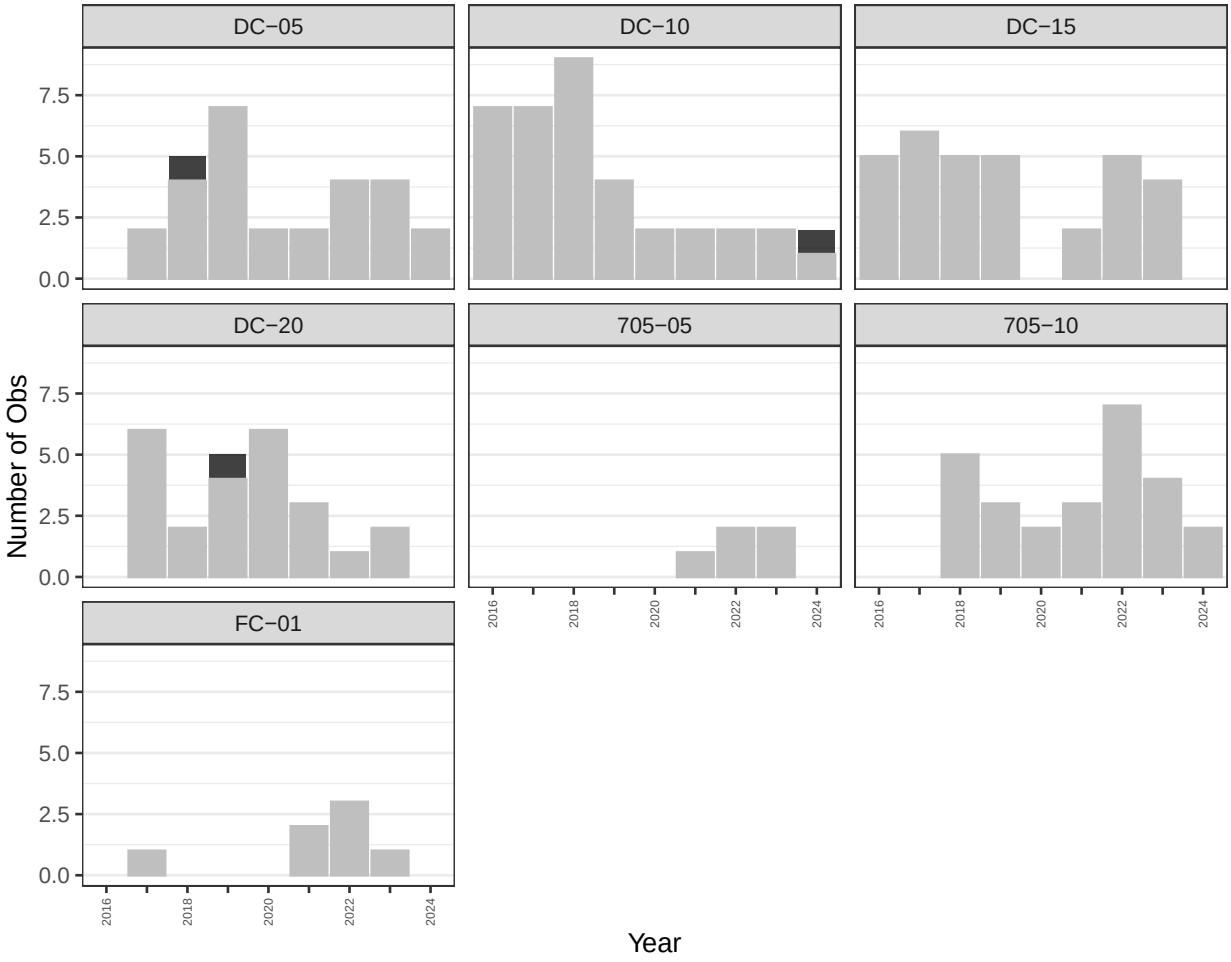
Final Summary Table

Variable	Total Strontium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.24 Total Thallium

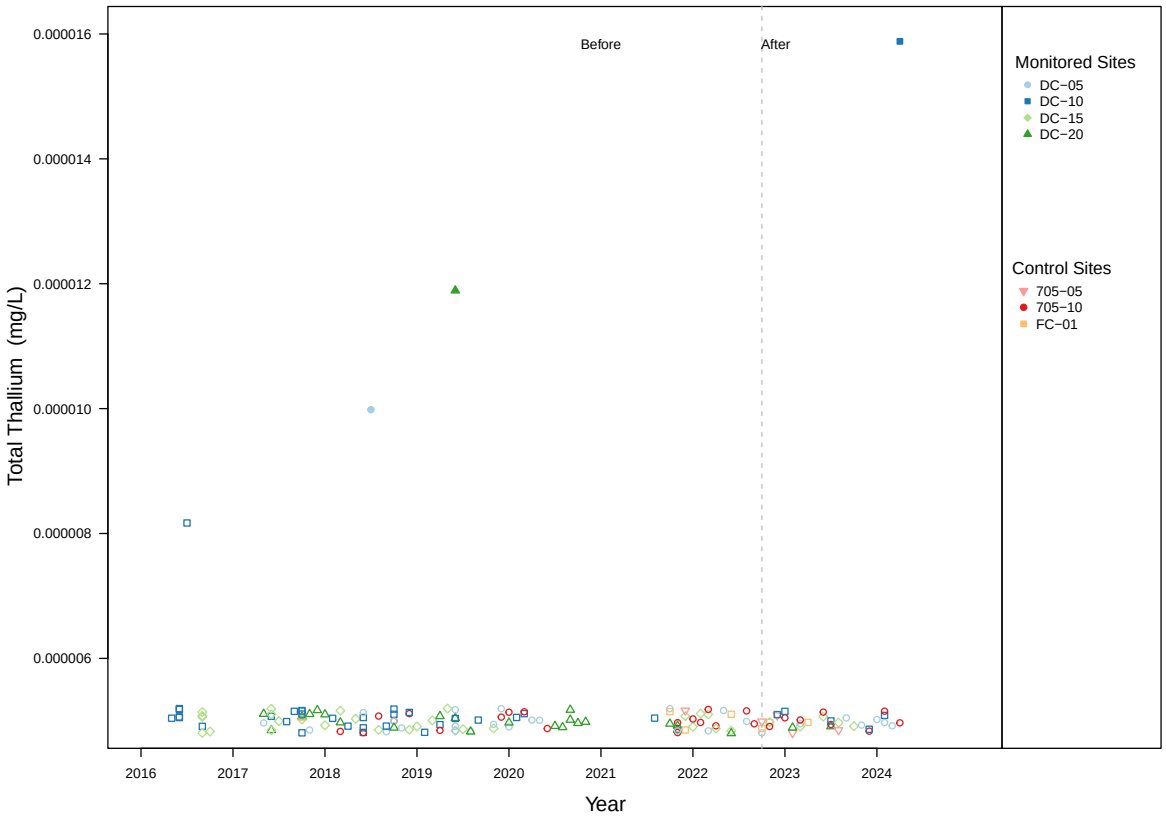
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

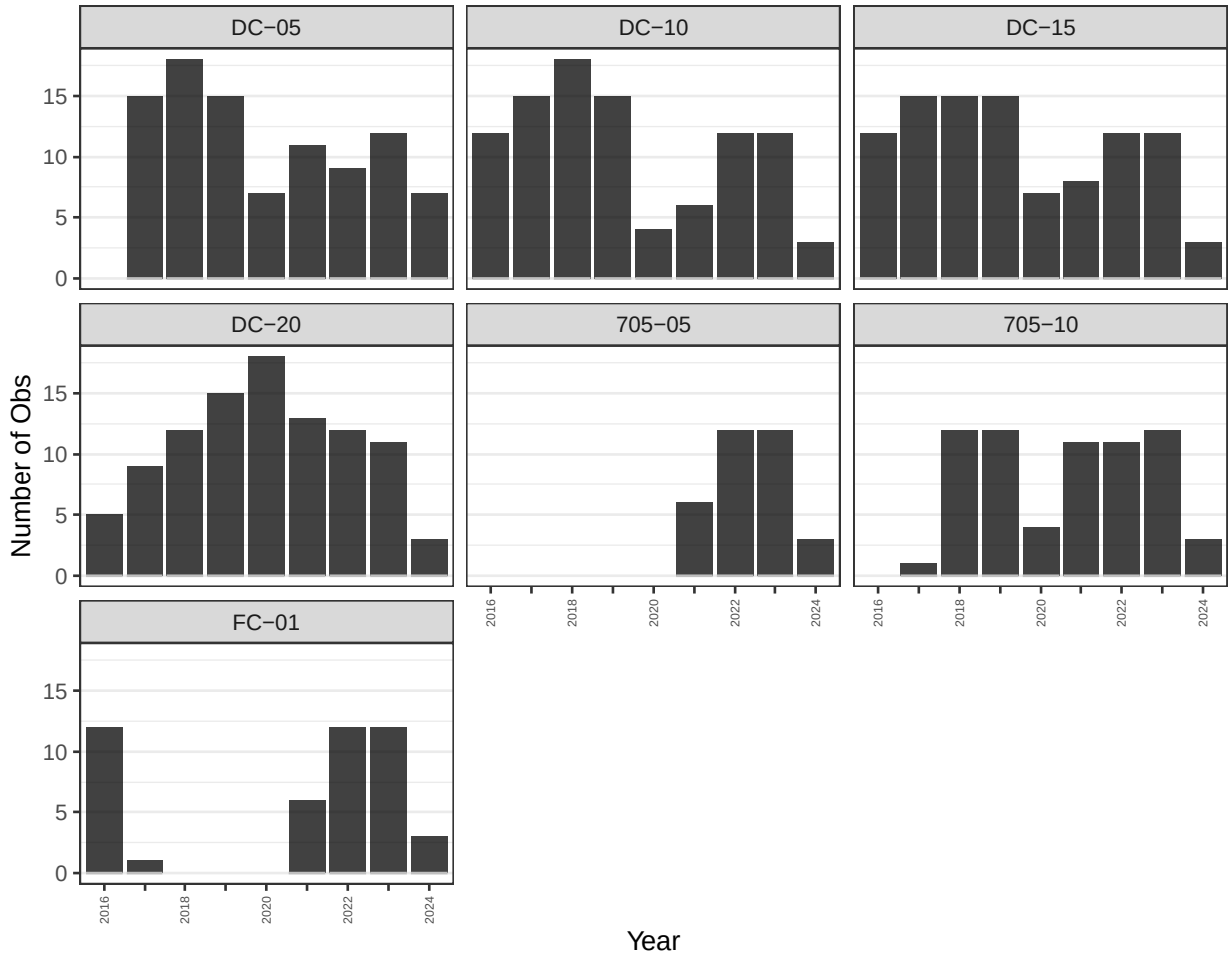
Variable	Total Thallium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.25 Total Uranium

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

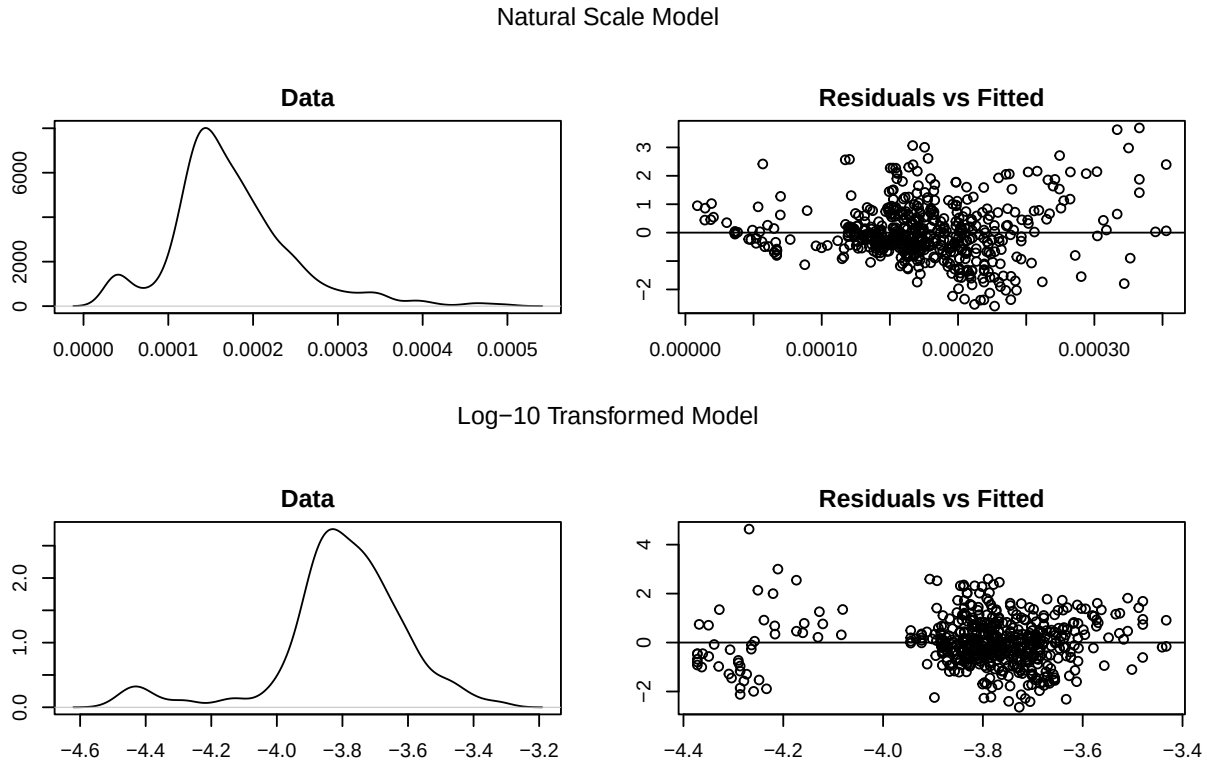
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0002	0
Davidson Creek	DC-05	after	21	0.0003	0
Davidson Creek	DC-10	before	79	0.0002	0
Davidson Creek	DC-10	after	18	0.0003	0
Davidson Creek	DC-15	before	81	0.0002	0
Davidson Creek	DC-15	after	18	0.0002	0
Davidson Creek	DC-20	before	81	0.0001	0
Davidson Creek	DC-20	after	17	0.0002	0
Creek 705	705-05	before	15	0.0002	0
Creek 705	705-05	after	18	0.0001	0
Creek 705	705-10	before	49	0.0002	0
Creek 705	705-10	after	17	0.0001	0
Fawnie Creek (reference)	FC-01	before	28	0.0000	0
Fawnie Creek (reference)	FC-01	after	18	0.0001	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-05	2024	2	monit	after	0.0005	0.0003	3.684	Y
Davidson Creek	DC-05	2024	1	monit	after	0.0005	0.0003	3.623	Y
Davidson Creek	DC-20	2019	5	monit	before	0.0003	0.0002	3.065	Y
Davidson Creek	DC-20	2018	5	monit	before	0.0003	0.0002	3.003	Y

Outliers on log scale:

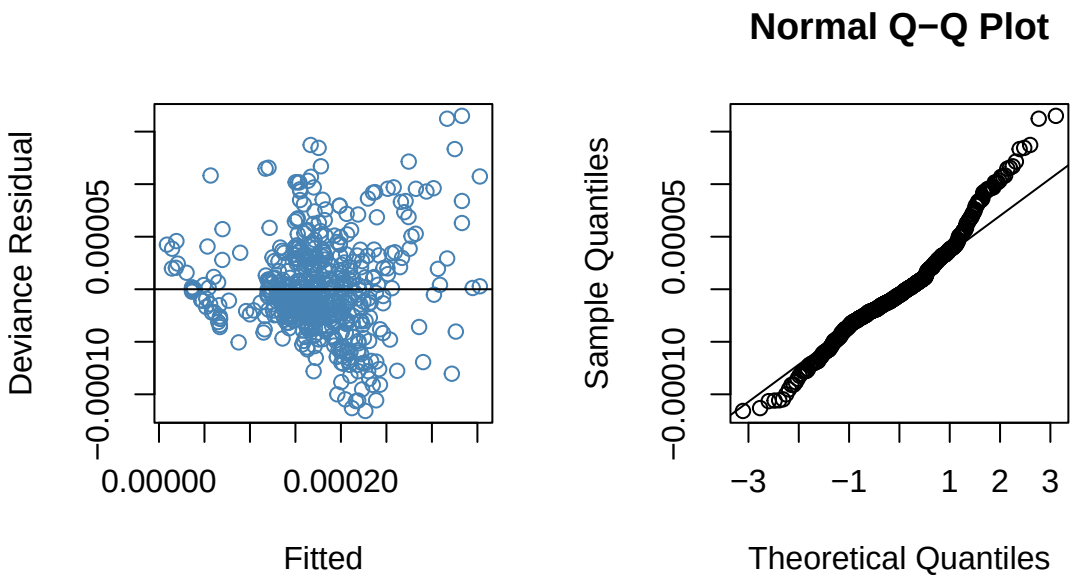
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2021	12	control	before	-3.783	-4.269	4.634	Y

Based on examination of the residuals, the untransformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	1.23e-08	1.23e-08	1	5.067	6.144	0.0553	
period	4.25e-08	4.25e-08	1	47.569	21.166	<0.001	
class:period	1.93e-07	1.93e-07	1	511.918	96.070	<0.001	7.35e-20

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

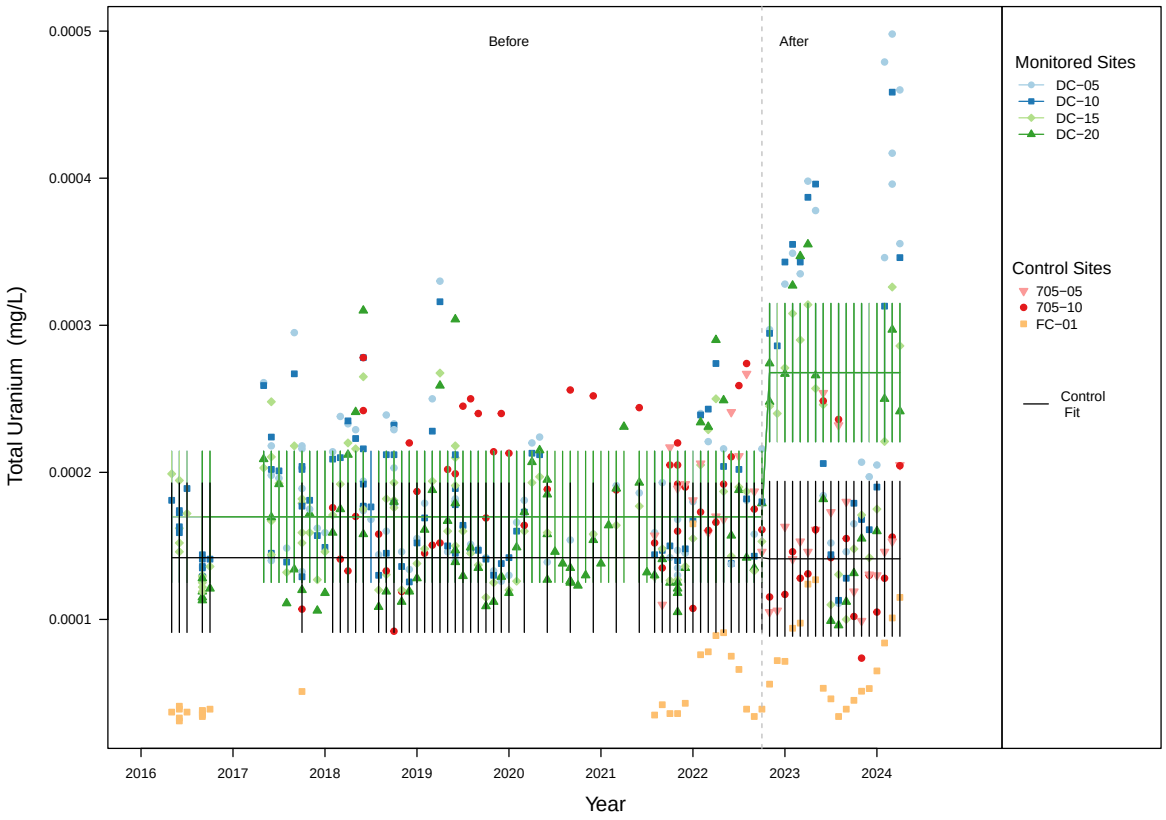
Monitored vs.	Estimate	Significance
control sites	1e-04	significant

Conclusion:

The change in Total Uranium concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 7.35×10^{-20}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Guidelines are at 0.0085 (mg/L) and 0.015 (mg/L).

Final Summary Table

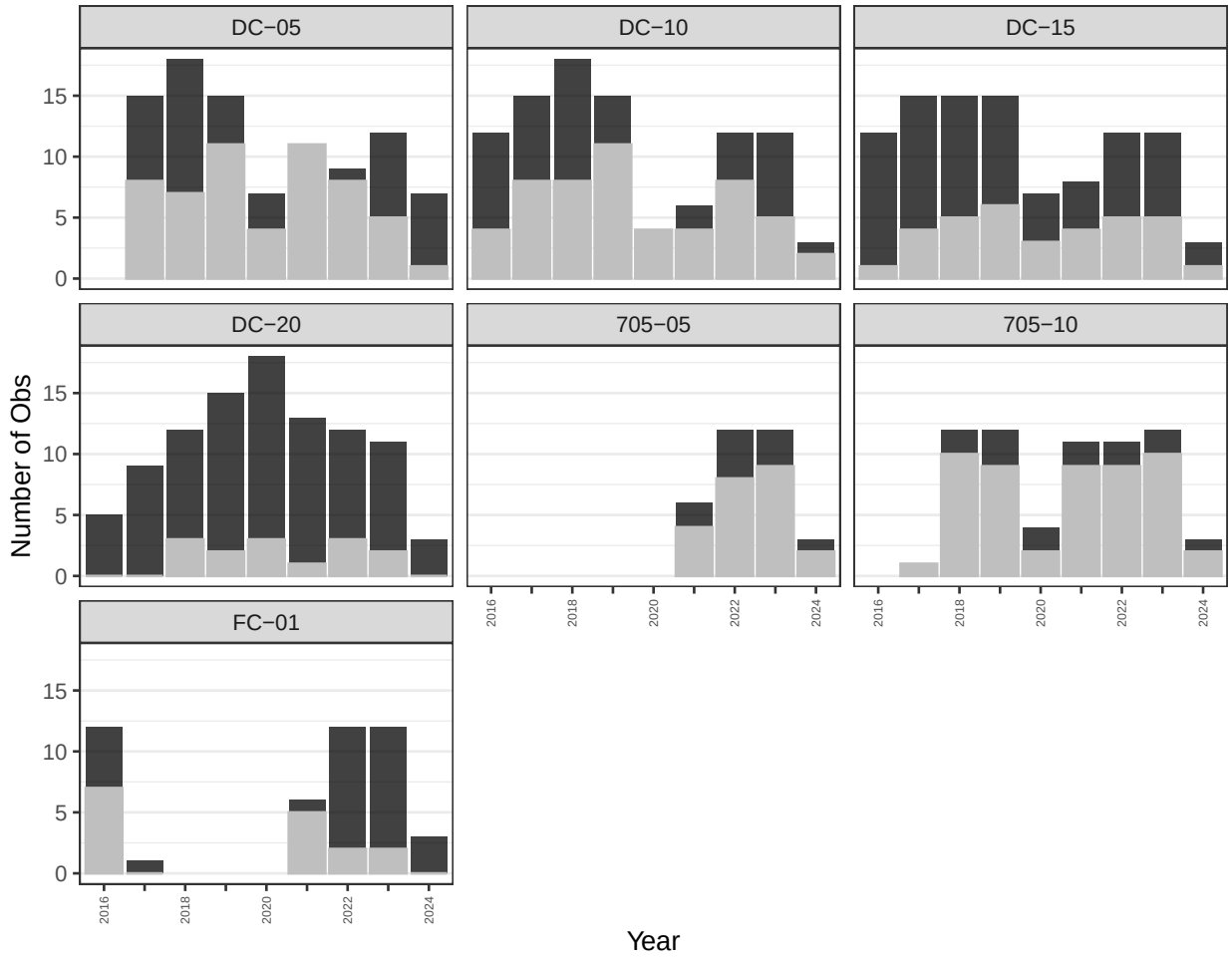
Variable	Total Uranium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.1.26 Total Vanadium

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Davidson Creek	DC-05	2017	monit	before	15
Davidson Creek	DC-05	2019	monit	before	15
Davidson Creek	DC-05	2020	monit	before	7
Davidson Creek	DC-05	2021	monit	before	11
Davidson Creek	DC-05	2022	monit	before	9
Davidson Creek	DC-05	2022	monit	after	9
Davidson Creek	DC-10	2017	monit	before	15

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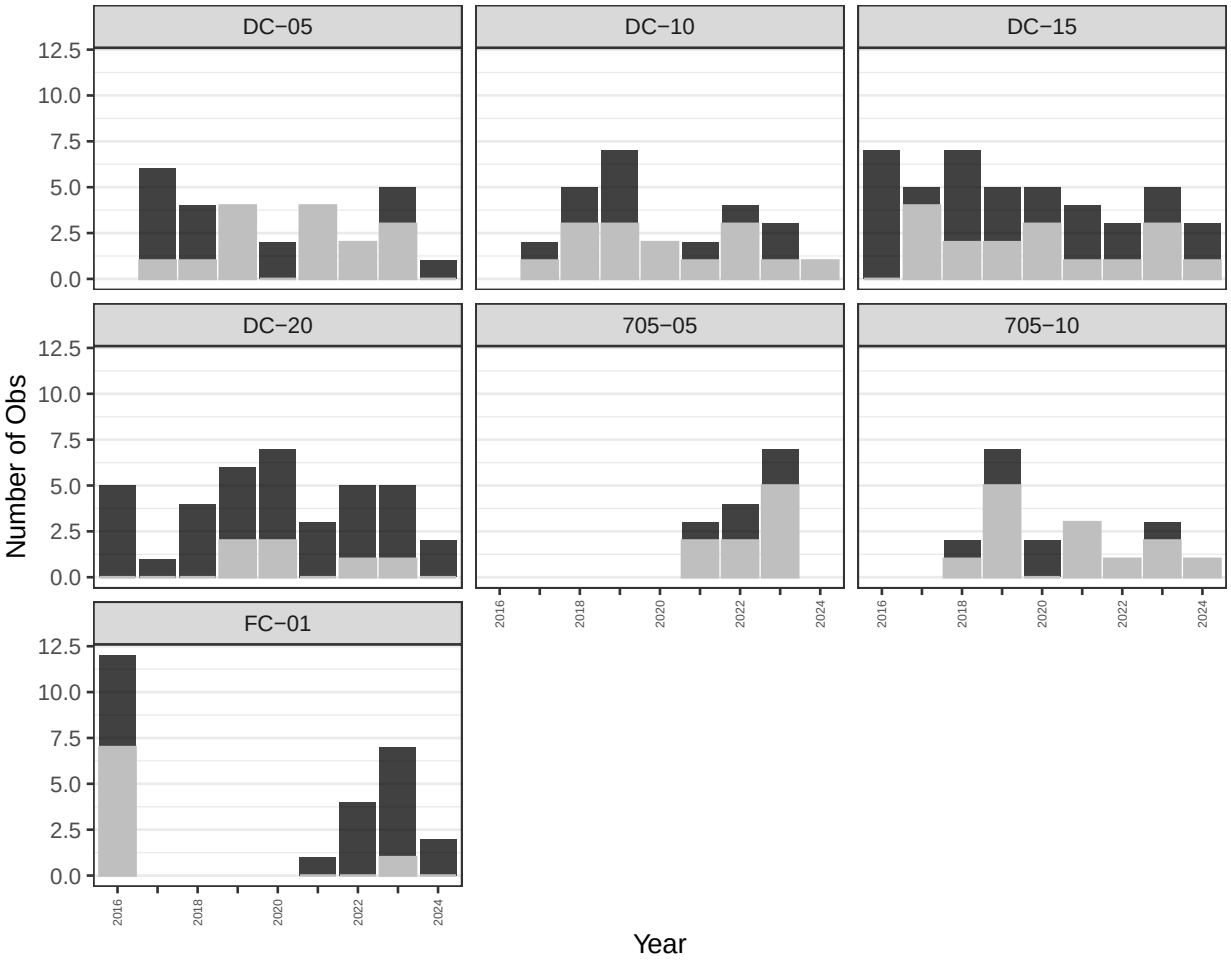
(continued)

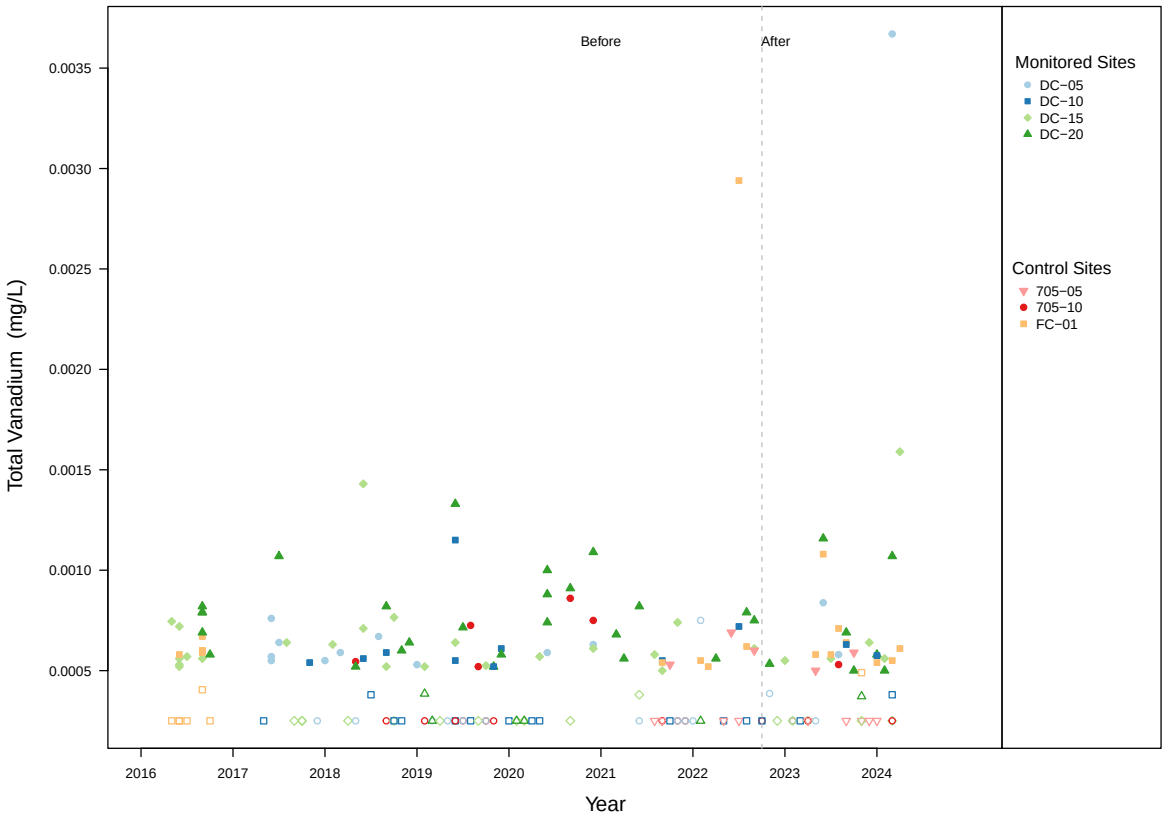
Watershed	Site	Year	Class	Period	#Obs Removed
Davidson Creek	DC-10	2019	monit	before	15
Davidson Creek	DC-10	2020	monit	before	4
Davidson Creek	DC-10	2021	monit	before	6
Davidson Creek	DC-10	2022	monit	before	12
Davidson Creek	DC-10	2022	monit	after	12
Davidson Creek	DC-10	2024	monit	after	3
Creek 705	705-05	2021	control	before	6
Creek 705	705-05	2022	control	before	12
Creek 705	705-05	2022	control	after	12
Creek 705	705-05	2023	control	after	12
Creek 705	705-05	2024	control	after	3
Creek 705	705-10	2017	control	before	1
Creek 705	705-10	2018	control	before	12
Creek 705	705-10	2019	control	before	12
Creek 705	705-10	2021	control	before	11
Creek 705	705-10	2022	control	before	11
Creek 705	705-10	2022	control	after	11
Creek 705	705-10	2023	control	after	12
Creek 705	705-10	2024	control	after	3
Fawnie Creek (reference)	FC-01	2016	control	before	12
Fawnie Creek (reference)	FC-01	2021	control	before	6

1.2 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

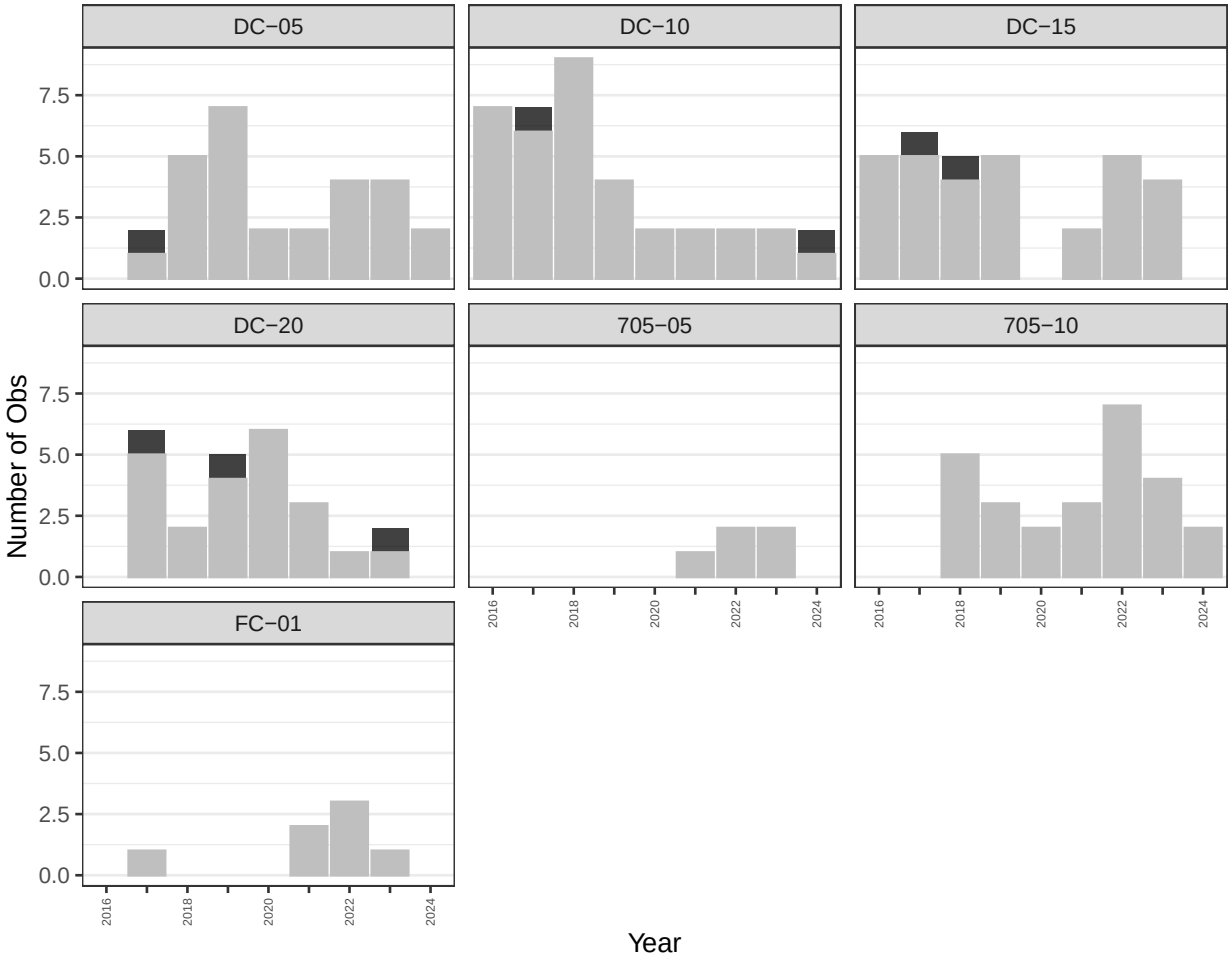
Final Summary Table

Variable	Total Vanadium
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	DC-05, DC-10, 705-05, 705-10, FC-01
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.27 Total Zinc

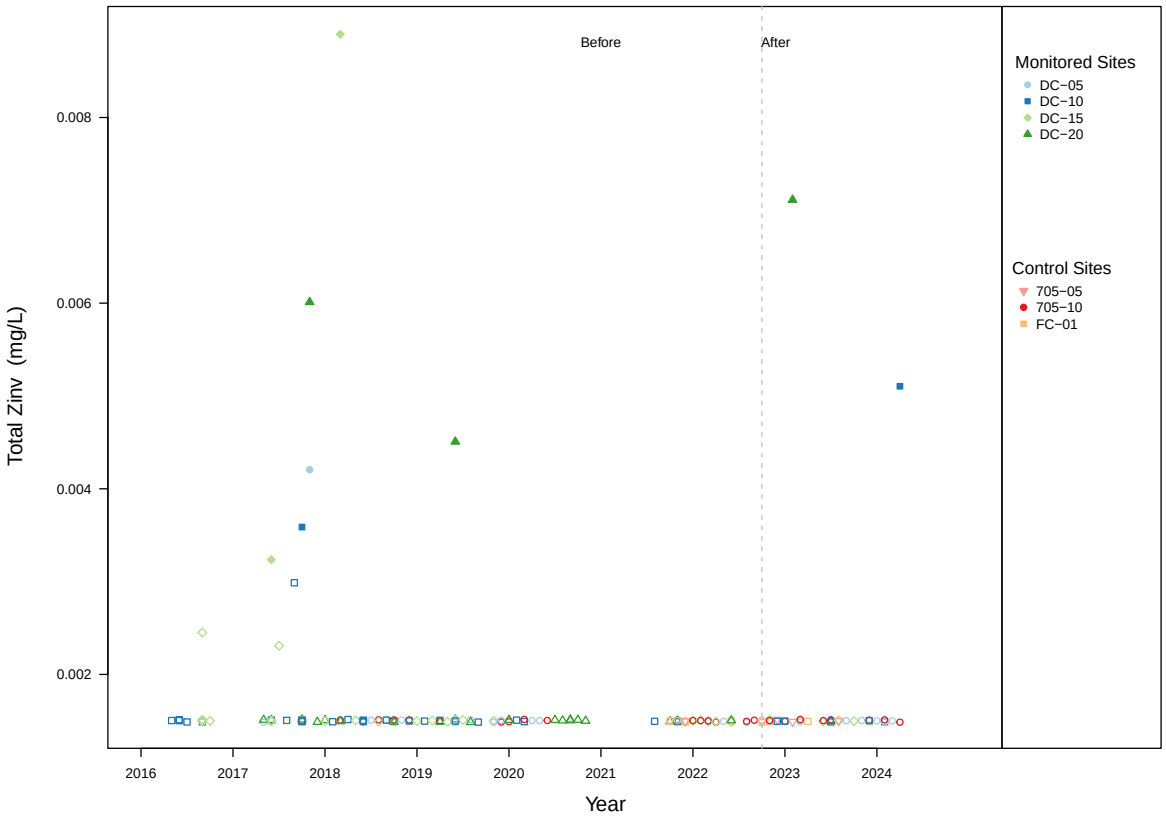
1 Davidson Creek

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

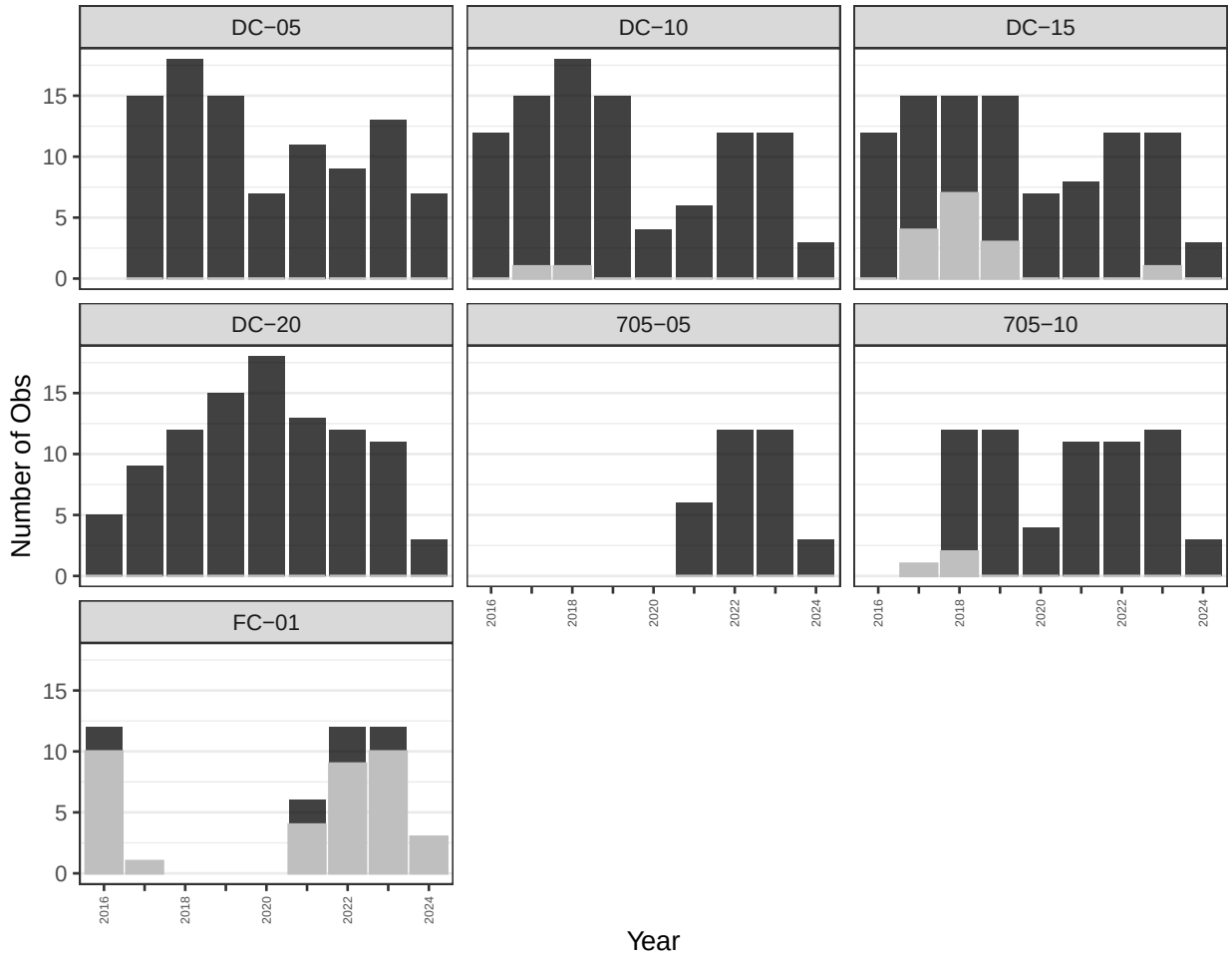
Variable	Total Zinv
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.1.28 Dissolved Iron

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 705	705-10	2017	control	before	1
Fawnie Creek (reference)	FC-01	2016	control	before	12
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2021	control	before	6
Fawnie Creek (reference)	FC-01	2022	control	before	12
Fawnie Creek (reference)	FC-01	2022	control	after	12
Fawnie Creek (reference)	FC-01	2023	control	after	12

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(continued)

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2024	control	after	3

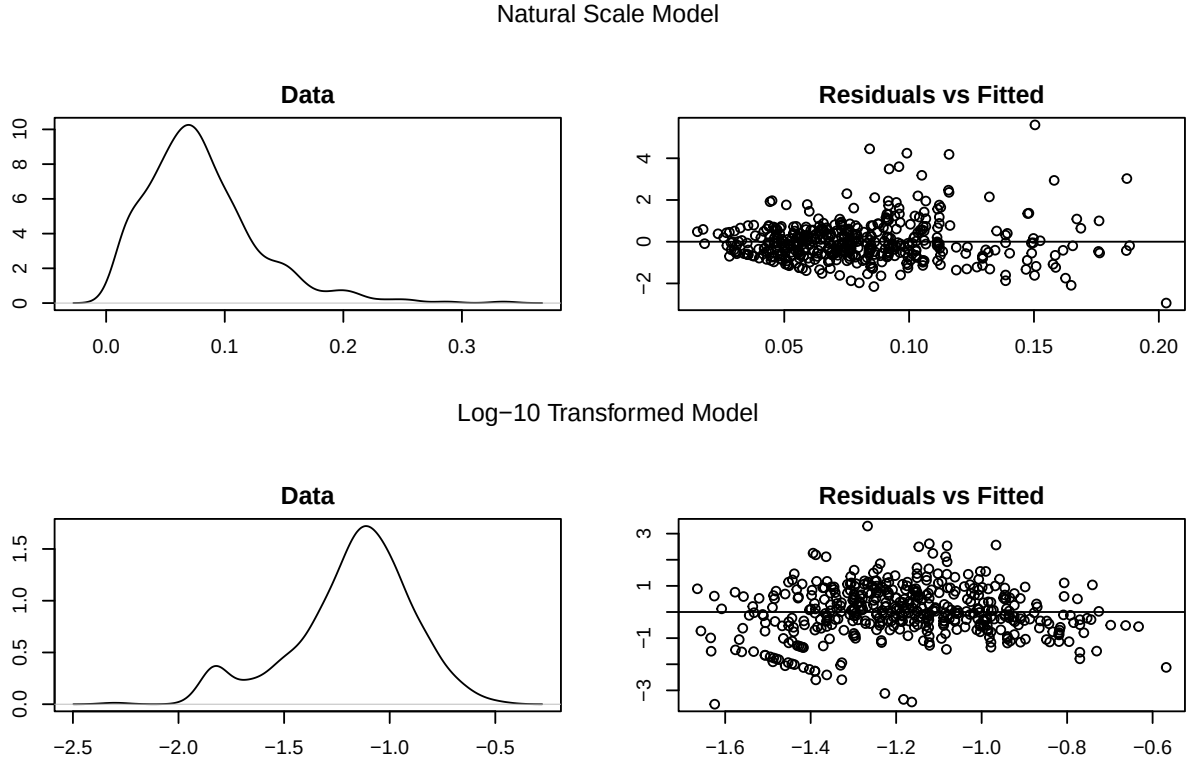
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0700	0.000
Davidson Creek	DC-05	after	22	0.0379	0.000
Davidson Creek	DC-10	before	79	0.0630	2.532
Davidson Creek	DC-10	after	18	0.0353	0.000
Davidson Creek	DC-15	before	81	0.0500	17.284
Davidson Creek	DC-15	after	18	0.0270	5.556
Davidson Creek	DC-20	before	81	0.0870	0.000
Davidson Creek	DC-20	after	17	0.1110	0.000
Creek 705	705-05	before	15	0.1480	0.000
Creek 705	705-05	after	18	0.1568	0.000
Creek 705	705-10	before	28	0.0830	7.143

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 705	705-05	2024	3	control	after	0.3350	0.1504	5.598	Y
Davidson Creek	DC-15	2023	5	monit	after	0.2310	0.0842	4.452	Y
Davidson Creek	DC-10	2023	5	monit	after	0.2390	0.0991	4.242	Y
Davidson Creek	DC-20	2022	10	monit	after	0.2540	0.1160	4.185	Y
Davidson Creek	DC-20	2023	9	monit	after	0.2145	0.0959	3.595	Y
Creek 705	705-10	2019	4	control	before	0.2070	0.0920	3.487	Y
Davidson Creek	DC-20	2023	8	monit	after	0.2100	0.1051	3.182	Y
Creek 705	705-05	2022	10	control	after	0.2870	0.1872	3.026	Y

Outliers on log scale:

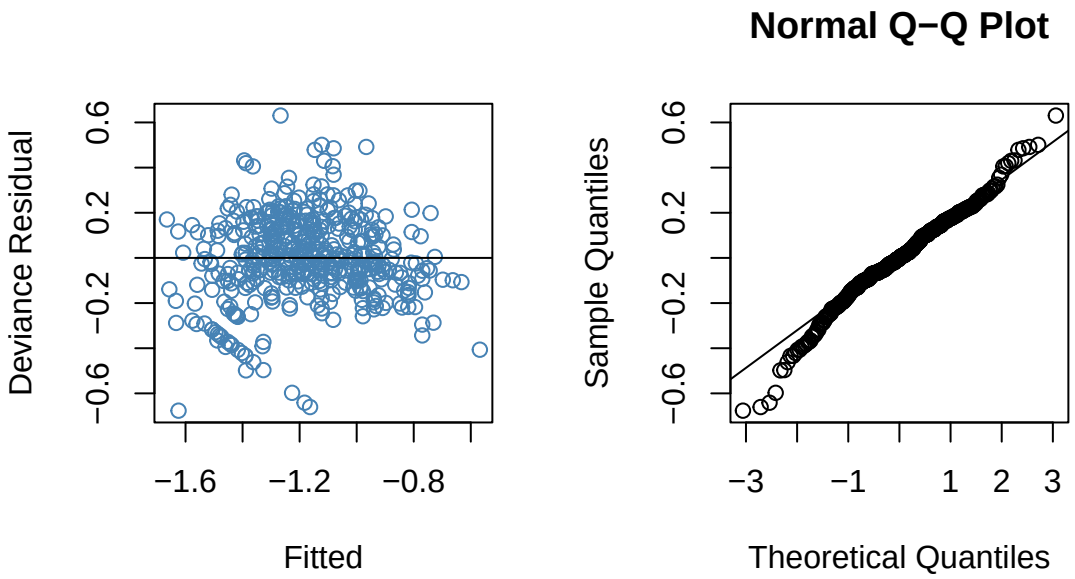
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-15	2023	2	monit	after	-2.3010	-1.625	-3.530	N
Creek 705	705-10	2018	8	control	before	-1.8239	-1.163	-3.446	N
Davidson Creek	DC-10	2017	8	monit	before	-1.8239	-1.183	-3.346	N
Davidson Creek	DC-15	2023	5	monit	after	-0.6364	-1.267	3.289	Y
Creek 705	705-10	2018	9	control	before	-1.8239	-1.226	-3.117	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.16434	0.16434	1	4.149	4.473	0.0994	
period	0.08805	0.08805	1	53.186	2.396	0.1280	
class:period	0.11475	0.11475	1	424.227	3.123	0.0779	0.0935

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

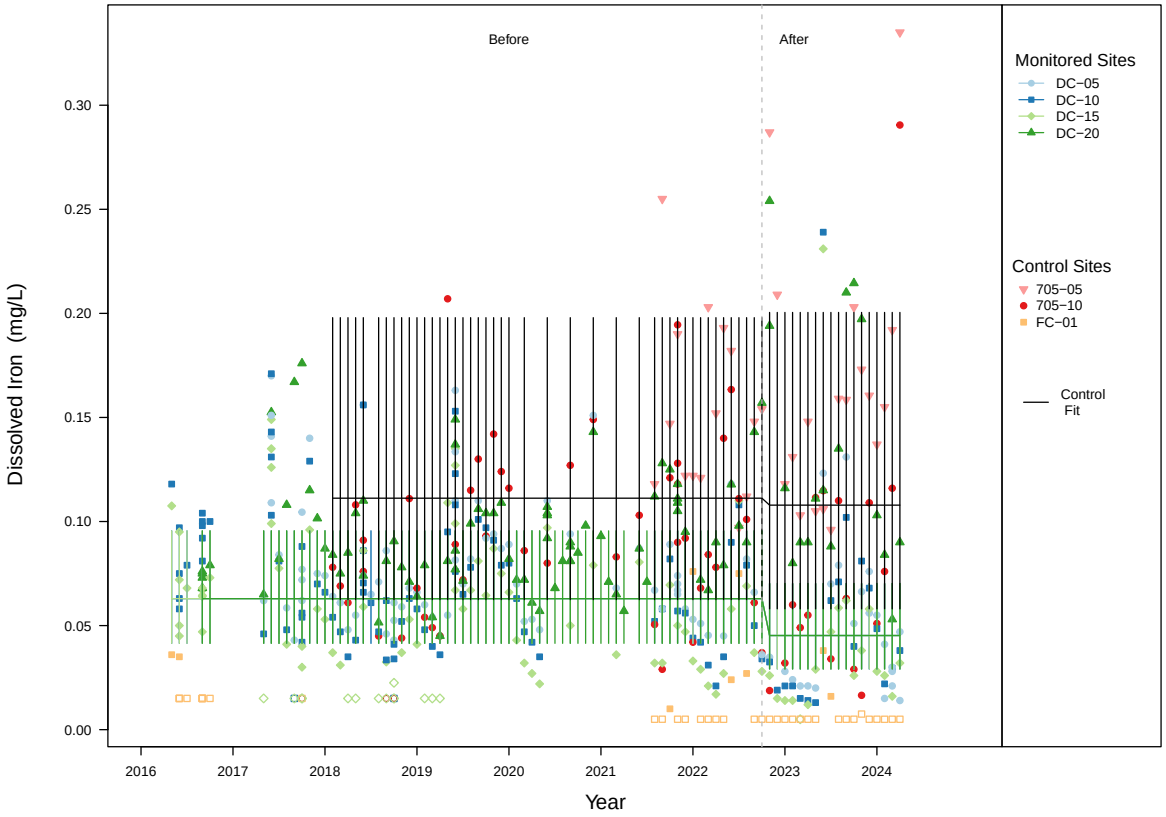
Monitored vs.	Estimate	Significance
control sites	-0.1302	not significant

Conclusion:

The change in Dissolved Iron concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.0935) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

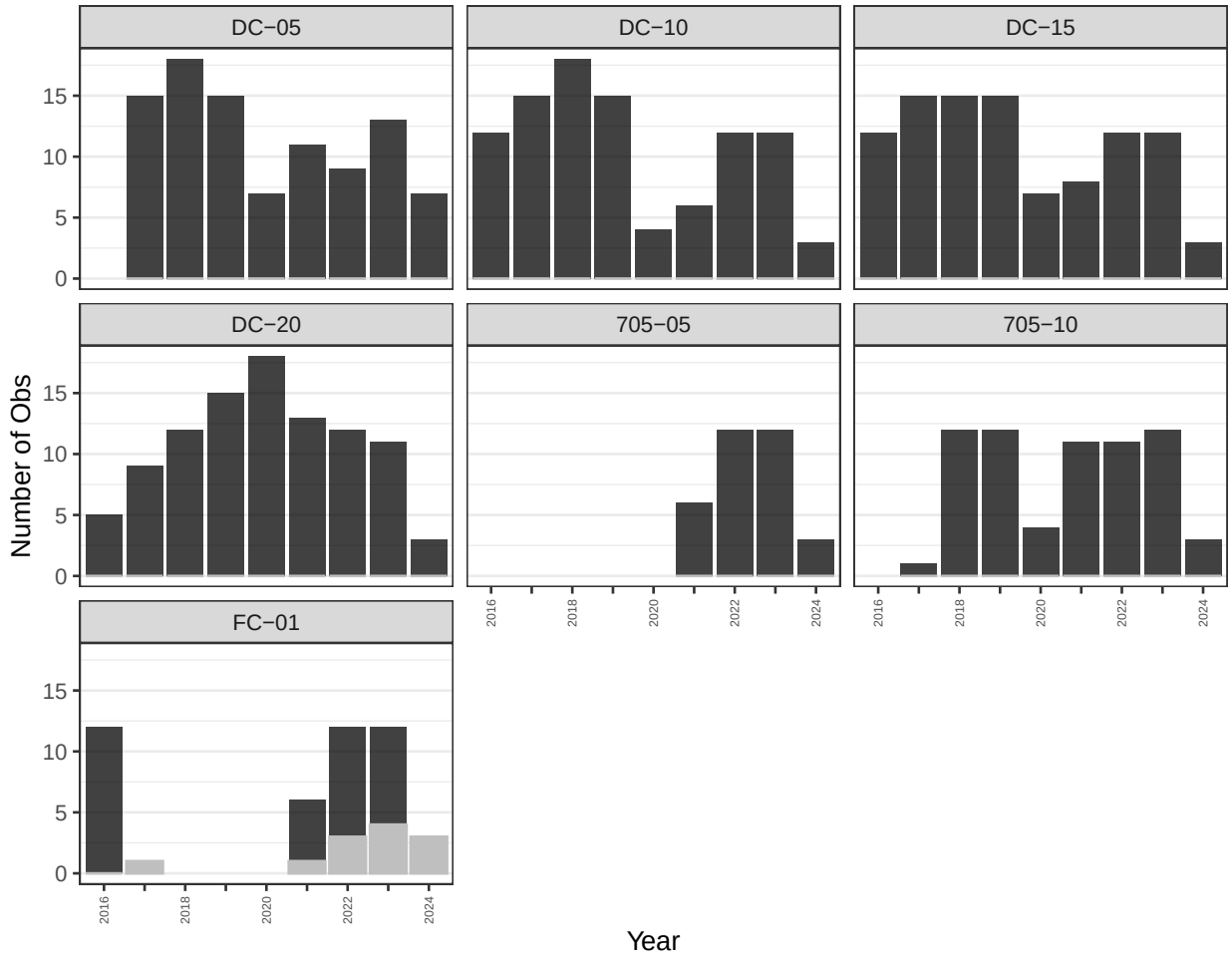
Variable	Dissolved Iron
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	FC-01
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.1.29 Dissolved Manganese

1 Davidson Creek

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2024	control	after	3

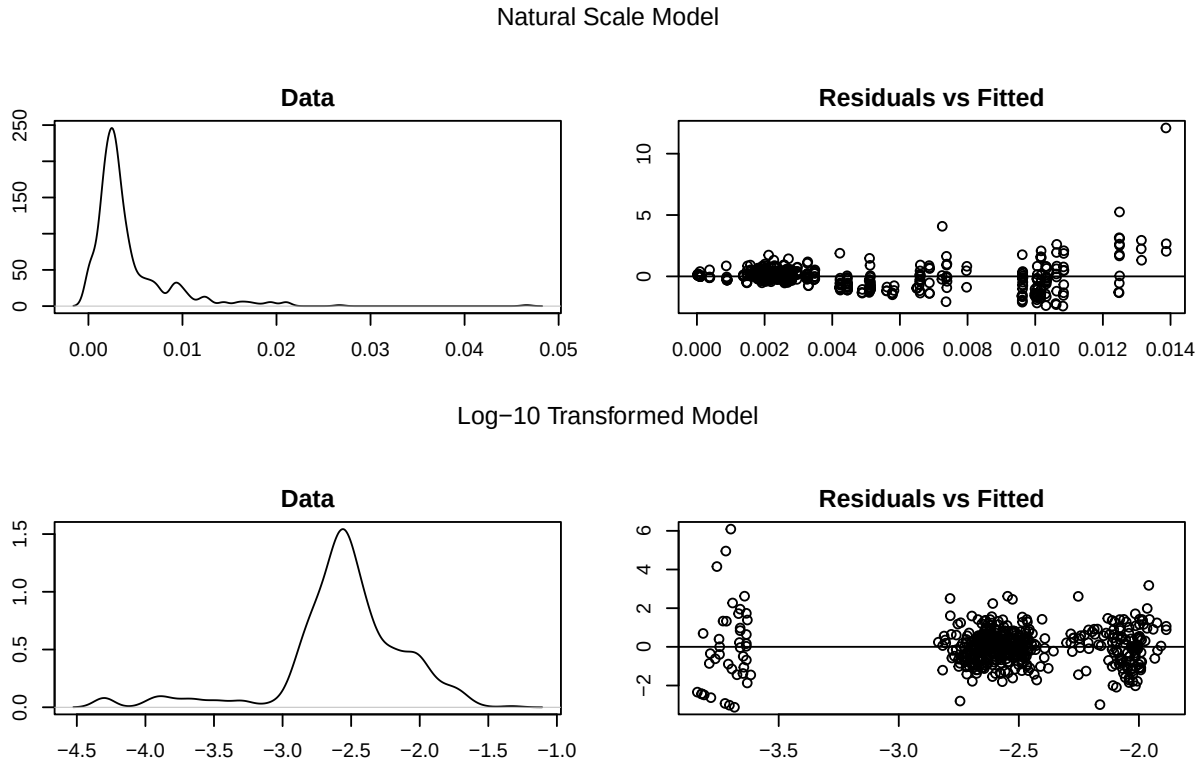
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Davidson Creek	DC-05	before	73	0.0026	0.00
Davidson Creek	DC-05	after	22	0.0028	0.00
Davidson Creek	DC-10	before	79	0.0023	0.00
Davidson Creek	DC-10	after	18	0.0023	0.00
Davidson Creek	DC-15	before	81	0.0031	0.00
Davidson Creek	DC-15	after	18	0.0029	0.00
Davidson Creek	DC-20	before	81	0.0090	0.00
Davidson Creek	DC-20	after	17	0.0193	0.00
Creek 705	705-05	before	15	0.0071	0.00
Creek 705	705-05	after	18	0.0067	0.00
Creek 705	705-10	before	49	0.0021	0.00
Creek 705	705-10	after	17	0.0017	0.00
Fawnie Creek (reference)	FC-01	before	27	0.0002	11.11
Fawnie Creek (reference)	FC-01	after	15	0.0001	33.33

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Davidson Creek	DC-20	2022	12	monit	after	0.0466	0.0139	12.095	Y
Davidson Creek	DC-20	2023	4	monit	after	0.0267	0.0125	5.250	Y
Creek 705	705-05	2024	3	control	after	0.0183	0.0073	4.082	Y
Davidson Creek	DC-20	2023	2	monit	after	0.0210	0.0125	3.147	Y
Davidson Creek	DC-20	2023	10	monit	after	0.0209	0.0125	3.101	Y

Outliers on log scale:

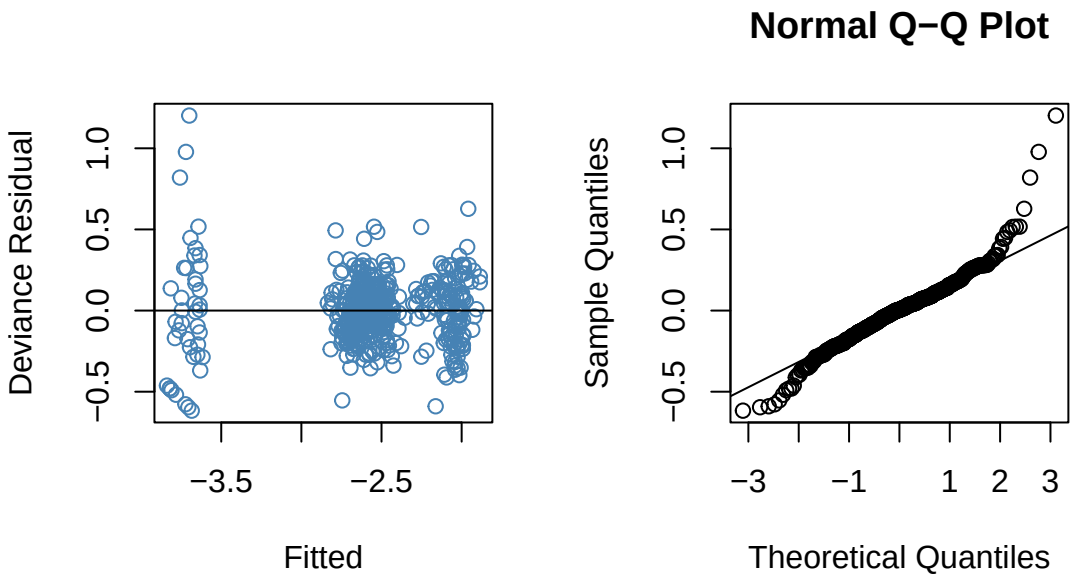
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-2.498	-3.699	6.090	Y
Fawnie Creek (reference)	FC-01	2021	12	control	before	-2.742	-3.720	4.954	Y
Fawnie Creek (reference)	FC-01	2023	5	control	after	-2.938	-3.757	4.152	Y
Davidson Creek	DC-20	2022	12	monit	after	-1.332	-1.959	3.178	Y
Fawnie Creek (reference)	FC-01	2021	11	control	before	-4.301	-3.684	-3.126	N
Fawnie Creek (reference)	FC-01	2022	3	control	before	-4.301	-3.705	-3.019	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.051639	0.051639	1	5.008	1.3258	0.302	
period	0.007627	0.007627	1	15.252	0.1958	0.664	
class:period	0.637269	0.637269	1	504.613	16.3611	<0.001	0.000112

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (DC-05, DC-10, DC-15, DC-20) and control sites, with p value adjusted for multiple comparisons:

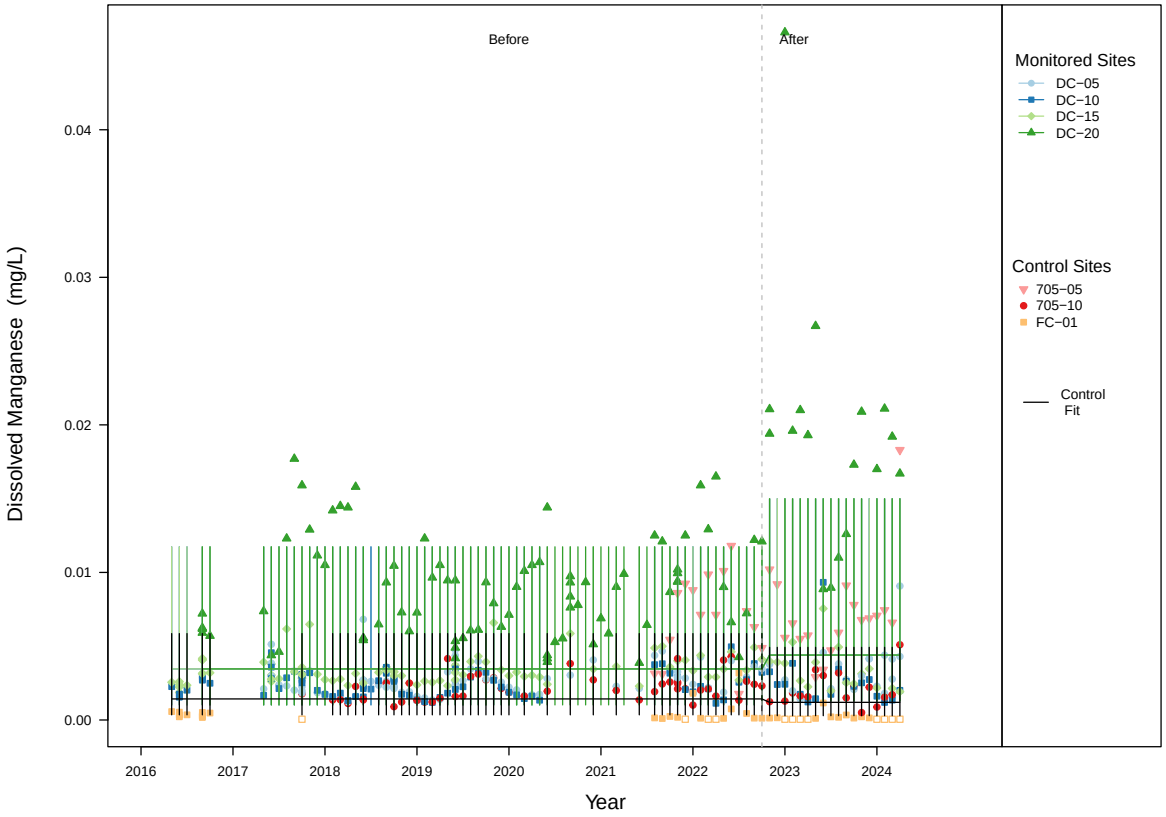
Monitored vs.	Estimate	Significance
control sites	0.1812	significant

Conclusion:

The change in Dissolved Manganese concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 1.12×10^{-4}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

Variable	Dissolved Manganese
Watershed	Davidson Creek
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

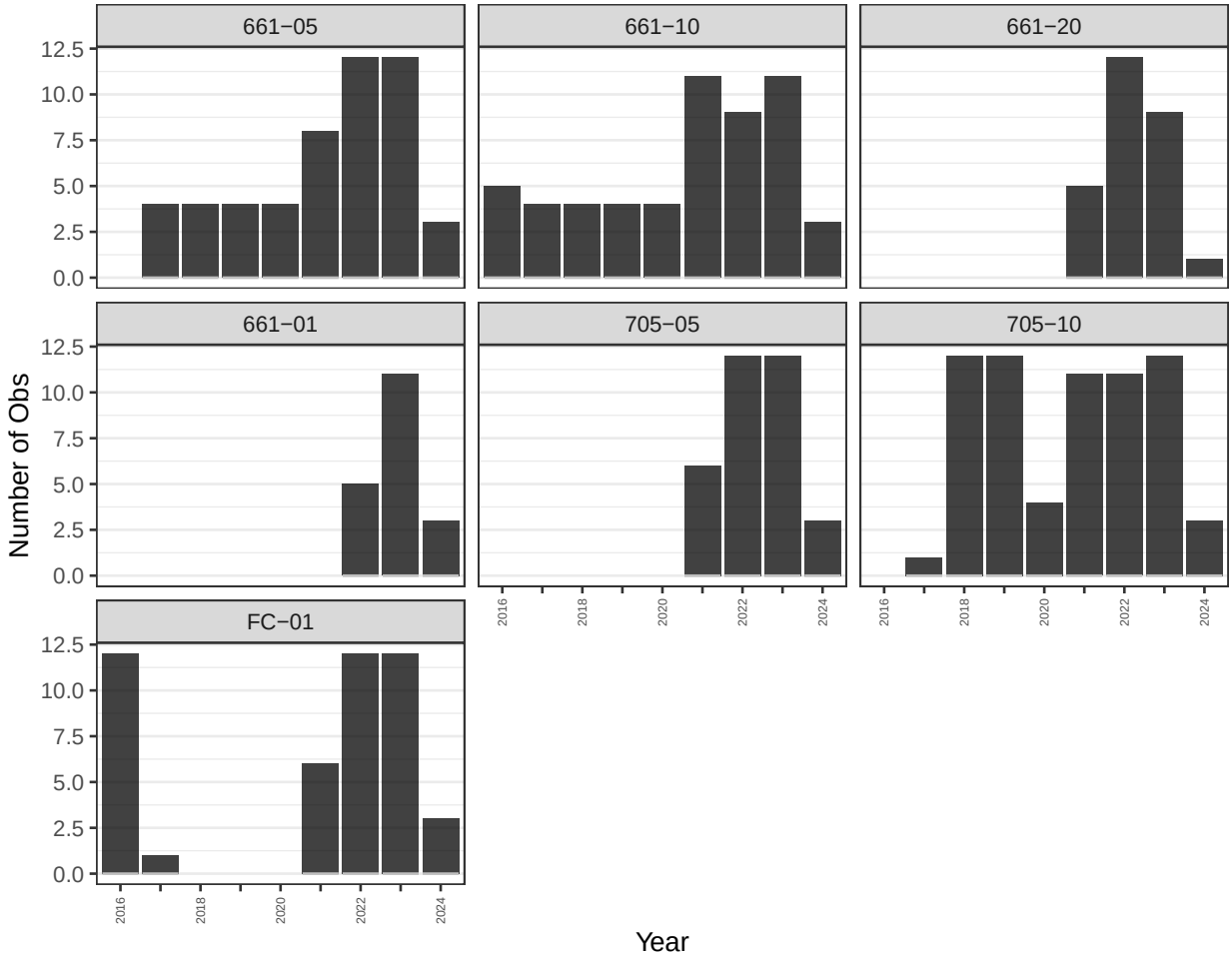
E-2.1.2 Creek 661

E-2.1.2.1 pH

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

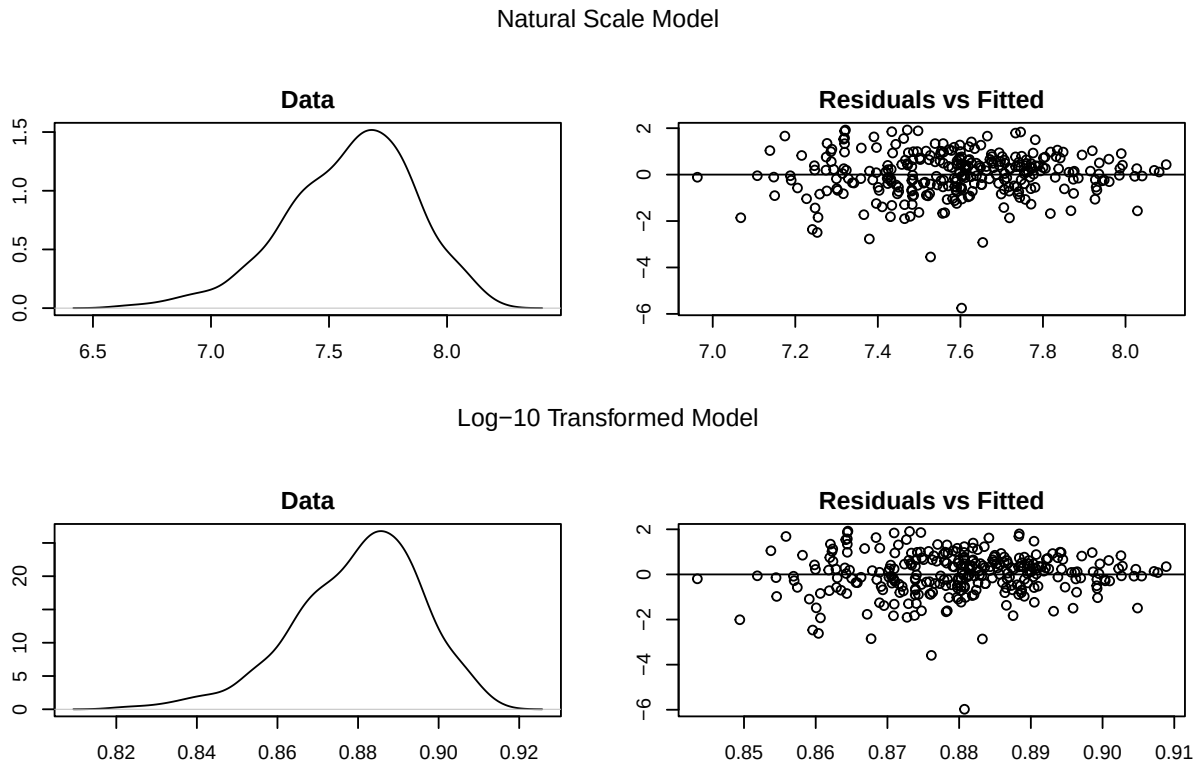
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	7.760	0
Creek 661	661-05	after	18	7.870	0
Creek 661	661-10	before	39	7.580	0
Creek 661	661-10	after	16	7.678	0
Creek 661	661-20	before	14	7.910	0
Creek 661	661-20	after	13	8.050	0
Creek 661	661-01	before	3	7.380	0
Creek 661	661-01	after	16	7.275	0
Creek 705	705-05	before	15	7.390	0
Creek 705	705-05	after	18	7.430	0
Creek 705	705-10	before	49	7.580	0
Creek 705	705-10	after	17	7.520	0
Fawnie Creek (reference)	FC-01	before	28	7.615	0
Fawnie Creek (reference)	FC-01	after	18	7.774	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2016	8	control	before	6.65	7.603	-5.751	Y
Fawnie Creek (reference)	FC-01	2023	7	control	after	6.94	7.528	-3.547	Y

Outliers on log scale:

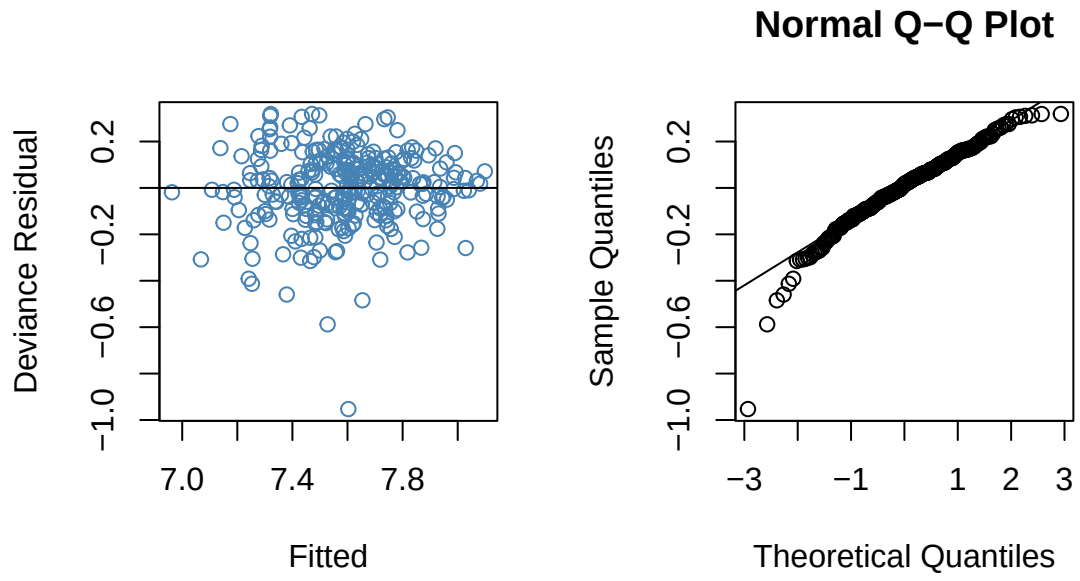
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2016	8	control	before	0.8228	0.8807	-5.978	Y
Fawnie Creek (reference)	FC-01	2023	7	control	after	0.8414	0.8761	-3.589	Y

Based on examination of the residuals, the untransformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.1427	0.1427	1	4.982	5.195	0.0718	
period	0.1372	0.1372	1	46.462	4.998	0.0302	
class:period	0.2694	0.2694	1	273.658	9.812	0.0019	0.00269

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

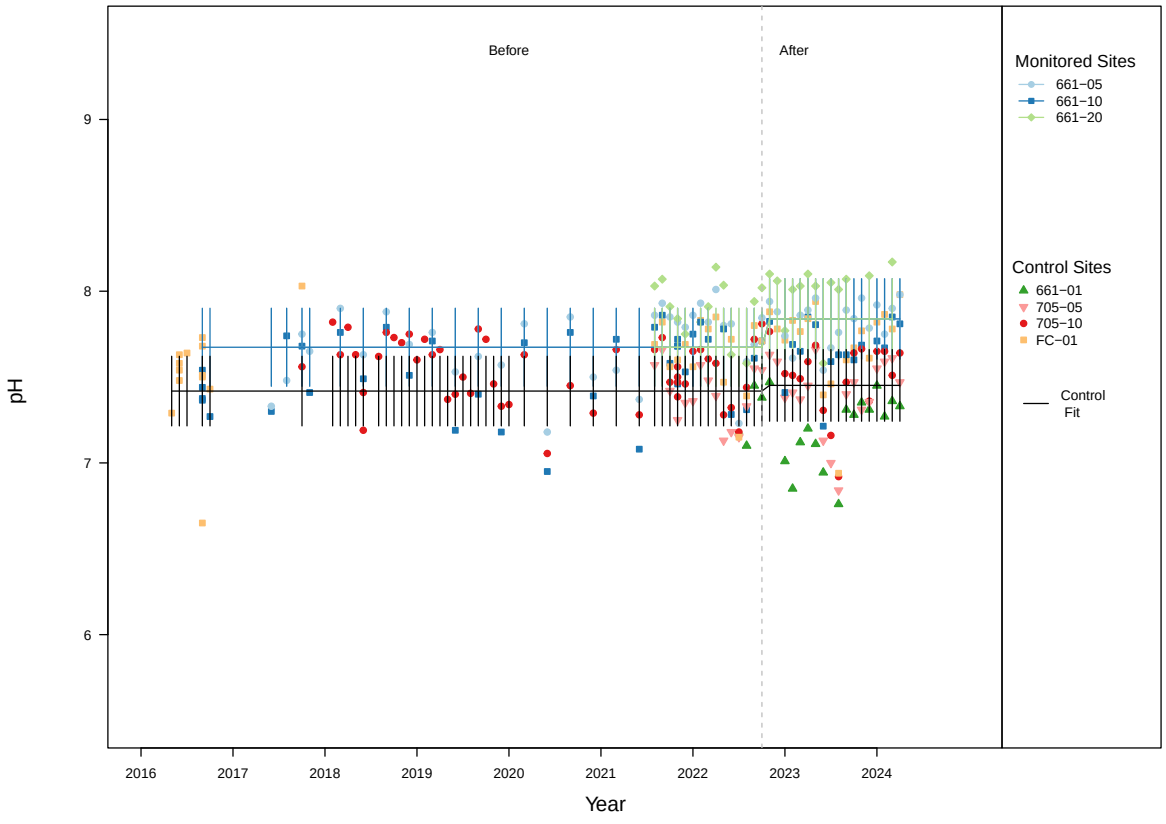
Monitored vs.	Estimate	Significance
control sites	0.1318	significant

Conclusion:

The change in pH at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0027) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals.

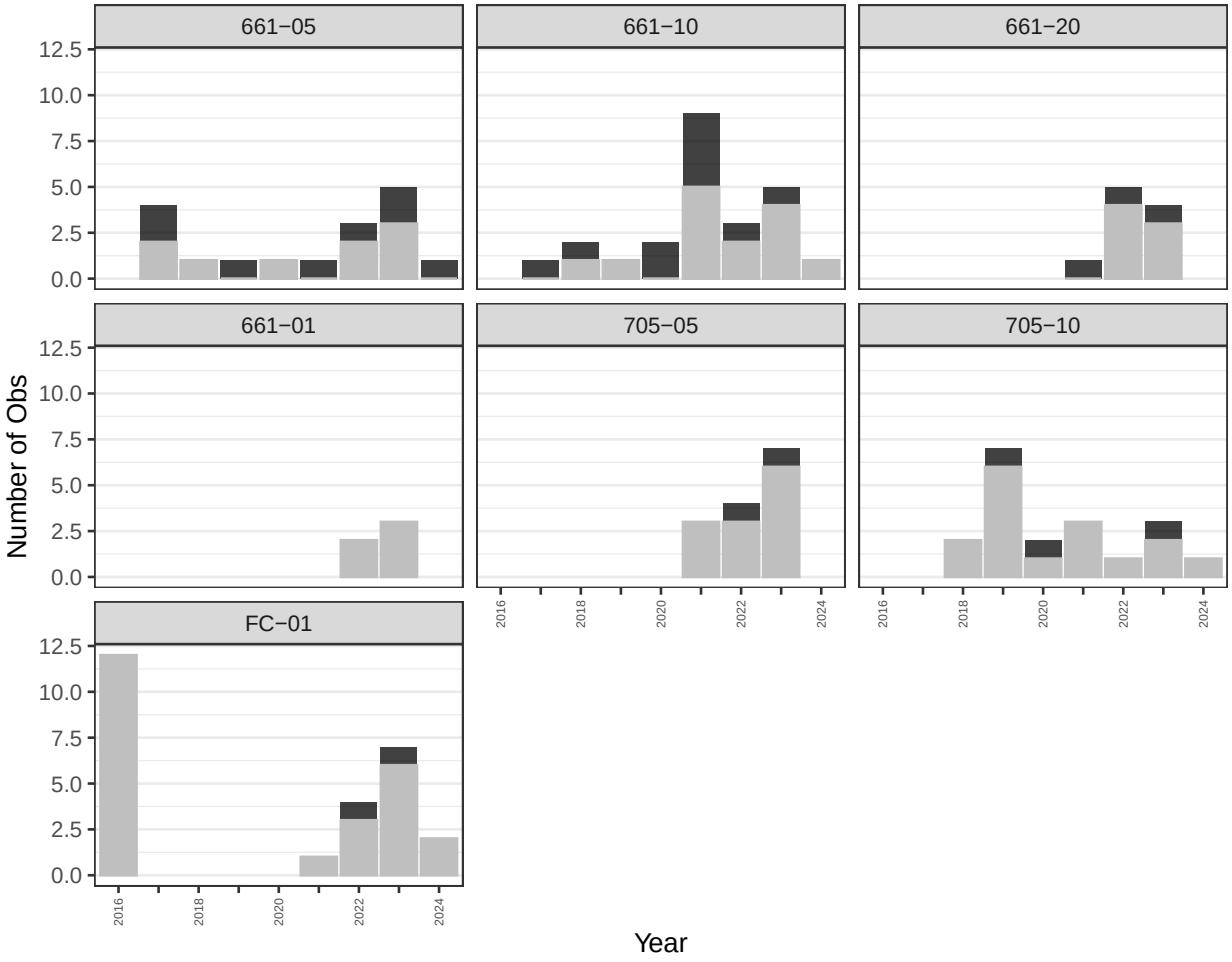
Final Summary Table

Variable	pH
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.2 Total Suspended Solids

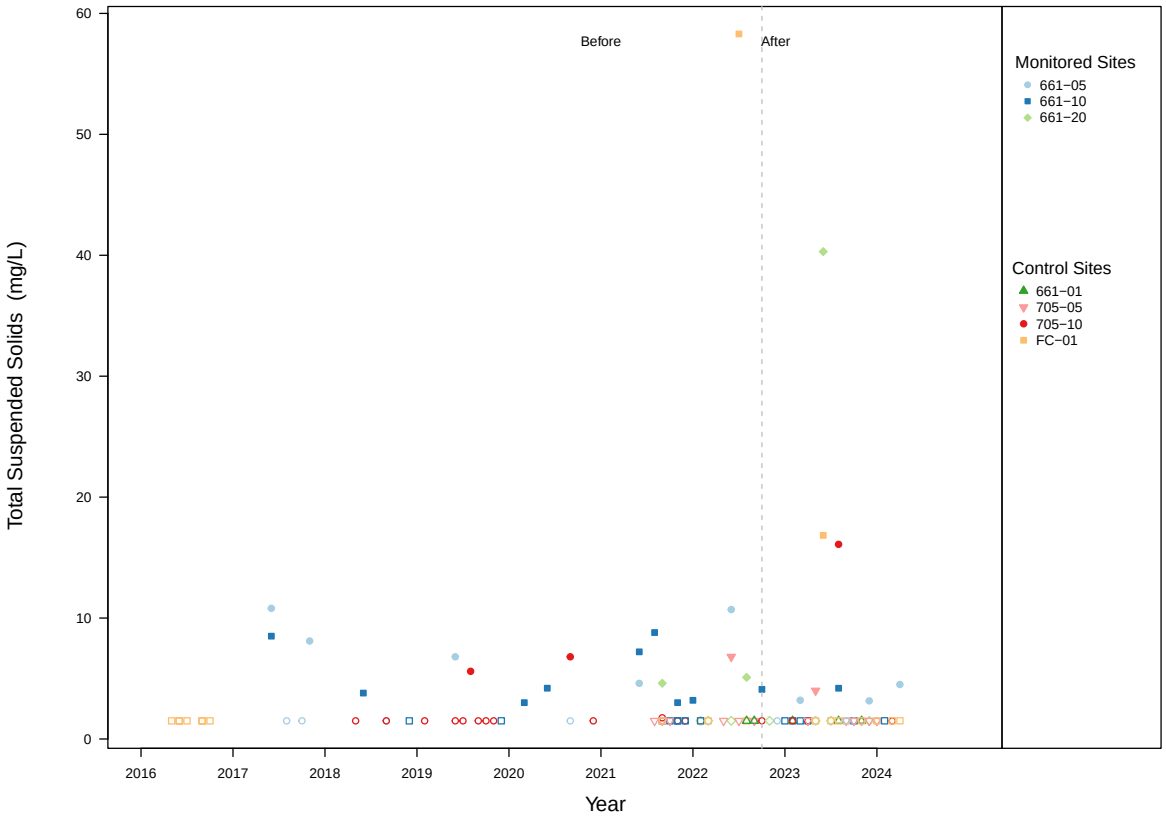
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

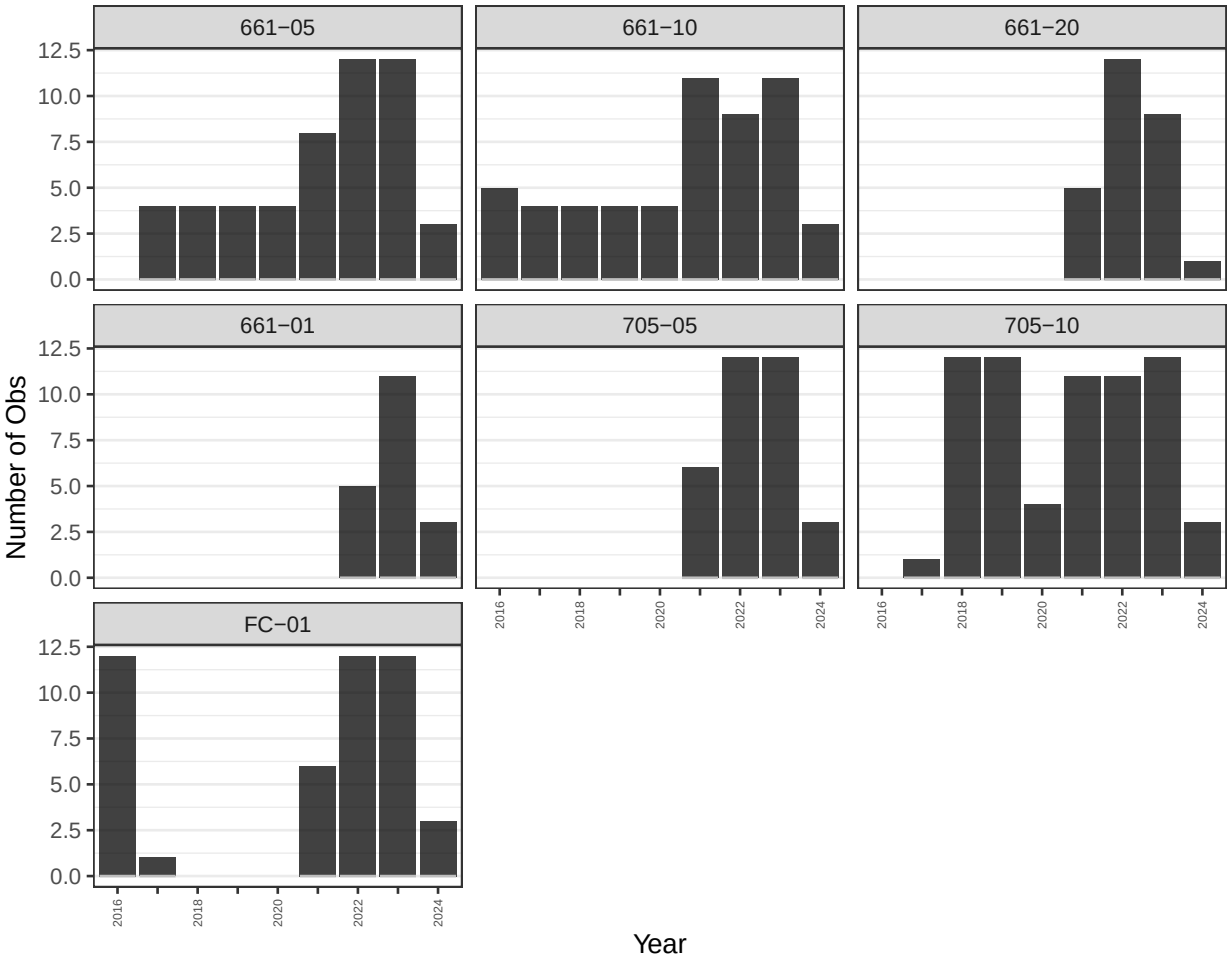
Variable	Total Suspended Solids
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.3 Total Dissolved Solids

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

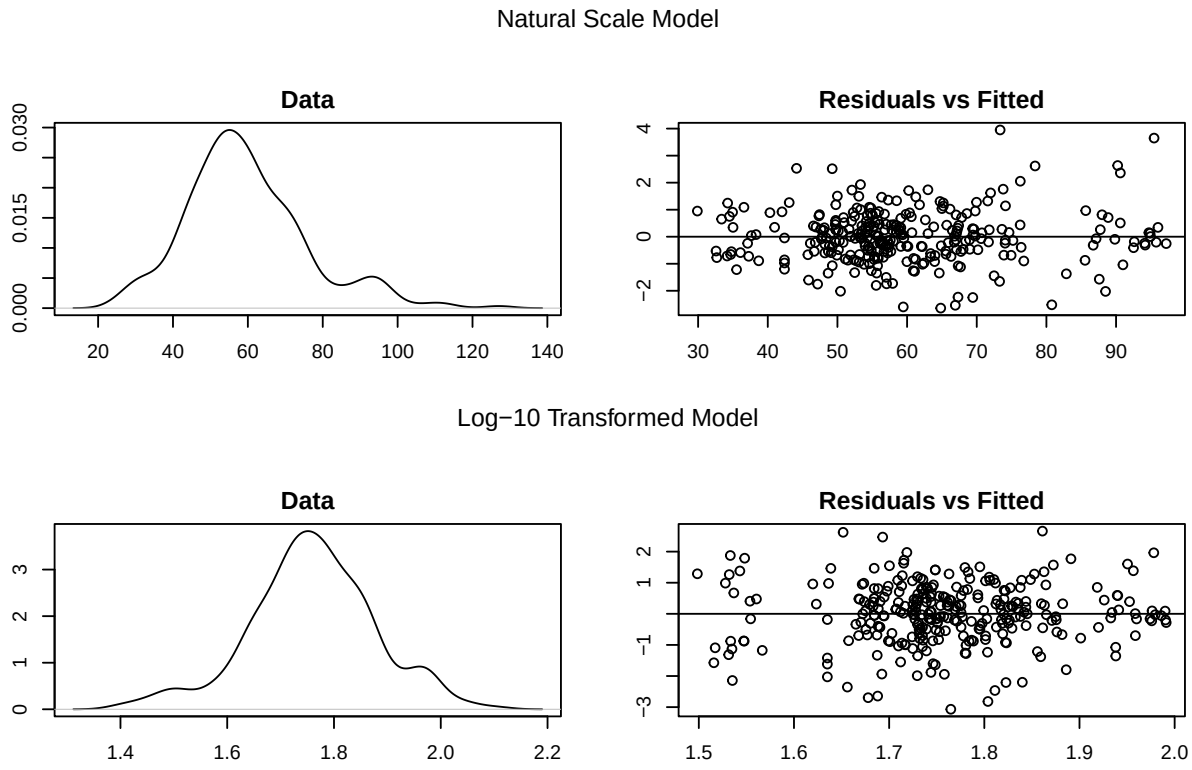
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	68.00	0
Creek 661	661-05	after	18	72.50	0
Creek 661	661-10	before	39	60.00	0
Creek 661	661-10	after	16	67.00	0
Creek 661	661-20	before	14	85.25	0
Creek 661	661-20	after	13	94.00	0
Creek 661	661-01	before	3	39.00	0
Creek 661	661-01	after	16	33.00	0
Creek 705	705-05	before	15	50.00	0
Creek 705	705-05	after	18	48.50	0
Creek 705	705-10	before	49	56.00	0
Creek 705	705-10	after	17	54.00	0
Fawnie Creek (reference)	FC-01	before	28	50.50	0
Fawnie Creek (reference)	FC-01	after	18	56.25	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	107.5	73.36	3.95	Y
Creek 661	661-20	2023	7	monit	after	127.0	95.46	3.65	Y

Outliers on log scale:

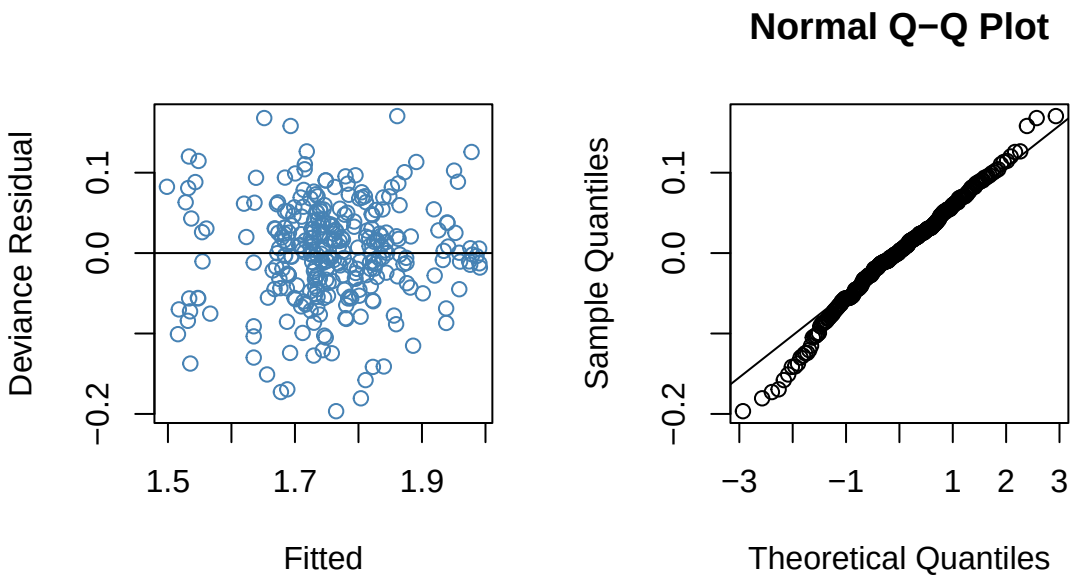
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 705	705-10	2019	8	control	before	1.568	1.765	-3.069	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.03509	0.03509	1	4.988	8.55	0.0330	
period	0.01141	0.01141	1	60.262	2.78	0.1010	
class:period	0.04331	0.04331	1	273.630	10.55	0.0013	0.00218

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

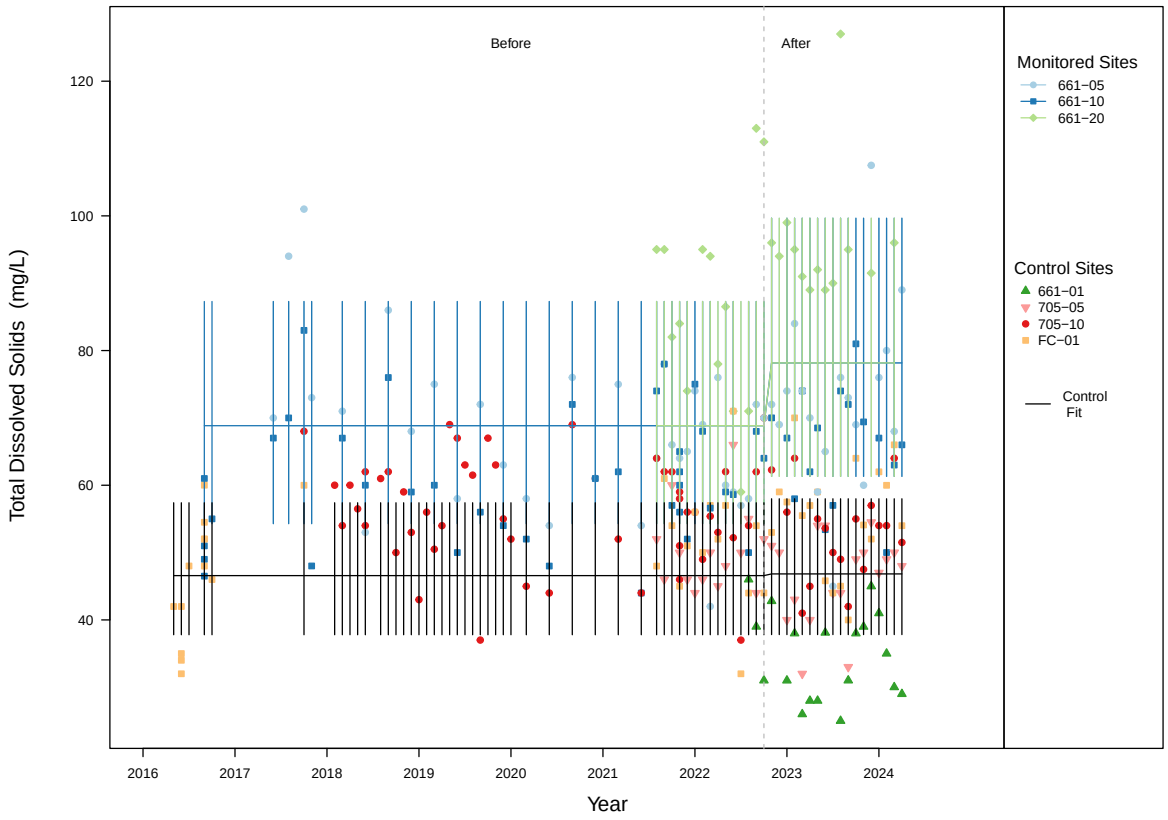
Monitored vs.	Estimate	Significance
control sites	0.0528	significant

Conclusion:

The change in Total Dissolved Solids concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p =* 0.0022) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

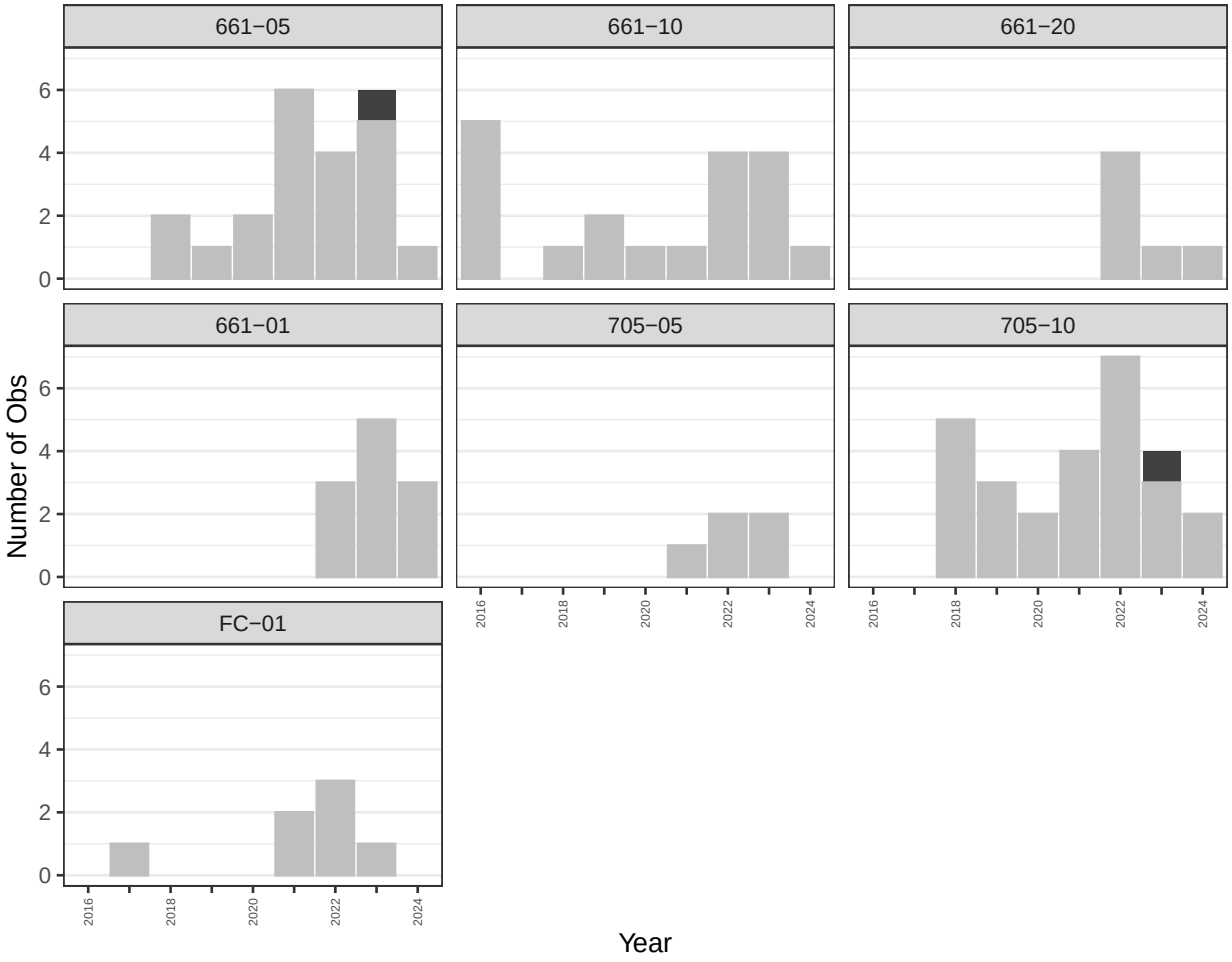
Final Summary Table

Variable	Total Dissolved Solids
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.4 Chloride

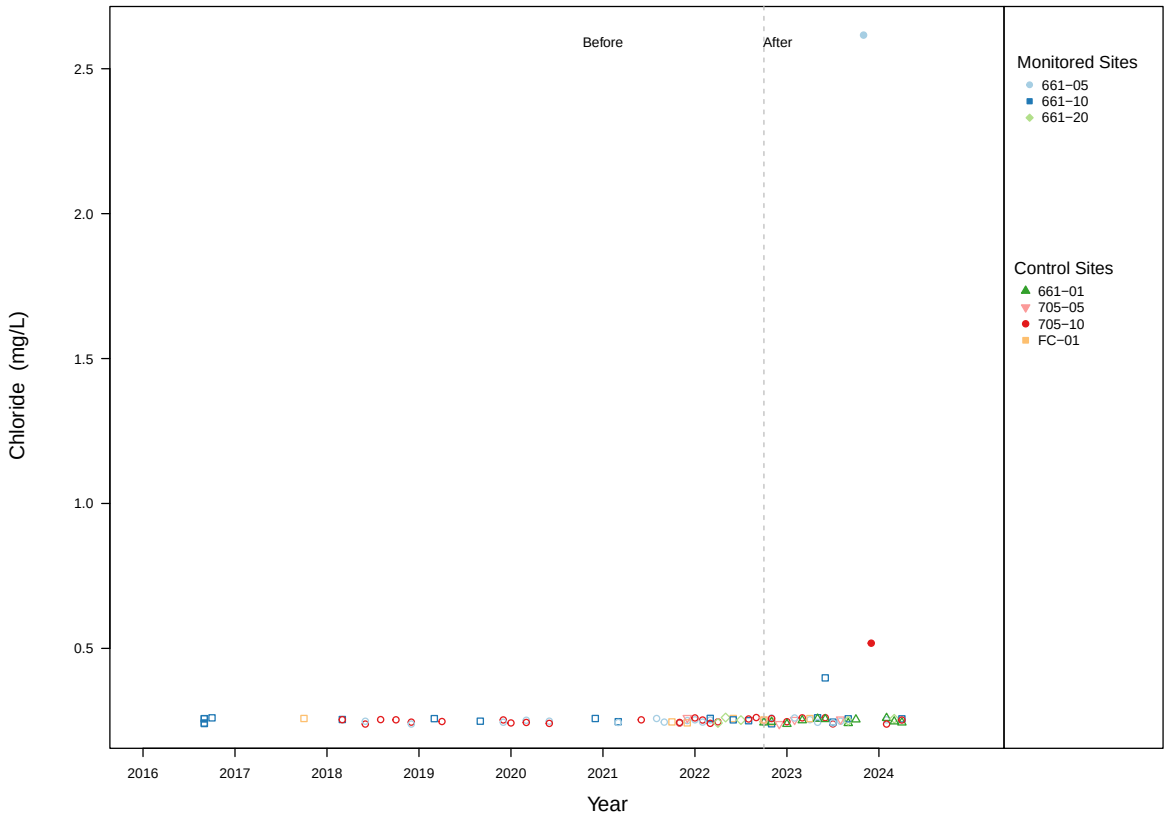
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

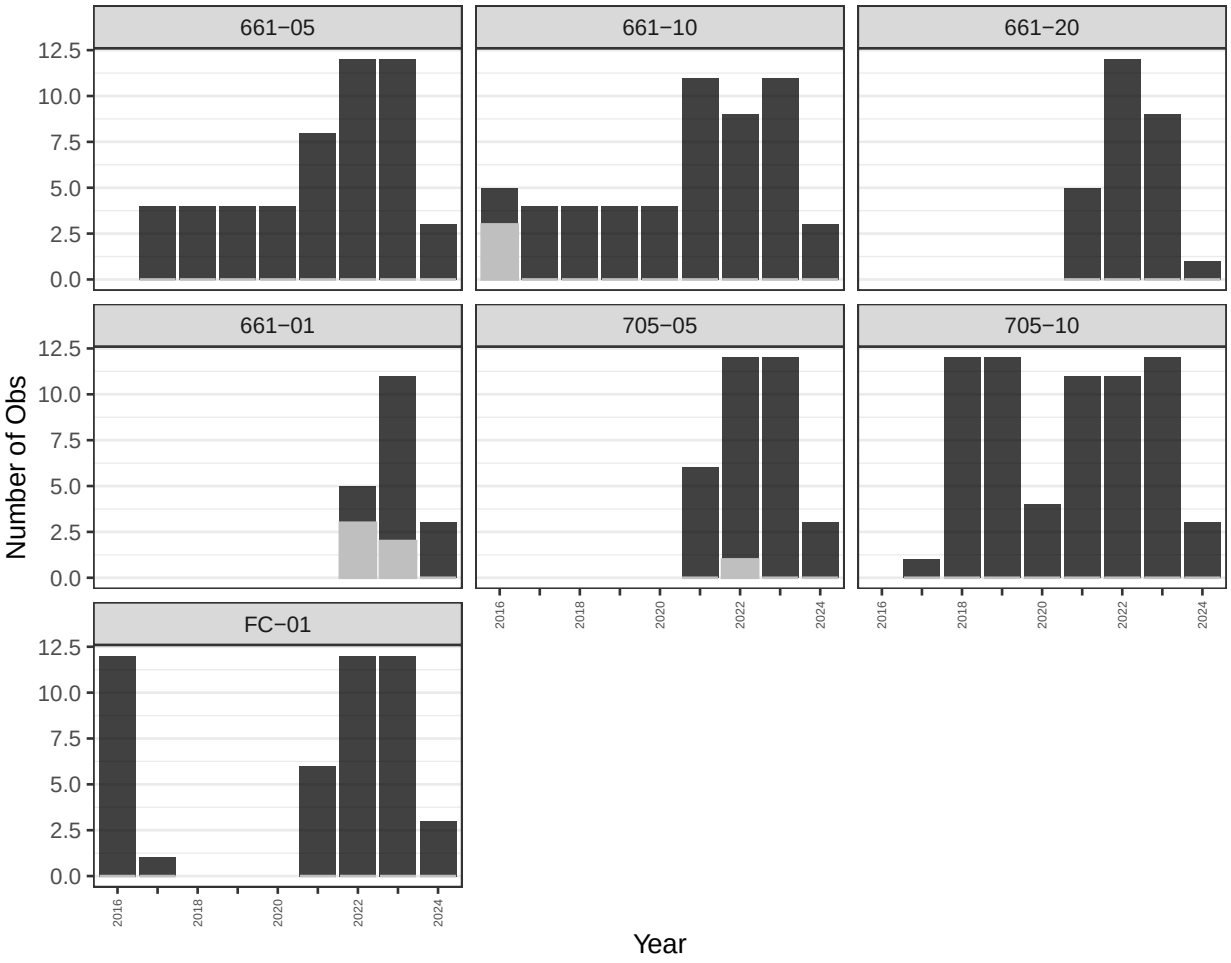
Variable	Chloride
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.5 Sulphate

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 661	661-10	2016	monit	before	5
Creek 661	661-01	2022	control	before	5
Creek 661	661-01	2022	control	after	5

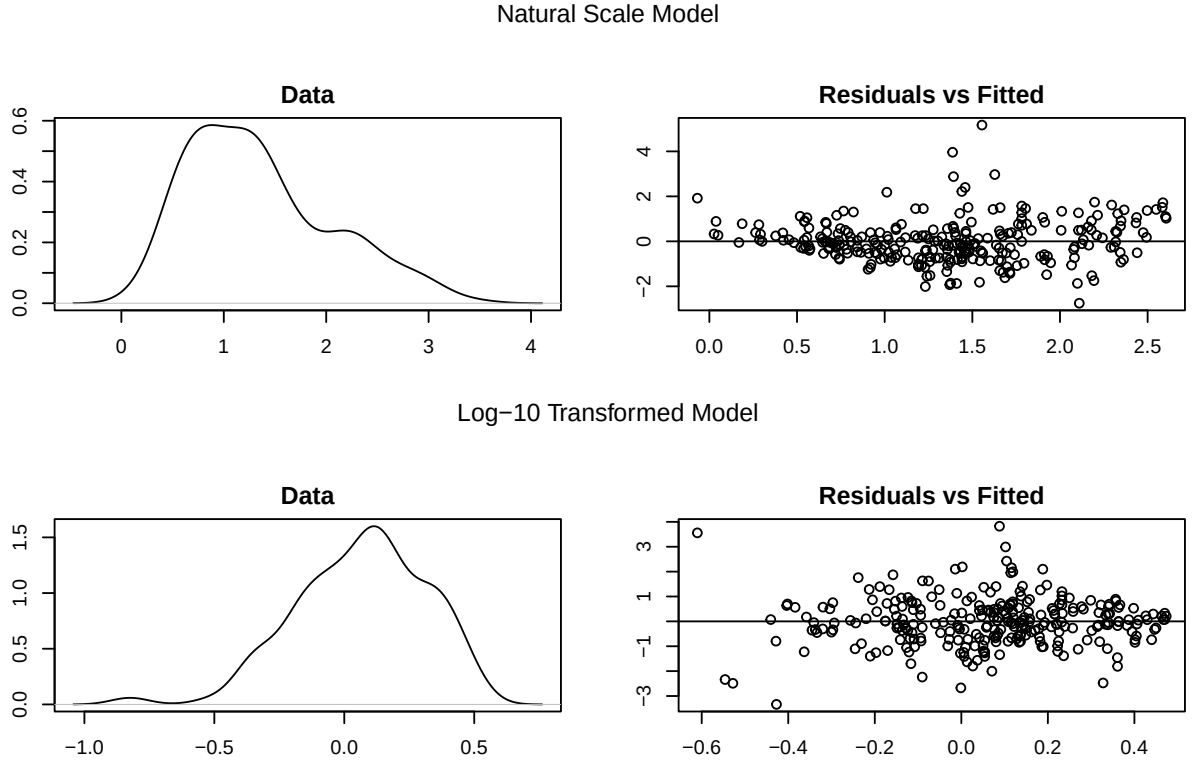
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.880	0.000
Creek 661	661-05	after	18	1.165	0.000
Creek 661	661-10	before	27	1.610	0.000
Creek 661	661-10	after	14	2.030	0.000
Creek 661	661-20	before	14	1.755	0.000
Creek 661	661-20	after	13	2.290	0.000
Creek 661	661-01	after	14	0.460	14.286
Creek 705	705-05	before	15	0.560	6.667
Creek 705	705-05	after	18	0.915	0.000
Creek 705	705-10	before	49	1.010	0.000
Creek 705	705-10	after	17	1.275	0.000
Fawnie Creek (reference)	FC-01	before	28	1.518	0.000
Fawnie Creek (reference)	FC-01	after	18	2.542	0.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-10	2023	7	monit	after	3.49	1.555	5.169	Y
Creek 661	661-05	2023	10	monit	after	2.87	1.387	3.961	Y

Outliers on log scale:

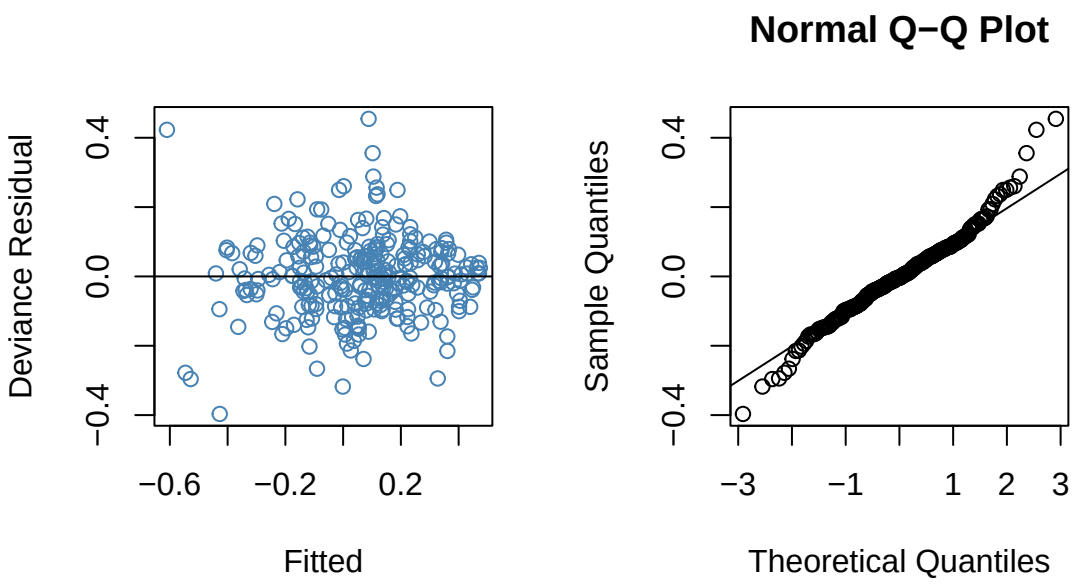
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-10	2023	7	monit	after	0.5428	0.0882	3.824	Y
Creek 661	661-01	2023	7	control	after	-0.1871	-0.6101	3.558	Y
Creek 705	705-05	2022	7	control	before	-0.8239	-0.4272	-3.337	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	2.058e-02	2.058e-02	1	4.994	1.456	0.2820	
period	1.629e-01	1.629e-01	1	10.303	11.524	0.0066	
class:period	6.61e-07	6.61e-07	1	258.548	0.000	0.9950	0.995

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

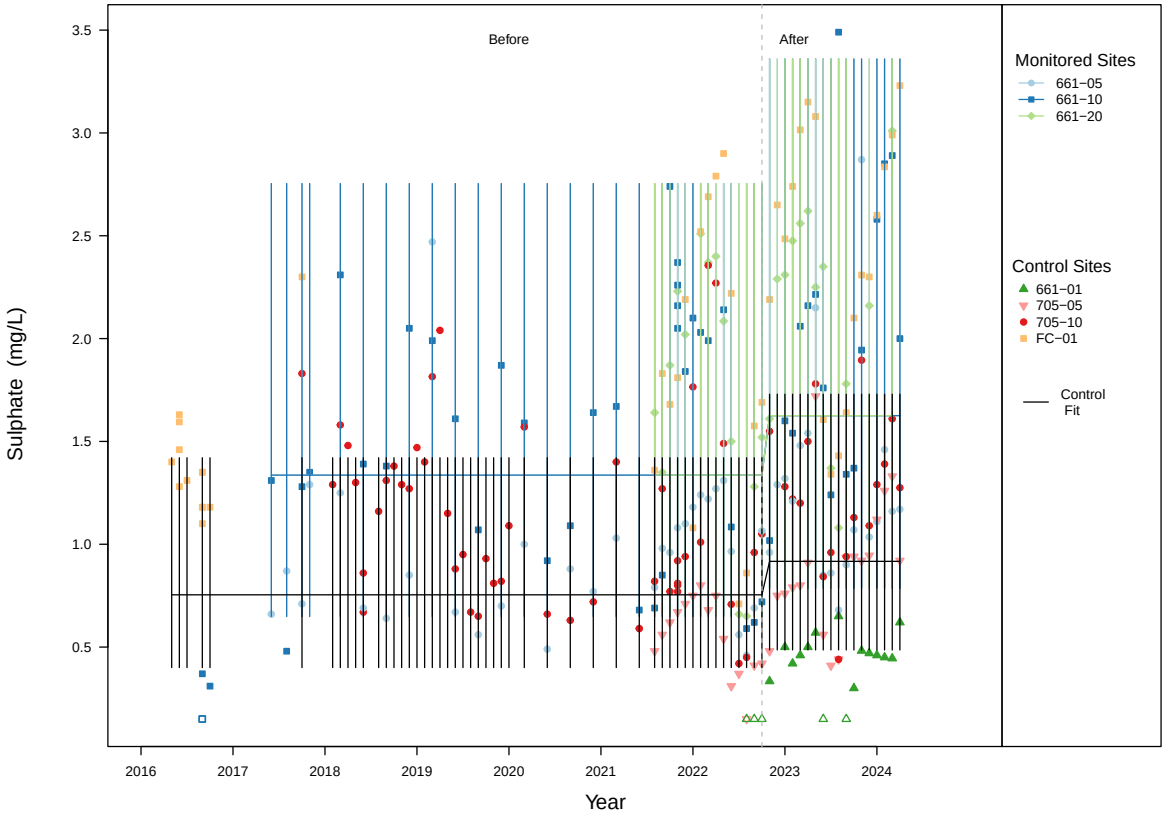
Monitored vs.	Estimate	Significance
control sites	2e-04	not significant

Conclusion:

The change in Sulphate concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.995) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

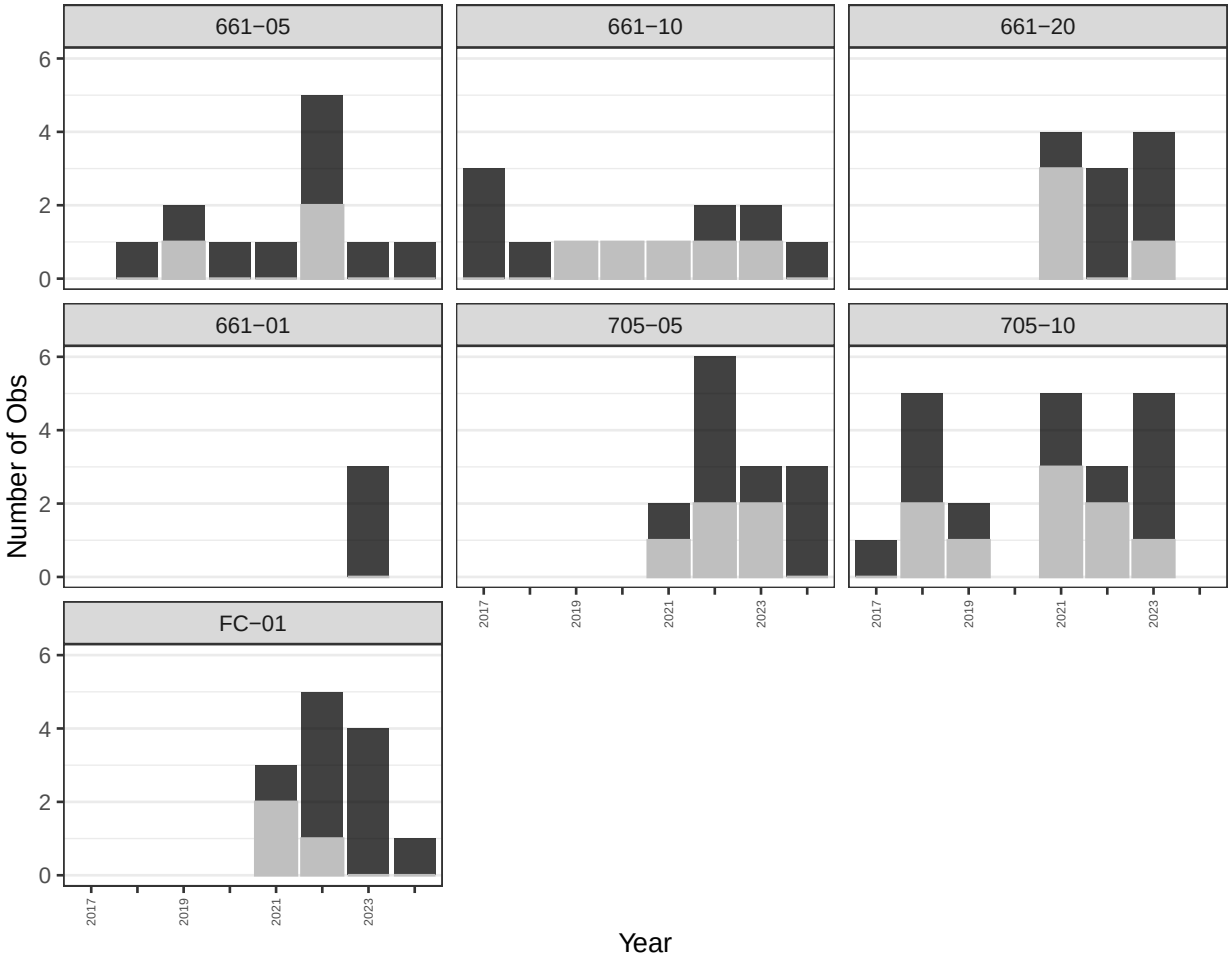
Final Summary Table

Variable	Sulphate
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.6 Nitrate-N

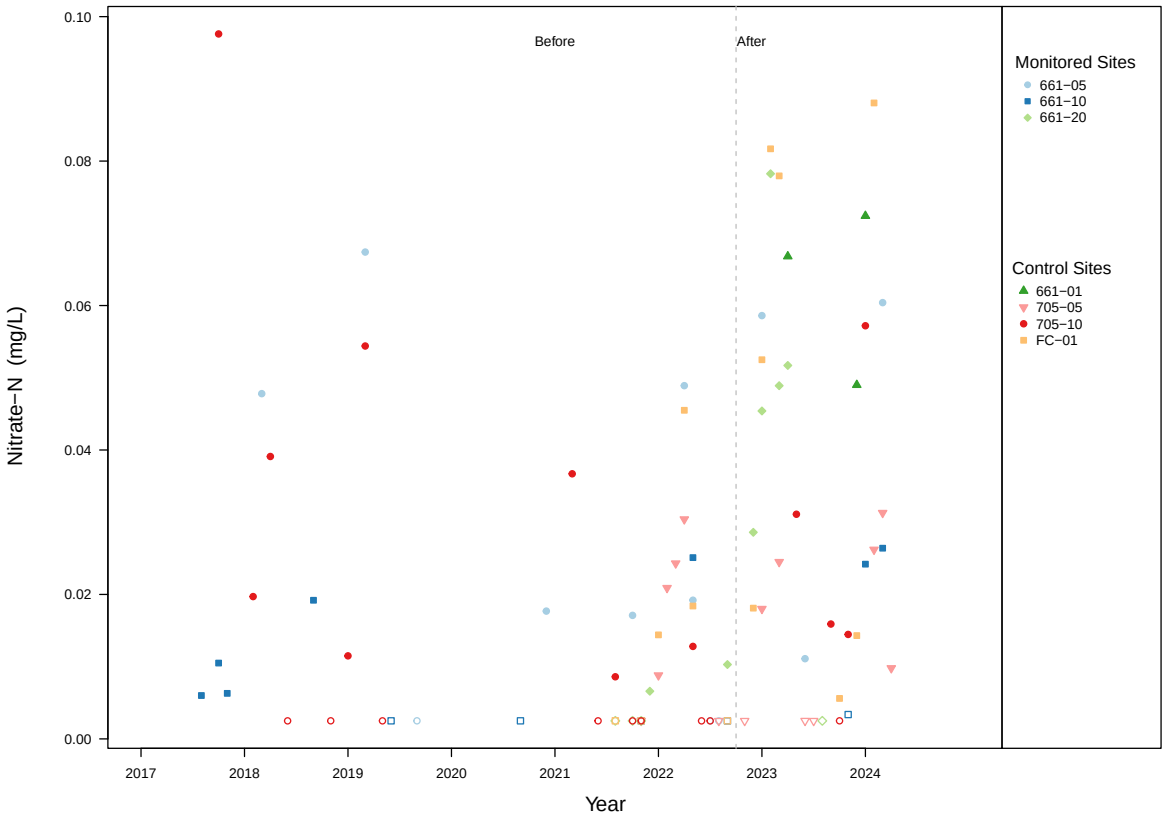
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

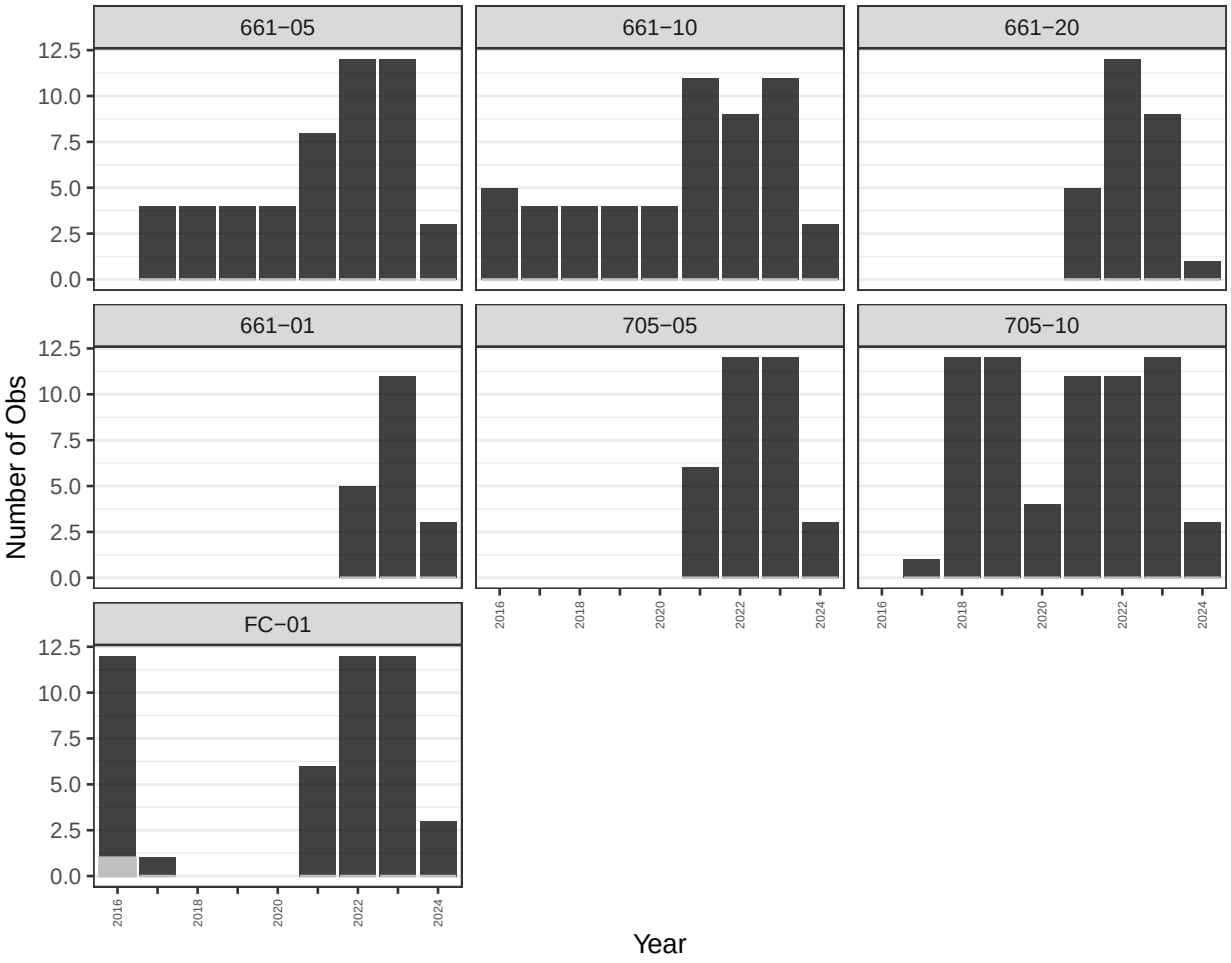
Variable	Nitrate-N
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.7 Total Phosphorus

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

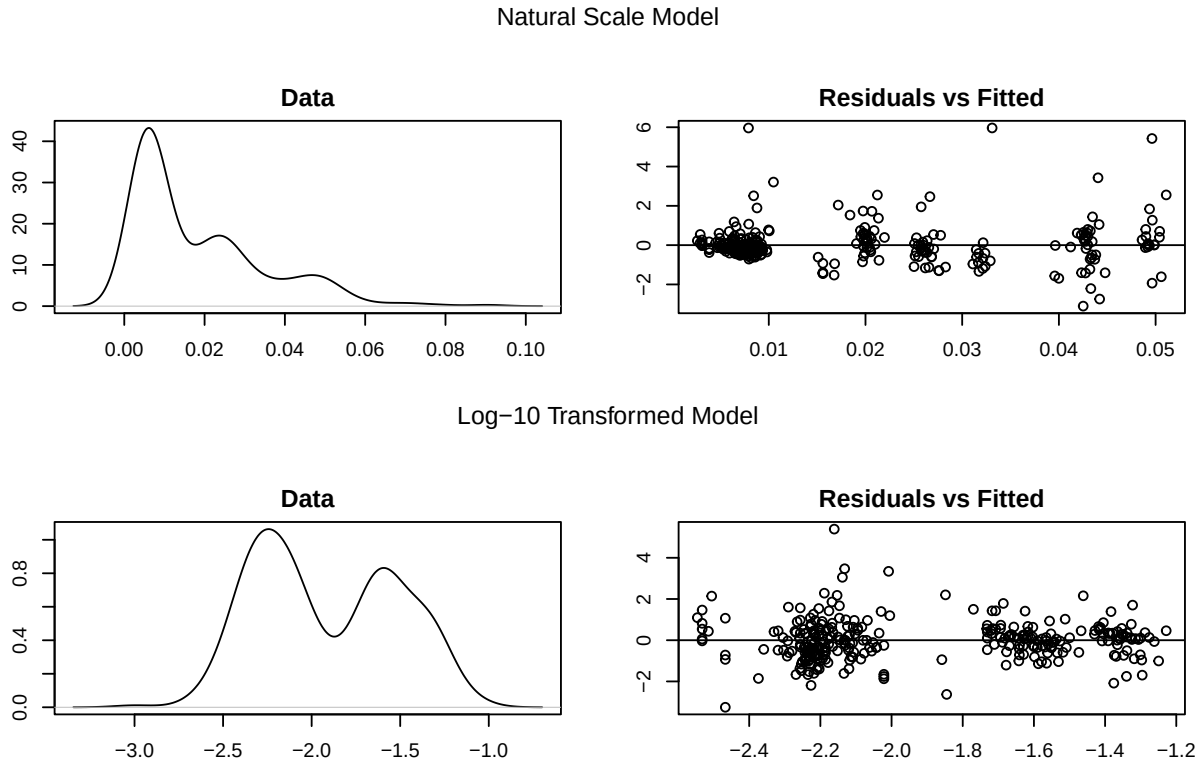
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0415	0.000
Creek 661	661-05	after	18	0.0503	0.000
Creek 661	661-10	before	39	0.0216	0.000
Creek 661	661-10	after	16	0.0234	0.000
Creek 661	661-20	before	14	0.0255	0.000
Creek 661	661-20	after	13	0.0269	0.000
Creek 661	661-01	before	3	0.0062	0.000
Creek 661	661-01	after	16	0.0050	0.000
Creek 705	705-05	before	15	0.0079	0.000
Creek 705	705-05	after	18	0.0077	0.000
Creek 705	705-10	before	49	0.0059	0.000
Creek 705	705-10	after	17	0.0049	0.000
Fawnie Creek (reference)	FC-01	before	28	0.0042	3.571
Fawnie Creek (reference)	FC-01	after	18	0.0065	0.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-20	2023	5	monit	after	0.0779	0.0331	5.963	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0527	0.0079	5.962	Y
Creek 661	661-05	2023	11	monit	after	0.0904	0.0496	5.427	Y
Creek 661	661-05	2018	8	monit	before	0.0698	0.0440	3.428	Y
Creek 705	705-05	2024	3	control	after	0.0346	0.0105	3.209	Y
Creek 661	661-05	2022	7	monit	before	0.0192	0.0425	-3.103	Y

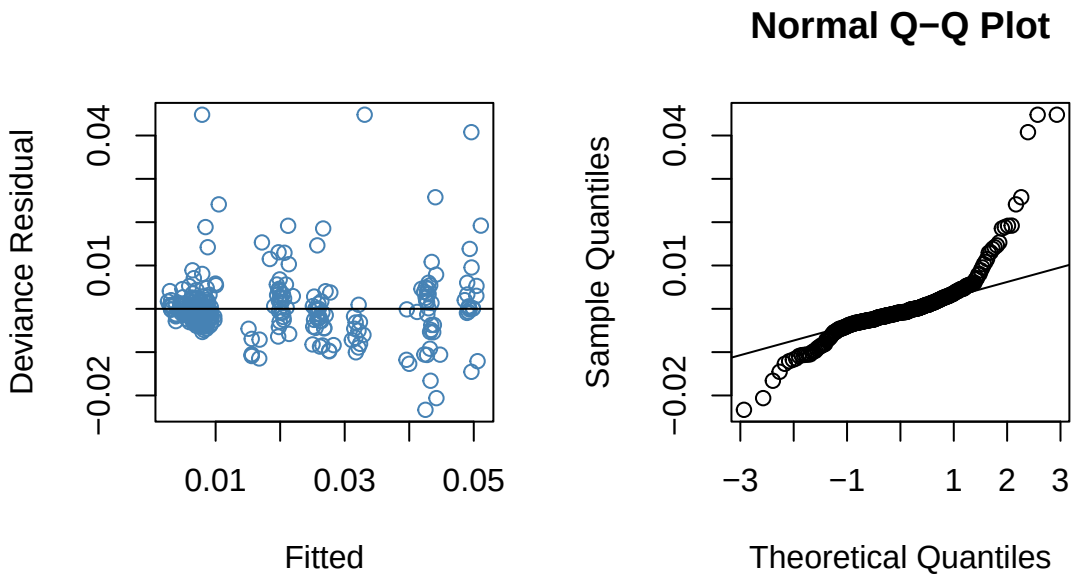
Outliers on log scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-1.278	-2.161	5.391	Y
Creek 705	705-10	2024	3	control	after	-1.564	-2.132	3.468	Y
Creek 705	705-05	2024	3	control	after	-1.461	-2.008	3.342	Y
Fawnie Creek (reference)	FC-01	2016	5	control	before	-3.000	-2.467	-3.254	N
Fawnie Creek (reference)	FC-01	2023	5	control	after	-1.638	-2.138	3.053	Y

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.0010306	0.0010306	1	4.981	18.255	0.00799	
period	0.000143	0.000143	1	32.820	2.536	0.121	
class:period	0.000660	0.000660	1	277.408	11.684	<0.001	0.00137

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

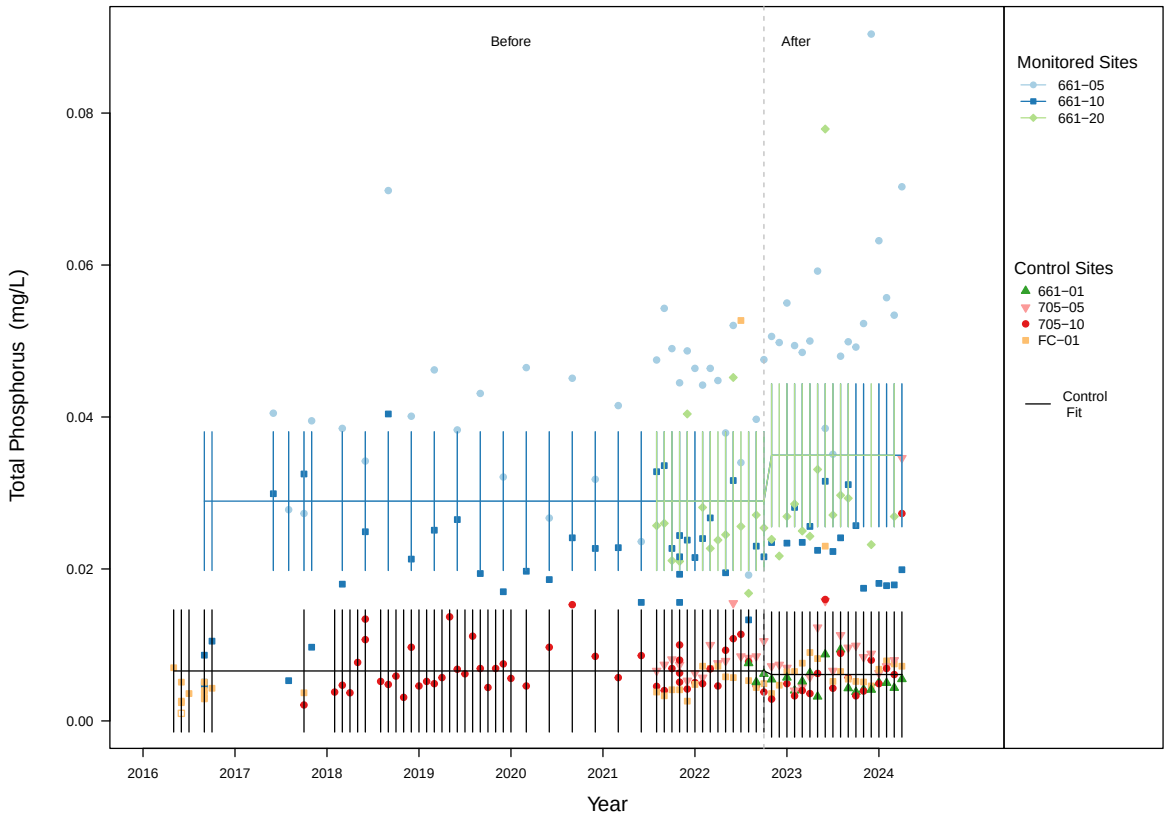
Monitored vs.	Estimate	Significance
control sites	0.0065	significant

Conclusion:

The change in Total Phosphorus concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0014) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals.

Final Summary Table

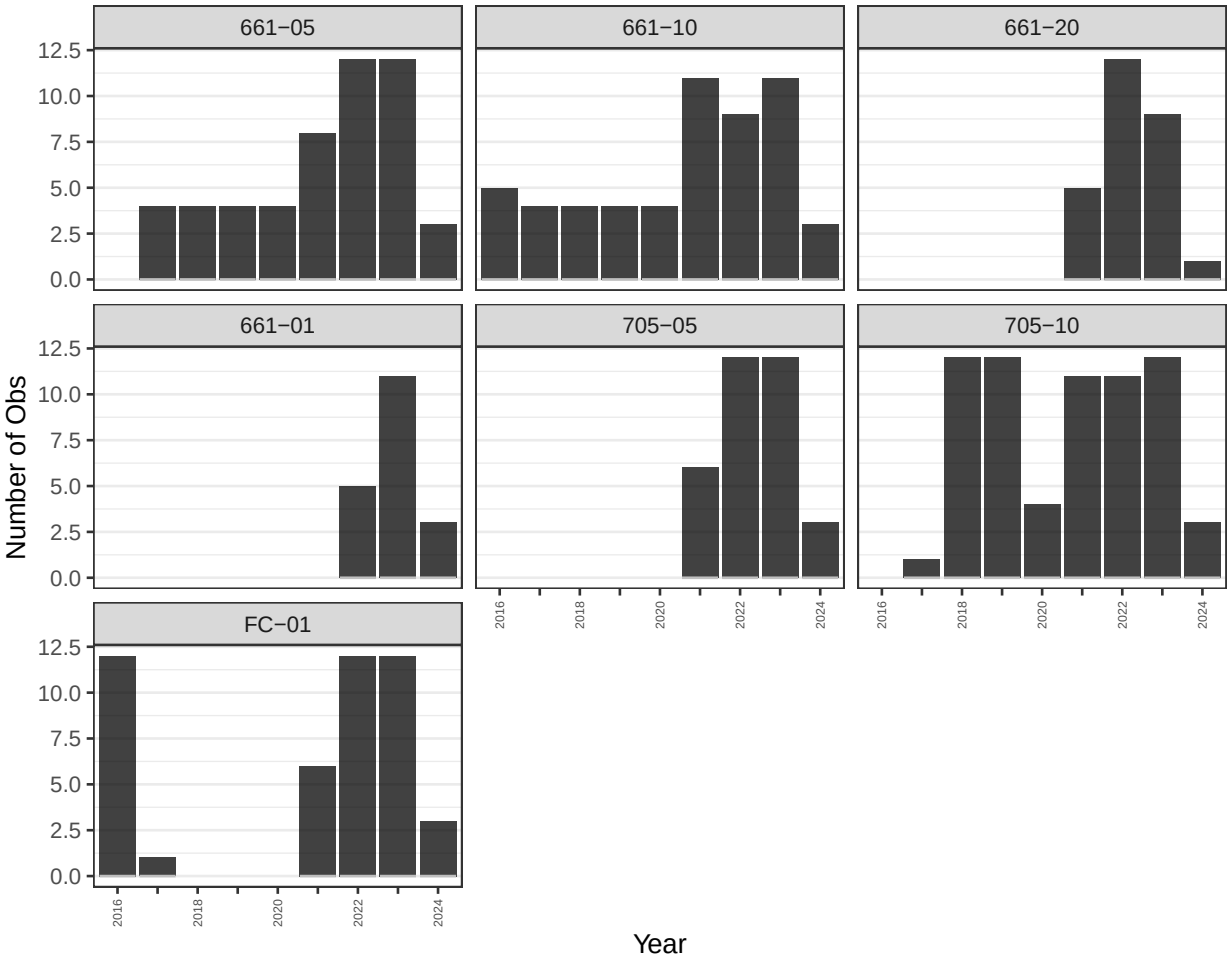
Variable	Total Phosphorus
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.8 Total Aluminum

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

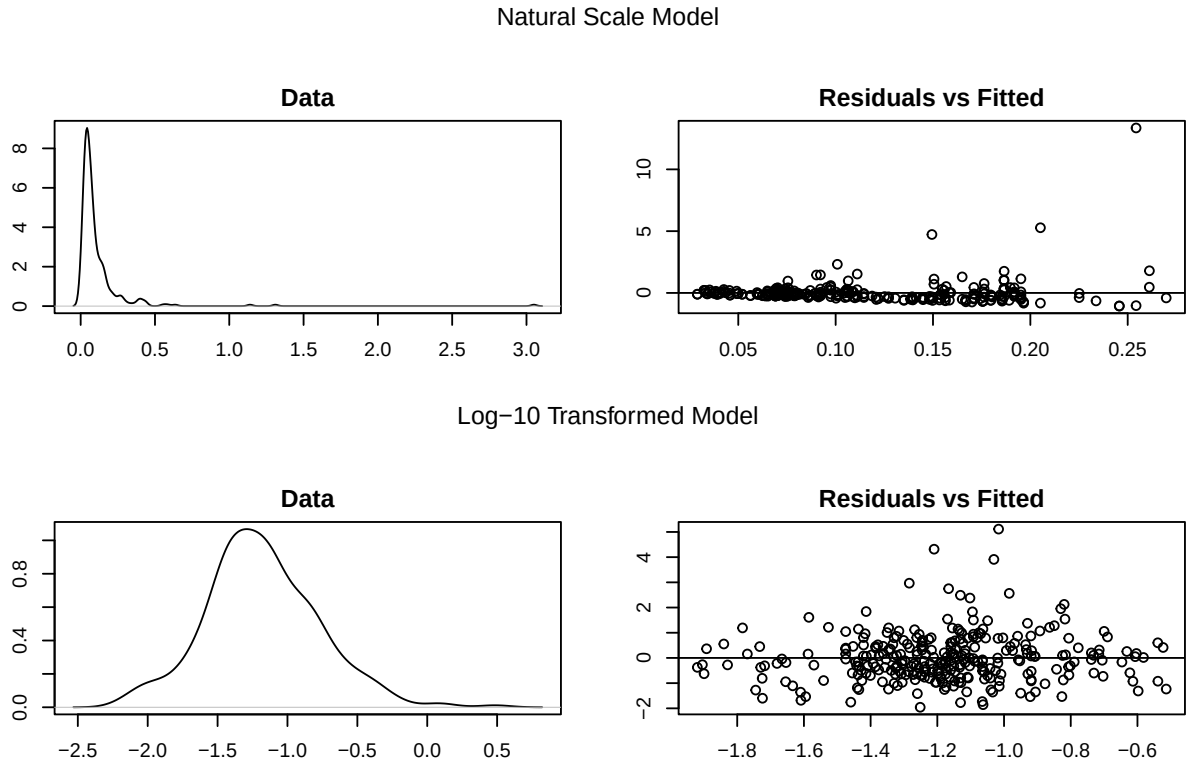
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0573	0
Creek 661	661-05	after	18	0.0642	0
Creek 661	661-10	before	39	0.0819	0
Creek 661	661-10	after	16	0.0505	0
Creek 661	661-20	before	14	0.0464	0
Creek 661	661-20	after	13	0.0257	0
Creek 661	661-01	before	3	0.0550	0
Creek 661	661-01	after	16	0.0713	0
Creek 705	705-05	before	15	0.0940	0
Creek 705	705-05	after	18	0.0533	0
Creek 705	705-10	before	49	0.1050	0
Creek 705	705-10	after	17	0.0499	0
Fawnie Creek (reference)	FC-01	before	28	0.0398	0
Fawnie Creek (reference)	FC-01	after	18	0.0134	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	3.05	0.2543	13.350	Y
Creek 661	661-05	2024	3	monit	after	1.31	0.2052	5.276	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	1.14	0.1495	4.730	Y

Outliers on log scale:

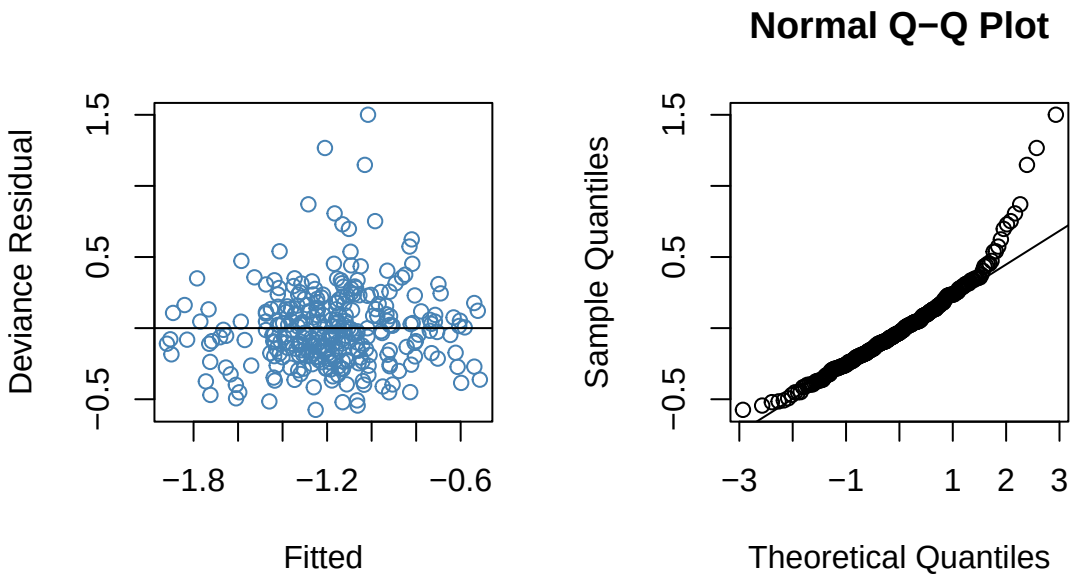
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	0.4843	-1.016	5.112	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0569	-1.210	4.315	Y
Creek 661	661-05	2024	3	monit	after	0.1173	-1.030	3.910	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.02579	0.02579	1	4.954	0.2994	0.6080	
period	0.86670	0.86670	1	59.568	10.0603	0.0024	
class:period	0.52723	0.52723	1	274.652	6.1199	0.0140	0.0193

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

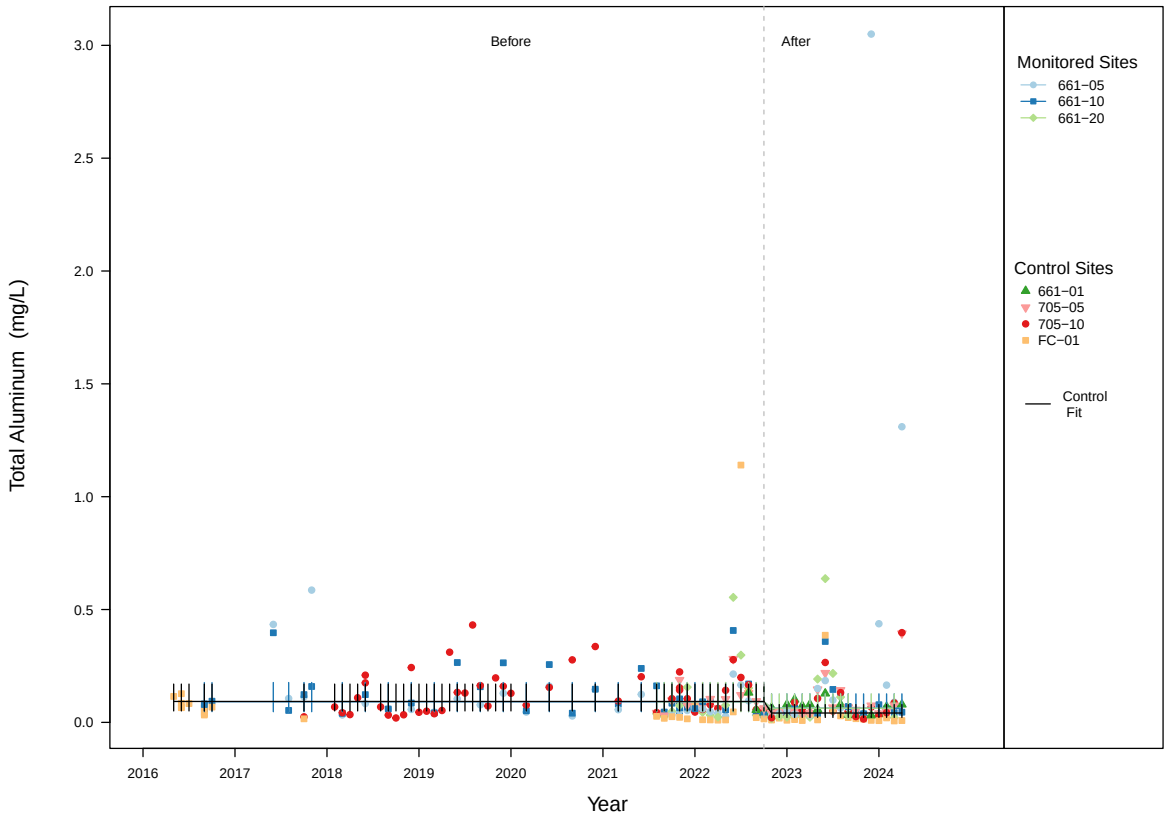
Monitored vs.	Estimate	Significance
control sites	0.1843	significant

Conclusion:

The change in Total Aluminum concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0193) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

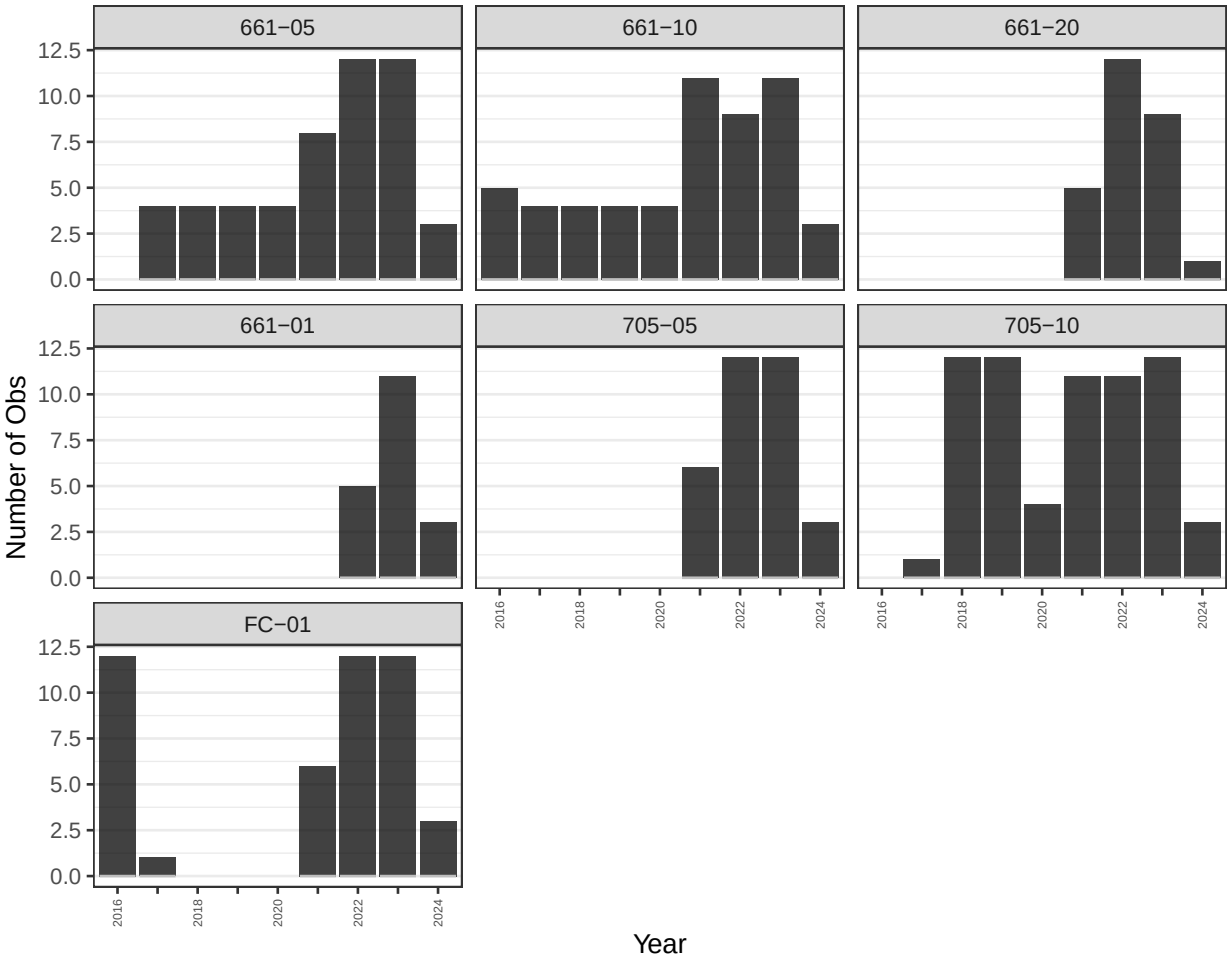
Variable	Total Aluminum
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.9 Total Arsenic

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

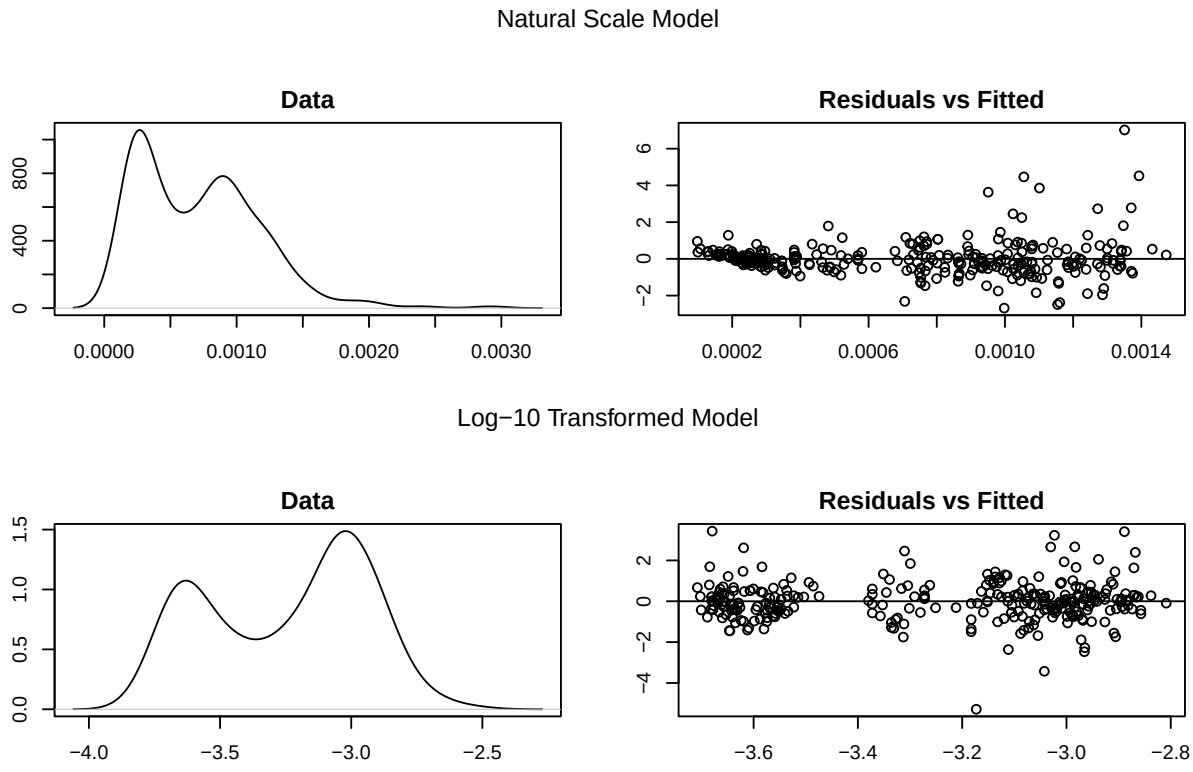
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0012	0
Creek 661	661-05	after	18	0.0013	0
Creek 661	661-10	before	39	0.0009	0
Creek 661	661-10	after	16	0.0010	0
Creek 661	661-20	before	14	0.0010	0
Creek 661	661-20	after	13	0.0010	0
Creek 661	661-01	before	3	0.0007	0
Creek 661	661-01	after	16	0.0004	0
Creek 705	705-05	before	15	0.0003	0
Creek 705	705-05	after	18	0.0003	0
Creek 705	705-10	before	49	0.0002	0
Creek 705	705-10	after	17	0.0002	0
Fawnie Creek (reference)	FC-01	before	28	0.0006	0
Fawnie Creek (reference)	FC-01	after	18	0.0008	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	0.0029	0.0014	7.019	Y
Creek 661	661-05	2018	8	monit	before	0.0024	0.0014	4.518	Y
Creek 661	661-10	2017	9	monit	before	0.0021	0.0011	4.463	Y
Creek 661	661-10	2018	8	monit	before	0.0020	0.0011	3.854	Y
Creek 661	661-10	2021	7	monit	before	0.0018	0.0010	3.630	Y

Outliers on log scale:

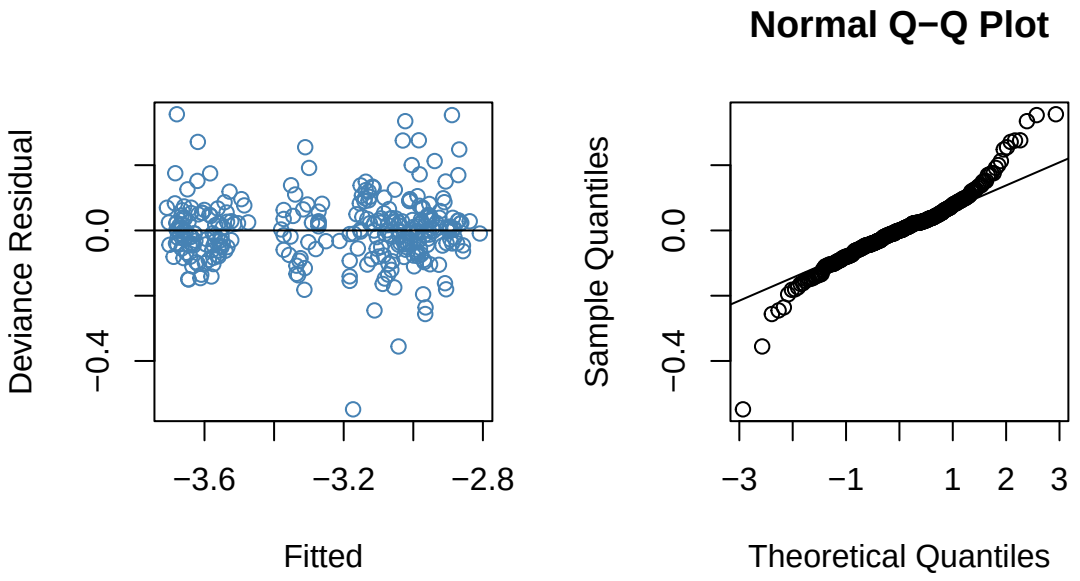
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2021	12	control	before	-3.721	-3.173	-5.287	Y
Creek 705	705-10	2021	12	control	before	-3.323	-3.679	3.434	Y
Creek 661	661-10	2017	7	monit	before	-3.398	-3.042	-3.428	Y
Creek 661	661-05	2023	11	monit	after	-2.535	-2.889	3.409	Y
Creek 661	661-10	2017	9	monit	before	-2.688	-3.023	3.229	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.10462	0.10462	1	4.993	9.727	0.0263	
period	0.01686	0.01686	1	114.644	1.567	0.2130	
class:period	0.02174	0.02174	1	272.300	2.021	0.1560	0.186

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

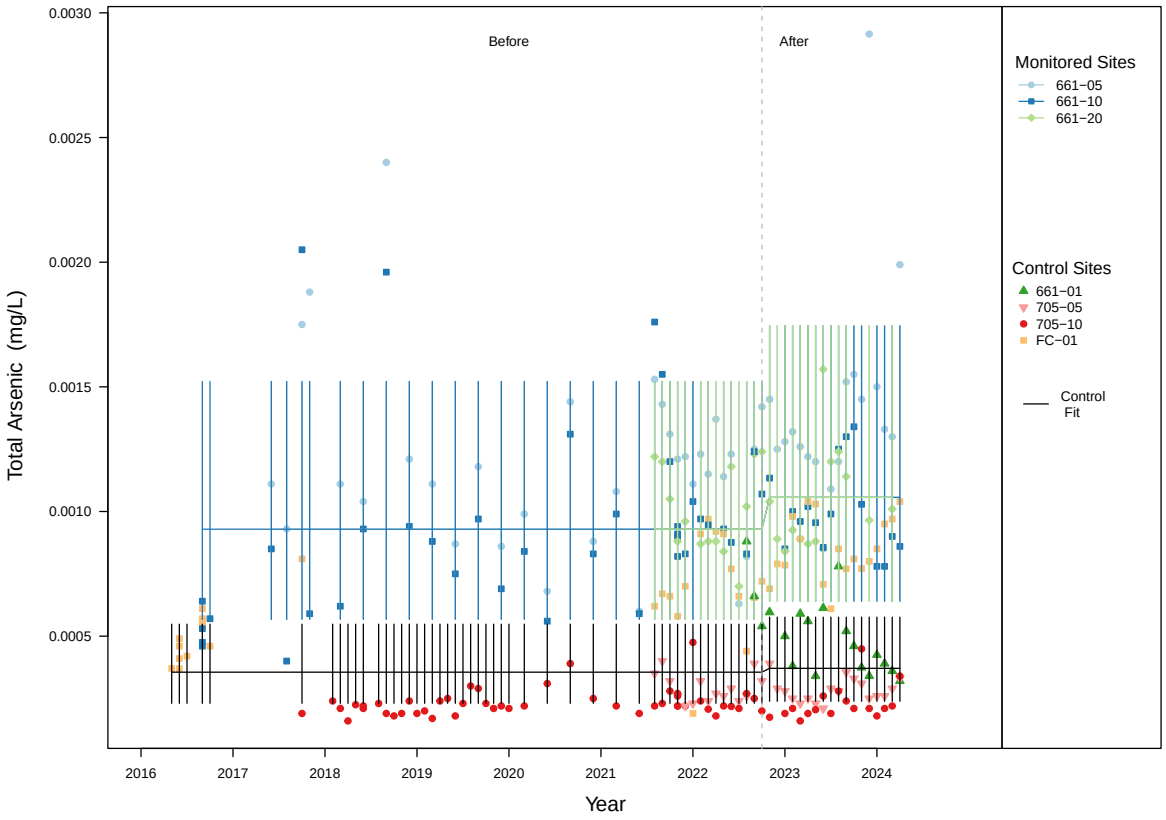
Monitored vs.	Estimate	Significance
control sites	0.0375	not significant

Conclusion:

The change in Total Arsenic concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p =* 0.186) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

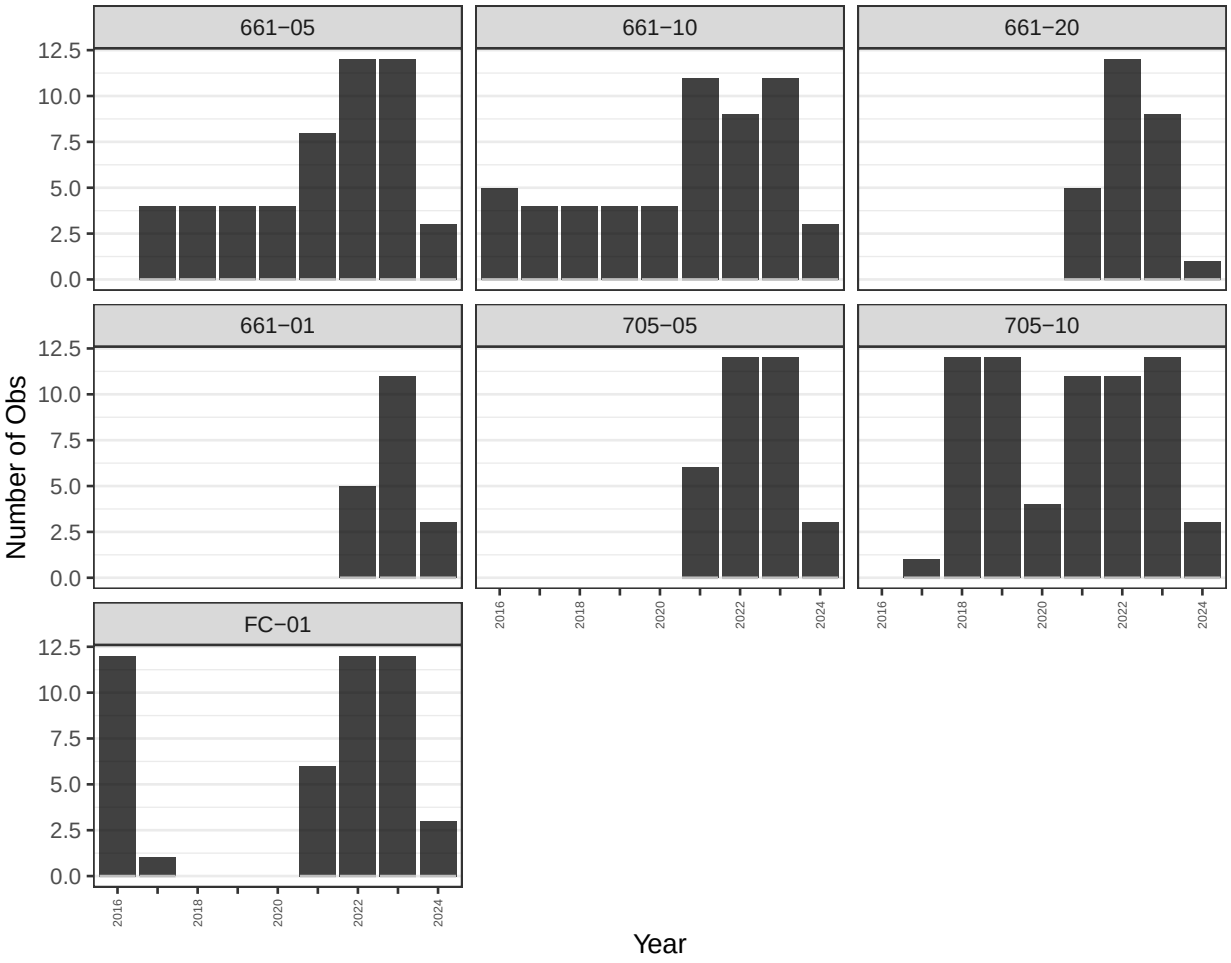
Variable	Total Arsenic
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.10 Total Barium

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

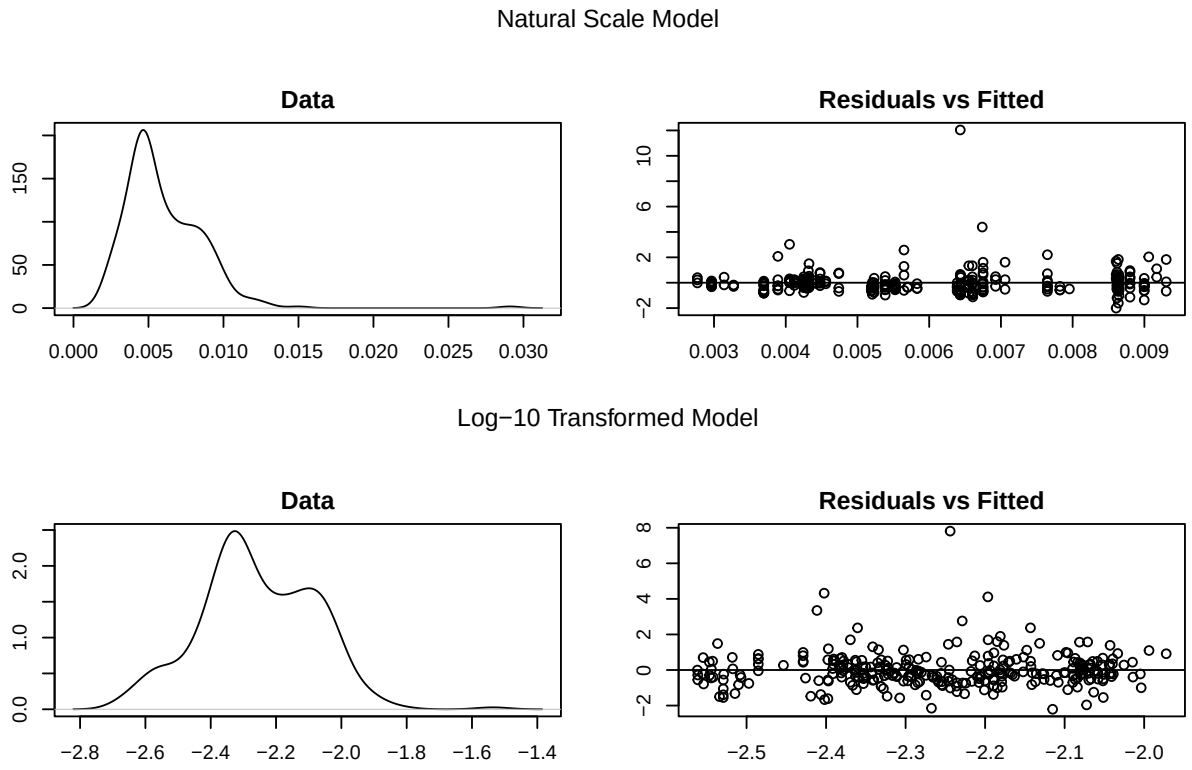
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0047	0
Creek 661	661-05	after	18	0.0051	0
Creek 661	661-10	before	39	0.0044	0
Creek 661	661-10	after	16	0.0050	0
Creek 661	661-20	before	14	0.0066	0
Creek 661	661-20	after	13	0.0071	0
Creek 661	661-01	before	3	0.0032	0
Creek 661	661-01	after	16	0.0028	0
Creek 705	705-05	before	15	0.0060	0
Creek 705	705-05	after	18	0.0067	0
Creek 705	705-10	before	49	0.0087	0
Creek 705	705-10	after	17	0.0086	0
Fawnie Creek (reference)	FC-01	before	28	0.0036	0
Fawnie Creek (reference)	FC-01	after	18	0.0045	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	0.0291	0.0064	12.037	Y
Creek 661	661-05	2024	3	monit	after	0.0150	0.0067	4.387	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	0.0098	0.0041	3.025	Y

Outliers on log scale:

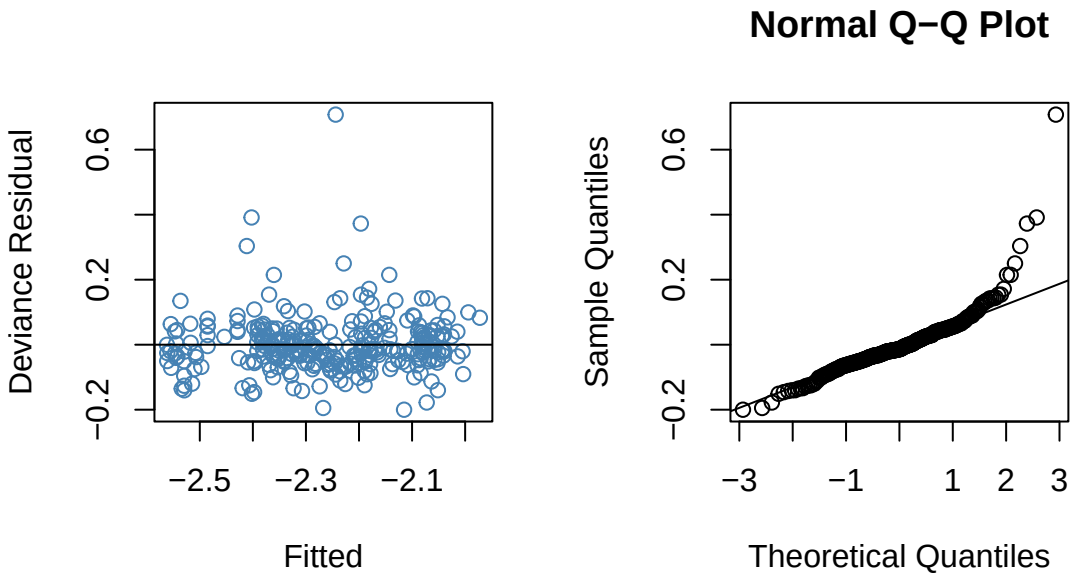
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	-1.536	-2.244	7.812	Y
Fawnie Creek (reference)	FC-01	2022	6	control	before	-2.011	-2.402	4.320	Y
Creek 661	661-05	2024	3	monit	after	-1.824	-2.197	4.112	Y
Fawnie Creek (reference)	FC-01	2021	12	control	before	-2.108	-2.412	3.350	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.000997	0.000997	1	4.994	0.1214	0.7420	
period	0.0203628	0.0203628	1	109.015	2.4800	0.1180	
class:period	0.0264530	0.0264530	1	273.278	3.2218	0.0738	0.0974

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

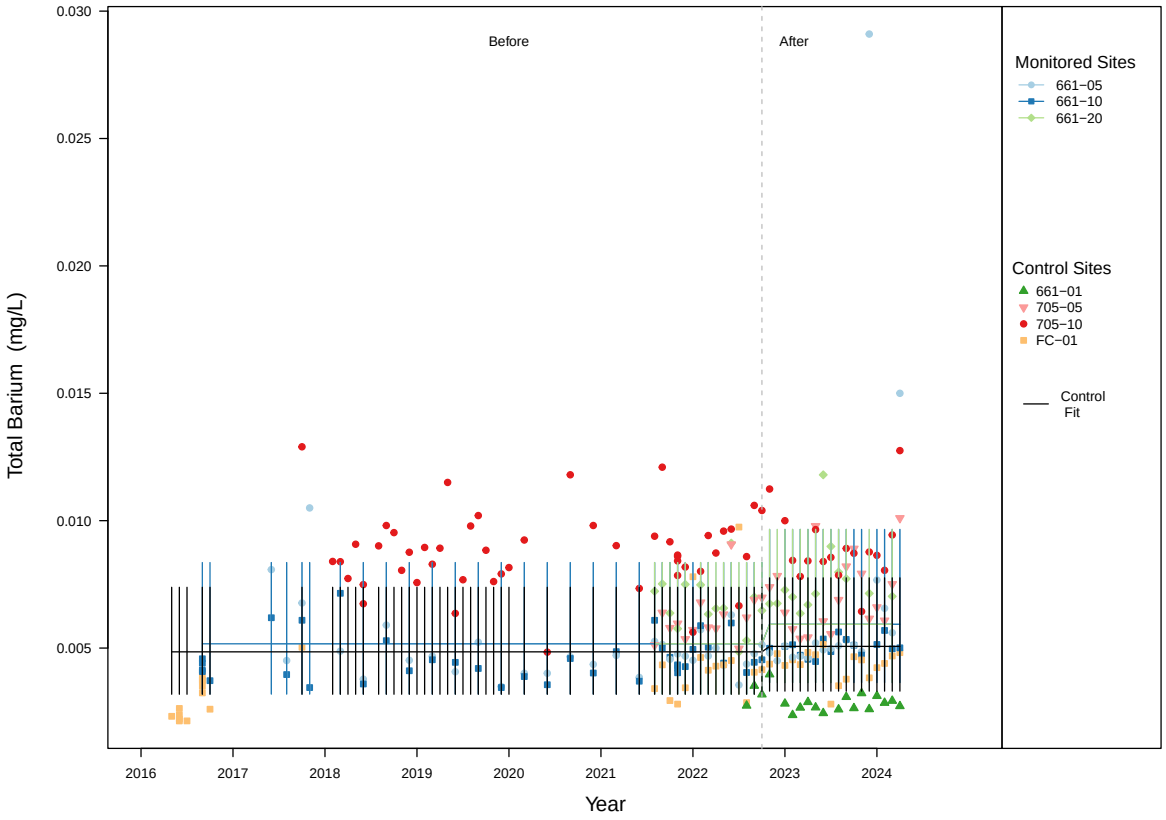
Monitored vs.	Estimate	Significance
control sites	0.0413	not significant

Conclusion:

The change in Total Barium concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.0974) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale. Guideline is at 1 (mg/L).

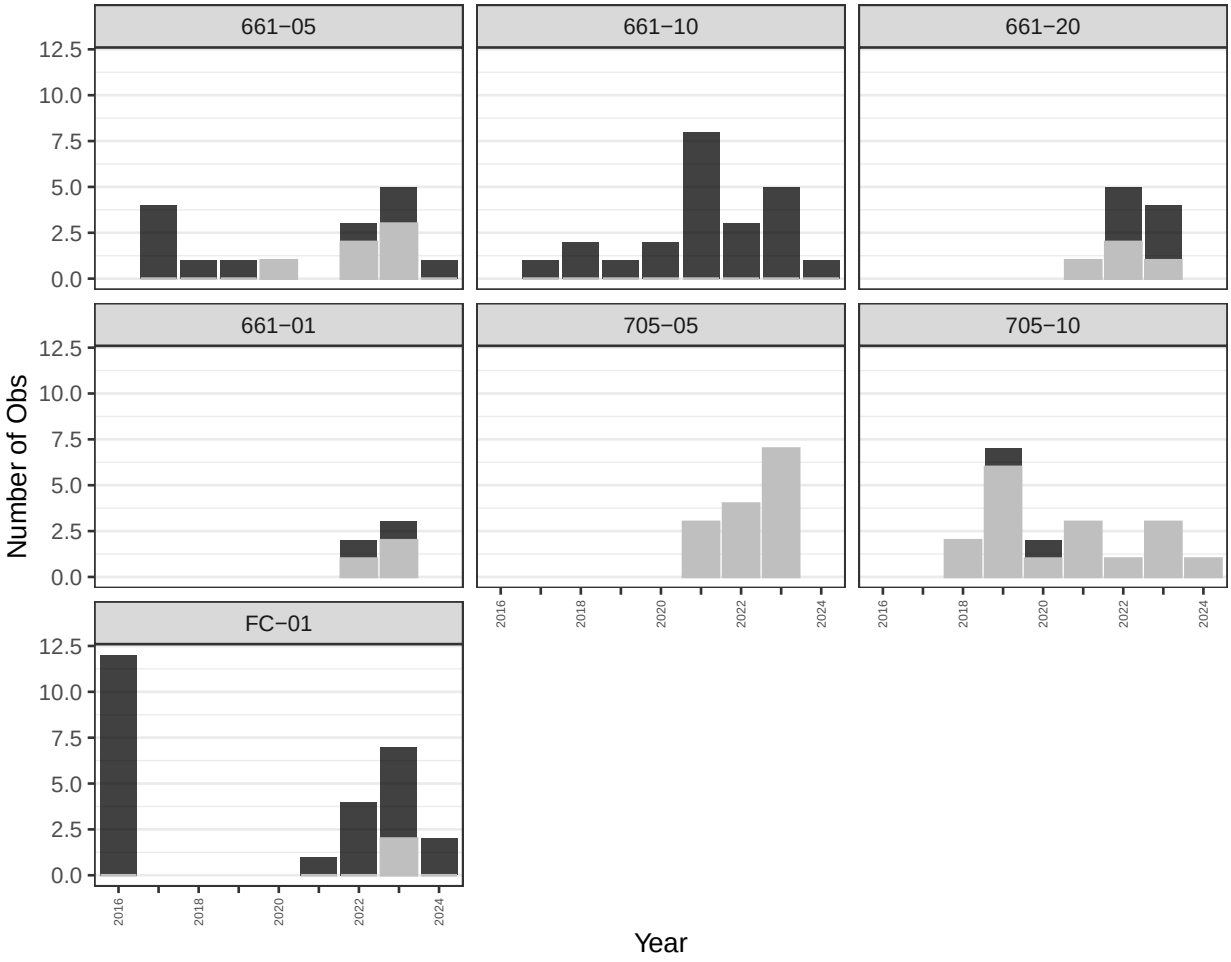
Final Summary Table

Variable	Total Barium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.11 Total Cadmium

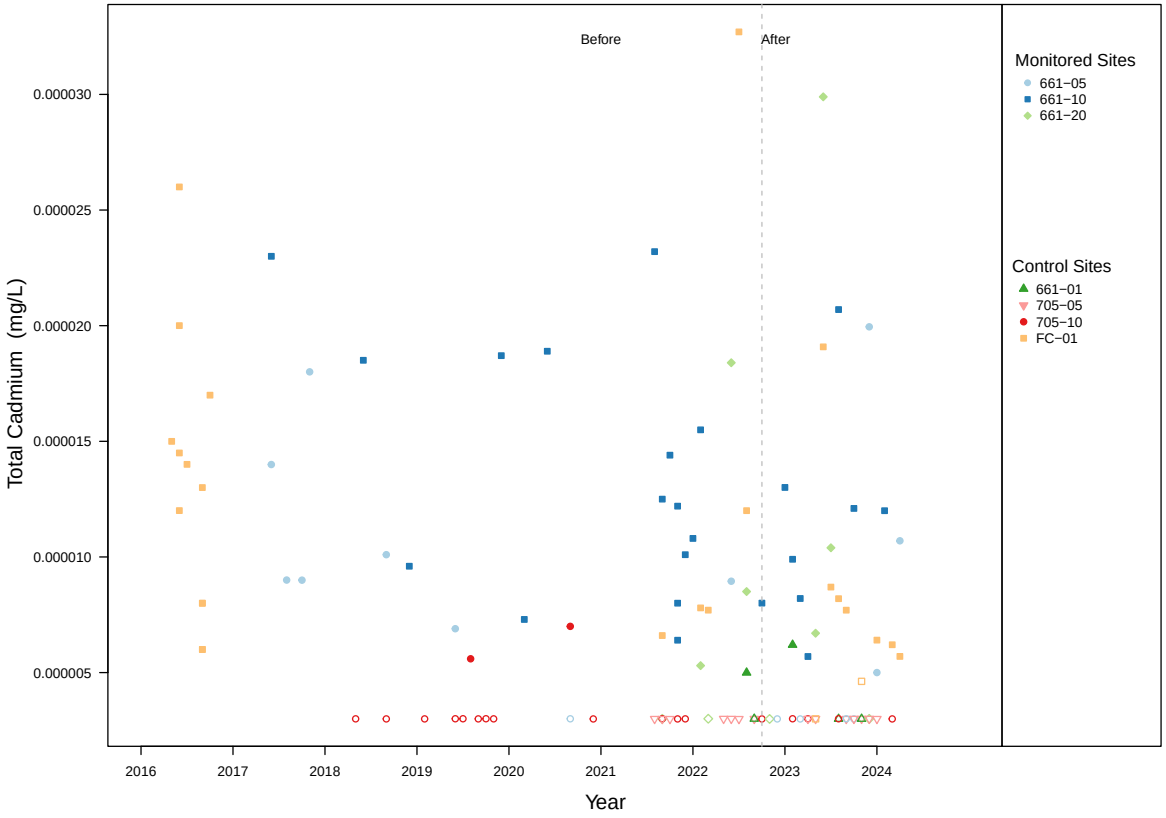
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

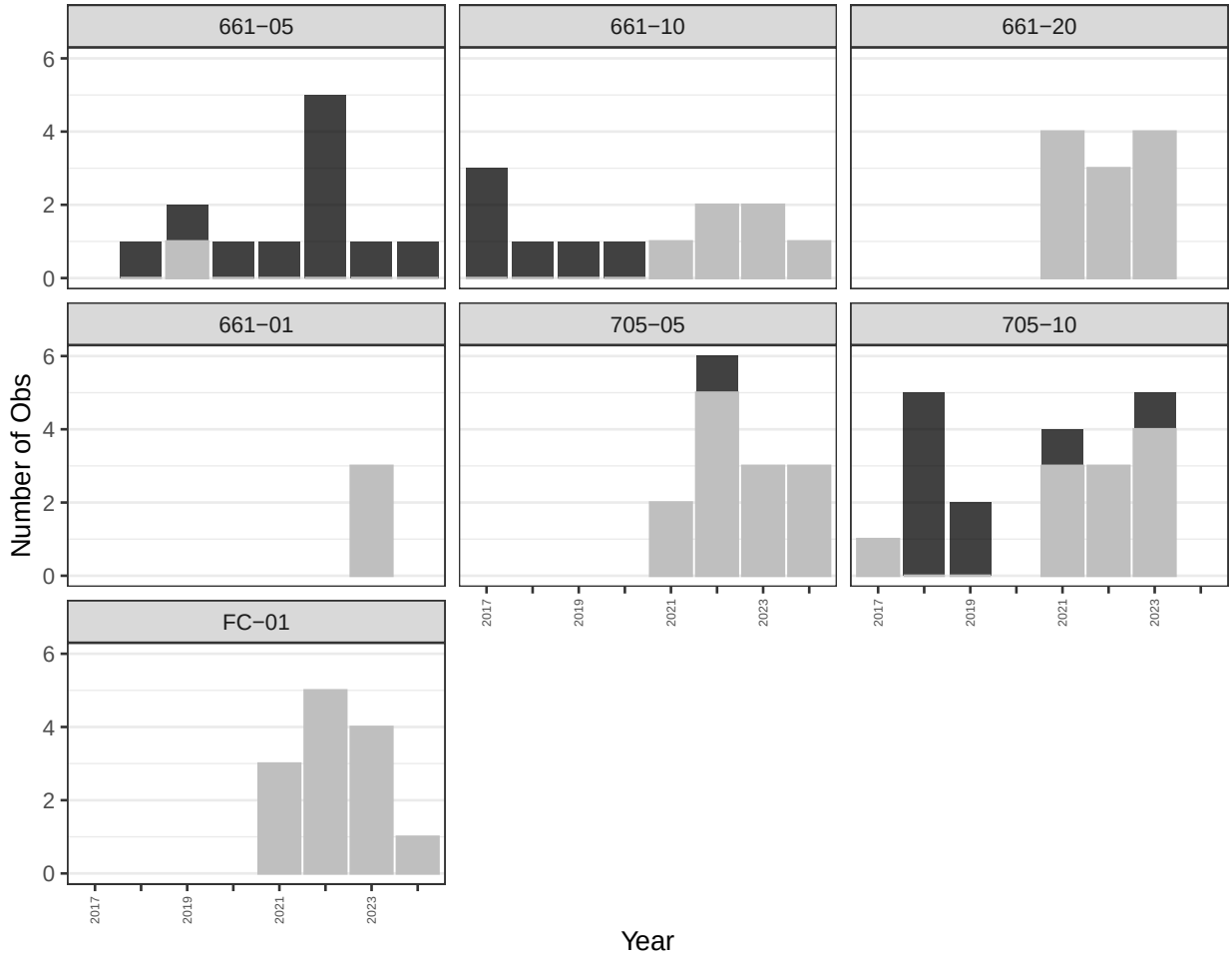
Final Summary Table

Variable	Total Cadmium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.12 Total Chromium

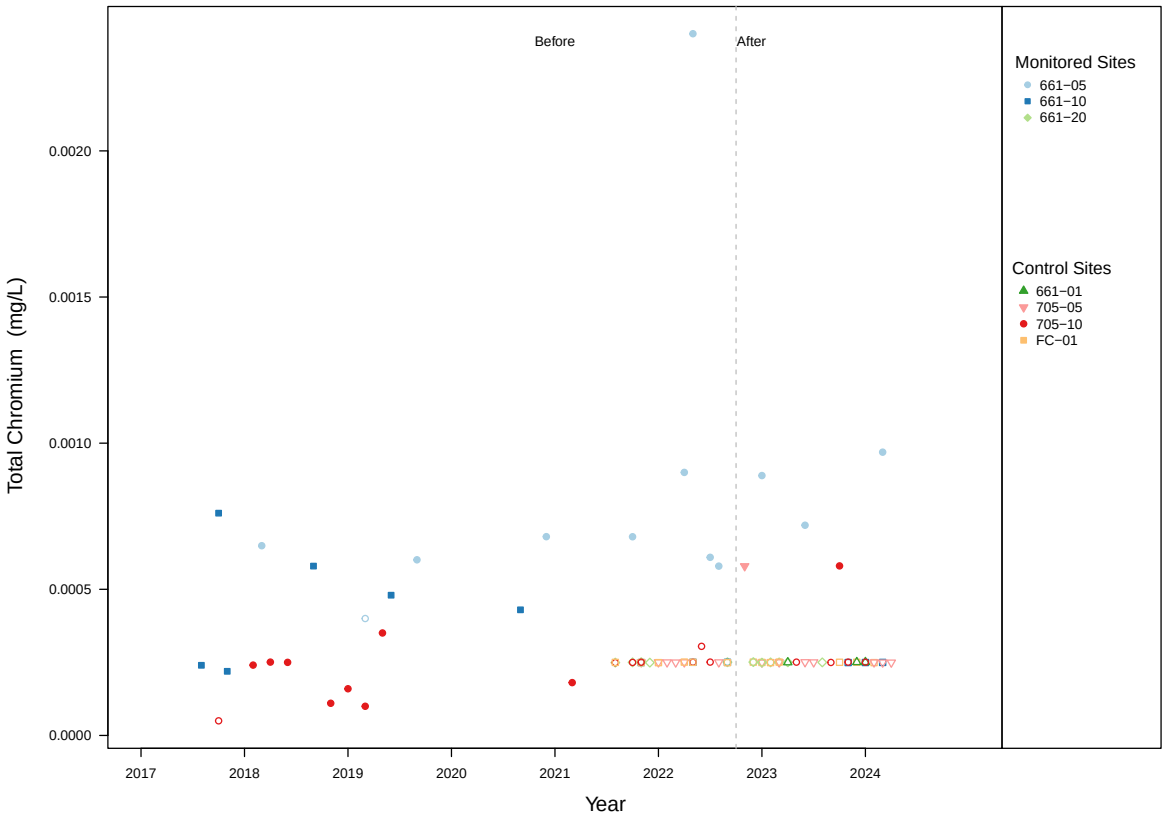
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

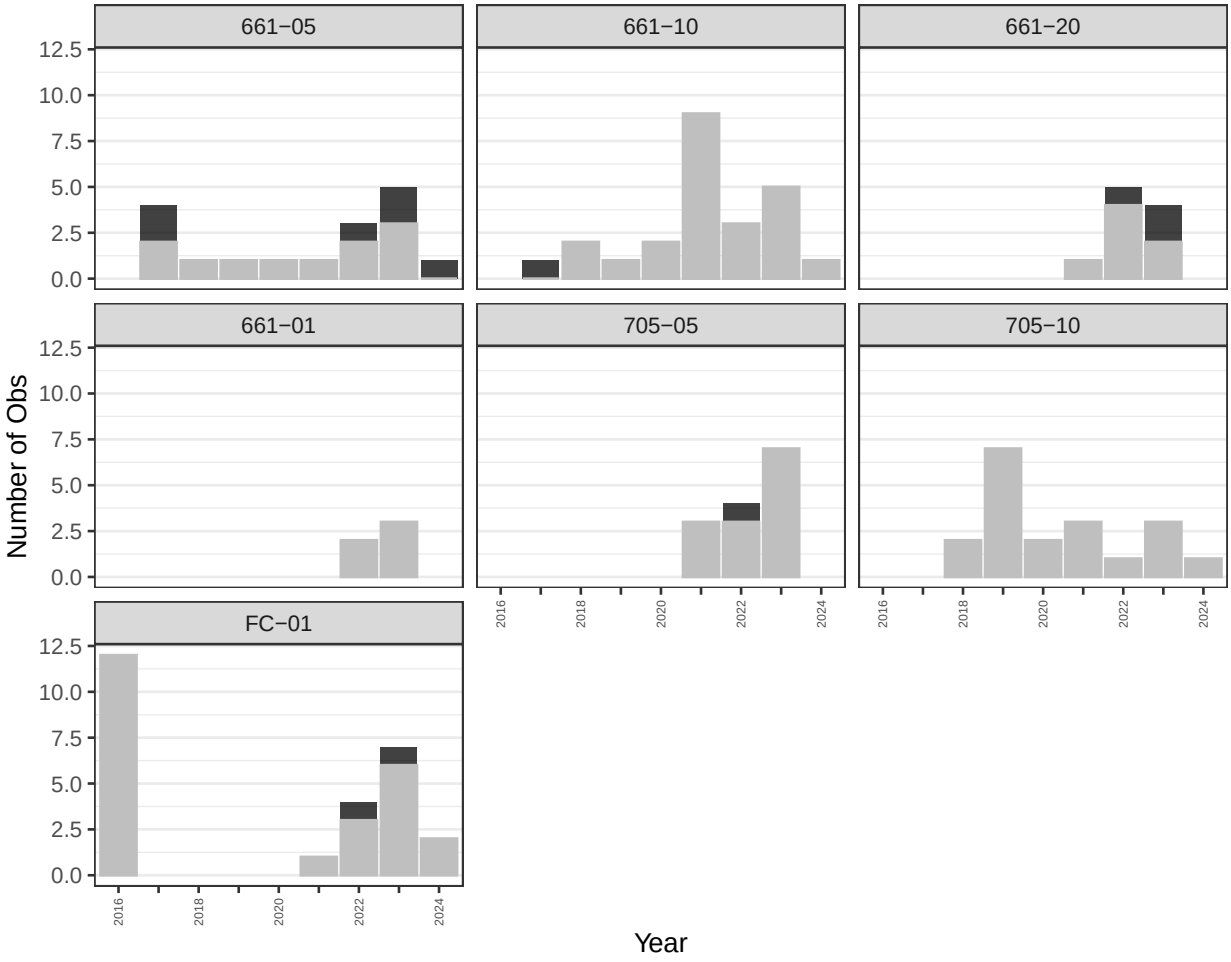
Final Summary Table

Variable	Total Chromium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.13 Total Cobalt

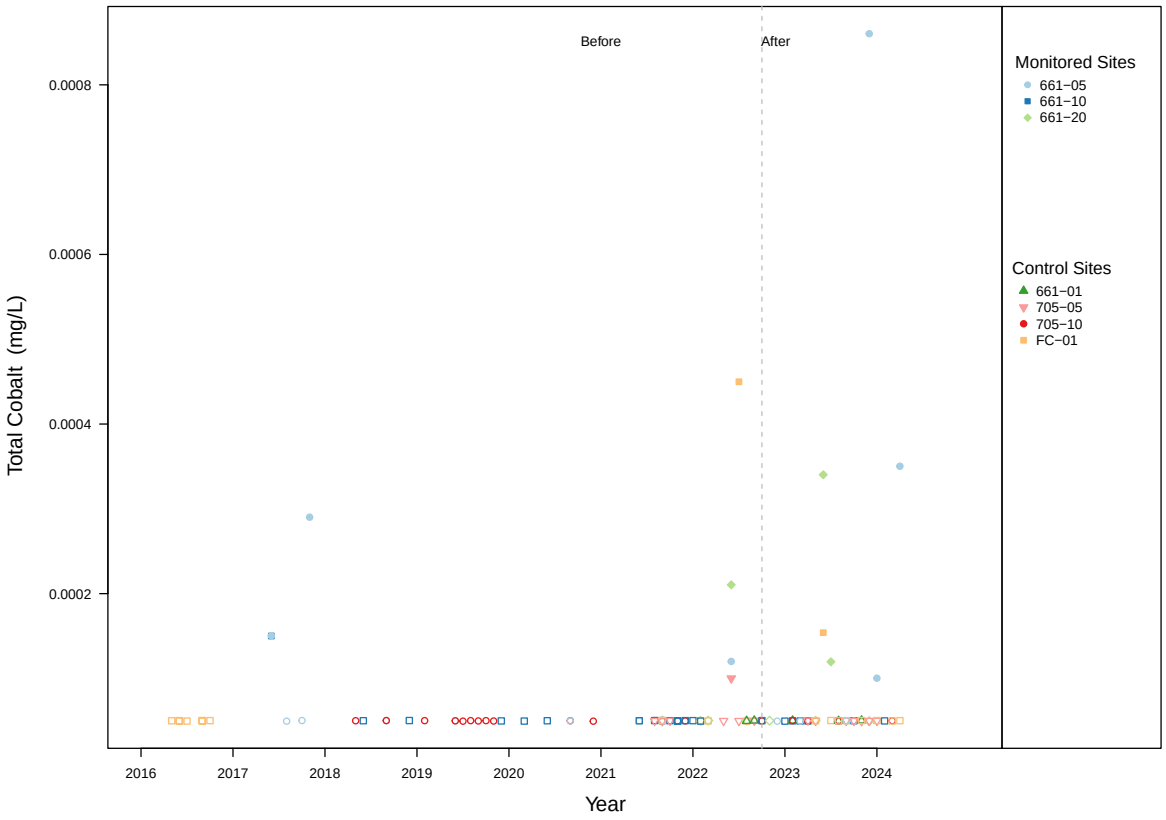
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

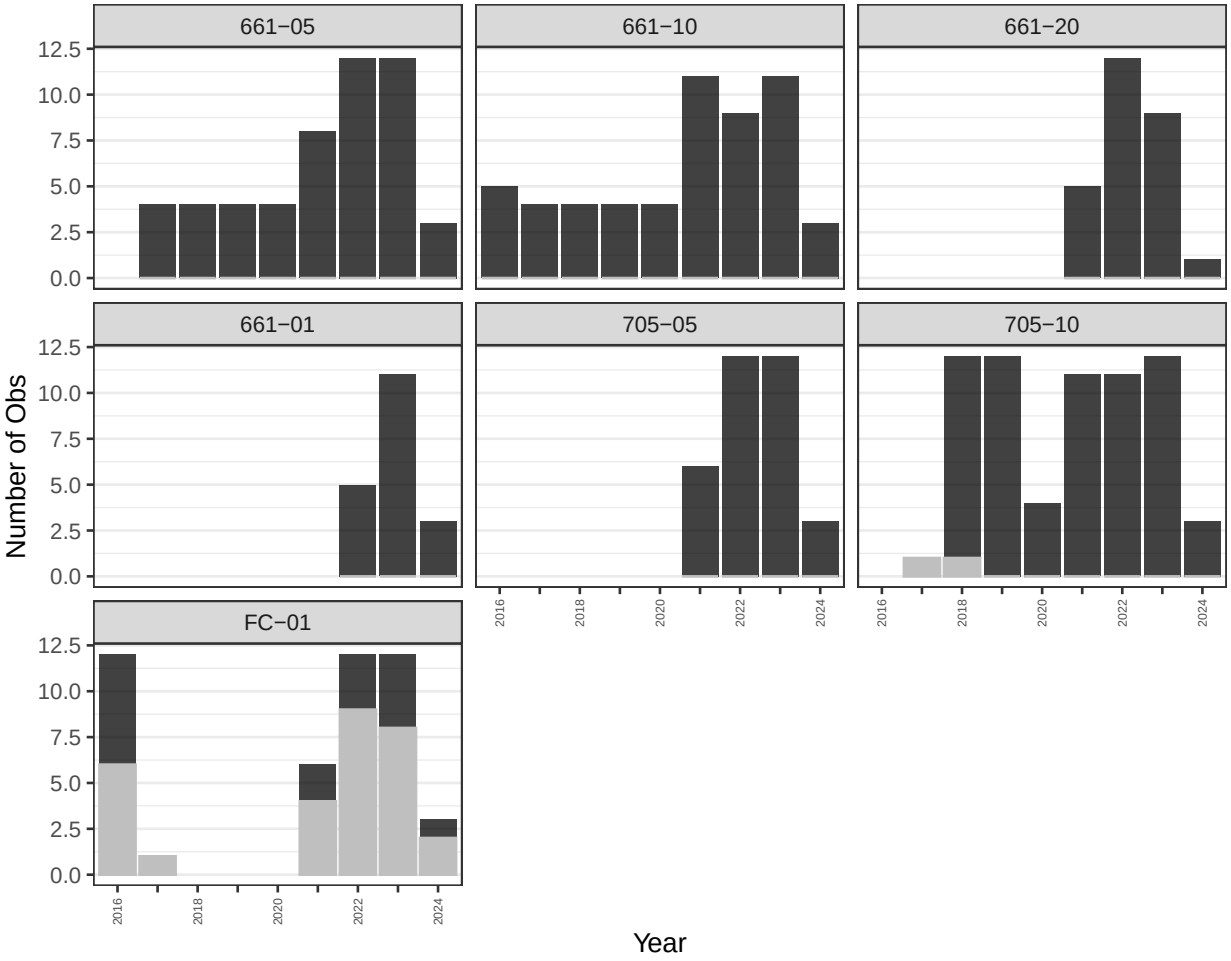
Variable	Total Cobalt
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.14 Total Iron

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 705	705-10	2017	control	before	1
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2021	control	before	6
Fawnie Creek (reference)	FC-01	2022	control	before	12
Fawnie Creek (reference)	FC-01	2022	control	after	12
Fawnie Creek (reference)	FC-01	2023	control	after	12
Fawnie Creek (reference)	FC-01	2024	control	after	3

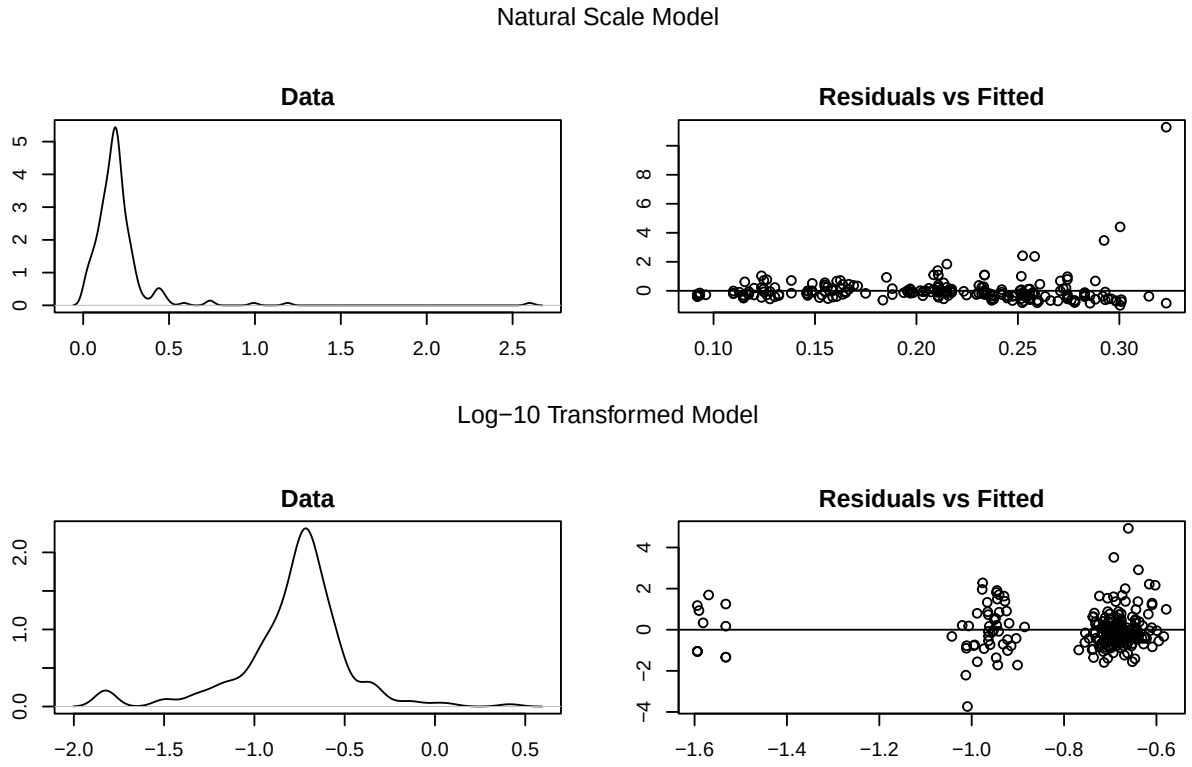
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.1930	0.000
Creek 661	661-05	after	18	0.1760	0.000
Creek 661	661-10	before	39	0.2070	0.000
Creek 661	661-10	after	16	0.1720	0.000
Creek 661	661-20	before	14	0.1968	0.000
Creek 661	661-20	after	13	0.1510	0.000
Creek 661	661-01	before	3	0.0930	0.000
Creek 661	661-01	after	16	0.1075	0.000
Creek 705	705-05	before	15	0.2100	0.000
Creek 705	705-05	after	18	0.1985	0.000
Creek 705	705-10	before	28	0.1090	3.571
Fawnie Creek (reference)	FC-01	before	12	0.0230	50.000

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	2.600	0.3231	11.279	Y
Creek 661	661-05	2024	3	monit	after	1.190	0.3004	4.407	Y
Creek 661	661-20	2023	5	monit	after	0.993	0.2925	3.470	Y

Outliers on log scale:

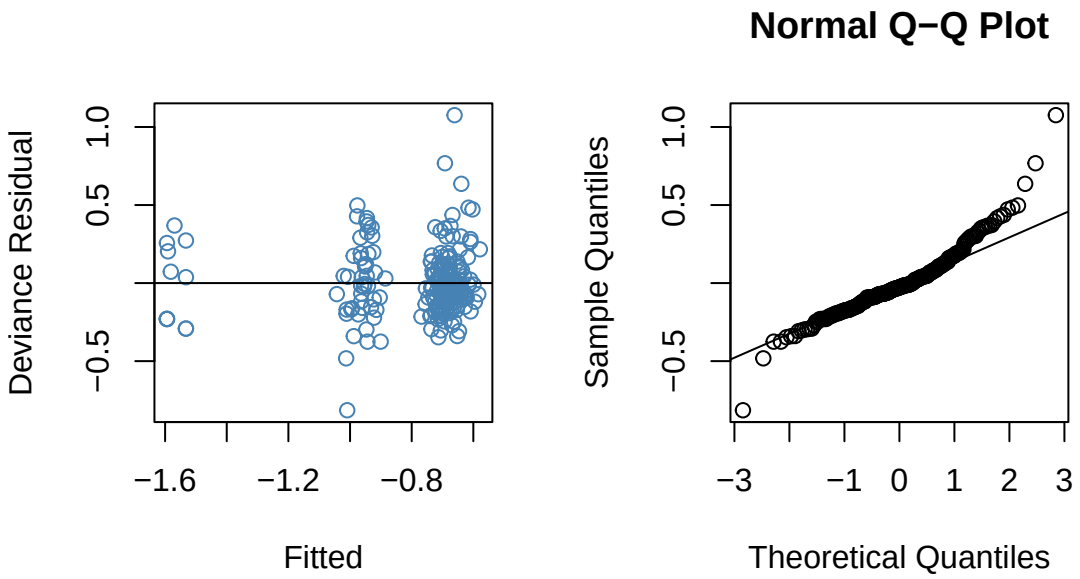
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2023	11	monit	after	0.4150	-0.6609	4.931	Y
Creek 705	705-10	2018	9	control	before	-1.8239	-1.0092	-3.734	N
Creek 661	661-05	2024	3	monit	after	0.0755	-0.6922	3.519	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.117404	0.117404	1	4.934	2.4666	0.178	
period	0.002555	0.002555	1	14.048	0.0537	0.820	
class:period	0.020986	0.020986	1	212.785	0.4409	0.507	0.533

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

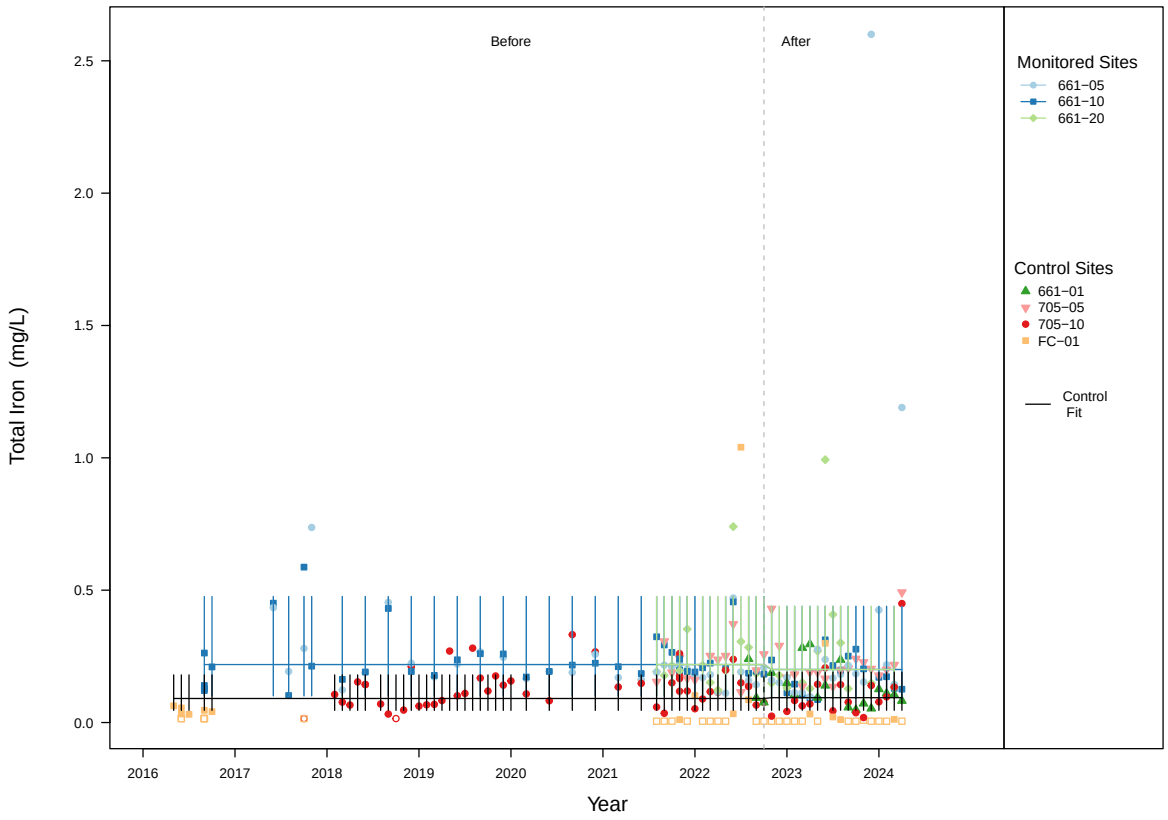
Monitored vs.	Estimate	Significance
control sites	-0.0528	not significant

Conclusion:

The change in Total Iron concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.533) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

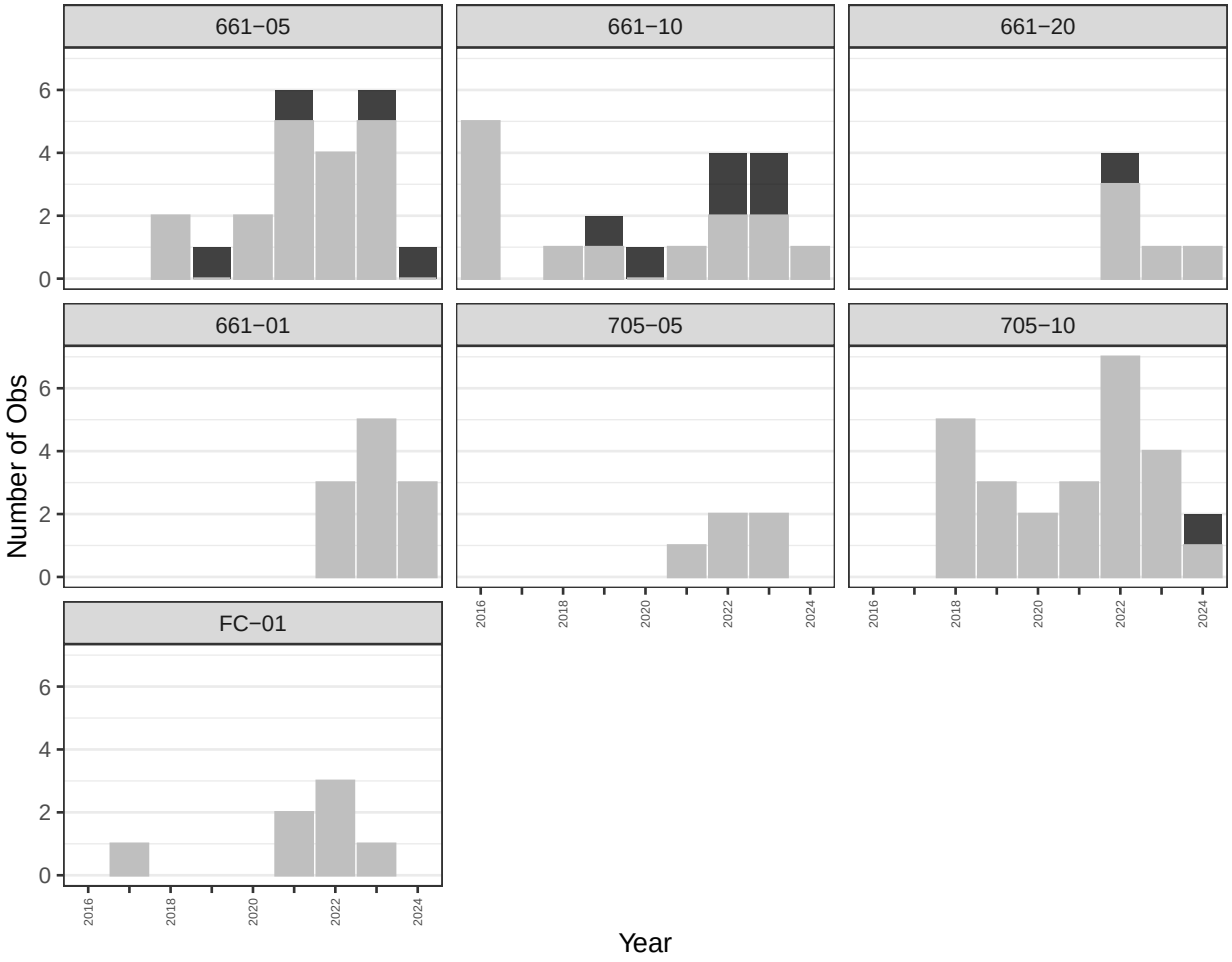
Variable	Total Iron
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed

Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.15 Total Lead

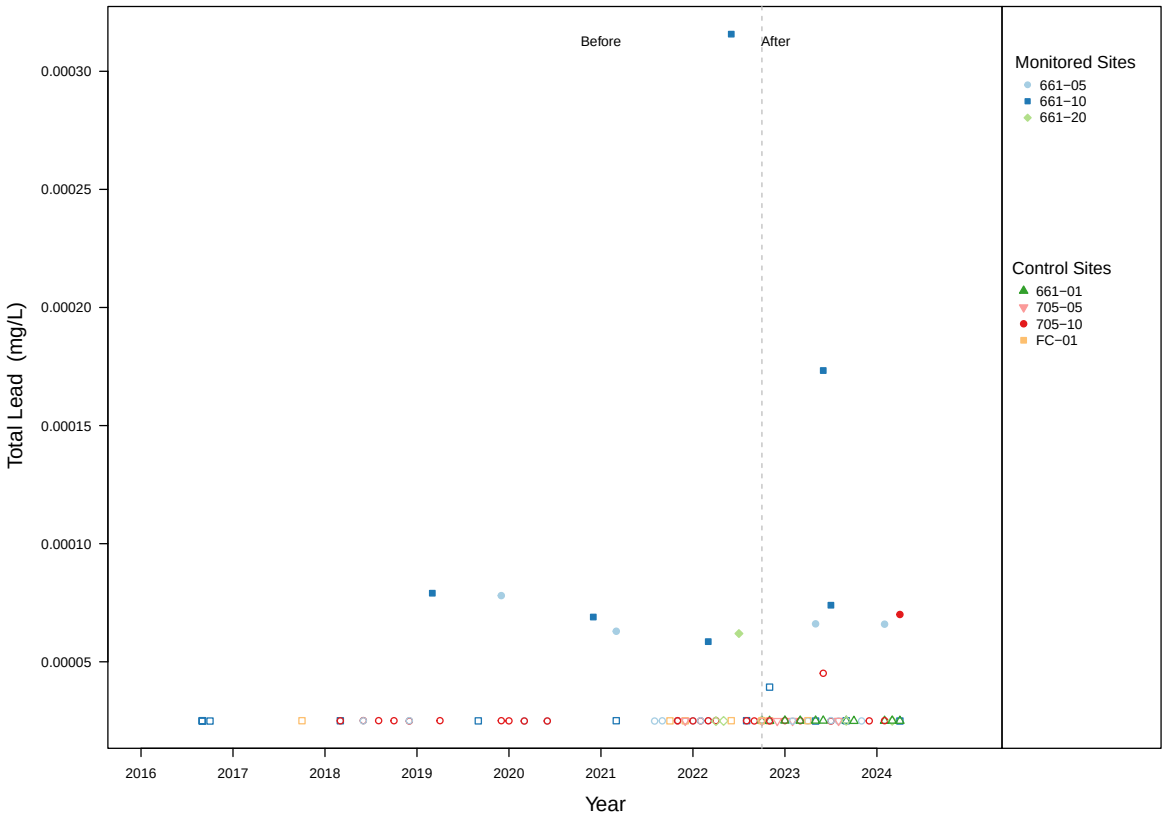
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

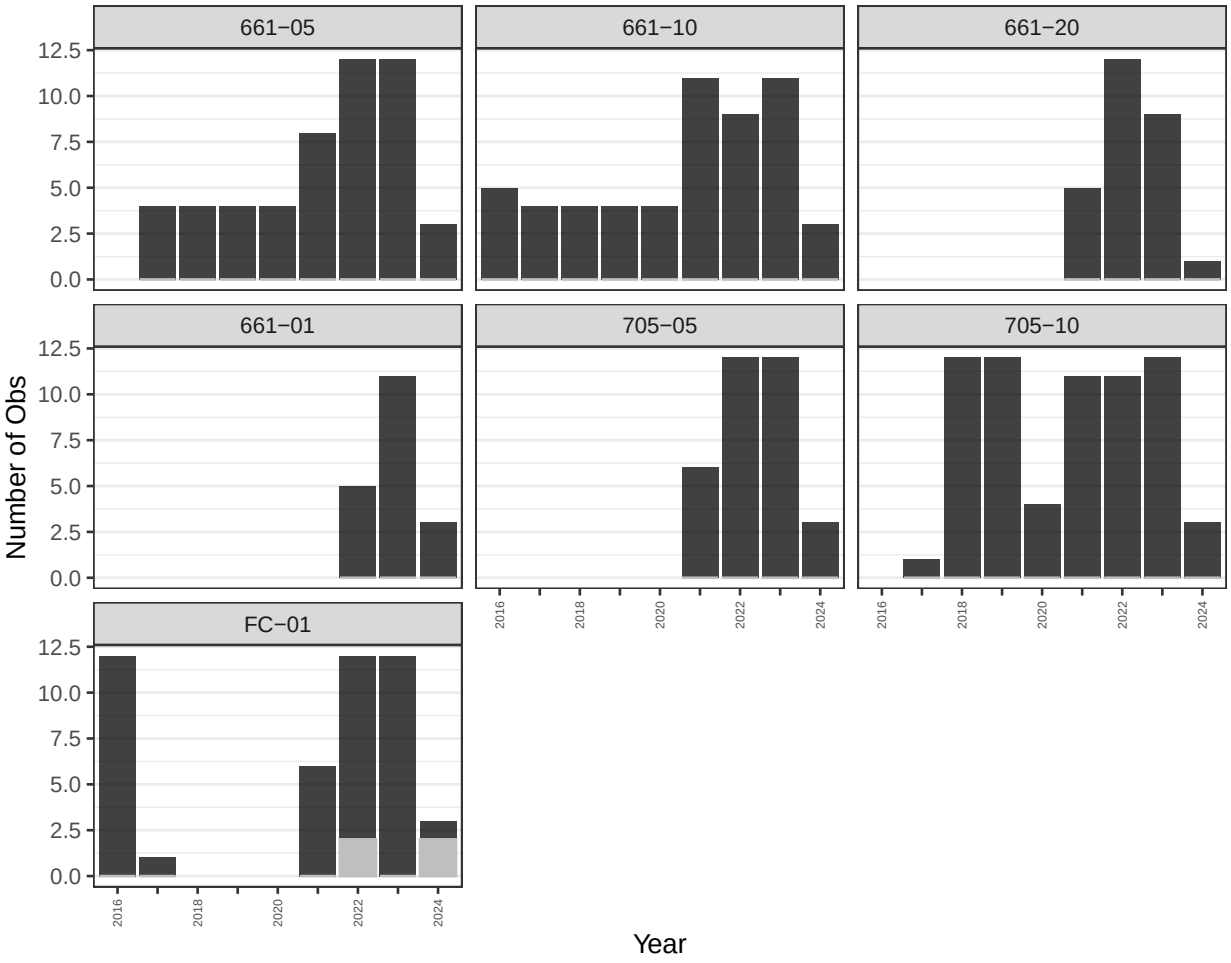
Variable	Total Lead
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.16 Total Manganese

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2024	control	after	3

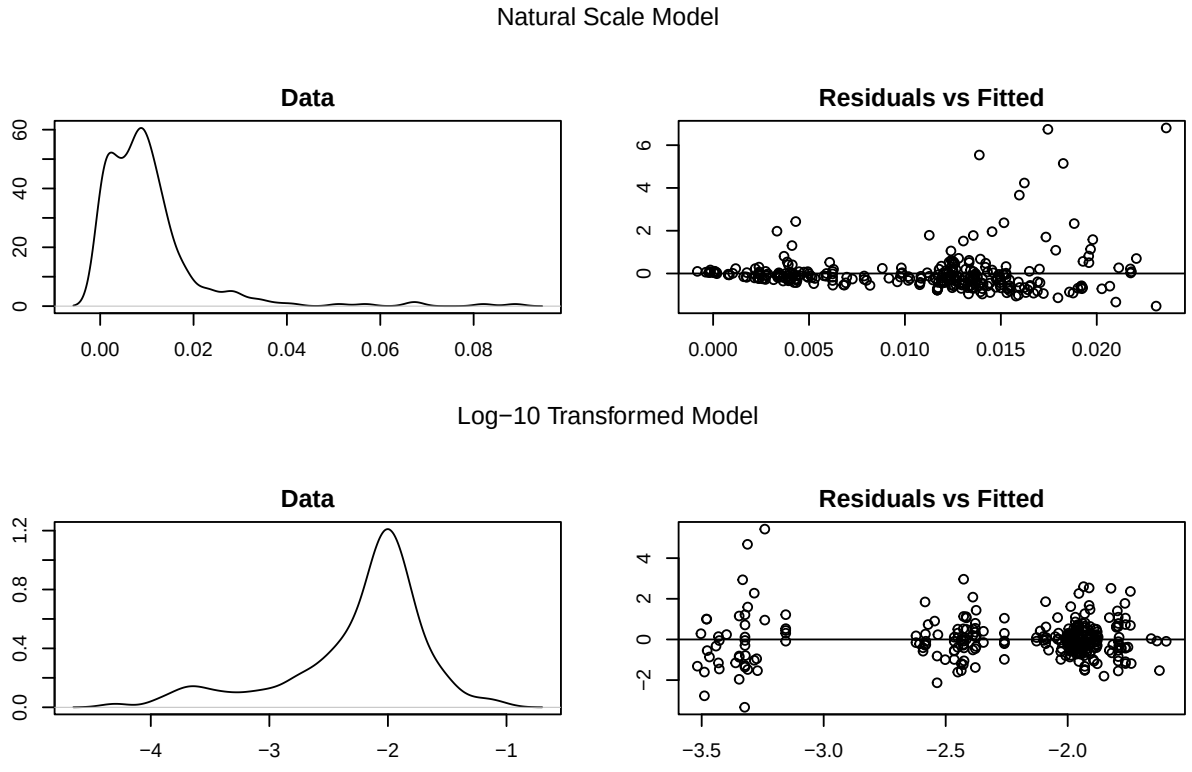
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0103	0.000
Creek 661	661-05	after	18	0.0102	0.000
Creek 661	661-10	before	39	0.0136	0.000
Creek 661	661-10	after	16	0.0102	0.000
Creek 661	661-20	before	14	0.0106	0.000
Creek 661	661-20	after	13	0.0078	0.000
Creek 661	661-01	before	3	0.0226	0.000
Creek 661	661-01	after	16	0.0136	0.000
Creek 705	705-05	before	15	0.0111	0.000
Creek 705	705-05	after	18	0.0088	0.000
Creek 705	705-10	before	49	0.0039	0.000
Creek 705	705-10	after	17	0.0022	0.000
Fawnie Creek (reference)	FC-01	before	28	0.0005	3.571
Fawnie Creek (reference)	FC-01	after	15	0.0003	6.667

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-01	2022	10	control	after	0.0889	0.0236	6.804	Y
Creek 661	661-20	2023	5	monit	after	0.0821	0.0175	6.740	Y
Creek 661	661-05	2023	11	monit	after	0.0670	0.0139	5.539	Y
Creek 661	661-05	2017	10	monit	before	0.0676	0.0183	5.145	Y
Creek 705	705-05	2022	5	control	before	0.0568	0.0162	4.231	Y
Creek 661	661-10	2017	9	monit	before	0.0511	0.0160	3.664	Y

Outliers on log scale:

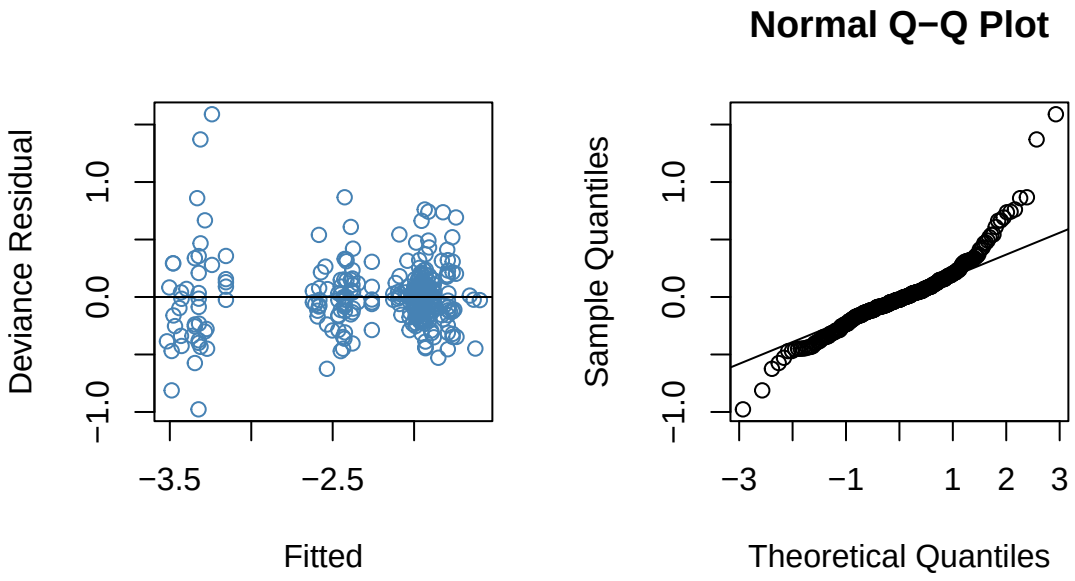
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-1.652	-3.241	5.428	Y
Fawnie Creek (reference)	FC-01	2023	5	control	after	-1.942	-3.312	4.679	Y
Fawnie Creek (reference)	FC-01	2022	3	control	before	-4.301	-3.324	-3.337	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.08679	0.08679	1	4.996	1.012	0.3610	
period	0.48439	0.48439	1	285.311	5.648	0.0181	
class:period	0.26546	0.26546	1	276.175	3.095	0.0796	0.103

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

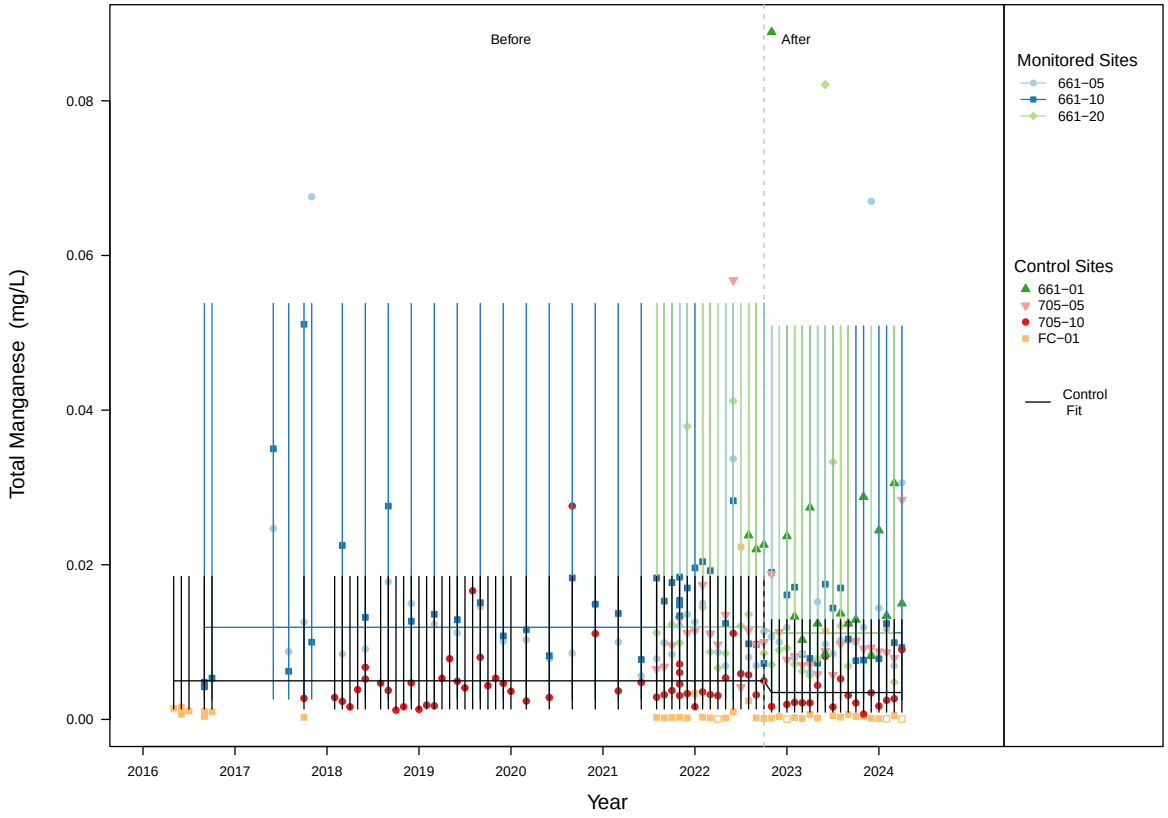
Monitored vs.	Estimate	Significance
control sites	0.1305	not significant

Conclusion:

The change in Total Manganese concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p* = 0.103) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

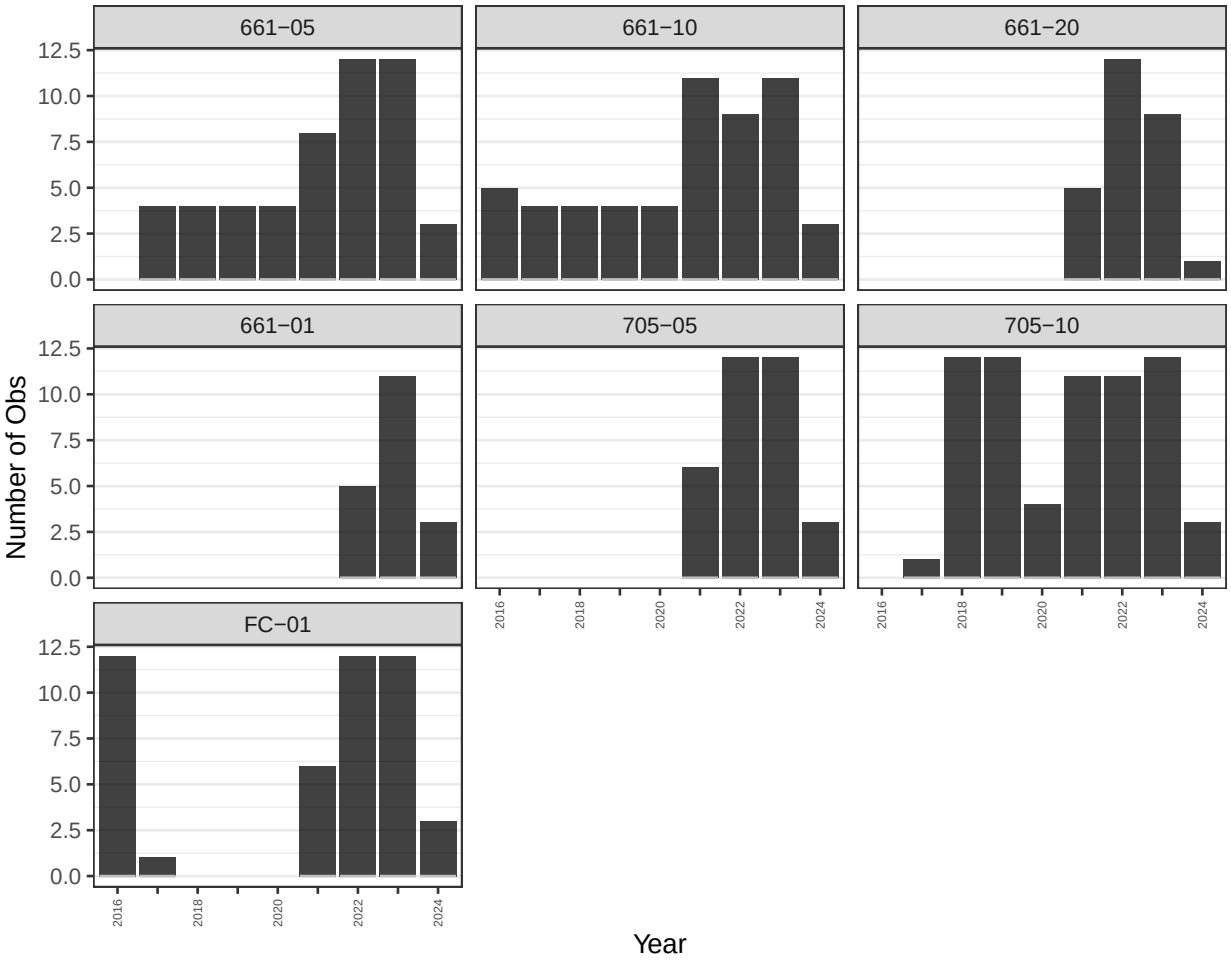
Variable	Total Manganese
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.17 Total Molybdenum

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

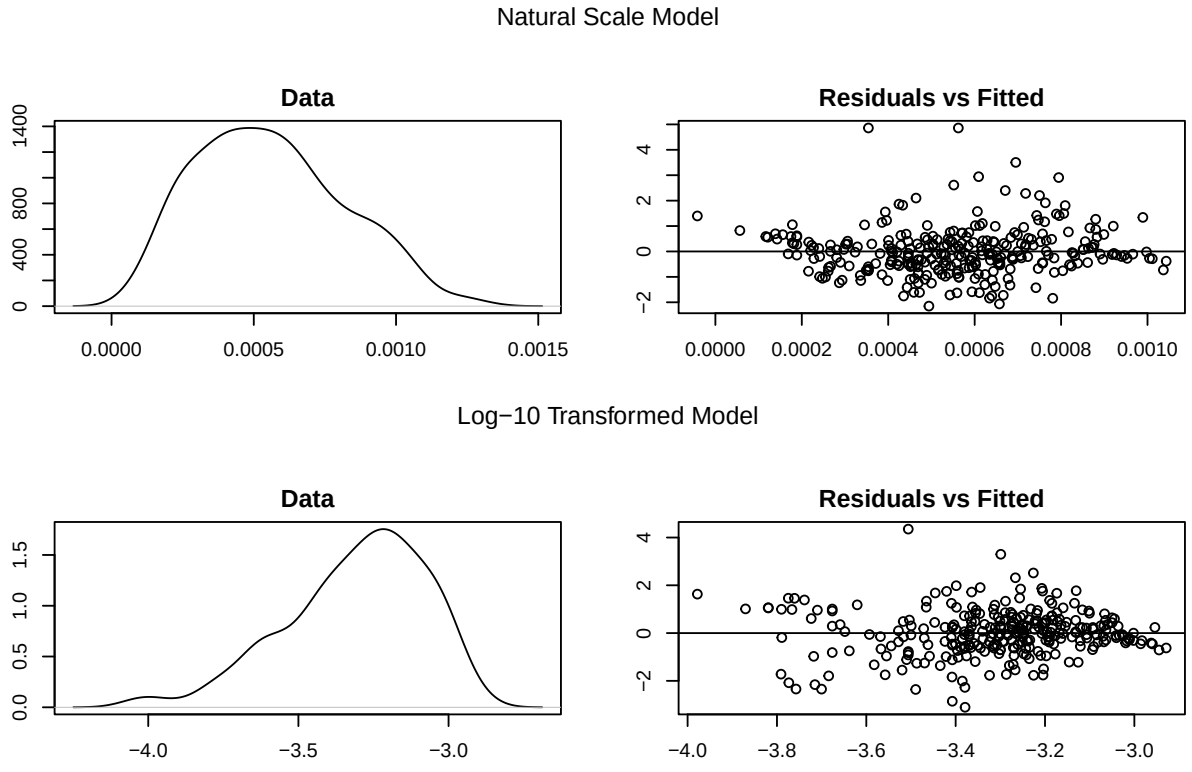
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0007	0
Creek 661	661-05	after	18	0.0009	0
Creek 661	661-10	before	39	0.0004	0
Creek 661	661-10	after	16	0.0006	0
Creek 661	661-20	before	14	0.0009	0
Creek 661	661-20	after	13	0.0010	0
Creek 661	661-01	before	3	0.0003	0
Creek 661	661-01	after	16	0.0002	0
Creek 705	705-05	before	15	0.0005	0
Creek 705	705-05	after	18	0.0006	0
Creek 705	705-10	before	49	0.0004	0
Creek 705	705-10	after	17	0.0005	0
Fawnie Creek (reference)	FC-01	before	28	0.0004	0
Fawnie Creek (reference)	FC-01	after	18	0.0008	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-10	2016	8	monit	before	0.0011	0.0004	4.859	Y
Creek 705	705-10	2020	2	control	before	0.0013	0.0006	4.859	Y
Creek 661	661-05	2017	7	monit	before	0.0012	0.0007	3.504	Y

Outliers on log scale:

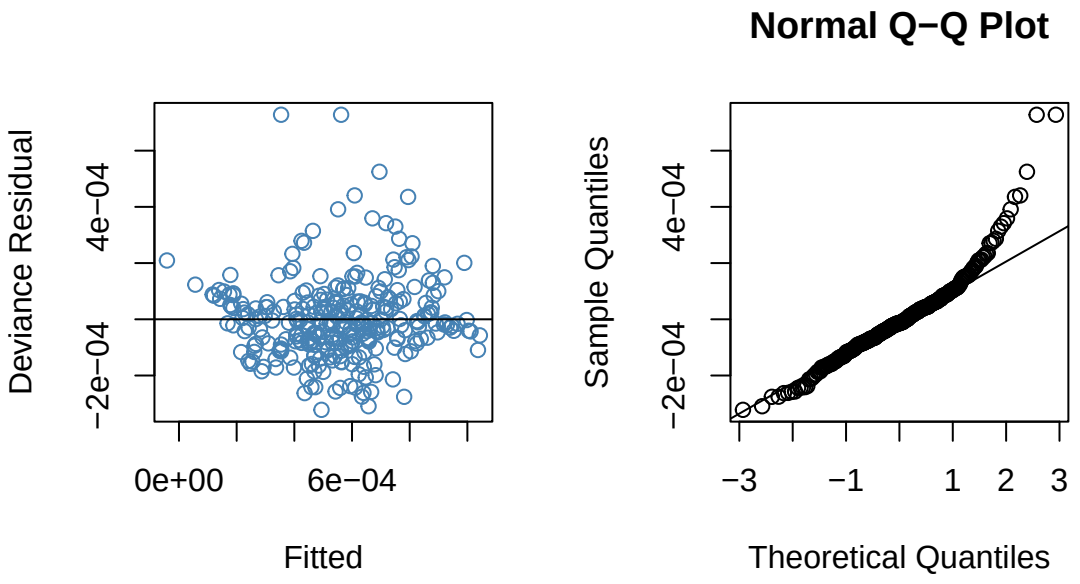
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-10	2016	8	monit	before	-2.966	-3.506	4.353	Y
Creek 705	705-10	2020	2	control	before	-2.889	-3.299	3.300	Y
Creek 661	661-10	2017	10	monit	before	-3.764	-3.379	-3.106	Y

Based on examination of the residuals, the untransformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	7.02e-08	7.02e-08	1	4.988	3.129	0.137	
period	2.83e-07	2.83e-07	1	73.955	12.623	<0.001	
class:period	1.03e-08	1.03e-08	1	272.457	0.460	0.498	0.53

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

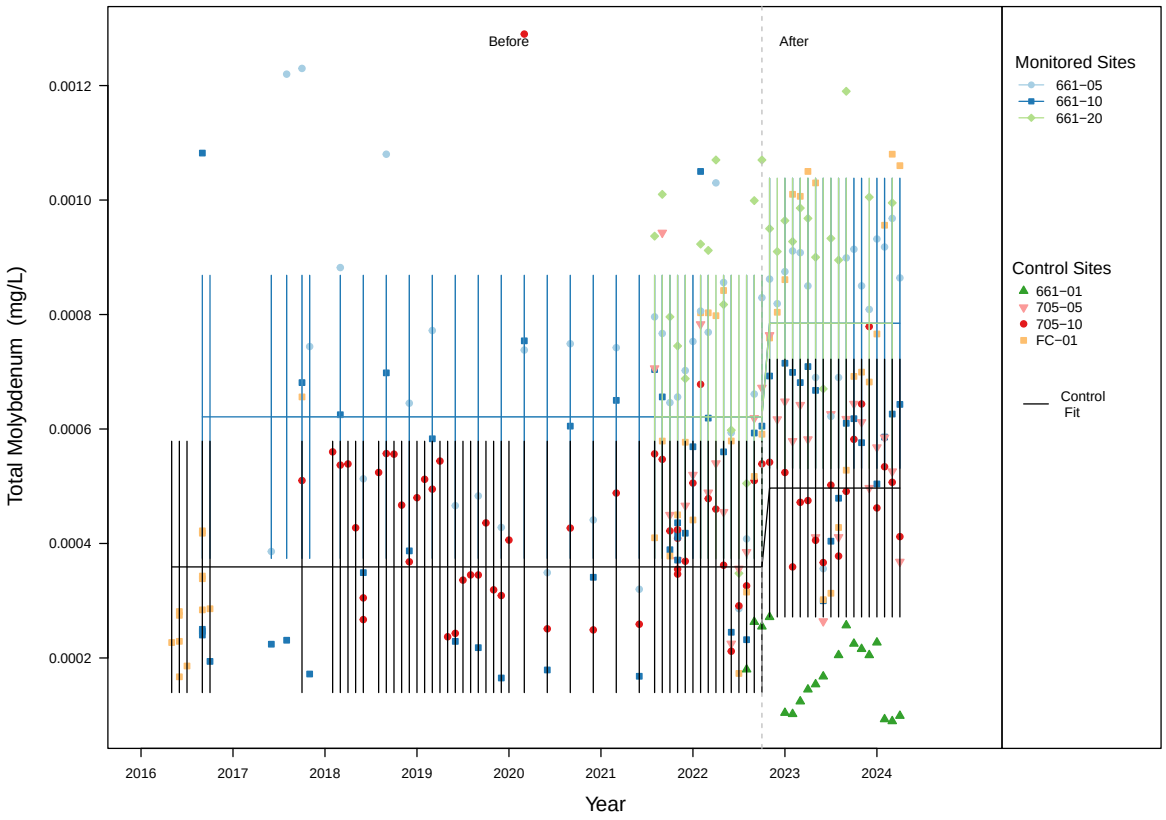
Monitored vs.	Estimate	Significance
control sites	0	not significant

Conclusion:

The change in Total Molybdenum concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p =* 0.53) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Guideline is at 0.073 (mg/L).

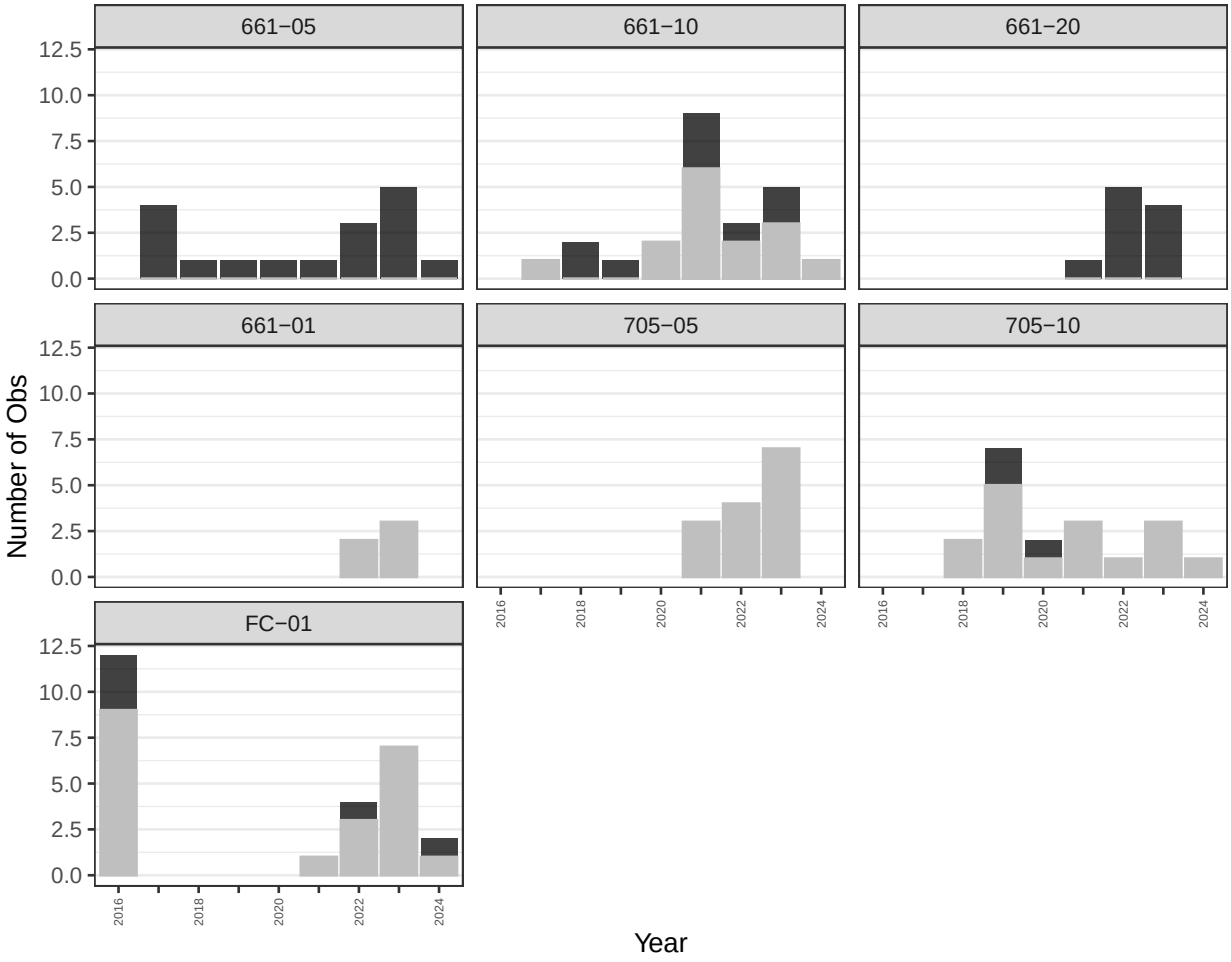
Final Summary Table

Variable	Total Molybdenum
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.18 Total Selenium

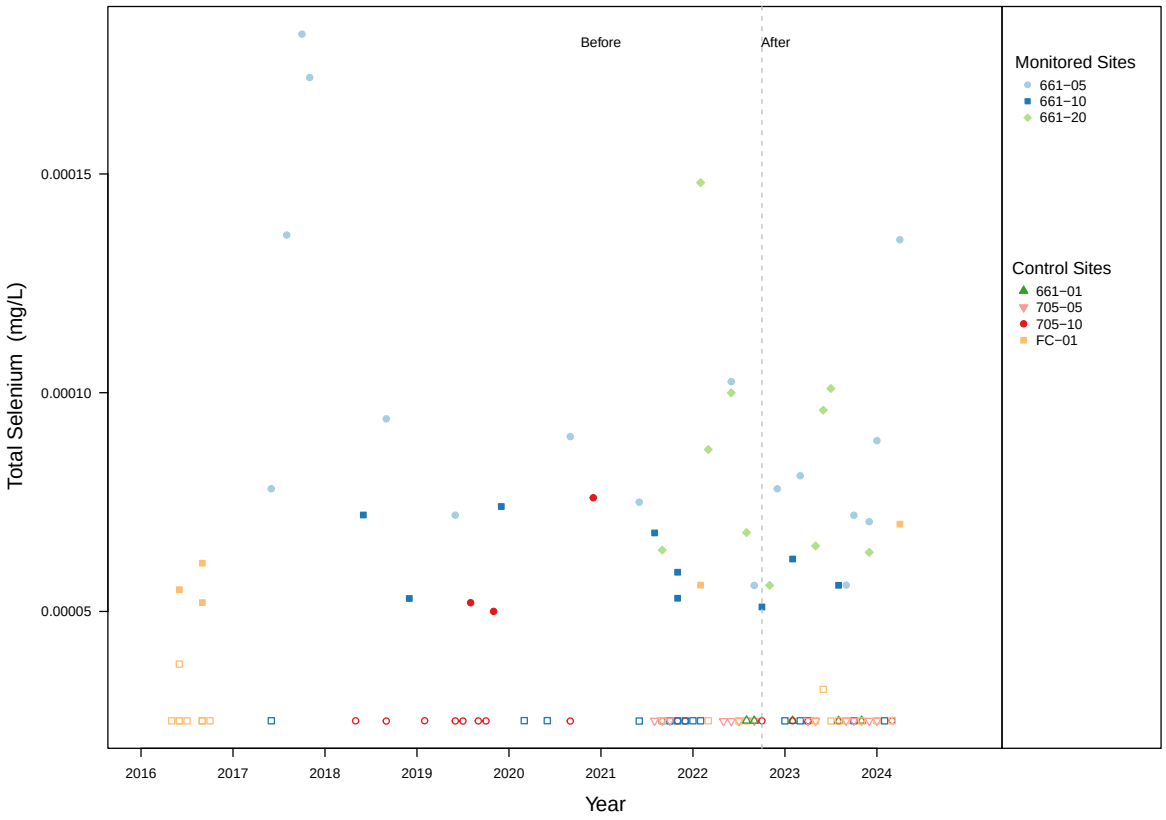
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

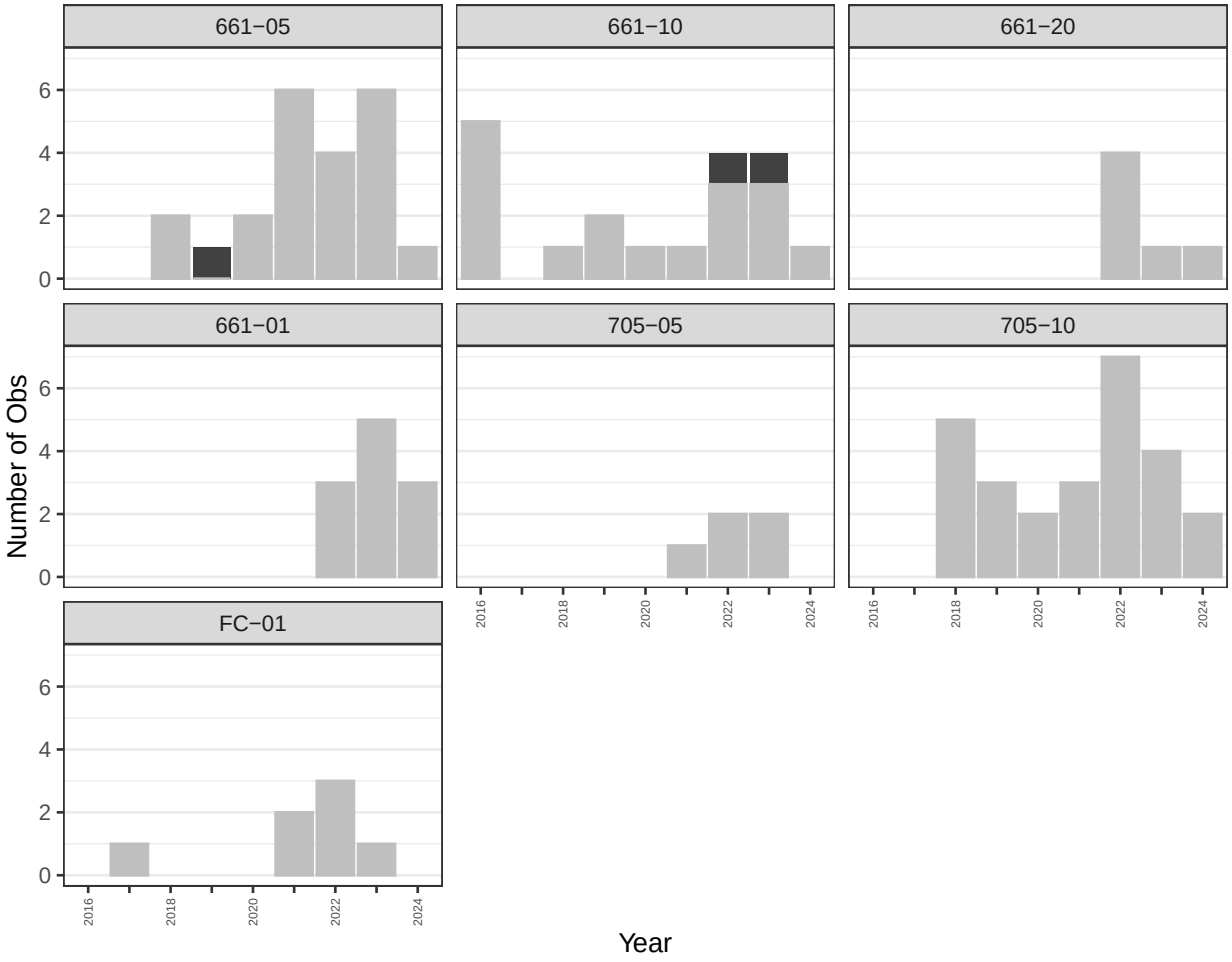
Final Summary Table

Variable	Total Selenium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.19 Total Silver

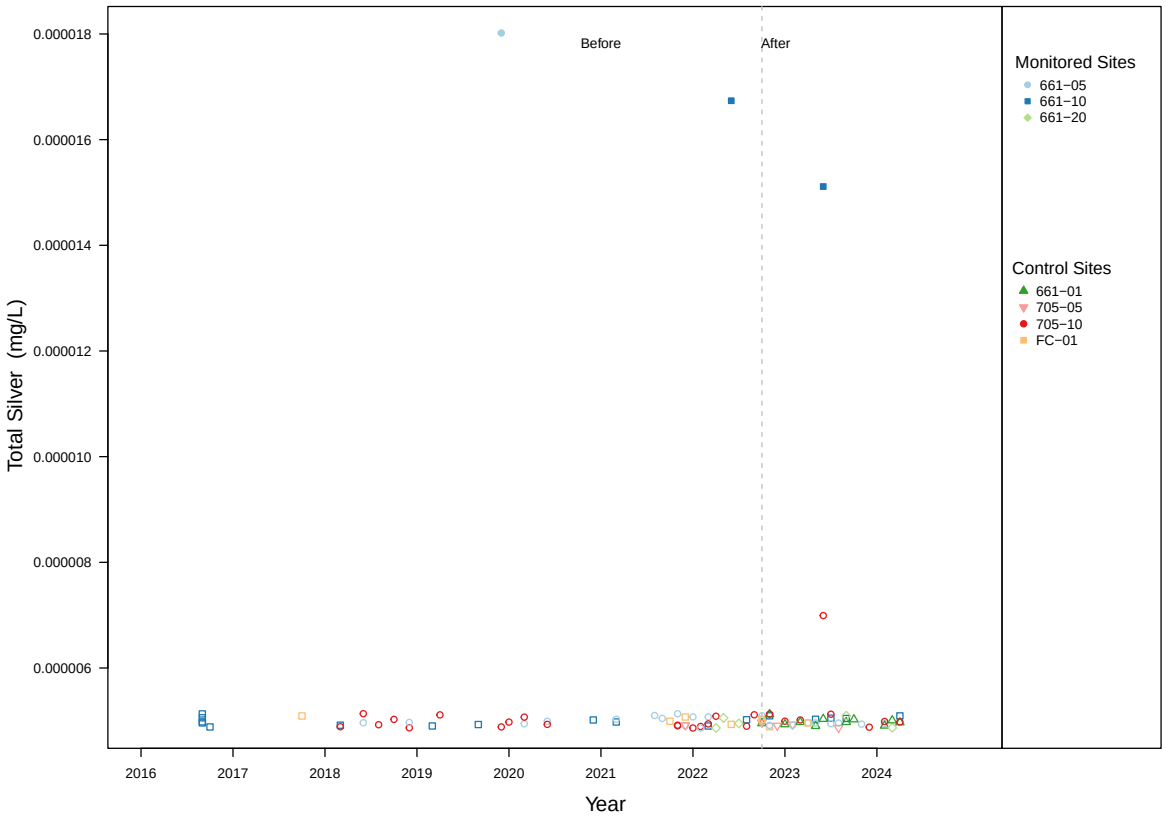
1 Creek 661

1.1 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

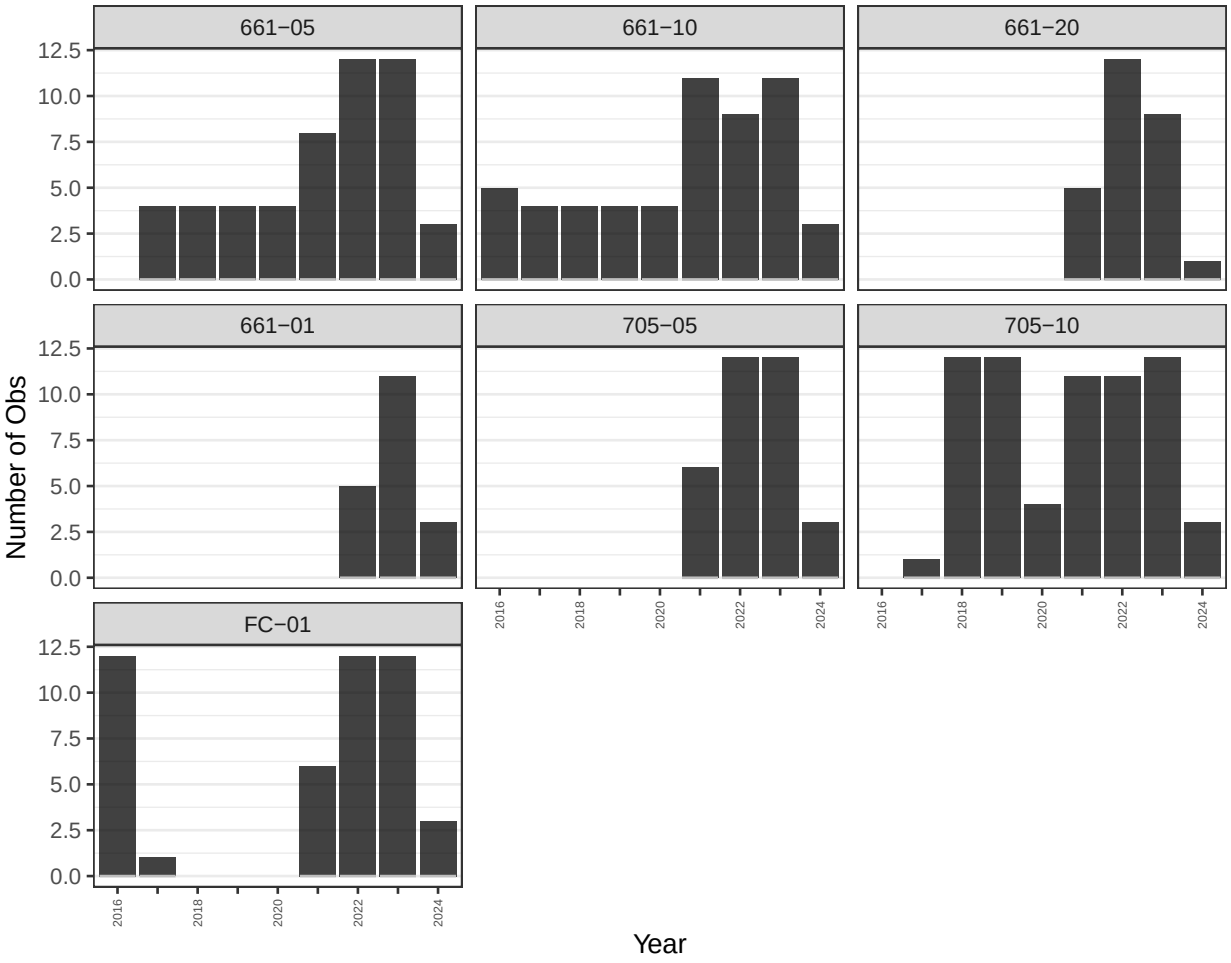
Variable	Total Silver
Watershed	Creek 661
Waterbody	Stream
Streams Removed	All Excluded
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.20 Total Strontium

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

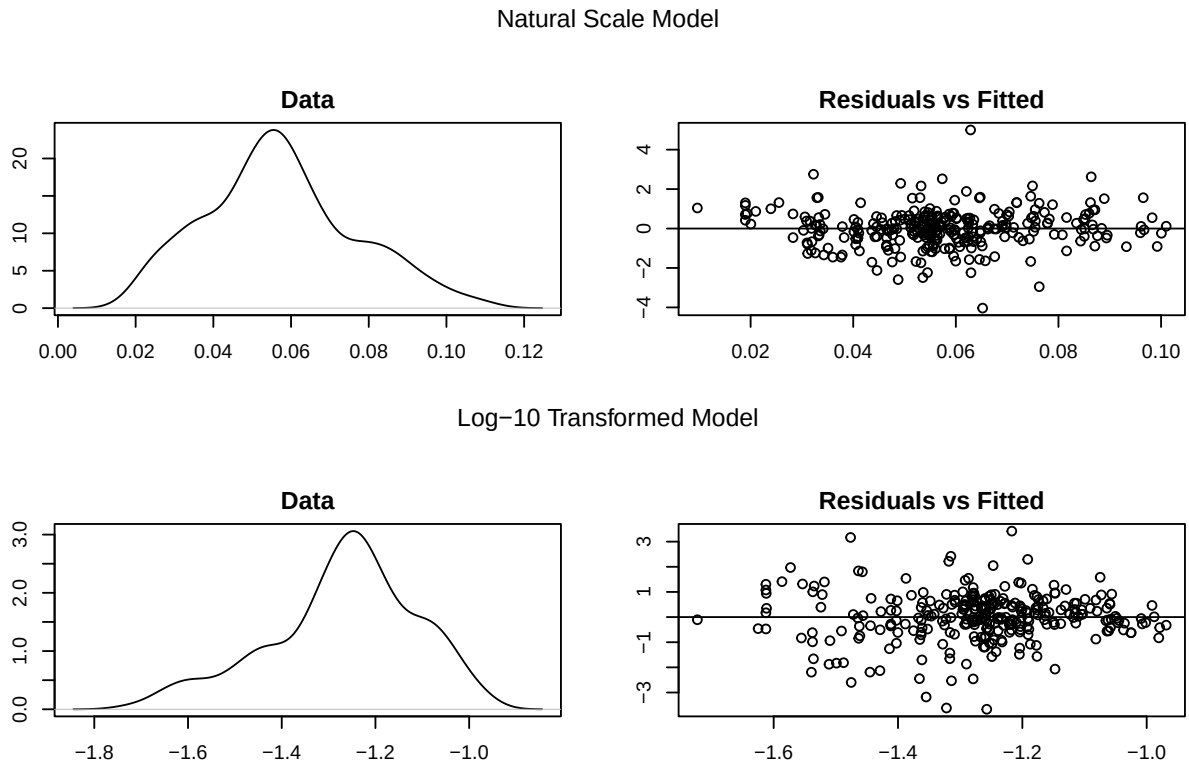
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0739	0
Creek 661	661-05	after	18	0.0847	0
Creek 661	661-10	before	39	0.0517	0
Creek 661	661-10	after	16	0.0680	0
Creek 661	661-20	before	14	0.0862	0
Creek 661	661-20	after	13	0.0961	0
Creek 661	661-01	before	3	0.0342	0
Creek 661	661-01	after	16	0.0264	0
Creek 705	705-05	before	15	0.0490	0
Creek 705	705-05	after	18	0.0543	0
Creek 705	705-10	before	49	0.0557	0
Creek 705	705-10	after	17	0.0577	0
Fawnie Creek (reference)	FC-01	before	28	0.0400	0
Fawnie Creek (reference)	FC-01	after	18	0.0557	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-10	2018	2	monit	before	0.1060	0.0629	4.998	Y
Creek 661	661-20	2022	6	monit	before	0.0304	0.0652	-4.036	Y

Outliers on log scale:

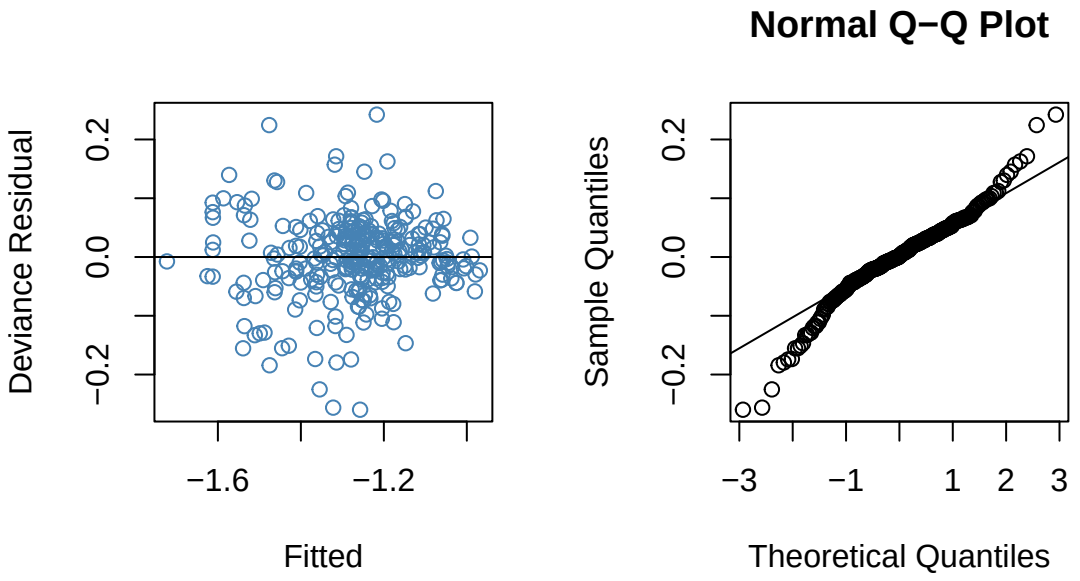
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-20	2022	6	monit	before	-1.5171	-1.257	-3.666	Y
Creek 661	661-10	2017	10	monit	before	-1.5784	-1.322	-3.616	Y
Creek 661	661-10	2018	2	monit	before	-0.9747	-1.217	3.418	Y
Creek 661	661-10	2019	11	monit	before	-1.5800	-1.355	-3.178	Y
Fawnie Creek (reference)	FC-01	2022	5	control	before	-1.2518	-1.476	3.167	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.02305	0.02305	1	4.993	4.587	0.0852	
period	0.10410	0.10410	1	94.335	20.720	<0.001	
class:period	0.04329	0.04329	1	271.567	8.617	0.00362	0.00668

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

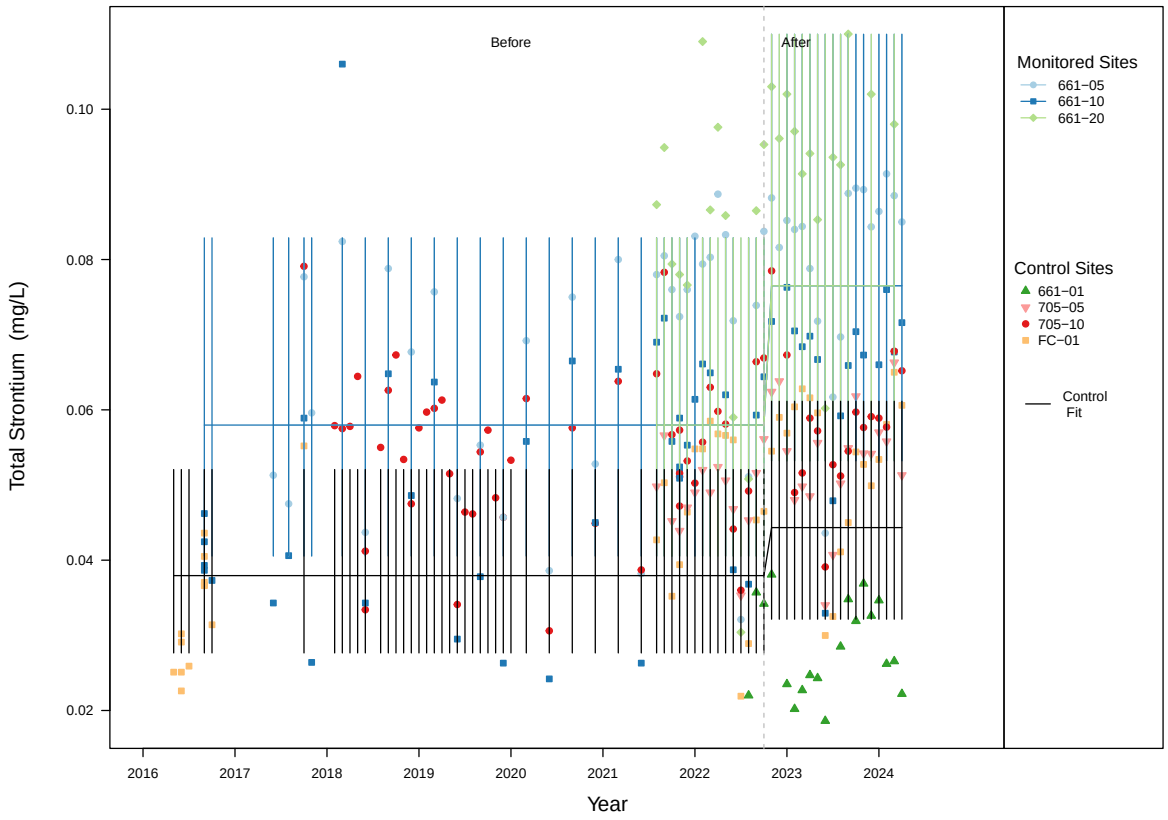
Monitored vs.	Estimate	Significance
control sites	0.0529	significant

Conclusion:

The change in Total Strontium concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0067) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

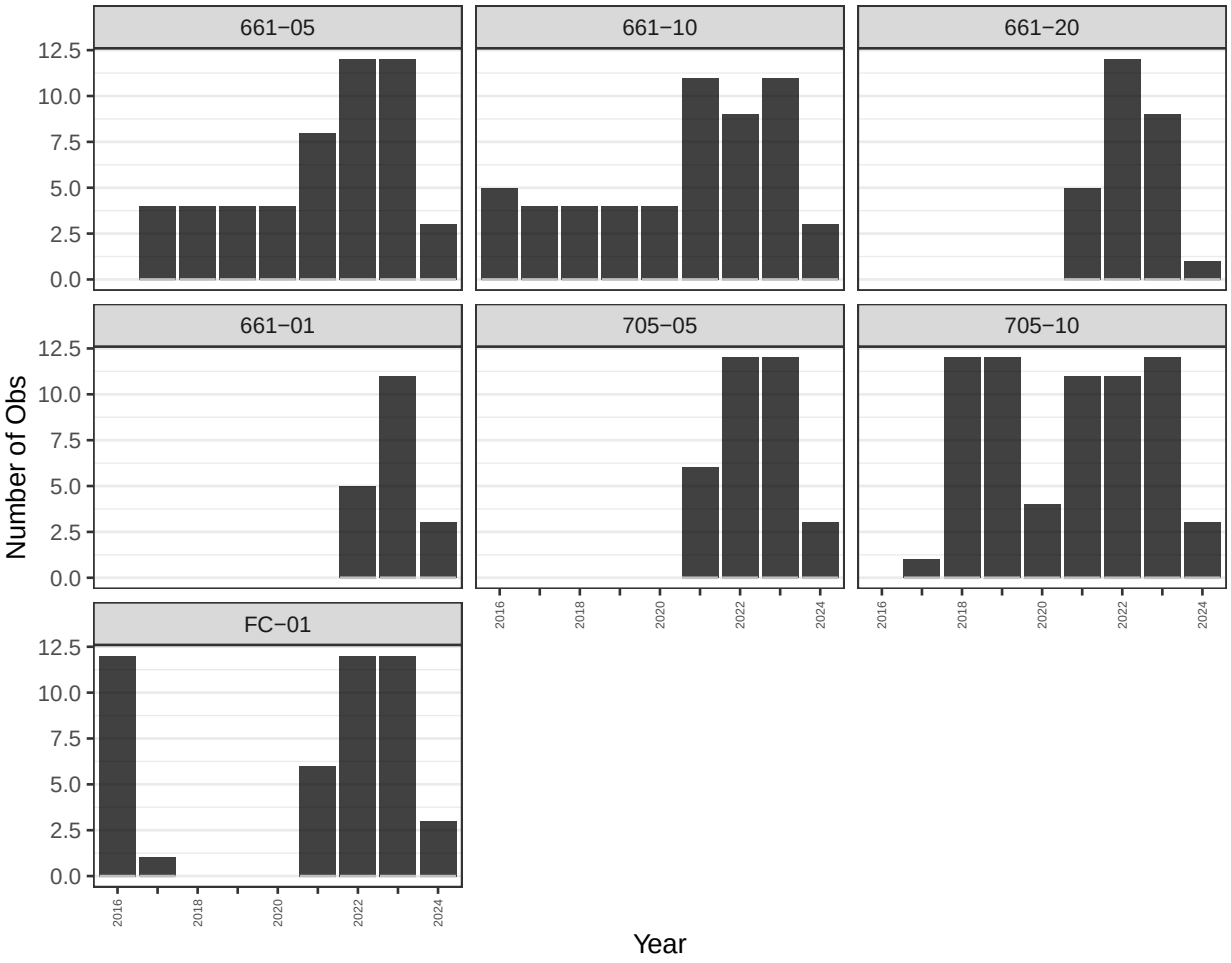
Variable	Total Strontium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.21 Total Uranium

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

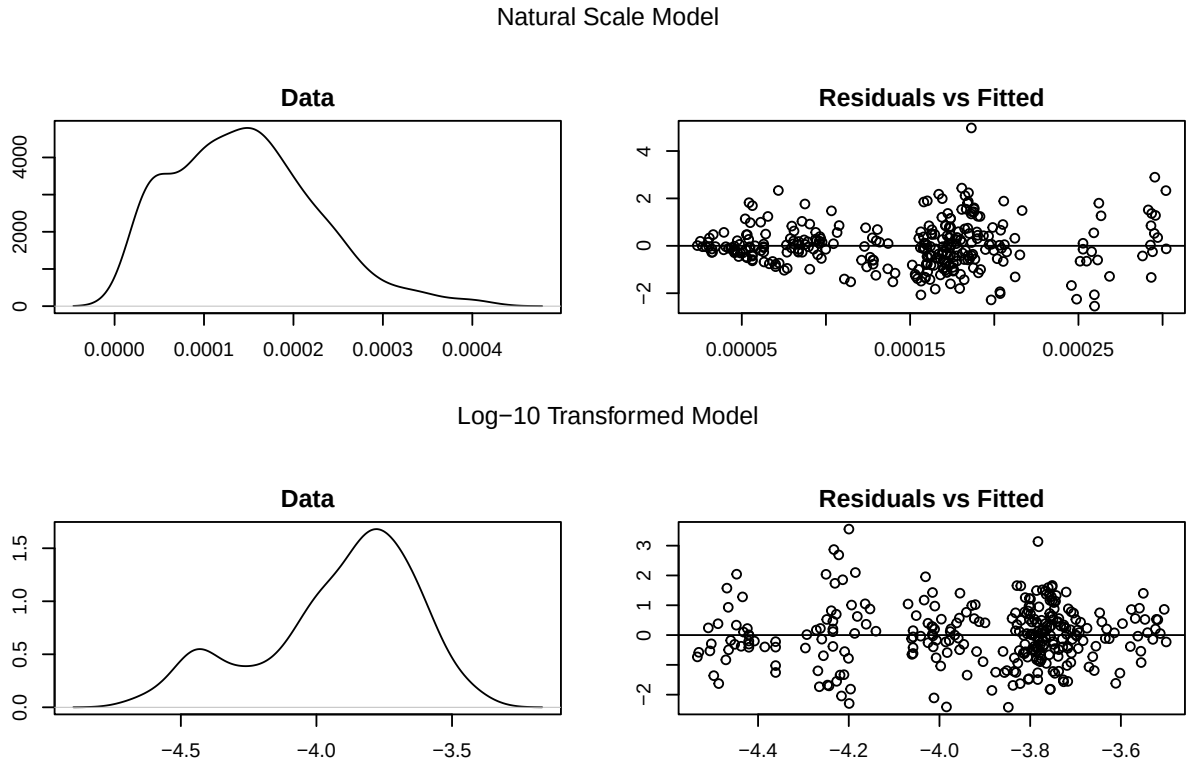
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0002	0
Creek 661	661-05	after	18	0.0002	0
Creek 661	661-10	before	39	0.0001	0
Creek 661	661-10	after	16	0.0001	0
Creek 661	661-20	before	14	0.0002	0
Creek 661	661-20	after	13	0.0003	0
Creek 661	661-01	before	3	0.0000	0
Creek 661	661-01	after	16	0.0000	0
Creek 705	705-05	before	15	0.0002	0
Creek 705	705-05	after	18	0.0001	0
Creek 705	705-10	before	49	0.0002	0
Creek 705	705-10	after	17	0.0001	0
Fawnie Creek (reference)	FC-01	before	28	0.0000	0
Fawnie Creek (reference)	FC-01	after	18	0.0001	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2017	10	monit	before	0.0004	0.0002	4.973	Y

Outliers on log scale:

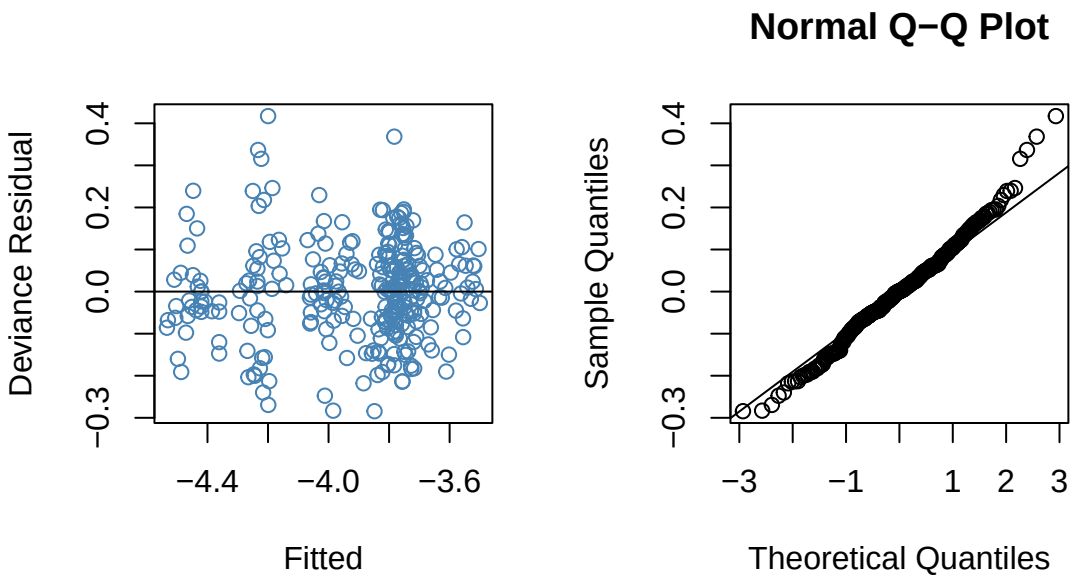
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2021	12	control	before	-3.783	-4.200	3.555	Y
Creek 661	661-05	2017	10	monit	before	-3.414	-3.783	3.138	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.024391	0.024391	1	4.996	1.771	0.241	
period	0.002492	0.002492	1	115.635	0.181	0.671	
class:period	0.238914	0.238914	1	272.451	17.348	<0.001	0.000149

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

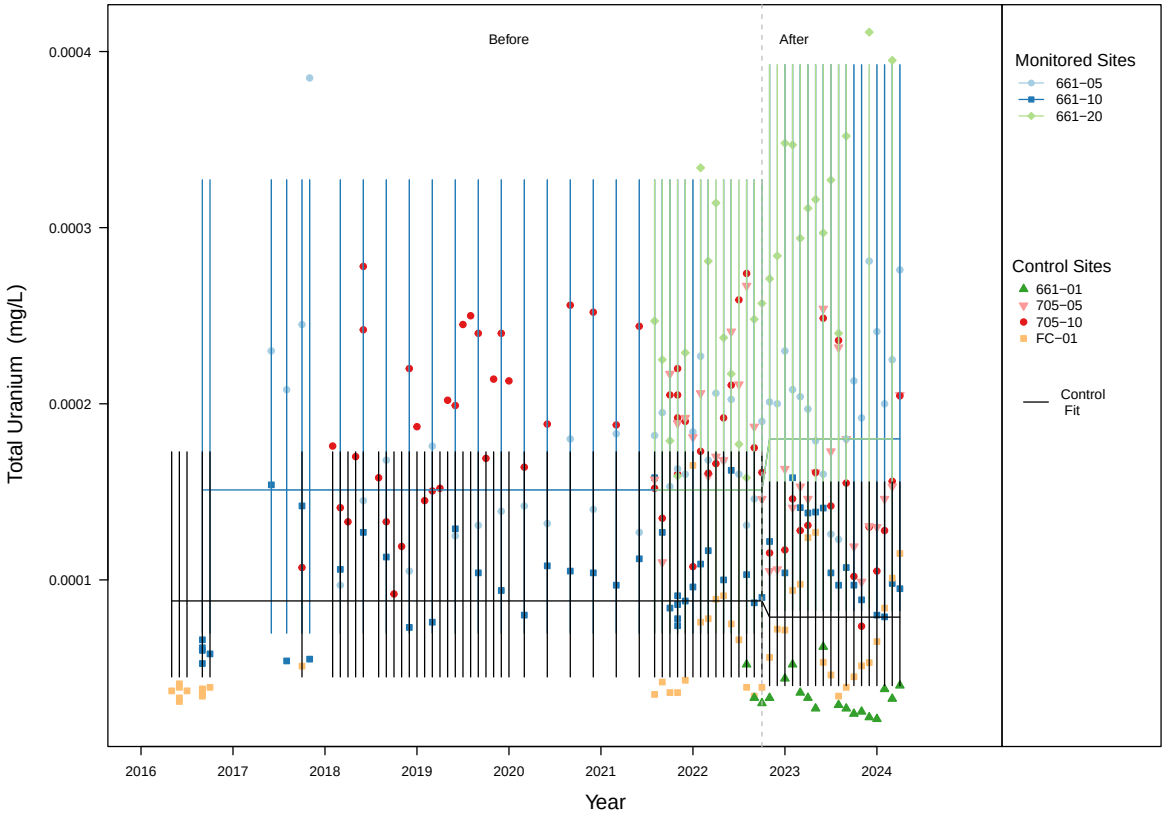
Monitored vs.	Estimate	Significance
control sites	0.1241	significant

Conclusion:

The change in Total Uranium concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 1.49×10^{-4}) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale. Guidelines are at 0.0085 (mg/L) and 0.015 (mg/L).

Final Summary Table

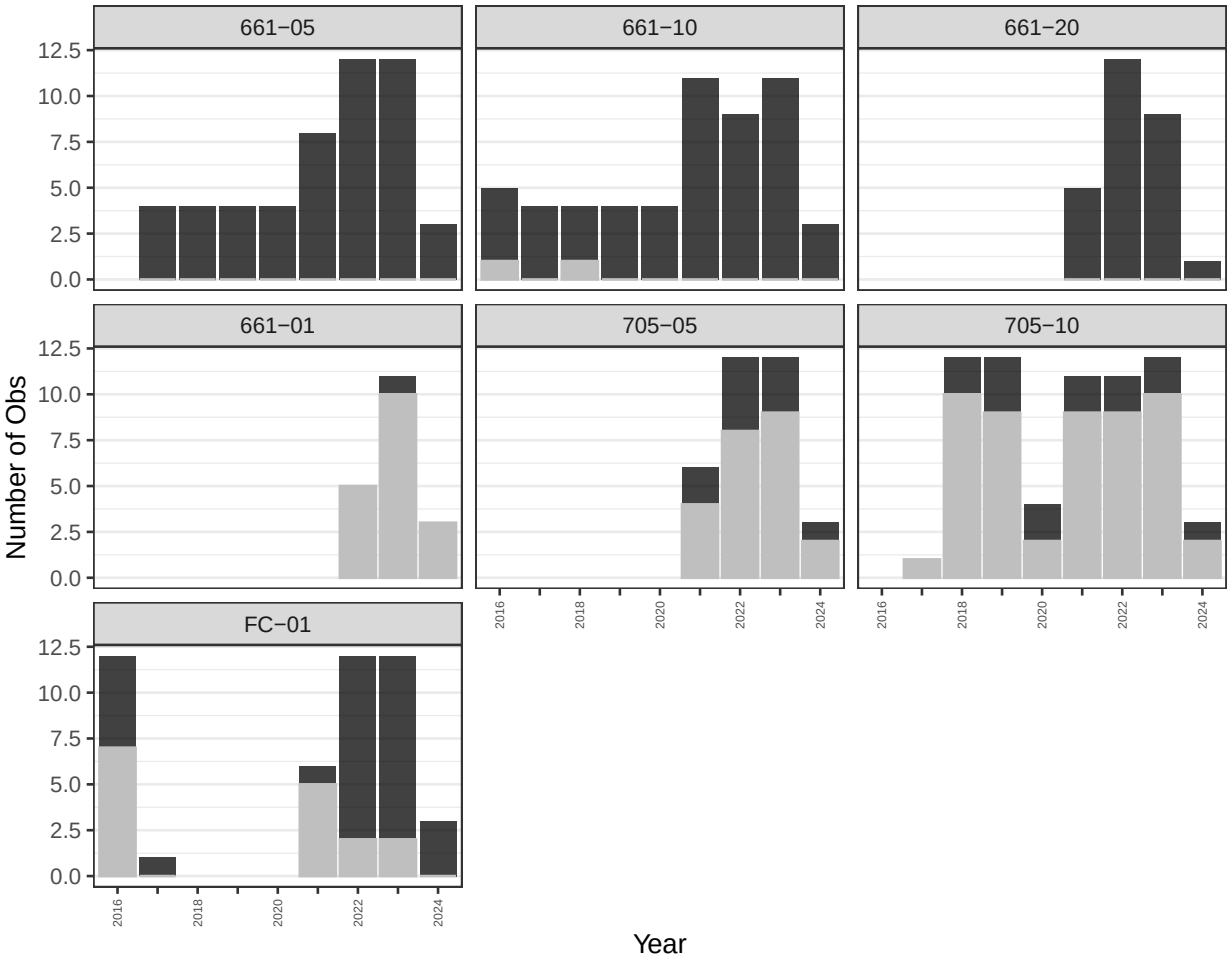
Variable	Total Uranium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.22 Total Vanadium

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 661	661-01	2022	control	before	5
Creek 661	661-01	2022	control	after	5
Creek 661	661-01	2023	control	after	11
Creek 661	661-01	2024	control	after	3
Creek 705	705-05	2021	control	before	6
Creek 705	705-05	2022	control	before	12
Creek 705	705-05	2022	control	after	12

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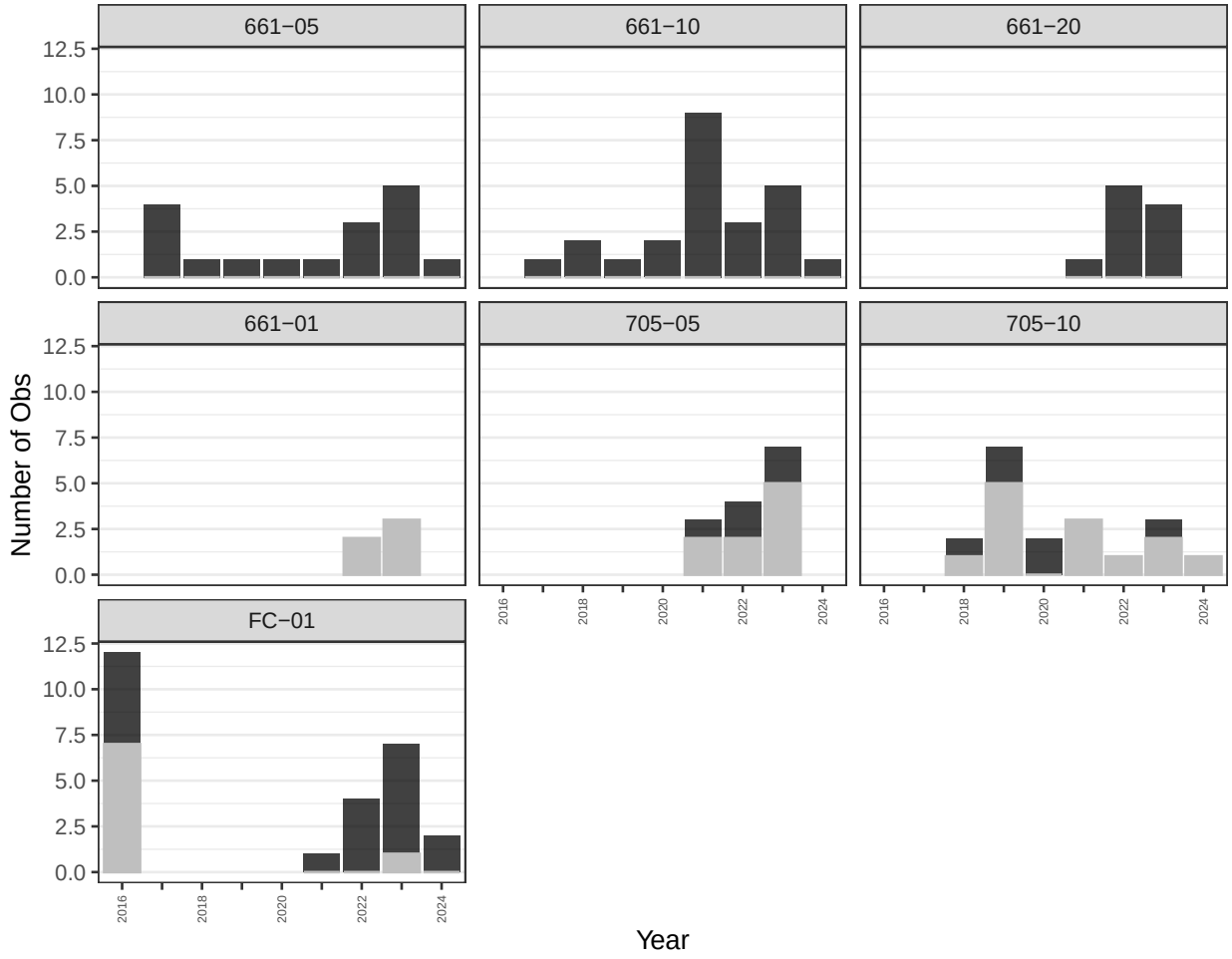
(continued)

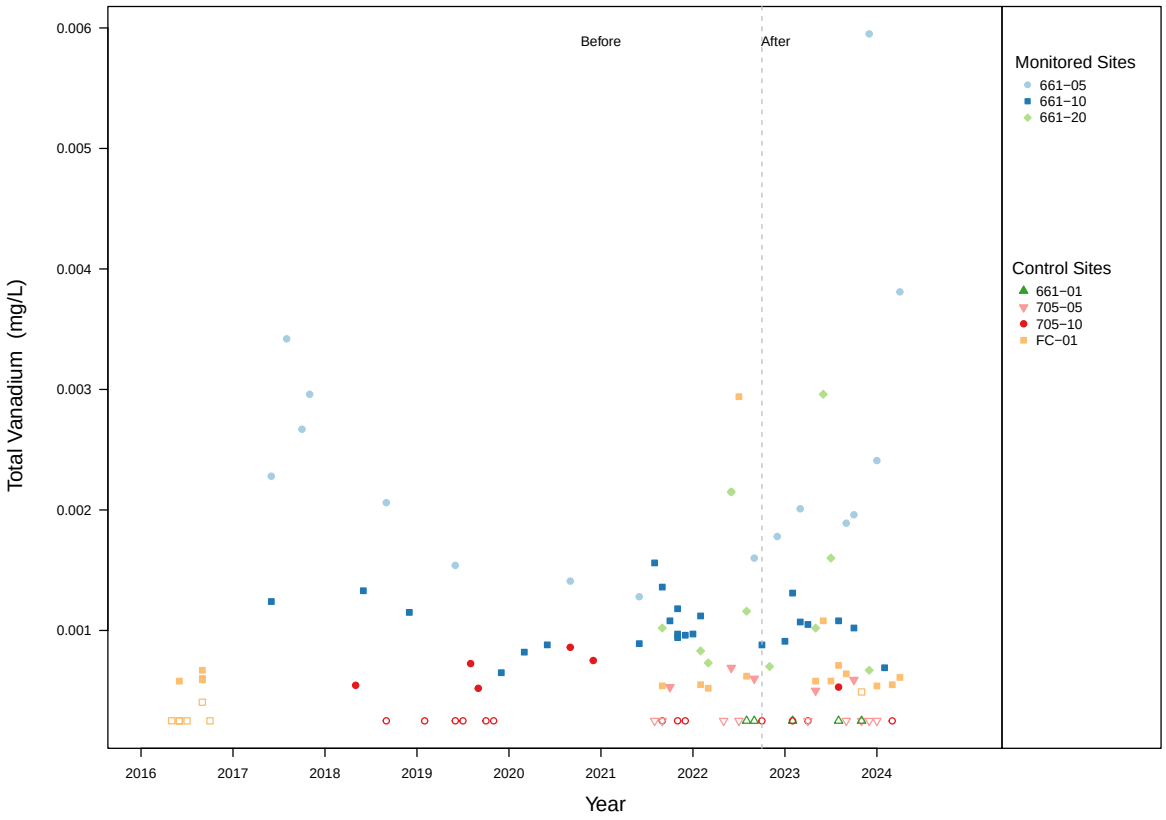
Watershed	Site	Year	Class	Period	#Obs Removed
Creek 705	705-05	2023	control	after	12
Creek 705	705-05	2024	control	after	3
Creek 705	705-10	2017	control	before	1
Creek 705	705-10	2018	control	before	12
Creek 705	705-10	2019	control	before	12
Creek 705	705-10	2021	control	before	11
Creek 705	705-10	2022	control	before	11
Creek 705	705-10	2022	control	after	11
Creek 705	705-10	2023	control	after	12
Creek 705	705-10	2024	control	after	3
Fawnie Creek (reference)	FC-01	2016	control	before	12
Fawnie Creek (reference)	FC-01	2021	control	before	6

1.2 Censored Data The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Conclusion:

Statistical analyses were not conducted due to censoring or availability of observations. Below is a summary figure of all observations in the dataset.



Note: Open symbols represent cases where the results were below the sample detection limit.

Final Summary Table

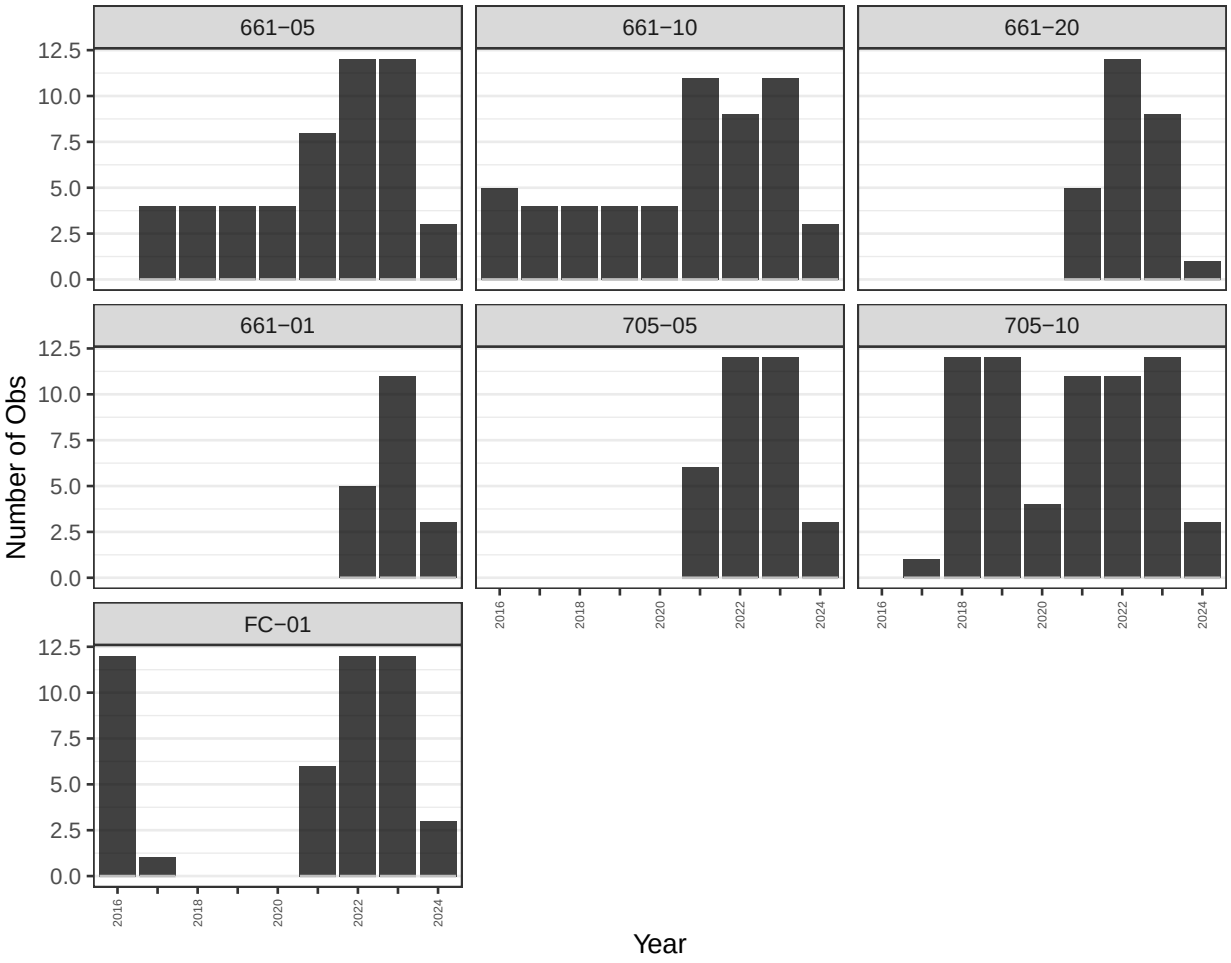
Variable	Total Vanadium
Watershed	Creek 661
Waterbody	Stream
Streams Removed	661-01, 705-05, FC-01
Data Transformation	N/A
Model Type	N/A
Benchmark	None
Significant BACI term	N/A

E-2.1.2.23 Dissolved Aluminum

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

None

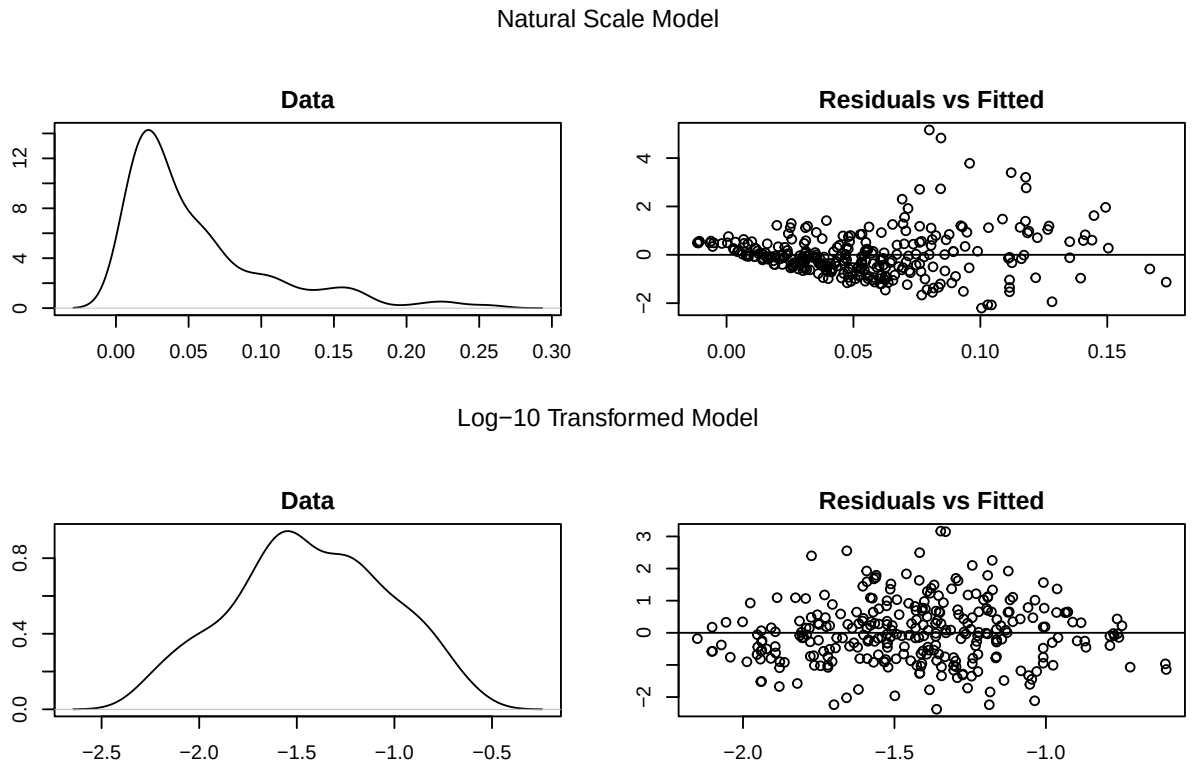
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0256	0
Creek 661	661-05	after	18	0.0152	0
Creek 661	661-10	before	39	0.0470	0
Creek 661	661-10	after	16	0.0230	0
Creek 661	661-20	before	14	0.0219	0
Creek 661	661-20	after	13	0.0112	0
Creek 661	661-01	before	3	0.0414	0
Creek 661	661-01	after	16	0.0526	0
Creek 705	705-05	before	15	0.0641	0
Creek 705	705-05	after	18	0.0339	0
Creek 705	705-10	before	49	0.0802	0
Creek 705	705-10	after	17	0.0408	0
Fawnie Creek (reference)	FC-01	before	28	0.0302	0
Fawnie Creek (reference)	FC-01	after	18	0.0071	0

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 705	705-05	2024	3	control	after	0.259	0.0799	5.163	Y
Creek 705	705-10	2024	3	control	after	0.252	0.0845	4.829	Y
Creek 661	661-10	2019	11	monit	before	0.227	0.0958	3.783	Y
Creek 705	705-10	2020	11	control	before	0.230	0.1121	3.398	Y
Creek 705	705-10	2019	4	control	before	0.229	0.1179	3.204	Y

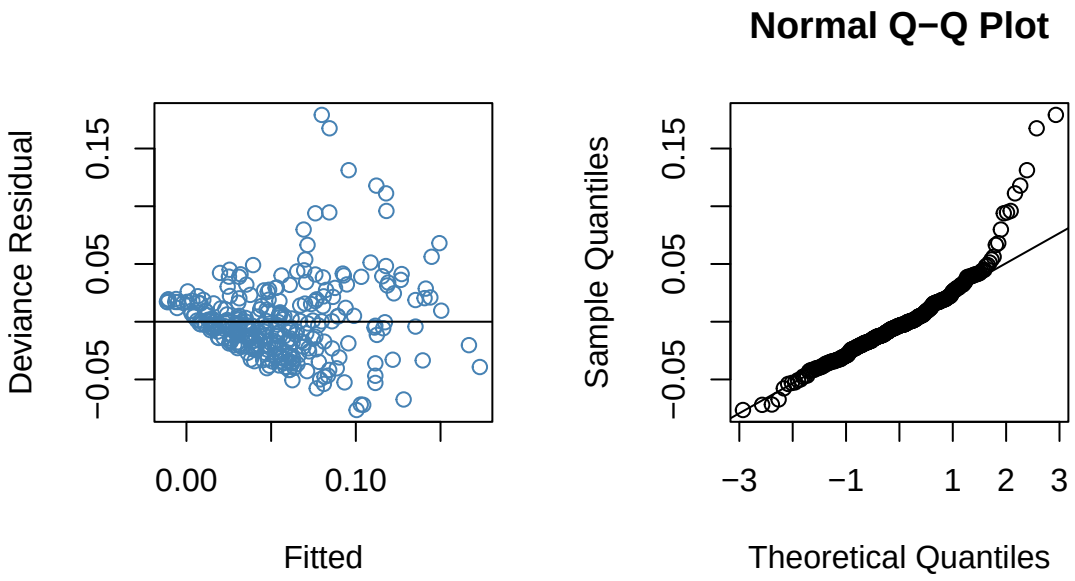
Outliers on log scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 705	705-10	2024	3	control	after	-0.5986	-1.347	3.165	Y
Creek 705	705-05	2024	3	control	after	-0.5867	-1.331	3.148	Y

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.0017841	0.0017841	1	4.927	1.4827	0.278	
period	0.0152902	0.0152902	1	65.346	12.7074	<0.001	
class:period	1.66e-05	1.66e-05	1	275.390	0.0138	0.907	0.943

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

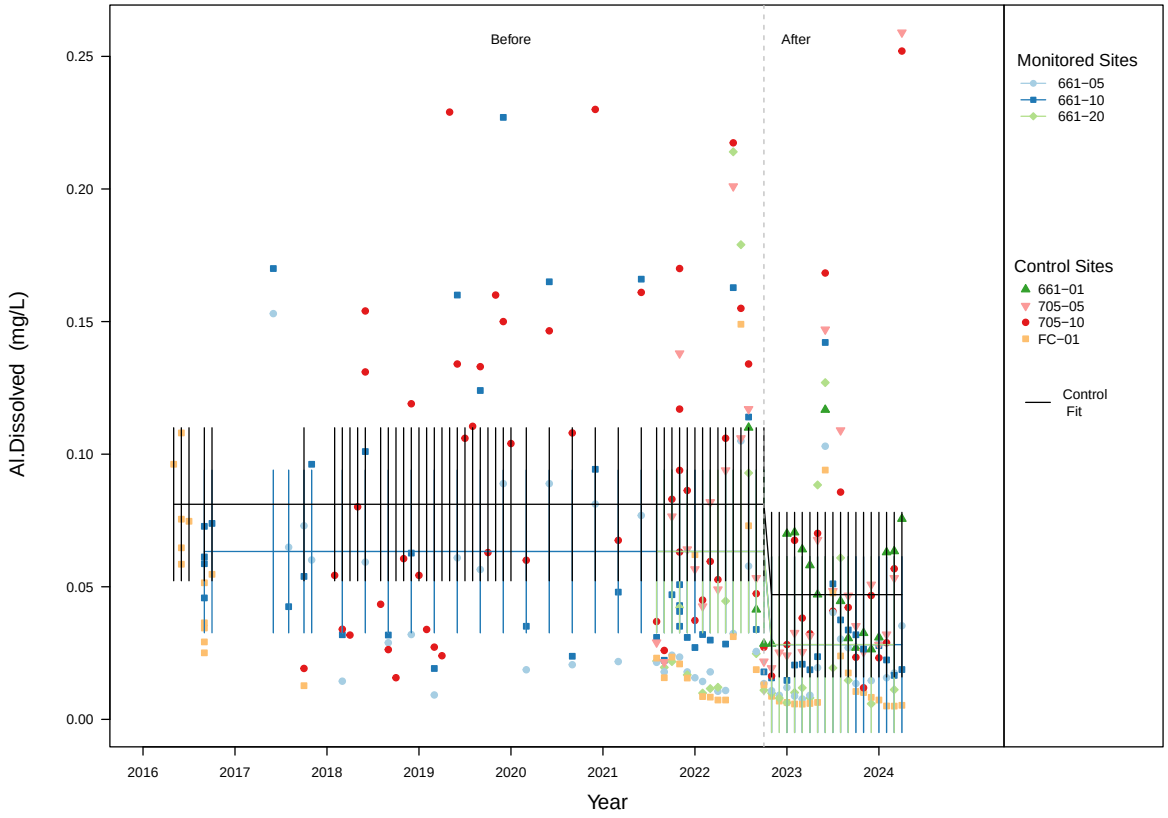
Monitored vs.	Estimate	Significance
control sites	-0.001	not significant

Conclusion:

The change in Al.Dissolved concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p =* 0.943) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals.

Final Summary Table

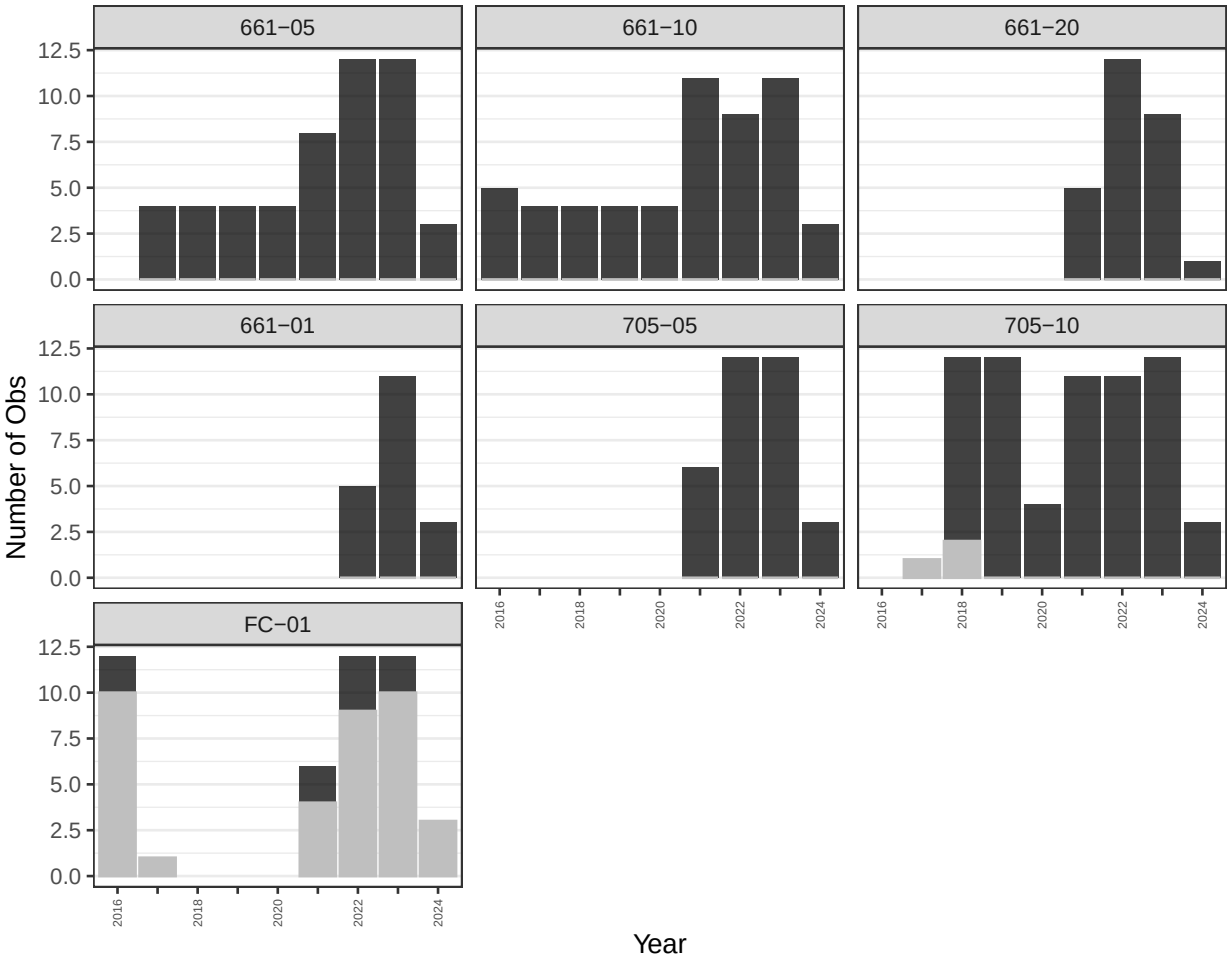
Variable	Al.Dissolved
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Untransformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

E-2.1.2.24 Dissolved Iron

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Creek 705	705-10	2017	control	before	1
Fawnie Creek (reference)	FC-01	2016	control	before	12
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2021	control	before	6
Fawnie Creek (reference)	FC-01	2022	control	before	12
Fawnie Creek (reference)	FC-01	2022	control	after	12
Fawnie Creek (reference)	FC-01	2023	control	after	12

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(continued)

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2024	control	after	3

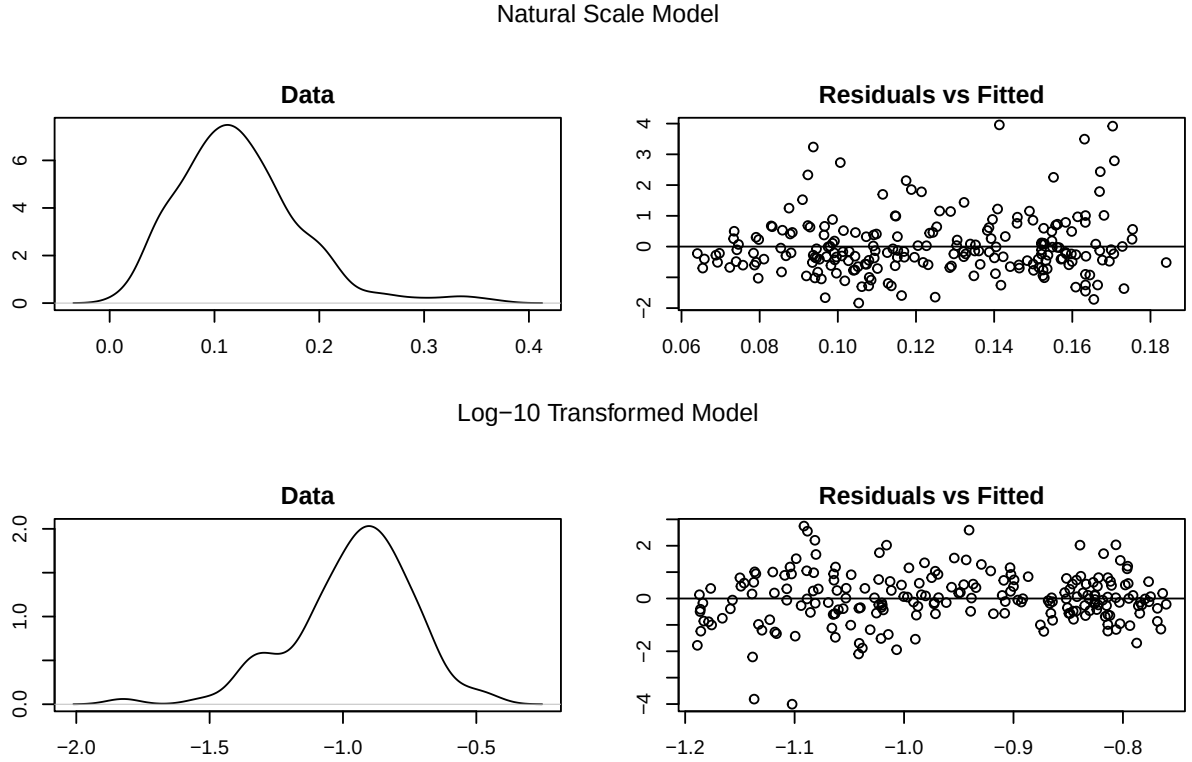
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.1230	0.000
Creek 661	661-05	after	18	0.0570	0.000
Creek 661	661-10	before	39	0.1400	0.000
Creek 661	661-10	after	16	0.0990	0.000
Creek 661	661-20	before	14	0.1470	0.000
Creek 661	661-20	after	13	0.1090	0.000
Creek 661	661-01	before	3	0.0670	0.000
Creek 661	661-01	after	16	0.0800	0.000
Creek 705	705-05	before	15	0.1480	0.000
Creek 705	705-05	after	18	0.1568	0.000
Creek 705	705-10	before	28	0.0830	7.143

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-05	2018	8	monit	before	0.336	0.1413	3.957	Y
Creek 661	661-10	2017	9	monit	before	0.363	0.1703	3.916	Y
Creek 705	705-05	2024	3	control	after	0.335	0.1631	3.494	Y
Creek 661	661-01	2023	2	control	after	0.253	0.0937	3.238	Y

Outliers on log scale:

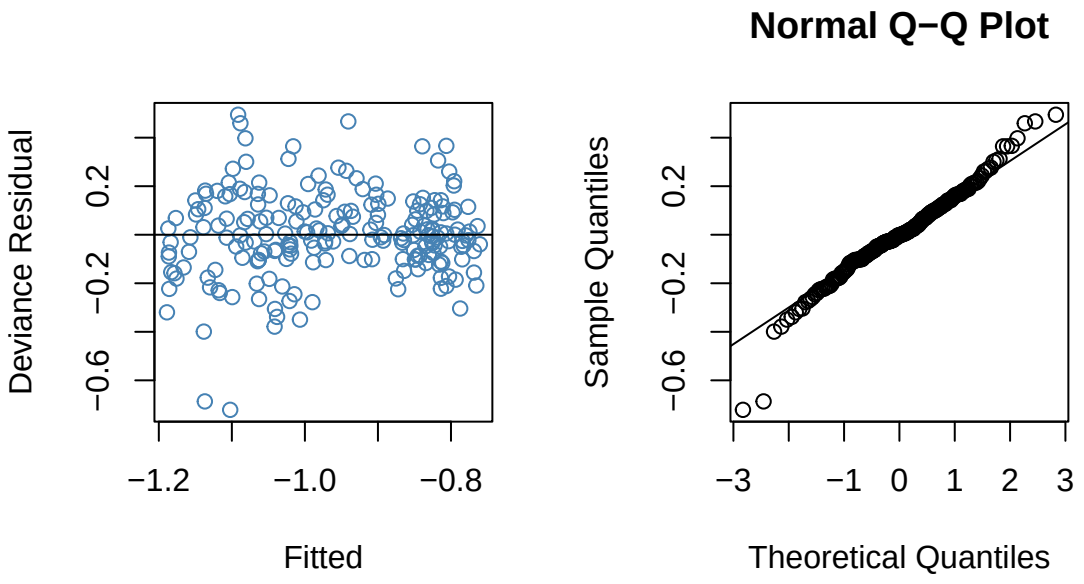
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 705	705-10	2018	8	control	before	-1.824	-1.102	-4.006	N
Creek 705	705-10	2018	9	control	before	-1.824	-1.137	-3.813	N

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.003575	0.003575	1	3.878	0.1102	0.757	
period	0.079984	0.079984	1	19.123	2.4650	0.133	
class:period	0.317960	0.317960	1	193.098	9.7991	0.002	0.00389

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

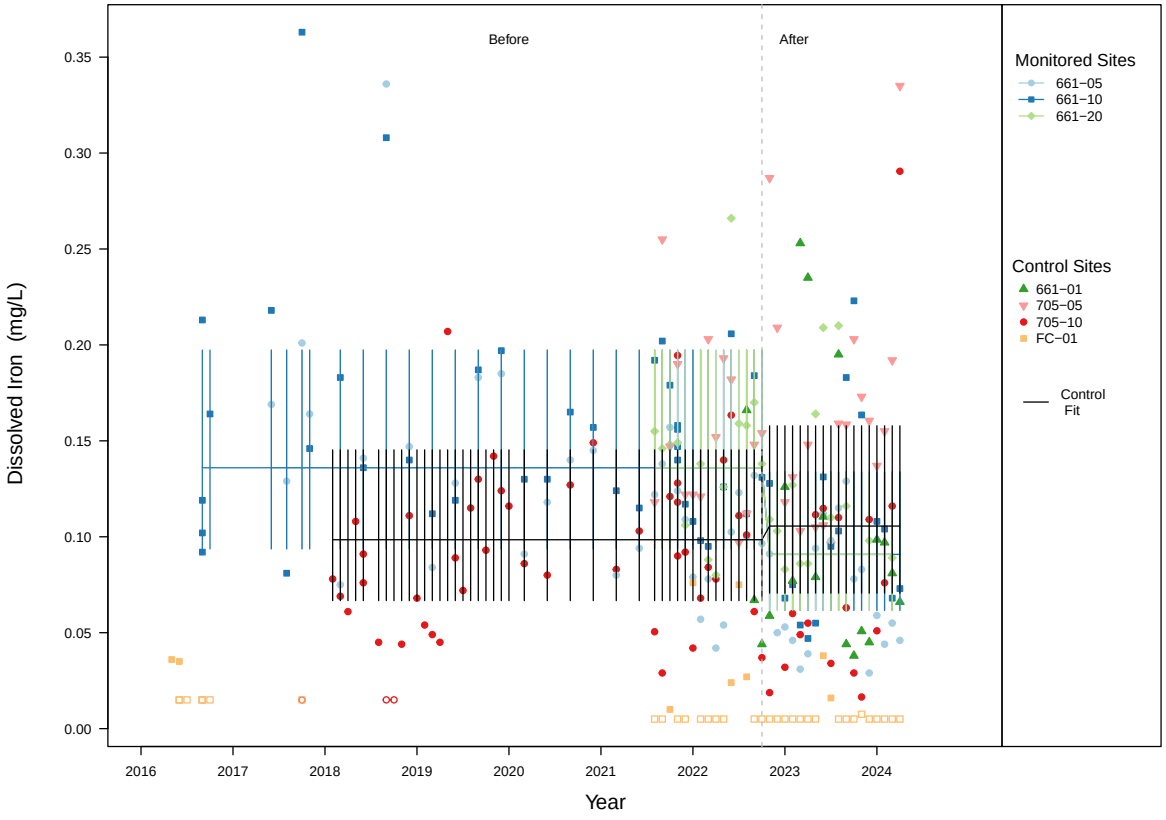
Monitored vs.	Estimate	Significance
control sites	-0.2056	significant

Conclusion:

The change in Dissolved Iron concentrations at the monitored sites from *before* to *after* was significantly (*adjusted p* = 0.0039) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

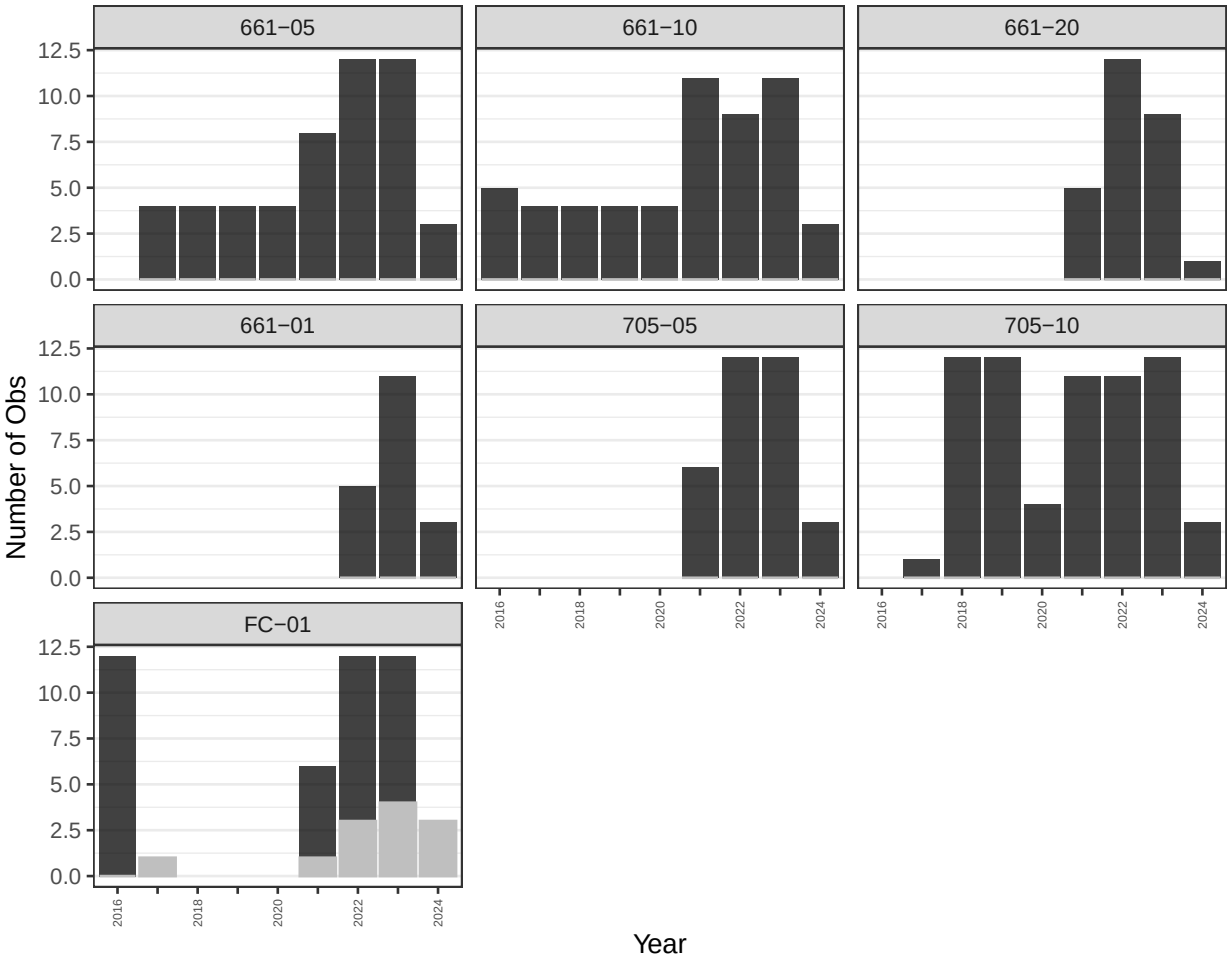
Variable	Dissolved Iron
Watershed	Creek 661
Waterbody	Stream
Streams Removed	FC-01
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	Yes

E-2.1.2.25 Dissolved Manganese

1 Creek 661

1.1 Censored Data

The following charts indicate the number of measurements taken in each year from each stream that were below the detection limit (light gray) or above the detection limit (dark gray).



Observations at or below the analytical detection limit were considered censored. Data were excluded from the analysis if greater than 70% of observations from a site were censored or if greater than 50% of observations in a site's sampling year were censored. If more than 10% of observations from a site in a sampling year were censored, data were flagged to caution interpretation of results. The following observations were excluded:

Watershed	Site	Year	Class	Period	#Obs Removed
Fawnie Creek (reference)	FC-01	2017	control	before	1
Fawnie Creek (reference)	FC-01	2024	control	after	3

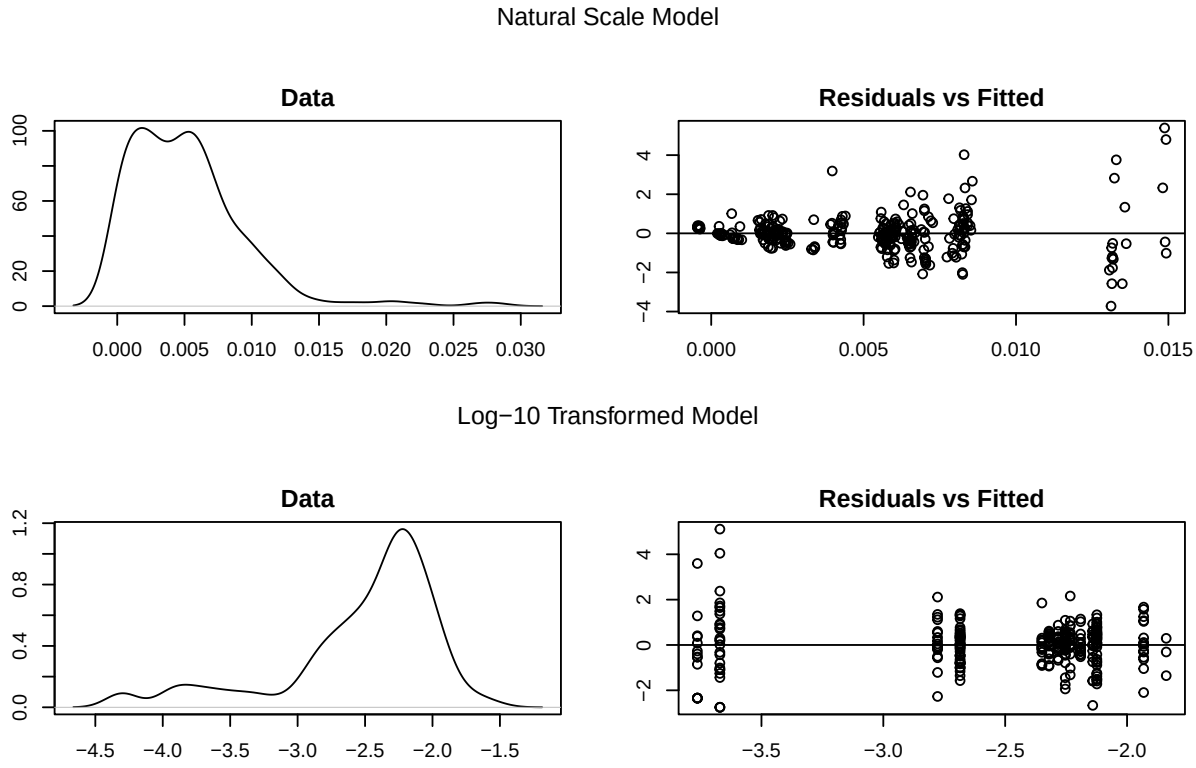
1.2 Sample Sizes for Modelling

The remaining sample sizes per site and period are summarised in the table below.

Watershed	Site	Period	N	Median	% Censored
Creek 661	661-05	before	33	0.0058	0.00
Creek 661	661-05	after	18	0.0053	0.00
Creek 661	661-10	before	39	0.0087	0.00
Creek 661	661-10	after	16	0.0060	0.00
Creek 661	661-20	before	14	0.0053	0.00
Creek 661	661-20	after	13	0.0043	0.00
Creek 661	661-01	before	3	0.0123	0.00
Creek 661	661-01	after	16	0.0116	0.00
Creek 705	705-05	before	15	0.0071	0.00
Creek 705	705-05	after	18	0.0067	0.00
Creek 705	705-10	before	49	0.0021	0.00
Creek 705	705-10	after	17	0.0017	0.00
Fawnie Creek (reference)	FC-01	before	27	0.0002	11.11
Fawnie Creek (reference)	FC-01	after	15	0.0001	33.33

1.3 Initial Model Fit

Initially a model was fit to all sites to assess the need for transformations.



Outliers

The following is a summary of outliers identified (if any) using preliminary regression models. All data points were plotted in the summary figures. The analysis needs to be interpreted with care and in conjunction with graphical displays if large outliers are present.

Outliers on natural scale:

Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Creek 661	661-01	2022	10	control	after	0.0283	0.0149	5.389	Y
Creek 661	661-01	2024	2	control	after	0.0268	0.0149	4.797	Y
Creek 705	705-05	2024	3	control	after	0.0183	0.0083	4.022	Y
Creek 661	661-01	2023	10	control	after	0.0226	0.0133	3.760	Y
Creek 661	661-01	2023	5	control	after	0.0039	0.0131	-3.722	Y
Creek 661	661-20	2023	5	monit	after	0.0119	0.0040	3.188	Y

Outliers on log scale:

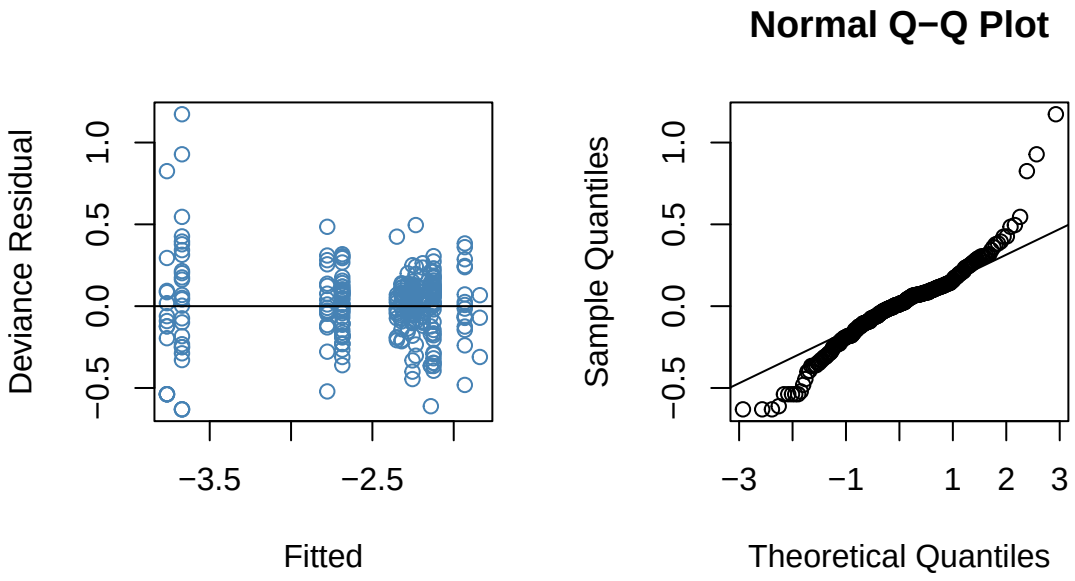
Watershed	Site	Year	Month	Class	Period	Value	Fitted	Std. Resid	Detected
Fawnie Creek (reference)	FC-01	2022	6	control	before	-2.498	-3.671	5.110	Y
Fawnie Creek (reference)	FC-01	2021	12	control	before	-2.742	-3.671	4.044	Y
Fawnie Creek (reference)	FC-01	2023	5	control	after	-2.938	-3.763	3.595	Y

Based on examination of the residuals, the log-10 transformed data were selected for analysis. No outliers were removed prior to analysis.

1.4 Before-After Control-Impact Linear Modeling

A models was fit to compare monitored sites with control sites.

Plot of Standardized Residuals and Fitted Values



Results of the ANOVA test on the fixed effects of the model:

	Sum Sq.	Mean Sq.	NumDF	DenDF	F value	p	p adjusted
class	0.03252	0.03252	1	4.998	0.6173	0.4680	
period	0.38154	0.38154	1	255.362	7.2424	0.0076	
class:period	0.01036	0.01036	1	277.027	0.1967	0.6580	0.708

Summary of BACI contrasts for relative difference between changes from the *before* to *after* in monitored sites (661-05, 661-10, 661-20) and control sites, with p value adjusted for multiple comparisons:

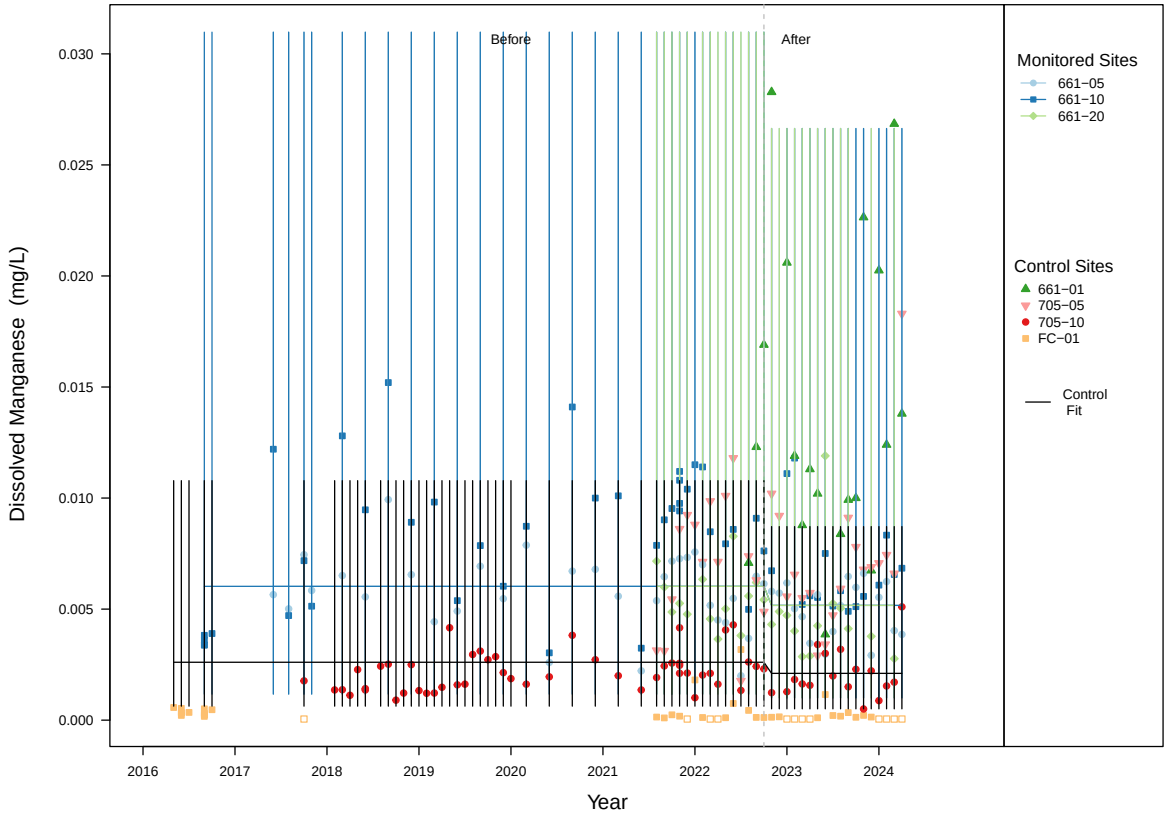
Monitored vs.	Estimate	Significance
control sites	0.0258	not significant

Conclusion:

The change in Dissolved Manganese concentrations at the monitored sites from *before* to *after* was not significantly (*adjusted p =* 0.708) different from the change at the control sites, according to the test on the BACI term (*class:period*).

1.5 Model Summary

The overall performance of the model is shown in the plot below. All the observations are plotted along with the model estimates. The model fitted values and 95% confidence intervals are indicated as lines and errors.



Note: Open symbols represent cases where the results were below the sample detection limit. Model fitted values are based on site class and period. Error bars indicate 95% confidence intervals. Modelled log-transformed values were converted back to natural scale.

Final Summary Table

Variable	Dissolved Manganese
Watershed	Creek 661
Waterbody	Stream
Streams Removed	None
Data Transformation	Log-10 transformed
Model Type	Linear Mixed Effects Regression
Is BACI significant	No

Appendix E-3 Comparison of Mean Monthly Surface Water Quality (October 2022 to March 2024) to the Environmental Assessment Predicted Surface Water Quality

Appendix E-3a: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-15 in Davidson Creek

Parameter	Environmental Assessment Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.54	0.56	0.53	0.5	0.49	0.45	0.5	0.46	0.49	0.52	0.54	0.55
Fluoride	0.0699	0.0716	0.088	0.0864	0.0656	0.0657	0.0743	0.0738	0.0773	0.0665	0.0669	0.0688
Sulphate	18.73	18.8	29.99	20.05	9.51	12.42	19.81	24.12	25.43	18.93	19.2	18.37
Nutrients												
Ammonia-N	0.23	0.23	0.24	0.17	0.35	0.58	0.38	0.2	0.21	0.24	0.24	0.23
Nitrate-N	0.0502	0.034	0.2	0.19	2.68	4.47	2.59	1.02	0.77	0.68	0.61	0.49
Nitrite-N	0.0026	0.0028	0.0025	0.0025	0.0027	0.0025	0.0025	0.0026	0.0027	0.0024	0.0024	0.0037
Total Phosphorous	0.022	0.0221	0.0664	0.0568	0.0418	0.0512	0.0629	0.069	0.0717	0.0223	0.0212	0.0218
Orthophosphate	0.0063	0.0061	0.052	0.0404	0.0299	0.036	0.047	0.0563	0.0643	0.0187	0.0062	0.0057
Cyanides												
Total Cyanide	0.0034	0.0034	0.0033	0.0031	0.0044	0.0031	0.0034	0.0032	0.0033	0.0034	0.0034	0.0034
Cyanide, Weak Acid Dissociable	0.002	0.0014	0.0016	0.0021	0.0018	0.0021	0.0025	0.0018	0.0016	0.0014	0.0014	0.0012
Total Metals												
Aluminum	0.051	0.0514	0.0434	0.0615	0.15	0.0945	0.0795	0.059	0.0526	0.0493	0.0506	0.0604
Antimony	0.000068	0.000068	0.00058	0.0005	0.00057	0.0004	0.00048	0.00052	0.00055	0.000098	0.000072	0.000068
Arsenic	0.00052	0.00051	0.00067	0.0021	0.00056	0.00051	0.00055	0.00058	0.00057	0.00053	0.00053	0.00051
Barium	0.0076	0.0074	0.009	0.0142	0.0067	0.0067	0.0078	0.0083	0.0084	0.0072	0.0073	0.0077
Beryllium	0.00005	0.00005	0.00005	0.000063	0.000058	0.000058	0.000054	0.000051	0.000051	0.000057	0.000055	0.000051
Boron	0.0016	0.0016	0.0027	0.0114	0.0024	0.0019	0.0021	0.0024	0.0025	0.0021	0.0015	0.0015
Cadmium	0.00001	0.00001	0.0000095	0.000012	0.000013	0.000011	0.00001	0.0000099	0.00001	0.00001	0.00001	0.000014
Chromium	0.00019	0.00019	0.00019	0.00024	0.00024	0.00022	0.00027	0.00019	0.00023	0.00023	0.00024	0.00021
Cobalt	0.00026	0.00026	0.00026	0.0003	0.00016	0.00015	0.00015	0.00019	0.00023	0.00026	0.00027	0.00025
Copper	0.00047	0.00047	0.00048	0.00053	0.00061	0.00056	0.00052	0.00044	0.00043	0.00044	0.00045	0.00048
Iron	0.0846	0.0855	0.0808	0.0832	0.18	0.13	0.12	0.12	0.11	0.11	0.12	0.13
Lead	0.000074	0.000076	0.000073	0.00051	0.00035	0.00032	0.00018	0.00011	0.00013	0.0003	0.00022	0.000088
Lithium	0.00055	0.00055	0.0032	0.0023	0.0015	0.0021	0.0031	0.0036	0.0034	0.00065	0.00058	0.00055
Manganese	0.0689	0.0688	0.0632	0.048	0.0324	0.0306	0.0427	0.0554	0.0649	0.068	0.0699	0.0682
Mercury	0.0000033	0.0000033	0.000004	0.0000037	0.0000043	0.0000033	0.0000036	0.0000035	0.0000034	0.0000033	0.0000033	0.0000034
Molybdenum	0.00079	0.00079	0.0021	0.0017	0.0006	0.00063	0.00099	0.0013	0.0015	0.00077	0.00077	0.00077
Nickel	0.00028	0.00028	0.00029	0.00048	0.00041	0.00039	0.00035	0.00032	0.00029	0.00035	0.00034	0.00029
Selenium	0.00028	0.00028	0.00028	0.00022	0.00024	0.00026	0.0003	0.00029	0.00028	0.00028	0.00029	0.00028
Silver	0.000025	0.000025	0.000025	0.000028	0.000029	0.000028	0.000026	0.000025	0.000025	0.000028	0.000027	0.000025
Strontium	0.1	0.1	0.13	0.12	0.0866	0.0879	0.11	0.12	0.13	0.0966	0.0968	0.098
Thallium	0.000025	0.000025	0.000025	0.000027	0.000026	0.000027	0.000026	0.000025	0.000025	0.000026	0.000026	0.000025
Uranium	0.00019	0.00018	0.00019	0.00021	0.00015	0.00017	0.00016	0.00014	0.00017	0.00016	0.00016	0.00016
Vanadium	0.00024	0.00023	0.00033	0.0011	0.00078	0.00071	0.00066	0.00053	0.00045	0.00069	0.00052	0.00034
Zinc	0.0058	0.0063	0.0056	0.0045	0.0033	0.0031	0.0038	0.0052	0.0051	0.0057	0.0061	0.0059
Dissolved Metals												
Aluminum	0.0219	0.0219	0.0195	0.0261	0.0715	0.0568	0.0426	0.0317	0.0325	0.0238	0.0225	0.0214
Cadmium	0.0000089	0.0000089	0.0000085	0.000011	0.000011	0.0000099	0.0000092	0.0000088	0.0000094	0.0000097	0.0000095	0.0000094
Copper	0.00031	0.00031	0.00031	0.00047	0.00048	0.00041	0.00036	0.00031	0.00029	0.00029	0.00031	0.00031
Iron	0.0378	0.0381	0.0359	0.0443	0.0885	0.0834	0.0715	0.0761	0.0633	0.072	0.0694	0.0515
Manganese	0.18	0.19	0.18	0.12	0.0508	0.0589	0.13	0.17	0.2	0.2	0.21	0.19
Zinc	0.0053	0.0059	0.0052	0.0042	0.003	0.0028	0.0035	0.0046	0.0047	0.0053	0.0055	0.0052

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ26 in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3a: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-15 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.25	0.25	0.54	0.25	1.51	0.78	0.25	0.42	0.53	0.38
Fluoride	0.045	0.047	0.0495	0.045	0.029	0.035	0.036	0.04	0.044	0.0455	0.0455	0.041
Sulphate	3.09	3.24	3.34	2.34	1.42	1.45	9.27	4.06	2.58	2.76	3.17	3.07
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0088	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate-N	0.036	0.046	0.0415	0.0114	0.0052	0.0025	0.0025	0.0025	0.0025	0.0041	0.0281	0.0339
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.008	0.008	0.0088	0.0096	0.0519	0.0085	0.0253	0.01	0.006	0.0064	0.0086	0.0075
Orthophosphate	0.0054	0.0054	0.0057	0.0036	0.0036	0.002	0.0025	0.0028	0.0027	0.0022	0.0039	0.0042
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0738	0.0174	0.39	0.0178	0.64	0.0621	0.22	0.0356	0.0175	0.0216	0.0998	0.0403
Antimony	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Arsenic	0.00058	0.00056	0.00081	0.00049	0.0009	0.00059	0.00082	0.00078	0.00062	0.00064	0.0006	0.00058
Barium	0.0086	0.0094	0.0123	0.0088	0.0109	0.0062	0.011	0.0083	0.0087	0.0093	0.0088	0.0093
Beryllium	0.00001	0.00001	0.000022	0.00001	0.000049	0.00001	0.000016	0.00001	0.00001	0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000049	0.000003	0.000022	0.000003	0.000016	0.000003	0.000003	0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00044	0.00025	0.00074	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00048
Cobalt	0.00005	0.00005	0.00012	0.00005	0.00017	0.00005	0.00014	0.00005	0.00005	0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00058	0.00025	0.0012	0.00025	0.00081	0.00025	0.00025	0.00025	0.00025	0.00025
Iron	0.0665	0.0253	0.34	0.046	0.6	0.064	0.26	0.092	0.042	0.0485	0.11	0.0555
Lead	0.000025	0.000025	0.00019	0.000025	0.00027	0.000025	0.00012	0.000025	0.000025	0.000025	0.000068	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Manganese	0.0047	0.0034	0.0096	0.0058	0.0374	0.0043	0.0343	0.0052	0.0042	0.0052	0.0066	0.0056
Mercury	0.000003	0.000003	0.000003	0.000003	0.000013	0.000003	0.0000041	0.000003	0.000003	0.000003	0.000003	0.000003
Molybdenum	0.00089	0.00091	0.00091	0.0008	0.00029	0.00081	0.00059	0.00073	0.0008	0.00091	0.00077	0.00084
Nickel	0.00025	0.00025	0.00039	0.00025	0.00066	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Selenium	0.000054	0.00004	0.000068	0.000025	0.000081	0.000055	0.000065	0.000067	0.000025	0.000025	0.000025	0.000059
Silver	0.000005	0.000005	0.000005	0.000005	0.000027	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Strontium	0.1	0.11	0.1	0.0967	0.0423	0.0562	0.0743	0.084	0.0935	0.1	0.0899	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Uranium	0.00026	0.00031	0.0003	0.00026	0.00025	0.00011	0.00013	0.0001	0.00015	0.00021	0.00019	0.00022
Vanadium	0.0004	0.00025	0.00092	0.00052	0.0014	0.00056	0.00092	0.0006	0.00025	0.00039	0.00044	0.00053
Zinc	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Dissolved Metals												
Aluminum	0.0124	0.0076	0.0128	0.0082	0.29	0.0395	0.0423	0.0216	0.011	0.0111	0.0236	0.0103
Cadmium	0.000003	0.000003	0.000003	0.000003	0.00001	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.00016	0.0001	0.00087	0.00037	0.00044	0.00028	0.0002	0.00017	0.00019	0.0001
Iron	0.02	0.0105	0.022	0.029	0.23	0.047	0.0585	0.062	0.026	0.032	0.0365	0.021
Manganese	0.0035	0.0024	0.0021	0.0039	0.0076	0.002	0.0049	0.0025	0.0024	0.0036	0.0037	0.003
Zinc	0.0005	0.0005	0.0005	0.0005	0.0018	0.0005	0.0014	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ26 in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3b: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-20 in Davidson Creek

Parameter	Environmental Assessment Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.51	0.53	0.49	0.48	0.51	0.45	0.5	0.4	0.44	0.48	0.5	0.53
Fluoride	0.0675	0.0704	0.0846	0.0843	0.0647	0.0638	0.0728	0.0674	0.0737	0.0634	0.0638	0.0666
Sulphate	16.36	16.49	25.79	17.36	8.53	11.62	18.04	21.65	21.97	16.14	16.36	15.99
Nutrients												
Ammonia-N	0.2	0.2	0.2	0.14	0.31	0.53	0.33	0.17	0.17	0.2	0.2	0.2
Nitrate-N	0.0495	0.0329	0.17	0.15	2.31	4.09	2.24	0.87	0.64	0.55	0.49	0.41
Nitrite-N	0.0028	0.003	0.0024	0.0033	0.0027	0.0024	0.0025	0.0025	0.0025	0.0022	0.0022	0.0042
Total Phosphorous	0.0208	0.0201	0.0591	0.0505	0.0403	0.14	0.0591	0.0615	0.0625	0.0193	0.019	0.0202
Orthophosphate	0.006	0.0055	0.044	0.0345	0.0272	0.0342	0.0426	0.0499	0.0553	0.0235	0.0065	0.0053
Cyanides												
Total Cyanide	0.0033	0.0033	0.0032	0.003	0.0045	0.0032	0.0032	0.0031	0.0032	0.0032	0.0033	0.0033
Cyanide, Weak Acid Dissociable	0.0021	0.0016	0.0019	0.0022	0.0019	0.0022	0.0025	0.0019	0.0017	0.0017	0.0017	0.0015
Total Metals												
Aluminum	0.0483	0.0476	0.0393	0.055	0.23	0.13	0.0939	0.0634	0.0482	0.0441	0.0464	0.0638
Antimony	0.000061	0.000062	0.00049	0.00043	0.00052	0.00038	0.00042	0.00046	0.00048	0.000077	0.000063	0.000061
Arsenic	0.00049	0.00049	0.00062	0.0014	0.00057	0.0005	0.00055	0.00058	0.00056	0.00052	0.00051	0.00051
Barium	0.0081	0.008	0.0091	0.0124	0.0071	0.0067	0.0077	0.0082	0.0084	0.0074	0.0075	0.0081
Beryllium	0.00005	0.00005	0.00005	0.000059	0.000057	0.000057	0.000053	0.000051	0.000051	0.000055	0.000053	0.000051
Boron	0.0014	0.0014	0.0023	0.0076	0.0022	0.002	0.002	0.0022	0.0022	0.0022	0.0014	0.0014
Cadmium	0.00001	0.000017	0.0000094	0.000015	0.000014	0.000013	0.0000098	0.0000095	0.00001	0.0000096	0.0000094	0.000016
Chromium	0.00018	0.00022	0.00019	0.00022	0.00031	0.00025	0.00028	0.00019	0.00021	0.00021	0.00022	0.00021
Cobalt	0.00023	0.00022	0.00023	0.00023	0.00017	0.00014	0.00014	0.00017	0.0002	0.00022	0.00023	0.00023
Copper	0.00043	0.00047	0.00044	0.00045	0.00066	0.00056	0.0005	0.0004	0.00039	0.00036	0.0004	0.00045
Iron	0.0973	0.0942	0.0852	0.11	0.26	0.16	0.13	0.14	0.12	0.13	0.14	0.15
Lead	0.000065	0.000071	0.000066	0.0004	0.00033	0.00031	0.00015	0.00011	0.00011	0.00022	0.00016	0.000078
Lithium	0.00054	0.00054	0.0028	0.002	0.0014	0.002	0.0029	0.0032	0.0029	0.0006	0.00056	0.00054
Manganese	0.064	0.0623	0.056	0.0426	0.0325	0.0299	0.0401	0.0498	0.0568	0.0602	0.0623	0.0623
Mercury	0.0000033	0.0000033	0.0000039	0.0000037	0.0000048	0.0000033	0.0000036	0.0000035	0.0000034	0.0000033	0.0000033	0.0000034
Molybdenum	0.00077	0.0008	0.0019	0.0016	0.00055	0.00059	0.00093	0.0012	0.0014	0.00075	0.00074	0.00076
Nickel	0.00025	0.00027	0.00028	0.0004	0.00046	0.00039	0.00034	0.00033	0.00027	0.00027	0.00029	0.00028
Selenium	0.00028	0.00028	0.00028	0.00022	0.00024	0.00026	0.0003	0.00029	0.00028	0.00029	0.00029	0.00029
Silver	0.000025	0.000025	0.000025	0.000027	0.000029	0.000028	0.000026	0.000025	0.000025	0.000027	0.000026	0.000025
Strontium	0.1	0.1	0.13	0.11	0.0798	0.0841	0.1	0.11	0.12	0.0948	0.0947	0.0973
Thallium	0.000025	0.000025	0.000025	0.000026	0.000026	0.000026	0.000026	0.000025	0.000025	0.000026	0.000026	0.000025
Uranium	0.0002	0.00019	0.00022	0.00022	0.00016	0.00017	0.00015	0.00014	0.00017	0.00016	0.00016	0.00017
Vanadium	0.00022	0.00022	0.00029	0.00077	0.00088	0.0007	0.00066	0.00054	0.00043	0.00055	0.00041	0.00034
Zinc	0.0067	0.0102	0.0055	0.0036	0.0034	0.0057	0.0037	0.0048	0.0043	0.0049	0.006	0.0059
Dissolved Metals												
Aluminum	0.019	0.019	0.0168	0.0231	0.0894	0.0723	0.0462	0.0306	0.029	0.0207	0.0195	0.0189
Cadmium	0.0000096	0.0000094	0.0000084	0.000015	0.000012	0.000012	0.000009	0.0000086	0.0000096	0.000009	0.0000088	0.0000095
Copper	0.00028	0.00035	0.00028	0.0004	0.0005	0.0012	0.00037	0.0003	0.00028	0.00024	0.00026	0.00029
Iron	0.0415	0.0417	0.0408	0.0709	0.0966	0.0855	0.074	0.0845	0.0769	0.0854	0.0815	0.0583
Manganese	0.16	0.16	0.15	0.0781	0.042	0.0544	0.12	0.14	0.16	0.17	0.18	0.16
Zinc	0.0054	0.0075	0.0051	0.0033	0.003	0.0054	0.0034	0.0039	0.004	0.0046	0.0048	0.0051

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ7 in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3b: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-20 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.92	0.25	0.33	0.25	1.19	0.6	0.25	0.31		0.41
Fluoride	0.046	0.0465	0.0467	0.05	0.034	0.035	0.041	0.039	0.0455	0.0465		0.045
Sulphate	3.16	3.19	3.5	1.86	1.04	1.09	6.86	2.97	2.3	2.34		3.28
Nutrients												
Ammonia-N	0.0025	0.0066	0.0025	0.0025	0.0046	0.0025	0.0025	0.0025	0.0025	0.0037		0.008
Nitrate-N	0.0413	0.0271	0.0512	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0133
Nitrite-N	0.0005	0.00095	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0248	0.0125	0.0075	0.0199	0.027	0.0075	0.0123	0.013	0.0105	0.0094		0.0112
Orthophosphate	0.0018	0.0026	0.0041	0.0034	0.0016	0.0016	0.0029	0.0061	0.0034	0.004		0.0028
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.083	0.26	1.06	0.18	0.34	0.0486	0.0572	0.0318	0.0224	0.025		0.0746
Antimony	0.00012	0.00005	0.00009	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00059	0.00065	0.0013	0.0007	0.00066	0.00053	0.00069	0.00076	0.00069	0.00063		0.00048
Barium	0.0108	0.0116	0.0177	0.0109	0.0073	0.0068	0.0091	0.0089	0.0089	0.0095		0.0097
Beryllium	0.00001	0.00001	0.000048	0.00001	0.000031	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.0000076	0.0000067	0.000012	0.0000057	0.0000082	0.000003	0.000003	0.000003	0.000003	0.0000032		0.000003
Chromium	0.00025	0.00025	0.00089	0.00025	0.00045	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Cobalt	0.00008	0.0001	0.00035	0.00012	0.00012	0.00005	0.00005	0.00005	0.00005	0.000053		0.00005
Copper	0.0004	0.00041	0.0014	0.00056	0.00084	0.0503	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.35	0.4	1.11	0.41	0.38	0.15	0.21	0.28	0.28	0.27		0.22
Lead	0.000058	0.00011	0.0006	0.000069	0.00012	0.000025	0.000025	0.000025	0.000025	0.000025		0.000052
Lithium	0.0005	0.0005	0.00062	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0354	0.0309	0.0454	0.043	0.0219	0.0108	0.0175	0.016	0.022	0.0234		0.0333
Mercury	0.000003	0.000003	0.0000054	0.000003	0.0000071	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00087	0.00087	0.00082	0.00069	0.0004	0.00053	0.00077	0.00074	0.00082	0.00084		0.00077
Nickel	0.00025	0.00025	0.00088	0.00025	0.00045	0.0045	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000071	0.00004	0.00009	0.000065	0.000065	0.000025	0.000066	0.000063	0.000025	0.000033		0.00004
Silver	0.000005	0.000005	0.000013	0.000005	0.000011	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.11	0.11	0.0933	0.0914	0.041	0.0574	0.0796	0.0866	0.0938	0.11		0.1
Thallium	0.000005	0.000005	0.000014	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00029	0.00032	0.0003	0.00027	0.00018	0.000099	0.000096	0.00011	0.00013	0.00022		0.00021
Vanadium	0.00076	0.00086	0.0021	0.00093	0.0012	0.0006	0.0007	0.00069	0.0005	0.00054		0.00042
Zinc	0.0086	0.0015	0.0048	0.0015	0.0019	0.0015	0.0015	0.0015	0.0015	0.0015		0.0015
Dissolved Metals												
Aluminum	0.0061	0.0062	0.0351	0.0139	0.0997	0.0243	0.0204	0.0139	0.009	0.0122		0.0127
Cadmium	0.0000043	0.000003	0.000003	0.000003	0.0000044	0.000003	0.000003	0.000003	0.000003	0.000003		0.0000041
Copper	0.00025	0.0001	0.00028	0.00024	0.00061	0.0004	0.00041	0.00032	0.00026	0.00019		0.00022
Iron	0.082	0.0715	0.09	0.11	0.12	0.088	0.14	0.21	0.21	0.22		0.11
Manganese	0.0204	0.0201	0.018	0.0267	0.0089	0.009	0.011	0.0126	0.0173	0.0203		0.0318
Zinc	0.0033	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00061		0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ7 in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3c: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–10 in Creek 661

Parameter	Environmental Assessment Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.5	0.61	0.57	0.46	0.6	0.38	0.59	0.44	0.47	0.52	0.7	0.69
Fluoride	0.0693	0.0748	0.075	0.075	0.0573	0.0468	0.0671	0.0288	0.061	0.0676	0.0595	0.0689
Sulphate	37.93	40.41	44.72	38.98	7.42	6.81	17.04	36.34	43.63	46.09	60.33	39.75
Nutrients												
Ammonia-N	0.54	0.57	0.64	0.55	0.095	0.14	0.25	0.54	0.63	0.66	0.88	0.54
Nitrate-N	0.0529	0.0459	0.0399	0.0308	0.0122	0.019	0.0137	0.0029	0.0085	0.0138	0.0378	0.0669
Nitrite-N	0.0036	0.005	0.0018	0.0023	0.0034	0.0016	0.0016	0.0016	0.0017	0.0017	0.0017	0.0114
Total Phosphorous	0.0439	0.0545	0.0453	0.0616	0.0391	0.0407	0.0244	0.0328	0.0458	0.0396	0.0435	0.03
Orthophosphate	0.0189	0.0202	0.0193	0.0154	0.0069	0.0031	0.0046	0.0108	0.0279	0.026	0.022	0.0169
Cyanides												
Total Cyanide	0.004	0.0041	0.0043	0.0041	0.0055	0.0035	0.0032	0.004	0.0043	0.0044	0.005	0.004
Cyanide, Weak Acid Dissociable	0.0027	0.0027	0.0027	0.0027	0.0025	0.0025	0.0026	0.0027	0.0027	0.0027	0.0028	0.0027
Total Metals												
Aluminum	0.0544	0.0913	0.0471	0.0908	0.27	0.17	0.11	0.0786	0.0737	0.0468	0.052	0.0538
Antimony	0.00012	0.00013	0.00015	0.00025	0.00019	0.00014	0.00011	0.00012	0.00014	0.00014	0.00018	0.00014
Arsenic	0.0012	0.0012	0.0012	0.0017	0.0006	0.00048	0.00068	0.00093	0.0011	0.001	0.0012	0.00085
Barium	0.0056	0.0059	0.0054	0.0082	0.0048	0.0042	0.0046	0.0053	0.0056	0.0053	0.006	0.0065
Beryllium	0.00005	0.00005	0.00005	0.00008	0.000074	0.000065	0.000058	0.000055	0.000059	0.000062	0.00006	0.000052
Boron	0.0023	0.0014	0.0023	0.0037	0.0013	0.0011	0.00076	0.003	0.0011	0.0045	0.0026	0.0023
Cadmium	0.000033	0.000022	0.00002	0.000024	0.000019	0.00001	0.000009	0.0000085	0.000013	0.0000098	0.000023	0.000027
Chromium	0.00083	0.001	0.00095	0.001	0.00065	0.0005	0.00057	0.00042	0.0012	0.00073	0.00087	0.00053
Cobalt	0.00054	0.00061	0.00066	0.00063	0.00042	0.00029	0.00029	0.00057	0.00066	0.00068	0.0009	0.00056
Copper	0.0035	0.0003	0.00017	0.00065	0.00093	0.00056	0.00049	0.00024	0.00027	0.00023	0.00038	0.00028
Iron	0.13	0.19	0.12	0.21	0.27	0.14	0.13	0.16	0.14	0.11	0.13	0.17
Lead	0.00042	0.00011	0.000082	0.0011	0.00088	0.00055	0.0003	0.0002	0.00033	0.00043	0.00044	0.00016
Lithium	0.00073	0.00051	0.0005	0.0008	0.00074	0.00065	0.00058	0.00055	0.00059	0.00062	0.0006	0.00052
Manganese	0.12	0.14	0.15	0.13	0.029	0.0239	0.0572	0.12	0.14	0.15	0.2	0.14
Mercury	0.0000033	0.0000033	0.0000033	0.0000033	0.0000051	0.000003	0.0000033	0.0000033	0.0000033	0.0000056	0.0000034	0.0000033
Molybdenum	0.0013	0.0014	0.0014	0.0013	0.00057	0.0005	0.00065	0.0011	0.0013	0.0013	0.0016	0.0013
Nickel	0.00019	0.00021	0.0002	0.0007	0.00068	0.00094	0.00032	0.00028	0.00028	0.00026	0.00032	0.00024
Selenium	0.0003	0.0003	0.0003	0.00022	0.00022	0.00021	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Silver	0.000025	0.000025	0.000025	0.000036	0.000034	0.00003	0.000028	0.000027	0.000028	0.000029	0.000029	0.000026
Strontium	0.1	0.1	0.11	0.0988	0.0395	0.0395	0.0596	0.0882	0.0955	0.0987	0.11	0.11
Thallium	0.000025	0.000025	0.000025	0.00003	0.000029	0.000027	0.000026	0.000026	0.000026	0.000027	0.000027	0.000025
Uranium	0.00028	0.0003	0.00029	0.0003	0.0002	0.00016	0.00014	0.00023	0.00026	0.00026	0.0003	0.00023
Vanadium	0.0015	0.0017	0.0015	0.0035	0.0025	0.0014	0.0015	0.0013	0.0018	0.0018	0.0016	0.00073
Zinc	0.0157	0.0122	0.0134	0.0102	0.005	0.0036	0.0051	0.0099	0.0108	0.0121	0.0169	0.0098
Dissolved Metals												
Aluminum	0.0339	0.0285	0.0278	0.0467	0.18	0.14	0.0812	0.0447	0.027	0.0303	0.0386	0.0361
Cadmium	0.00002	0.000017	0.000016	0.000021	0.000016	0.00001	0.000009	0.0000085	0.0000091	0.0000097	0.000019	0.000021
Copper	0.00021	0.0002	0.00017	0.00065	0.00087	0.00053	0.00036	0.00023	0.00027	0.00022	0.00034	0.00028
Iron	0.0685	0.0578	0.0543	0.0895	0.15	0.1	0.0915	0.0827	0.0741	0.0719	0.0785	0.1
Manganese	0.12	0.12	0.14	0.12	0.0224	0.021	0.0548	0.12	0.14	0.14	0.19	0.13
Zinc	0.0139	0.0119	0.0123	0.0102	0.0049	0.0035	0.0051	0.0099	0.0108	0.0121	0.0164	0.0095

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ5_US in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3c: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–10 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.42	0.25	0.25	0.39	0.25	0.61	0.25	0.25	0.46		0.41
Fluoride	0.0445	0.051	0.0575	0.052	0.0356	0.039	0.046	0.046	0.045	0.0467		0.0455
Sulphate	2.2	2.48	2.08	2.21	1.76	1.24	3.49	1.34	1.37	1.43		2.09
Nutrients												
Ammonia-N	0.0062	0.0037	0.0025	0.0025	0.0051	0.0025	0.0077	0.0025	0.0025	0.0025		0.0088
Nitrate-N	0.0374	0.0318	0.0352	0.0257	0.028	0.0025	0.0025	0.0098	0.0025	0.0032		0.0377
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0281	0.0235	0.0256	0.0224	0.0315	0.0223	0.0241	0.0311	0.0257	0.021		0.0208
Orthophosphate	0.0151	0.0149	0.0174	0.018	0.0057	0.0067	0.0088	0.0172	0.0119	0.0108		0.0112
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.0623	0.0445	0.0412	0.0388	0.36	0.15	0.12	0.0702	0.0469	0.0474		0.0572
Antimony	0.00005	0.00005	0.00005	0.00005	0.000076	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00089	0.00093	0.00094	0.00096	0.00086	0.00099	0.0012	0.0013	0.0013	0.0011		0.00081
Barium	0.0054	0.0048	0.0048	0.0045	0.0054	0.0049	0.0056	0.0053	0.0051	0.0049		0.0051
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000028	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.000011	0.0000094	0.000008	0.000006	0.000024	0.000018	0.000021	0.000014	0.000012	0.000011		0.000012
Chromium	0.00042	0.00038	0.00025	0.00025	0.00048	0.00025	0.00025	0.00025	0.00025	0.00028		0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.000094	0.00005	0.00005	0.00005	0.00005	0.000056		0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0008	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.16	0.12	0.11	0.087	0.31	0.22	0.2	0.25	0.28	0.22		0.14
Lead	0.000025	0.000025	0.000025	0.000025	0.00017	0.000074	0.000064	0.000025	0.000025	0.000032		0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0147	0.0092	0.0086	0.0073	0.0175	0.0144	0.017	0.0104	0.0076	0.0134		0.012
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000058	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00064	0.00065	0.00068	0.00067	0.0003	0.0004	0.00048	0.00061	0.00062	0.00064		0.00061
Nickel	0.00025	0.00025	0.00025	0.00025	0.0003	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000044	0.000025	0.000025	0.000061	0.000065	0.000025	0.000056	0.000059	0.000025	0.000033		0.000025
Silver	0.000005	0.000005	0.000005	0.000005	0.000015	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.0732	0.068	0.0707	0.0667	0.0329	0.0479	0.0592	0.0659	0.0704	0.07		0.0712
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00012	0.00012	0.00012	0.00014	0.00014	0.0001	0.000097	0.00011	0.000097	0.00011		0.000092
Vanadium	0.001	0.0009	0.00088	0.0011	0.0015	0.0012	0.0011	0.0012	0.001	0.0009		0.0008
Zinc	0.0023	0.0015	0.0015	0.0015	0.0057	0.0043	0.0043	0.0015	0.0015	0.0018		0.0015
Dissolved Metals												
Aluminum	0.0214	0.0187	0.0188	0.0237	0.14	0.0511	0.0375	0.0337	0.0319	0.0211		0.0212
Cadmium	0.0000088	0.0000086	0.0000051	0.0000062	0.000013	0.000012	0.00001	0.0000098	0.000013	0.0000087		0.0000081
Copper	0.0001	0.0001	0.0001	0.0001	0.00066	0.00041	0.00036	0.00036	0.00046	0.00019		0.00015
Iron	0.0895	0.061	0.06	0.055	0.13	0.095	0.1	0.18	0.22	0.15		0.088
Manganese	0.0101	0.0059	0.0062	0.0055	0.0075	0.0051	0.0058	0.0049	0.0051	0.006		0.0086
Zinc	0.0022	0.002	0.0017	0.0012	0.0035	0.0025	0.0024	0.0017	0.0025	0.0018		0.002

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ5_US in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3d: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–20 in Creek 661

Parameter	Environmental Assessment Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.39	0.4	0.39	0.35	0.54	0.33	0.44	0.11	0.17	0.33	0.37	0.39
Fluoride	0.0561	0.0567	0.0566	0.0588	0.0548	0.0439	0.0596	0.0231	0.0482	0.0507	0.0549	0.0566
Sulphate	9.89	10.84	10.29	6.82	3.05	2.79	3.94	4.98	6.09	7.26	8.17	9.09
Nutrients												
Ammonia-N	0.14	0.15	0.14	0.091	0.0366	0.0568	0.0676	0.0793	0.0883	0.1	0.11	0.12
Nitrate-N	0.0684	0.0688	0.0684	0.0651	0.0157	0.0169	0.0122	0.0028	0.004	0.019	0.0649	0.0689
Nitrite-N	0.0018	0.0019	0.0015	0.0017	0.0033	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015	0.0031
Total Phosphorous	0.0124	0.0136	0.0122	0.021	0.0221	0.0234	0.0156	0.0162	0.02	0.019	0.0173	0.0116
Orthophosphate	0.0147	0.0148	0.0147	0.0142	0.0053	0.0023	0.0027	0.0039	0.0184	0.0184	0.0159	0.0145
Cyanides												
Total Cyanide	0.0029	0.0029	0.0029	0.0027	0.0055	0.0035	0.0027	0.0027	0.0027	0.0028	0.0028	0.0028
Cyanide, Weak Acid Dissociable	0.0025	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0901	0.0917	0.0906	0.0919	0.3	0.19	0.13	0.0756	0.0603	0.0543	0.0869	0.0888
Antimony	0.000072	0.000075	0.000073	0.000095	0.000089	0.000068	0.000051	0.000039	0.00004	0.000045	0.000066	0.00007
Arsenic	0.00067	0.00068	0.00067	0.00089	0.00045	0.00039	0.00051	0.00053	0.00048	0.00052	0.00072	0.00064
Barium	0.0062	0.0062	0.0062	0.0065	0.0042	0.0035	0.004	0.0039	0.0047	0.0045	0.0061	0.0062
Beryllium	0.00005	0.00005	0.00005	0.000056	0.00006	0.000056	0.000053	0.000052	0.000053	0.000053	0.000053	0.00005
Boron	0.0027	0.0028	0.0028	0.0029	0.00088	0.00075	0.00057	0.0016	0.0006	0.0038	0.0027	0.0027
Cadmium	0.000053	0.000053	0.000053	0.00005	0.000016	0.0000088	0.0000081	0.0000078	0.000009	0.0000081	0.00005	0.000052
Chromium	0.00037	0.0004	0.00038	0.0005	0.0004	0.00035	0.00042	0.00023	0.00048	0.00031	0.00044	0.00034
Cobalt	0.00017	0.00019	0.00018	0.00017	0.00022	0.00012	0.000081	0.000093	0.0001	0.00012	0.00015	0.00016
Copper	0.00089	0.00047	0.00047	0.00052	0.00077	0.00043	0.00046	0.00023	0.00022	0.00016	0.00045	0.00046
Iron	0.22	0.22	0.22	0.22	0.24	0.13	0.13	0.13	0.13	0.12	0.21	0.21
Lead	0.00026	0.00023	0.00023	0.00042	0.0004	0.00023	0.00014	0.000084	0.00011	0.00013	0.00029	0.00022
Lithium	0.00053	0.0005	0.0005	0.00056	0.0006	0.00056	0.00053	0.00052	0.00053	0.00053	0.00053	0.0005
Manganese	0.0961	0.1	0.0976	0.0829	0.0175	0.0116	0.0167	0.0205	0.0223	0.0245	0.0867	0.0928
Mercury	0.0000026	0.0000026	0.0000026	0.0000027	0.0000052	0.000003	0.0000032	0.0000033	0.0000033	0.0000038	0.0000027	0.0000026
Molybdenum	0.00033	0.00033	0.00033	0.0004	0.00028	0.00023	0.00027	0.00032	0.00045	0.00038	0.00034	0.00033
Nickel	0.00027	0.00028	0.00027	0.00035	0.00042	0.00052	0.00025	0.00018	0.00015	0.00014	0.00026	0.00027
Selenium	0.0003	0.0003	0.0003	0.00029	0.00022	0.00021	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Silver	0.000025	0.000025	0.000025	0.000027	0.000029	0.000027	0.000026	0.000026	0.000026	0.000026	0.000026	0.000025
Strontium	0.0563	0.0563	0.0565	0.0571	0.028	0.0296	0.0398	0.0463	0.057	0.0564	0.0569	0.0577
Thallium	0.000025	0.000025	0.000025	0.000026	0.000027	0.000026	0.000026	0.000025	0.000025	0.000026	0.000026	0.000025
Uranium	0.000081	0.000084	0.000083	0.00011	0.00013	0.00011	0.000075	0.000073	0.000087	0.000076	0.000086	0.000078
Vanadium	0.00036	0.00038	0.00035	0.00093	0.0012	0.00066	0.00079	0.00063	0.00072	0.00069	0.00059	0.0003
Zinc	0.009	0.0092	0.009	0.0077	0.0034	0.0022	0.0022	0.003	0.0024	0.0029	0.0082	0.0085
Dissolved Metals												
Aluminum	0.0744	0.0755	0.075	0.0716	0.21	0.17	0.1	0.0596	0.0371	0.0421	0.0716	0.0731
Cadmium	0.000038	0.000039	0.000039	0.000037	0.000012	0.0000086	0.0000081	0.0000078	0.000008	0.0000081	0.000036	0.000038
Copper	0.00046	0.00047	0.00047	0.00052	0.00071	0.00041	0.00032	0.00023	0.00022	0.000098	0.00044	0.00046
Iron	0.13	0.13	0.13	0.13	0.14	0.0972	0.0985	0.0909	0.0996	0.0951	0.13	0.13
Manganese	0.0356	0.0387	0.0368	0.0255	0.0089	0.0092	0.015	0.019	0.0211	0.0237	0.03	0.0333
Zinc	0.0065	0.0067	0.0065	0.0055	0.0031	0.0021	0.0022	0.003	0.0024	0.0029	0.0059	0.0061

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ5_DS in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-3d: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–20 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.25	0.25	0.75	0.25	0.25	0.25		0.25	0.25	0.25
Fluoride	0.056	0.06	0.068	0.06	0.048	0.051	0.061	0.063		0.058	0.0578	0.06
Sulphate	2.48	2.79	2.62	2.25	2.35	1.37	1.08	1.78		1.61	2.22	2.31
Nutrients												
Ammonia-N	0.0073	0.0043	0.0025	0.0025	0.0068	0.0025	0.0025	0.0123		0.0025	0.0025	0.0093
Nitrate-N	0.0782	0.075	0.0517	0.0158	0.25	0.0025	0.0025	0.0064		0.0025	0.0244	0.0454
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0015	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Total Phosphorous	0.0285	0.025	0.0243	0.0331	0.0779	0.0271	0.0297	0.0293		0.0239	0.0224	0.0269
Orthophosphate	0.0234	0.0217	0.0227	0.0186	0.0094	0.0157	0.0141	0.0197		0.0172	0.0188	0.0166
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0227	0.0253	0.0228	0.19	0.64	0.22	0.11	0.0305		0.0163	0.024	0.0234
Antimony	0.00005	0.00005	0.00005	0.00012	0.00005	0.00005	0.00005	0.00005		0.00005	0.00005	0.00005
Arsenic	0.00092	0.00095	0.00087	0.00088	0.0016	0.0012	0.0012	0.0011		0.001	0.00093	0.00084
Barium	0.007	0.0067	0.0067	0.0071	0.0118	0.009	0.008	0.0077		0.0067	0.0069	0.0073
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000036	0.00001	0.00001	0.00001		0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.000003	0.0000067	0.00003	0.00001	0.000005	0.000003		0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00025	0.00025	0.0012	0.00064	0.00025	0.00025		0.00025	0.00025	0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.00034	0.00012	0.00005	0.00005		0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0015	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Iron	0.18	0.14	0.13	0.27	0.99	0.41	0.3	0.13		0.15	0.16	0.13
Lead	0.000025	0.000025	0.000025	0.000025	0.00028	0.00011	0.000025	0.000025		0.000025	0.000025	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Manganese	0.0071	0.0055	0.0057	0.0078	0.0821	0.0333	0.0121	0.0069		0.0071	0.0087	0.0092
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000083	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Molybdenum	0.00093	0.00099	0.00097	0.0009	0.00067	0.00093	0.00089	0.0012		0.00095	0.00096	0.00096
Nickel	0.00025	0.00025	0.00025	0.00025	0.00086	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Selenium	0.000093	0.000069	0.000073	0.000065	0.000096	0.0001	0.000064	0.000068		0.000056	0.00006	0.00006
Silver	0.000005	0.000005	0.000005	0.000005	0.000017	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Strontium	0.097	0.0947	0.0941	0.0853	0.0602	0.0936	0.0926	0.11		0.1	0.099	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Uranium	0.00035	0.00034	0.00031	0.00032	0.0003	0.00033	0.00024	0.00035		0.00027	0.00035	0.00035
Vanadium	0.00081	0.00078	0.00068	0.001	0.003	0.0016	0.0011	0.00089		0.0007	0.00065	0.00065
Zinc	0.0015	0.0015	0.0015	0.0015	0.0045	0.0015	0.0015	0.0015		0.0015	0.0015	0.0015
Dissolved Metals												
Aluminum	0.0101	0.0116	0.0081	0.0884	0.13	0.0194	0.0609	0.0147		0.0099	0.0069	0.0063
Cadmium	0.000003	0.000003	0.000003	0.000003	0.0000056	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0001	0.00033	0.00077	0.00031	0.00036	0.00023		0.0001	0.0001	0.0001
Iron	0.13	0.0875	0.086	0.16	0.21	0.11	0.21	0.12		0.11	0.1	0.083
Manganese	0.004	0.0028	0.0029	0.0042	0.0119	0.0052	0.005	0.0041		0.0043	0.0043	0.0047
Zinc	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] 95th percentile concentration predicted in environmental assessment at WQ5_DS in Construction and Operations phases (ERM 2016b).

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction.

Appendix E-4 Comparison of Mean Monthly Surface Water Quality (October 2022 to March 2024) to the 2022 Model Predictions

Appendix E-4a: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-05 in Davidson Creek

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.98	0.79	0.67	0.56	0.53	0.82	0.78	0.88	1.11	1.04	1.05	1.02
Fluoride	0.28	0.22	0.23	0.2	0.17	0.27	0.27	0.37	0.45	0.36	0.31	0.28
Sulphate	75.74	69.07	59.42	43.81	30.46	69.87	77.75	100.21	123.4	107.34	91.71	69.75
Nutrients												
Ammonia-N	0.39	0.36	0.4	0.29	0.36	0.21	0.19	0.22	0.31	0.42	0.44	0.37
Nitrate-N	1.89	1.63	1.6	1.15	1.49	1.48	1.32	1.81	1.95	2.16	2.32	2.09
Nitrite-N	0.0143	0.0132	0.013	0.0098	0.0137	0.0124	0.009	0.011	0.0157	0.0177	0.0192	0.0162
Total Phosphorous	0.0343	0.0346	0.0356	0.0383	0.0266	0.024	0.0246	0.03	0.0364	0.0338	0.0379	0.0347
Orthophosphate	0.034	0.03	0.0301	0.0321	0.0231	0.0163	0.0158	0.0157	0.0189	0.0206	0.0286	0.0277
Cyanides												
Total Cyanide	0.0031	0.003	0.0031	0.0034	0.0032	0.0033	0.0032	0.0029	0.0034	0.0034	0.0031	0.0032
Cyanide, Weak Acid Dissociable	0.0031	0.003	0.0031	0.0034	0.0032	0.0033	0.0032	0.0029	0.0034	0.0034	0.0031	0.0032
Total Metals												
Aluminum	0.0998	0.0817	0.0793	0.0716	0.18	0.33	0.33	0.23	0.19	0.19	0.14	0.12
Antimony	0.0068	0.0065	0.0065	0.0054	0.0033	0.003	0.0026	0.0042	0.0055	0.0071	0.0069	0.0059
Arsenic	0.0019	0.0017	0.0016	0.0014	0.0013	0.00091	0.0011	0.0013	0.0014	0.0015	0.0015	0.0014
Barium	0.0089	0.0088	0.0085	0.0086	0.0091	0.0096	0.0081	0.0077	0.0097	0.0094	0.0092	0.0083
Beryllium	0.000084	0.000082	0.000087	0.000078	0.000065	0.000076	0.000071	0.000068	0.000071	0.000077	0.000077	0.000092
Boron	0.0254	0.0246	0.024	0.0222	0.0164	0.0132	0.0124	0.0173	0.0199	0.0223	0.0243	0.0264
Cadmium	0.000054	0.00005	0.000048	0.000042	0.000027	0.000027	0.000028	0.000032	0.00004	0.000049	0.000051	0.000054
Chromium	0.00095	0.00085	0.00084	0.00068	0.00062	0.00046	0.00051	0.00056	0.00067	0.00067	0.00068	0.00068
Cobalt	0.00076	0.00074	0.00068	0.00058	0.00035	0.00033	0.00028	0.00044	0.00055	0.00064	0.00063	0.00062
Copper	0.00052	0.00051	0.00048	0.00045	0.00046	0.00073	0.00069	0.00054	0.00047	0.00045	0.00045	0.00053
Iron	0.11	0.11	0.1	0.0936	0.15	0.24	0.23	0.18	0.14	0.15	0.13	0.12
Lead	0.00018	0.00017	0.00018	0.00014	0.00017	0.00015	0.00013	0.00013	0.00017	0.0002	0.00021	0.00019
Lithium	0.0207	0.0177	0.0156	0.0112	0.0075	0.02	0.0247	0.0276	0.0369	0.0323	0.0264	0.0197
Manganese	0.0892	0.0744	0.0639	0.0614	0.0461	0.1	0.0999	0.11	0.19	0.14	0.13	0.11
Mercury	0.000014	0.000014	0.000015	0.000013	0.0000089	0.0000098	0.000011	0.000011	0.000012	0.000014	0.000014	0.000015
Molybdenum	0.0025	0.0027	0.0026	0.0024	0.0015	0.0013	0.0011	0.0012	0.0017	0.002	0.002	0.0022
Nickel	0.00095	0.0009	0.00091	0.00078	0.0005	0.0006	0.00053	0.00074	0.00088	0.00098	0.00089	0.00083
Selenium	0.00015	0.00016	0.00018	0.00018	0.00011	0.00012	0.000095	0.0001	0.00013	0.00015	0.00016	0.00018
Silver	0.000029	0.000024	0.000023	0.000021	0.000022	0.000029	0.000029	0.000025	0.000027	0.000026	0.000028	0.000027
Strontium	0.17	0.15	0.14	0.12	0.1	0.15	0.15	0.19	0.23	0.21	0.18	0.15
Thallium	0.000069	0.000056	0.000053	0.000041	0.000038	0.000046	0.000038	0.000038	0.000062	0.000064	0.000071	0.000067
Uranium	0.00026	0.00027	0.00031	0.0003	0.00028	0.00031	0.00024	0.00021	0.00024	0.00027	0.00026	0.00031
Vanadium	0.0062	0.0053	0.0047	0.0035	0.0023	0.0061	0.0073	0.0083	0.0109	0.0095	0.0077	0.0058
Zinc	0.0046	0.0042	0.0039	0.0036	0.0026	0.0032	0.0034	0.0033	0.0038	0.0037	0.004	0.0042
Dissolved Metals												
Aluminum	0.0395	0.0259	0.0207	0.0216	0.13	0.14	0.1	0.1	0.0531	0.0926	0.11	0.0703
Cadmium	0.000055	0.000051	0.000049	0.000043	0.000027	0.000024	0.000028	0.000032	0.000041	0.000048	0.00005	0.000053
Copper	0.00052	0.00049	0.00046	0.00041	0.00044	0.00069	0.00068	0.00053	0.00046	0.00045	0.00045	0.00053
Iron	0.0851	0.0818	0.0781	0.0706	0.085	0.14	0.14	0.11	0.1	0.11	0.0909	0.0914
Manganese	0.088	0.0736	0.0626	0.0601	0.0448	0.1	0.0939	0.11	0.19	0.14	0.13	0.11
Zinc	0.0041	0.0036	0.0032	0.003	0.0022	0.0029	0.003	0.0028	0.0034	0.0033	0.0035	0.0038

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ28 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4a: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-05 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.4	0.77	0.25	0.3	0.25	2.01	0.84	0.7	0.42	0.99	0.42
Fluoride	0.0397	0.0452	0.0442	0.05	0.0238	0.029	0.032	0.035	0.039	0.041	0.034	0.0385
Sulphate	3.58	3.57	3.37	3.48	0.97	1.35	13	4.44	3.38	3.02	3.48	3.17
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.003	0.0025	0.0025	0.0025	0.0025	0.003	0.0025	0.005
Nitrate-N	0.0493	0.052	0.0376	0.0127	0.0025	0.0025	0.0025	0.0025	0.0025	0.0028	0.0599	0.0388
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.0082	0.0094	0.009	0.008	0.0229	0.0094	0.019	0.0122	0.0084	0.0095	0.0193	0.0117
Orthophosphate	0.0064	0.0045	0.008	0.0057	0.0019	0.0021	0.0032	0.0034	0.0022	0.0037	0.004	0.0036
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0055	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.15	1.04	1.69	0.013	0.35	0.1	0.15	0.0809	0.0404	0.091	1.46	0.1
Antimony	0.00005	0.000092	0.00011	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.000075	0.00005
Arsenic	0.00065	0.0013	0.0015	0.00058	0.00064	0.00062	0.00076	0.00095	0.00074	0.00069	0.0012	0.00066
Barium	0.0101	0.0196	0.0233	0.0076	0.0063	0.0053	0.0123	0.0089	0.0083	0.0089	0.02	0.0089
Beryllium	0.00001	0.000048	0.000064	0.00001	0.000033	0.000026	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.0000039	0.000011	0.000016	0.000003	0.000011	0.000003	0.000011	0.0000081	0.000003	0.0000036	0.000013	0.0000043
Chromium	0.00034	0.0009	0.0012	0.00025	0.00034	0.00025	0.00025	0.00025	0.00025	0.00027	0.0011	0.00049
Cobalt	0.00005	0.00039	0.00052	0.00005	0.000068	0.00005	0.00011	0.00005	0.00005	0.000054	0.00036	0.00005
Copper	0.00034	0.0015	0.0019	0.00025	0.00065	0.00025	0.00061	0.00025	0.00025	0.0003	0.0012	0.00025
Iron	0.13	1.01	1.38	0.03	0.25	0.09	0.16	0.22	0.075	0.12	1	0.13
Lead	0.000067	0.00064	0.00081	0.000025	0.000082	0.000025	0.000025	0.000025	0.000025	0.00005	0.00059	0.000058
Lithium	0.0005	0.00082	0.00073	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0008	0.0005
Manganese	0.0053	0.0299	0.0391	0.002	0.0129	0.0041	0.0116	0.0066	0.0042	0.0059	0.0277	0.0062
Mercury	0.000003	0.0000053	0.0000053	0.000003	0.0000098	0.000003	0.000003	0.000003	0.000003	0.000003	0.0000078	0.000003
Molybdenum	0.00095	0.00098	0.001	0.001	0.00025	0.00046	0.00038	0.0027	0.00072	0.00088	0.00068	0.00085
Nickel	0.00025	0.00087	0.0012	0.00025	0.00032	0.00025	0.00025	0.00025	0.00025	0.00025	0.0008	0.00025
Selenium	0.00008	0.000085	0.000093	0.0001	0.000044	0.000073	0.000062	0.000067	0.000062	0.000069	0.000072	0.000063
Silver	0.000005	0.000012	0.000014	0.000005	0.000014	0.000005	0.000005	0.000005	0.000005	0.000005	0.00001	0.000005
Strontium	0.1	0.1	0.1	0.0974	0.0315	0.0474	0.078	0.0746	0.0773	0.0934	0.0819	0.0937
Thallium	0.000005	0.000015	0.000022	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000019	0.000005
Uranium	0.00039	0.00041	0.0004	0.00038	0.00018	0.00015	0.00011	0.00015	0.00016	0.00025	0.00026	0.00027
Vanadium	0.0005	0.002	0.0027	0.00025	0.00084	0.00055	0.00058	0.00071	0.00025	0.00049	0.0023	0.00044
Zinc	0.0015	0.005	0.0064	0.0015	0.0019	0.0015	0.0015	0.0015	0.0015	0.0015	0.0042	0.0015
Dissolved Metals												
Aluminum	0.0149	0.014	0.0227	0.0093	0.2	0.0806	0.0678	0.0373	0.025	0.0239	0.052	0.019
Cadmium	0.000003	0.000003	0.000003	0.000003	0.0000067	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.00021	0.00023	0.0001	0.00061	0.00042	0.00052	0.00034	0.00025	0.00017	0.00031	0.00017
Iron	0.0267	0.025	0.0273	0.02	0.12	0.07	0.079	0.13	0.051	0.0526	0.066	0.0415
Manganese	0.0027	0.0025	0.005	0.0014	0.0046	0.0021	0.0038	0.0027	0.0021	0.0035	0.0042	0.0025
Zinc	0.0005	0.0005	0.0005	0.0005	0.00094	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ28 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4b: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-10 in Davidson Creek

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.98	0.79	0.67	0.55	0.53	0.81	0.78	0.88	1.11	1.04	1.05	1.01
Fluoride	0.28	0.22	0.23	0.19	0.17	0.27	0.27	0.37	0.45	0.36	0.31	0.28
Sulphate	75.59	68.94	59.05	43.77	30.4	69.82	77.55	100.05	123.26	107.2	91.59	69.62
Nutrients												
Ammonia-N	0.39	0.36	0.39	0.29	0.36	0.21	0.19	0.2	0.31	0.42	0.44	0.37
Nitrate-N	1.88	1.63	1.6	1.15	1.48	1.48	1.32	1.8	1.94	2.16	2.31	2.09
Nitrite-N	0.0143	0.0131	0.013	0.0097	0.0136	0.0124	0.009	0.011	0.0157	0.0177	0.0192	0.0161
Total Phosphorous	0.0307	0.0309	0.032	0.0352	0.0265	0.0236	0.0236	0.0282	0.0338	0.0314	0.0349	0.0309
Orthophosphate	0.0316	0.0277	0.0285	0.0306	0.0229	0.0161	0.0154	0.0151	0.0176	0.0198	0.0271	0.0261
Cyanides												
Total Cyanide	0.0031	0.003	0.0031	0.0033	0.0032	0.0033	0.0032	0.0029	0.0034	0.0033	0.0031	0.0032
Cyanide, Weak Acid Dissociable	0.0031	0.003	0.0031	0.0033	0.0032	0.0033	0.0032	0.0029	0.0034	0.0033	0.0031	0.0032
Total Metals												
Aluminum	0.094	0.0739	0.071	0.0699	0.18	0.33	0.33	0.23	0.18	0.19	0.14	0.11
Antimony	0.0068	0.0065	0.0064	0.0054	0.0033	0.003	0.0026	0.0042	0.0055	0.007	0.0069	0.0059
Arsenic	0.0017	0.0015	0.0015	0.0014	0.0013	0.0009	0.001	0.0012	0.0013	0.0014	0.0014	0.0013
Barium	0.0089	0.0087	0.0085	0.0084	0.0091	0.0096	0.0081	0.0077	0.0096	0.0093	0.009	0.0083
Beryllium	0.000083	0.000081	0.000087	0.000078	0.000065	0.000076	0.000071	0.000068	0.000071	0.000077	0.000077	0.000092
Boron	0.0242	0.0221	0.0215	0.0212	0.0163	0.0132	0.0124	0.0163	0.0198	0.0223	0.0243	0.0236
Cadmium	0.000054	0.00005	0.000048	0.000042	0.000027	0.000027	0.000028	0.000032	0.00004	0.000049	0.00005	0.000054
Chromium	0.00086	0.00077	0.00075	0.00065	0.00062	0.00046	0.00049	0.00053	0.00062	0.00064	0.00064	0.00062
Cobalt	0.00076	0.00073	0.00068	0.00058	0.00035	0.00033	0.00028	0.00044	0.00055	0.00063	0.00063	0.00062
Copper	0.00052	0.00051	0.00048	0.00045	0.00046	0.00073	0.00069	0.00054	0.00047	0.00045	0.00045	0.00053
Iron	0.11	0.11	0.1	0.0912	0.15	0.24	0.23	0.18	0.14	0.15	0.13	0.11
Lead	0.00018	0.00017	0.00018	0.00013	0.00017	0.00015	0.00013	0.00012	0.00017	0.0002	0.00021	0.00019
Lithium	0.0206	0.0177	0.0155	0.0112	0.0075	0.02	0.0246	0.0276	0.0368	0.0323	0.0264	0.0197
Manganese	0.089	0.0743	0.0592	0.0598	0.0458	0.1	0.0989	0.11	0.19	0.14	0.13	0.0988
Mercury	0.000014	0.000014	0.000015	0.000013	0.0000089	0.0000098	0.000011	0.000011	0.000012	0.000014	0.000014	0.000015
Molybdenum	0.0024	0.0027	0.0026	0.0024	0.0015	0.0013	0.0011	0.0012	0.0017	0.002	0.002	0.0022
Nickel	0.00095	0.0009	0.00091	0.00078	0.0005	0.0006	0.00053	0.00074	0.00087	0.00098	0.00089	0.00083
Selenium	0.00015	0.00016	0.00018	0.00018	0.00011	0.00012	0.000095	0.0001	0.00013	0.00015	0.00016	0.00018
Silver	0.000029	0.000024	0.000023	0.00002	0.000022	0.000029	0.000028	0.000025	0.000027	0.000026	0.000028	0.000027
Strontium	0.17	0.15	0.14	0.12	0.1	0.15	0.15	0.19	0.23	0.21	0.18	0.15
Thallium	0.000069	0.000056	0.000053	0.000039	0.000038	0.000046	0.000038	0.000037	0.000062	0.000064	0.000071	0.000067
Uranium	0.00026	0.00027	0.00031	0.0003	0.00028	0.00031	0.00024	0.00021	0.00024	0.00027	0.00026	0.00031
Vanadium	0.0062	0.0053	0.0047	0.0035	0.0023	0.0061	0.0073	0.0083	0.0109	0.0094	0.0077	0.0058
Zinc	0.0045	0.0042	0.0038	0.0036	0.0026	0.0032	0.0034	0.0033	0.0038	0.0037	0.004	0.0042
Dissolved Metals												
Aluminum	0.0372	0.0244	0.0182	0.0216	0.13	0.14	0.0994	0.0985	0.0531	0.0877	0.11	0.0644
Cadmium	0.000054	0.000051	0.000048	0.000043	0.000027	0.000024	0.000028	0.000032	0.000041	0.000048	0.00005	0.000053
Copper	0.00052	0.00049	0.00046	0.00041	0.00044	0.00069	0.00068	0.00053	0.00046	0.00045	0.00045	0.00053
Iron	0.085	0.0817	0.0777	0.0695	0.0852	0.14	0.14	0.11	0.1	0.1	0.0888	0.0911
Manganese	0.0879	0.0734	0.0578	0.0586	0.0445	0.1	0.0932	0.11	0.19	0.14	0.13	0.0981
Zinc	0.0041	0.0036	0.0031	0.003	0.0022	0.0029	0.0029	0.0028	0.0034	0.0033	0.0035	0.0038

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ27 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4b: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-10 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.41	0.25	0.52	0.25	1.96	0.85	0.56	0.43	0.61	0.42
Fluoride	0.0375	0.0437	0.0435	0.05	0.026	0.031	0.033	0.036	0.039	0.041	0.0402	0.0385
Sulphate	3.42	3.65	3.4	3.55	1.34	1.39	12.7	4.51	2.73	2.92	3.41	3.24
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0189	0.0025	0.0025	0.0025	0.005	0.0025	0.0025
Nitrate-N	0.0454	0.0599	0.0394	0.0183	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0412	0.0378
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.0075	0.0088	0.0087	0.0076	0.0466	0.0087	0.0188	0.009	0.0063	0.0092	0.0109	0.0094
Orthophosphate	0.006	0.0061	0.0075	0.0039	0.0041	0.0018	0.0032	0.0034	0.0035	0.0027	0.0049	0.0051
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0653	0.0567	0.75	0.0148	0.66	0.0996	0.15	0.0755	0.0283	0.0751	0.26	0.0867
Antimony	0.00005	0.00005	0.000075	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Arsenic	0.00053	0.00055	0.001	0.00056	0.00085	0.00058	0.00076	0.00089	0.00066	0.00066	0.00064	0.00062
Barium	0.0087	0.0094	0.0154	0.008	0.0106	0.0057	0.0117	0.0088	0.0086	0.0092	0.0093	0.0091
Beryllium	0.00001	0.00001	0.000039	0.00001	0.000048	0.00001	0.00001	0.00001	0.00001	0.00001	0.000016	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000075	0.000003	0.000022	0.0000064	0.0000093	0.0000071	0.000003	0.000003	0.0000051	0.000003
Chromium	0.00025	0.00025	0.00068	0.00025	0.00064	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00046
Cobalt	0.00005	0.00005	0.00024	0.00005	0.00014	0.00005	0.00012	0.00005	0.00005	0.00005	0.000085	0.00005
Copper	0.00025	0.00025	0.001	0.00025	0.0011	0.00054	0.00061	0.00025	0.00025	0.00025	0.00041	0.00025
Iron	0.0595	0.048	0.67	0.021	0.55	0.087	0.15	0.18	0.067	0.11	0.2	0.1
Lead	0.000025	0.000025	0.00039	0.000025	0.00023	0.000025	0.00005	0.000025	0.000025	0.000044	0.00011	0.000049
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Manganese	0.0033	0.0023	0.0178	0.0019	0.0294	0.0043	0.0116	0.0055	0.0037	0.005	0.0064	0.0044
Mercury	0.000003	0.000003	0.000004	0.000003	0.000016	0.000003	0.000003	0.000003	0.000003	0.000003	0.0000046	0.000003
Molybdenum	0.0012	0.00097	0.00094	0.001	0.00022	0.00048	0.0004	0.002	0.00079	0.00089	0.00075	0.00086
Nickel	0.00025	0.00025	0.00065	0.00025	0.00062	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Selenium	0.000045	0.000071	0.00007	0.000069	0.000075	0.000062	0.000065	0.000061	0.00007	0.000043	0.000041	0.00007
Silver	0.000005	0.000005	0.0000085	0.000005	0.00003	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Strontium	0.0973	0.1	0.0965	0.0988	0.0377	0.0478	0.0782	0.077	0.086	0.0929	0.0812	0.0968
Thallium	0.000005	0.000005	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Uranium	0.00033	0.0004	0.00037	0.0004	0.00021	0.00014	0.00011	0.00013	0.00018	0.00023	0.00022	0.00027
Vanadium	0.00025	0.00032	0.0014	0.00025	0.0012	0.0006	0.00063	0.00063	0.00025	0.00047	0.00058	0.00041
Zinc	0.0015	0.0015	0.0033	0.0015	0.0034	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Dissolved Metals												
Aluminum	0.014	0.0241	0.019	0.0088	0.33	0.0673	0.058	0.0338	0.0168	0.0234	0.0291	0.018
Cadmium	0.000003	0.000003	0.000003	0.000003	0.000017	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0002	0.0001	0.00086	0.00039	0.0005	0.00033	0.0002	0.00018	0.00023	0.00016
Iron	0.0215	0.0222	0.026	0.013	0.24	0.062	0.071	0.1	0.04	0.0568	0.0435	0.0348
Manganese	0.0025	0.0015	0.0016	0.0014	0.0093	0.0017	0.0034	0.0026	0.0023	0.0029	0.0026	0.002
Zinc	0.0005	0.0005	0.0005	0.0005	0.0018	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ27 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4c: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-15 in Davidson Creek

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.78	0.65	0.56	0.49	0.52	0.77	0.69	0.76	0.9	0.88	0.9	0.8
Fluoride	0.22	0.18	0.19	0.17	0.16	0.25	0.24	0.3	0.35	0.31	0.26	0.22
Sulphate	58.37	54.22	44.31	35.67	28.38	65.44	65.35	80.97	97.82	86.81	72.45	50.58
Nutrients												
Ammonia-N	0.28	0.28	0.3	0.25	0.33	0.2	0.16	0.17	0.26	0.35	0.36	0.29
Nitrate-N	1.38	1.27	1.23	1.01	1.41	1.34	1.12	1.42	1.56	1.86	1.97	1.56
Nitrite-N	0.0107	0.0103	0.01	0.0083	0.0129	0.0112	0.0078	0.0088	0.0125	0.0148	0.0164	0.0119
Total Phosphorous	0.0251	0.0261	0.0271	0.0301	0.0261	0.0229	0.0215	0.0248	0.03	0.0291	0.0291	0.0257
Orthophosphate	0.0278	0.0241	0.0265	0.0281	0.0221	0.0156	0.0143	0.014	0.016	0.0182	0.0246	0.0241
Cyanides												
Total Cyanide	0.0029	0.0029	0.0029	0.0031	0.0031	0.0032	0.0031	0.0028	0.0032	0.0032	0.003	0.0029
Cyanide, Weak Acid Dissociable	0.0029	0.0029	0.0028	0.0031	0.0031	0.0032	0.0031	0.0028	0.0032	0.0032	0.003	0.0029
Total Metals												
Aluminum	0.0773	0.0622	0.0597	0.065	0.19	0.31	0.28	0.19	0.15	0.17	0.13	0.0922
Antimony	0.005	0.0049	0.0046	0.0043	0.003	0.0028	0.0022	0.0035	0.0045	0.0058	0.0059	0.0045
Arsenic	0.0015	0.0013	0.0013	0.0013	0.0012	0.00089	0.001	0.0011	0.0012	0.0013	0.0012	0.0012
Barium	0.0086	0.0085	0.0083	0.0083	0.0088	0.0094	0.008	0.0077	0.0093	0.0091	0.0085	0.0077
Beryllium	0.000077	0.000075	0.000079	0.000075	0.000065	0.000075	0.000069	0.000066	0.000068	0.000073	0.000073	0.00008
Boron	0.0192	0.019	0.0185	0.0189	0.0157	0.0127	0.0114	0.0143	0.0174	0.0196	0.0205	0.0195
Cadmium	0.00004	0.000039	0.000036	0.000035	0.000026	0.000025	0.000025	0.000028	0.000034	0.000042	0.000044	0.000038
Chromium	0.00072	0.00064	0.00062	0.00059	0.0006	0.00045	0.00044	0.00047	0.00054	0.00059	0.00057	0.00053
Cobalt	0.00057	0.00055	0.00053	0.00048	0.00033	0.00031	0.00025	0.00037	0.00045	0.0005	0.00053	0.00048
Copper	0.00045	0.00044	0.00042	0.00041	0.00049	0.00071	0.00063	0.00049	0.00043	0.00048	0.00043	0.00044
Iron	0.0921	0.0888	0.0798	0.0863	0.15	0.23	0.2	0.16	0.12	0.15	0.12	0.1
Lead	0.00015	0.00014	0.00014	0.00012	0.00016	0.00014	0.00011	0.00011	0.00014	0.00017	0.00018	0.00015
Lithium	0.0155	0.0133	0.0112	0.0094	0.007	0.019	0.0207	0.0224	0.0293	0.0252	0.0208	0.0145
Manganese	0.0659	0.0582	0.0484	0.0518	0.0446	0.0992	0.0837	0.0922	0.15	0.12	0.11	0.0809
Mercury	0.000011	0.000011	0.000011	0.000011	0.000009	0.0000094	0.0000094	0.0000095	0.00001	0.000012	0.000012	0.000011
Molybdenum	0.002	0.0022	0.0021	0.002	0.0015	0.0012	0.001	0.0011	0.0015	0.0018	0.0018	0.0017
Nickel	0.00077	0.00075	0.00074	0.0007	0.00049	0.00059	0.00051	0.00065	0.00077	0.00083	0.00079	0.00069
Selenium	0.00013	0.00014	0.00015	0.00016	0.00011	0.00011	0.000092	0.000096	0.00011	0.00013	0.00014	0.00014
Silver	0.000022	0.000019	0.000019	0.000017	0.000021	0.000027	0.000025	0.000022	0.000023	0.000023	0.000024	0.000022
Strontium	0.14	0.13	0.13	0.12	0.0949	0.15	0.14	0.16	0.2	0.18	0.15	0.12
Thallium	0.000052	0.000042	0.000042	0.000036	0.000037	0.000044	0.000033	0.000033	0.000051	0.000055	0.000058	0.000052
Uranium	0.00023	0.00025	0.00029	0.00028	0.00027	0.00029	0.00022	0.0002	0.00022	0.00024	0.00023	0.00025
Vanadium	0.0046	0.004	0.0035	0.003	0.0022	0.0058	0.0062	0.0068	0.0087	0.0073	0.0062	0.0046
Zinc	0.0037	0.0038	0.0032	0.0031	0.0026	0.0031	0.0031	0.003	0.0033	0.0034	0.0037	0.0035
Dissolved Metals												
Aluminum	0.0262	0.0139	0.0106	0.0212	0.13	0.13	0.077	0.068	0.0349	0.0727	0.0775	0.0474
Cadmium	0.000041	0.00004	0.000036	0.000035	0.000026	0.000022	0.000024	0.000027	0.000034	0.000041	0.000044	0.000038
Copper	0.00045	0.00042	0.0004	0.00039	0.00045	0.00066	0.00062	0.00048	0.00043	0.00041	0.00043	0.00044
Iron	0.0699	0.0666	0.0599	0.0653	0.0858	0.13	0.12	0.097	0.0912	0.1	0.0828	0.0779
Manganese	0.0647	0.0573	0.0471	0.0506	0.0429	0.0954	0.0792	0.089	0.15	0.12	0.1	0.0799
Zinc	0.0032	0.0032	0.0026	0.0027	0.0022	0.0028	0.0027	0.0025	0.003	0.003	0.003	0.0031

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ26 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4c: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-15 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.25	0.25	0.54	0.25	1.51	0.78	0.25	0.42	0.53	0.38
Fluoride	0.045	0.047	0.0495	0.045	0.029	0.035	0.036	0.04	0.044	0.0455	0.0455	0.041
Sulphate	3.09	3.24	3.34	2.34	1.42	1.45	9.27	4.06	2.58	2.76	3.17	3.07
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0088	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate-N	0.036	0.046	0.0415	0.0114	0.0052	0.0025	0.0025	0.0025	0.0025	0.0041	0.0281	0.0339
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Total Phosphorous	0.008	0.008	0.0088	0.0096	0.0519	0.0085	0.0253	0.01	0.006	0.0064	0.0086	0.0075
Orthophosphate	0.0054	0.0054	0.0057	0.0036	0.0036	0.002	0.0025	0.0028	0.0027	0.0022	0.0039	0.0042
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0738	0.0174	0.39	0.0178	0.64	0.0621	0.22	0.0356	0.0175	0.0216	0.0998	0.0403
Antimony	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Arsenic	0.00058	0.00056	0.00081	0.00049	0.0009	0.00059	0.00082	0.00078	0.00062	0.00064	0.0006	0.00058
Barium	0.0086	0.0094	0.0123	0.0088	0.0109	0.0062	0.011	0.0083	0.0087	0.0093	0.0088	0.0093
Beryllium	0.00001	0.00001	0.000022	0.00001	0.000049	0.00001	0.000016	0.00001	0.00001	0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000049	0.000003	0.000022	0.000003	0.000016	0.000003	0.000003	0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00044	0.00025	0.00074	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00048
Cobalt	0.00005	0.00005	0.00012	0.00005	0.00017	0.00005	0.00014	0.00005	0.00005	0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00058	0.00025	0.0012	0.00025	0.00081	0.00025	0.00025	0.00025	0.00025	0.00025
Iron	0.0665	0.0253	0.34	0.046	0.6	0.064	0.26	0.092	0.042	0.0485	0.11	0.0555
Lead	0.000025	0.000025	0.00019	0.000025	0.00027	0.000025	0.00012	0.000025	0.000025	0.000025	0.000068	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Manganese	0.0047	0.0034	0.0096	0.0058	0.0374	0.0043	0.0343	0.0052	0.0042	0.0052	0.0066	0.0056
Mercury	0.000003	0.000003	0.000003	0.000003	0.000013	0.000003	0.0000041	0.000003	0.000003	0.000003	0.000003	0.000003
Molybdenum	0.00089	0.00091	0.00091	0.0008	0.00029	0.00081	0.00059	0.00073	0.0008	0.00091	0.00077	0.00084
Nickel	0.00025	0.00025	0.00039	0.00025	0.00066	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Selenium	0.000054	0.00004	0.000068	0.000025	0.000081	0.000055	0.000065	0.000067	0.000025	0.000025	0.000025	0.000059
Silver	0.000005	0.000005	0.000005	0.000005	0.000027	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Strontium	0.1	0.11	0.1	0.0967	0.0423	0.0562	0.0743	0.084	0.0935	0.1	0.0899	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Uranium	0.00026	0.00031	0.0003	0.00026	0.00025	0.00011	0.00013	0.0001	0.00015	0.00021	0.00019	0.00022
Vanadium	0.0004	0.00025	0.00092	0.00052	0.0014	0.00056	0.00092	0.0006	0.00025	0.00039	0.00044	0.00053
Zinc	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Dissolved Metals												
Aluminum	0.0124	0.0076	0.0128	0.0082	0.29	0.0395	0.0423	0.0216	0.011	0.0111	0.0236	0.0103
Cadmium	0.000003	0.000003	0.000003	0.000003	0.00001	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.00016	0.0001	0.00087	0.00037	0.00044	0.00028	0.0002	0.00017	0.00019	0.0001
Iron	0.02	0.0105	0.022	0.029	0.23	0.047	0.0585	0.062	0.026	0.032	0.0365	0.021
Manganese	0.0035	0.0024	0.0021	0.0039	0.0076	0.002	0.0049	0.0025	0.0024	0.0036	0.0037	0.003
Zinc	0.0005	0.0005	0.0005	0.0005	0.0018	0.0005	0.0014	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ26 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4d: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-20 in Davidson Creek

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.68	0.56	0.49	0.45	0.47	0.74	0.63	0.69	0.78	0.81	0.79	0.66
Fluoride	0.19	0.15	0.16	0.14	0.14	0.24	0.21	0.25	0.29	0.27	0.23	0.18
Sulphate	47.6	44.99	35.09	29.79	26.2	61.4	55.46	68.69	79.63	73.67	60.93	40.78
Nutrients												
Ammonia-N	0.23	0.23	0.24	0.21	0.28	0.19	0.14	0.14	0.22	0.3	0.31	0.24
Nitrate-N	1.09	1.05	1	0.79	1.2	1.2	0.96	1.17	1.3	1.66	1.71	1.25
Nitrite-N	0.0089	0.0087	0.0082	0.007	0.0111	0.0101	0.0069	0.0073	0.0107	0.0128	0.0143	0.0098
Total Phosphorous	0.022	0.0231	0.0238	0.0261	0.026	0.0224	0.0202	0.0227	0.0272	0.0271	0.0261	0.0228
Orthophosphate	0.0248	0.0207	0.025	0.0247	0.0211	0.0151	0.0134	0.0136	0.0146	0.0171	0.0219	0.0205
Cyanides												
Total Cyanide	0.0028	0.0028	0.0028	0.003	0.003	0.0032	0.003	0.0028	0.0031	0.0032	0.0029	0.0028
Cyanide, Weak Acid Dissociable	0.0028	0.0028	0.0028	0.003	0.003	0.0032	0.003	0.0028	0.0031	0.0032	0.0029	0.0028
Total Metals												
Aluminum	0.0679	0.0563	0.0528	0.0593	0.21	0.3	0.25	0.16	0.13	0.15	0.12	0.0817
Antimony	0.0039	0.0039	0.0034	0.0035	0.0027	0.0027	0.0019	0.0029	0.0038	0.0048	0.0051	0.0037
Arsenic	0.0013	0.0012	0.0011	0.0011	0.0012	0.00087	0.00094	0.0011	0.0011	0.0013	0.0011	0.001
Barium	0.0084	0.0085	0.0083	0.0084	0.0089	0.0092	0.0079	0.0078	0.0091	0.0089	0.0083	0.0078
Beryllium	0.000071	0.00007	0.000068	0.000066	0.000063	0.000074	0.000066	0.000063	0.000065	0.000069	0.00007	0.000072
Boron	0.0168	0.0167	0.0162	0.0159	0.0145	0.0121	0.0105	0.013	0.0155	0.0178	0.0181	0.0165
Cadmium	0.000032	0.000034	0.000028	0.000029	0.000025	0.000023	0.000022	0.000024	0.000029	0.000037	0.000039	0.000032
Chromium	0.00064	0.00056	0.00053	0.00055	0.0006	0.00044	0.00041	0.00043	0.00048	0.00056	0.00052	0.00048
Cobalt	0.00046	0.00043	0.00042	0.00038	0.00031	0.0003	0.00022	0.00032	0.00039	0.00043	0.00047	0.0004
Copper	0.0004	0.00039	0.00037	0.00037	0.00056	0.00071	0.00061	0.00046	0.0004	0.00044	0.00041	0.00039
Iron	0.0967	0.096	0.0883	0.12	0.19	0.22	0.19	0.16	0.13	0.15	0.13	0.11
Lead	0.00013	0.00012	0.00012	0.00011	0.00016	0.00013	0.0001	0.000094	0.00013	0.00015	0.00016	0.00013
Lithium	0.0126	0.0104	0.0086	0.0076	0.0066	0.018	0.0175	0.0193	0.0239	0.0216	0.0174	0.0116
Manganese	0.0554	0.05	0.0434	0.0446	0.0439	0.0947	0.0744	0.0812	0.13	0.1	0.0905	0.0709
Mercury	0.0000089	0.0000097	0.000009	0.000009	0.000009	0.000009	0.0000086	0.0000084	0.0000089	0.00001	0.000011	0.0000089
Molybdenum	0.0017	0.0018	0.0018	0.0017	0.0013	0.0011	0.00093	0.001	0.0014	0.0016	0.0016	0.0015
Nickel	0.00065	0.00066	0.0006	0.00057	0.00051	0.00057	0.00048	0.00058	0.00069	0.00071	0.00072	0.0006
Selenium	0.00011	0.00012	0.00012	0.00013	0.0001	0.00011	0.00009	0.00009	0.000098	0.00012	0.00013	0.00012
Silver	0.000019	0.000016	0.000016	0.000017	0.00002	0.000026	0.000022	0.000019	0.00002	0.000021	0.00002	0.00002
Strontium	0.13	0.12	0.12	0.11	0.0899	0.14	0.13	0.15	0.18	0.16	0.14	0.11
Thallium	0.000042	0.000034	0.000035	0.000032	0.000033	0.000042	0.000029	0.000028	0.000043	0.000048	0.000049	0.000044
Uranium	0.00022	0.00024	0.00028	0.00026	0.00026	0.00028	0.00021	0.00018	0.0002	0.00021	0.00021	0.00022
Vanadium	0.0038	0.0031	0.0027	0.0024	0.0021	0.0056	0.0053	0.0059	0.0072	0.0063	0.0052	0.0037
Zinc	0.0032	0.0032	0.0028	0.0028	0.0025	0.003	0.0029	0.0027	0.003	0.0032	0.0034	0.0032
Dissolved Metals												
Aluminum	0.0167	0.0124	0.0088	0.0207	0.13	0.12	0.073	0.0628	0.0233	0.0536	0.0709	0.038
Cadmium	0.000032	0.000031	0.000028	0.000029	0.000024	0.000021	0.000022	0.000023	0.00003	0.000036	0.000038	0.000032
Copper	0.0004	0.00038	0.00036	0.00034	0.00047	0.00065	0.0006	0.00045	0.0004	0.00039	0.00041	0.00039
Iron	0.0705	0.0677	0.0601	0.0753	0.088	0.13	0.12	0.0987	0.0949	0.1	0.0857	0.0777
Manganese	0.0543	0.0491	0.0415	0.0432	0.0414	0.0908	0.0699	0.0781	0.12	0.1	0.0886	0.0695
Zinc	0.0029	0.0028	0.0023	0.0023	0.0021	0.0027	0.0025	0.0022	0.0026	0.0027	0.0027	0.0027

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ7 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4d: Comparison of Mean Monthly Water Quality and Predicted Water Quality for DC-20 in Davidson Creek

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.92	0.25	0.33	0.25	1.19	0.6	0.25	0.31		0.41
Fluoride	0.046	0.0465	0.0467	0.05	0.034	0.035	0.041	0.039	0.0455	0.0465		0.045
Sulphate	3.16	3.19	3.5	1.86	1.04	1.09	6.86	2.97	2.3	2.34		3.28
Nutrients												
Ammonia-N	0.0025	0.0066	0.0025	0.0025	0.0046	0.0025	0.0025	0.0025	0.0025	0.0037		0.008
Nitrate-N	0.0413	0.0271	0.0512	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0133
Nitrite-N	0.0005	0.00095	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0248	0.0125	0.0075	0.0199	0.027	0.0075	0.0123	0.013	0.0105	0.0094		0.0112
Orthophosphate	0.0018	0.0026	0.0041	0.0034	0.0016	0.0016	0.0029	0.0061	0.0034	0.004		0.0028
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.083	0.26	1.06	0.18	0.34	0.0486	0.0572	0.0318	0.0224	0.025		0.0746
Antimony	0.00012	0.00005	0.00009	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00059	0.00065	0.0013	0.0007	0.00066	0.00053	0.00069	0.00076	0.00069	0.00063		0.00048
Barium	0.0108	0.0116	0.0177	0.0109	0.0073	0.0068	0.0091	0.0089	0.0089	0.0095		0.0097
Beryllium	0.00001	0.00001	0.000048	0.00001	0.000031	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.0000076	0.0000067	0.000012	0.0000057	0.0000082	0.000003	0.000003	0.000003	0.000003	0.0000032		0.000003
Chromium	0.00025	0.00025	0.00089	0.00025	0.00045	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Cobalt	0.00008	0.0001	0.00035	0.00012	0.00012	0.00005	0.00005	0.00005	0.00005	0.000053		0.00005
Copper	0.0004	0.00041	0.0014	0.00056	0.00084	0.0503	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.35	0.4	1.11	0.41	0.38	0.15	0.21	0.28	0.28	0.27		0.22
Lead	0.000058	0.00011	0.0006	0.000069	0.00012	0.000025	0.000025	0.000025	0.000025	0.000025		0.000052
Lithium	0.0005	0.0005	0.00062	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0354	0.0309	0.0454	0.043	0.0219	0.0108	0.0175	0.016	0.022	0.0234		0.0333
Mercury	0.000003	0.000003	0.0000054	0.000003	0.0000071	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00087	0.00087	0.00082	0.00069	0.0004	0.00053	0.00077	0.00074	0.00082	0.00084		0.00077
Nickel	0.00025	0.00025	0.00088	0.00025	0.00045	0.0045	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000071	0.00004	0.00009	0.000065	0.000065	0.000025	0.000066	0.000063	0.000025	0.000033		0.00004
Silver	0.000005	0.000005	0.000013	0.000005	0.000011	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.11	0.11	0.0933	0.0914	0.041	0.0574	0.0796	0.0866	0.0938	0.11		0.1
Thallium	0.000005	0.000005	0.000014	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00029	0.00032	0.0003	0.00027	0.00018	0.000099	0.000096	0.00011	0.00013	0.00022		0.00021
Vanadium	0.00076	0.00086	0.0021	0.00093	0.0012	0.0006	0.0007	0.00069	0.0005	0.00054		0.00042
Zinc	0.0086	0.0015	0.0048	0.0015	0.0019	0.0015	0.0015	0.0015	0.0015	0.0015		0.0015
Dissolved Metals												
Aluminum	0.0061	0.0062	0.0351	0.0139	0.0997	0.0243	0.0204	0.0139	0.009	0.0122		0.0127
Cadmium	0.0000043	0.000003	0.000003	0.000003	0.0000044	0.000003	0.000003	0.000003	0.000003	0.000003		0.0000041
Copper	0.00025	0.0001	0.00028	0.00024	0.00061	0.0004	0.00041	0.00032	0.00026	0.00019		0.00022
Iron	0.082	0.0715	0.09	0.11	0.12	0.088	0.14	0.21	0.21	0.22		0.11
Manganese	0.0204	0.0201	0.018	0.0267	0.0089	0.009	0.011	0.0126	0.0173	0.0203		0.0318
Zinc	0.0033	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00061		0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ7 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4e: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–05 in Creek 661

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.42	0.27	0.32	0.37	0.29	0.27	0.33	0.28	0.22	0.27	0.28	0.32
Fluoride	0.0704	0.0614	0.0612	0.063	0.055	0.0656	0.0592	0.0482	0.0526	0.053	0.0544	0.076
Sulphate	3.38	3.35	3.05	3.01	3.9	3	2.13	2.41	2.34	3.04	3.45	4.7
Nutrients												
Ammonia-N	0.0108	0.0086	0.0097	0.011	0.0076	0.0115	0.0111	0.0065	0.0109	0.011	0.0086	0.0109
Nitrate-N	0.17	0.0898	0.18	0.28	0.11	0.13	0.0828	0.0726	0.0681	0.0743	0.0832	0.0778
Nitrite-N	0.0021	0.0011	0.0024	0.0039	0.0016	0.0026	0.0023	0.0013	0.0022	0.0022	0.002	0.0021
Total Phosphorous	0.0188	0.0198	0.0228	0.0229	0.0258	0.0148	0.005	0.0218	0.0218	0.0099	0.0188	0.0188
Orthophosphate	0.006	0.004	0.0079	0.0119	0.0094	0.0036	0.005	0.004	0.002	0.0035	0.0027	0.0027
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0566	0.0418	0.0881	0.13	0.26	0.2	0.0827	0.0656	0.0556	0.0734	0.0761	0.0704
Antimony	0.00035	0.00034	0.00034	0.00039	0.00061	0.00061	0.00042	0.00042	0.00037	0.00039	0.00044	0.00034
Arsenic	0.00066	0.0012	0.0012	0.0013	0.0012	0.0011	0.00088	0.0012	0.00082	0.00084	0.001	0.00069
Barium	0.0072	0.0048	0.0063	0.0078	0.0047	0.0036	0.0042	0.0046	0.0052	0.0041	0.0044	0.0055
Beryllium	0.000065	0.000065	0.000065	0.000069	0.000078	0.000079	0.00007	0.000069	0.000068	0.000068	0.00007	0.000066
Boron	0.0021	0.0065	0.0054	0.0047	0.0078	0.0036	0.0026	0.0069	0.0024	0.0068	0.0051	0.0029
Cadmium	0.00011	0.000014	0.000014	0.000015	0.000031	0.000021	0.000017	0.000018	0.000016	0.000016	0.000023	0.000026
Chromium	0.00015	0.0003	0.00029	0.00027	0.00047	0.00015	0.00019	0.00032	0.00023	0.00015	0.00034	0.00015
Cobalt	0.00011	0.000096	0.000095	0.0001	0.00014	0.00013	0.000088	0.00011	0.000085	0.000087	0.0001	0.00009
Copper	0.00054	0.00029	0.00046	0.00064	0.00069	0.00033	0.0005	0.00037	0.00035	0.00025	0.00041	0.00044
Iron	0.37	0.17	0.17	0.17	0.22	0.11	0.1	0.19	0.21	0.12	0.17	0.19
Lead	0.00035	0.000034	0.00015	0.00027	0.000096	0.000042	0.000037	0.000036	0.000035	0.000036	0.000037	0.000076
Lithium	0.0011	0.0011	0.0011	0.0012	0.0015	0.0016	0.0013	0.0012	0.0012	0.0012	0.0013	0.0011
Manganese	0.0274	0.0201	0.0195	0.02	0.0251	0.0178	0.0143	0.0187	0.0132	0.0134	0.0206	0.022
Mercury	0.0000037	0.0000037	0.0000037	0.000004	0.0000088	0.0000049	0.0000041	0.000004	0.0000039	0.000004	0.0000063	0.0000045
Molybdenum	0.00037	0.0008	0.00056	0.00035	0.00052	0.00045	0.00039	0.0006	0.00052	0.00039	0.00043	0.00039
Nickel	0.00029	0.00032	0.00036	0.00041	0.00039	0.00034	0.00031	0.00034	0.00025	0.00019	0.00035	0.00028
Selenium	0.00031	0.000041	0.000054	0.00007	0.000085	0.00032	0.00019	0.000074	0.00011	0.00031	0.00021	0.00019
Silver	0.000026	0.0000066	0.000017	0.000027	0.000022	0.000027	0.000027	0.0000071	0.000027	0.000027	0.000021	0.000026
Strontium	0.0725	0.0673	0.0576	0.0487	0.0321	0.0313	0.0405	0.0472	0.0591	0.0453	0.0494	0.0609
Thallium	0.00003	0.000011	0.000021	0.000032	0.000016	0.000035	0.000032	0.000012	0.000031	0.000031	0.000022	0.000031
Uranium	0.000067	0.000096	0.000087	0.00008	0.00014	0.00012	0.000079	0.0001	0.000077	0.00007	0.000084	0.000056
Vanadium	0.00037	0.00098	0.00062	0.00029	0.0012	0.00056	0.0007	0.00094	0.0005	0.00041	0.00065	0.00059
Zinc	0.028	0.0018	0.0024	0.003	0.005	0.002	0.0019	0.0036	0.002	0.0029	0.0021	0.0012
Dissolved Metals												
Aluminum	0.0467	0.0317	0.0749	0.12	0.17	0.19	0.0753	0.0539	0.0427	0.0575	0.0618	0.22
Cadmium	0.000063	0.0000093	0.000012	0.000015	0.000024	0.000021	0.000017	0.000017	0.000016	0.000016	0.000019	0.000015
Copper	0.00054	0.00029	0.00046	0.00064	0.00064	0.00033	0.00038	0.0003	0.00035	0.0001	0.00028	0.00044
Iron	0.18	0.13	0.14	0.16	0.13	0.0914	0.1	0.15	0.11	0.1	0.12	0.11
Manganese	0.0248	0.0164	0.0166	0.018	0.0179	0.0158	0.0129	0.0146	0.0127	0.0125	0.0145	0.0154
Zinc	0.0127	0.0039	0.0034	0.003	0.0039	0.002	0.0019	0.0024	0.002	0.0019	0.0024	0.00061

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ3 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4e: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–05 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1.44	0.25	0.25
Fluoride	0.0565	0.0585	0.061	0.051	0.039	0.046	0.053	0.054	0.059	0.062	0.0567	0.06
Sulphate	1.33	1.32	1.35	2.15	0.85	0.86	0.68	0.9	1.07	1.92	1.16	1.22
Nutrients												
Ammonia-N	0.0025	0.0025	0.0025	0.0025	0.0025	0.0074	0.0025	0.0025	0.0025	0.0042	0.0025	0.0068
Nitrate-N	0.0593	0.0587	0.0544	0.0343	0.0111	0.0025	0.0025	0.0025	0.0025	0.0151	0.0447	0.0541
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0011	0.0005	0.0025	0.0005	0.0005
Total Phosphorous	0.0494	0.0485	0.05	0.0592	0.0385	0.0351	0.048	0.0499	0.0492	0.0514	0.0701	0.0591
Orthophosphate	0.0394	0.0401	0.0398	0.0371	0.0167	0.024	0.0298	0.0376	0.0369	0.038	0.0383	0.0402
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.1	0.0639	0.67	0.15	0.18	0.099	0.0633	0.065	0.034	0.0318	1.54	0.25
Antimony	0.00005	0.00005	0.00009	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00011	0.00005
Arsenic	0.0013	0.0013	0.0016	0.0012	0.00085	0.0011	0.0012	0.0015	0.0015	0.0014	0.0021	0.0014
Barium	0.0056	0.0051	0.0098	0.0052	0.0049	0.005	0.0051	0.0053	0.0051	0.0048	0.0168	0.0064
Beryllium	0.00001	0.00001	0.000029	0.00001	0.000022	0.00001	0.00001	0.00001	0.00001	0.00001	0.000063	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.0000068	0.0000054	0.0000067	0.0000056	0.000003	0.000003	0.000003	0.000003	0.000011	0.000004
Chromium	0.00095	0.00095	0.0013	0.00096	0.00072	0.00077	0.00073	0.00075	0.00074	0.00079	0.0018	0.0011
Cobalt	0.00005	0.00005	0.0002	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00046	0.000075
Copper	0.00025	0.00025	0.00088	0.00025	0.00063	0.00025	0.00025	0.00025	0.00025	0.00025	0.0016	0.00025
Iron	0.17	0.13	0.64	0.28	0.24	0.17	0.18	0.22	0.18	0.16	1.38	0.3
Lead	0.000046	0.000025	0.00037	0.000066	0.000058	0.000025	0.000025	0.000025	0.000025	0.000025	0.0008	0.000095
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00095	0.0005
Manganese	0.0098	0.0077	0.0183	0.0152	0.0097	0.0085	0.0102	0.0102	0.01	0.0113	0.0385	0.0132
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000078	0.000003	0.000003	0.000003	0.000003	0.000003	0.000008	0.000003
Molybdenum	0.00091	0.00094	0.00086	0.00069	0.00036	0.00062	0.00069	0.0009	0.00091	0.00086	0.00081	0.0009
Nickel	0.00025	0.00025	0.00054	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0013	0.00025
Selenium	0.000092	0.000087	0.00011	0.000096	0.000054	0.000079	0.000025	0.000056	0.000072	0.000076	0.000074	0.00008
Silver	0.000005	0.00002	0.000009	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000015	0.000005
Strontium	0.0877	0.0864	0.0819	0.0718	0.0436	0.0617	0.0697	0.0888	0.0895	0.0887	0.083	0.0858
Thallium	0.000005	0.000005	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000022	0.000005
Uranium	0.0002	0.00021	0.00024	0.00018	0.00016	0.00013	0.00012	0.00018	0.00021	0.0002	0.00024	0.00024
Vanadium	0.002	0.002	0.0028	0.002	0.0019	0.0018	0.0018	0.0019	0.002	0.0019	0.0039	0.0022
Zinc	0.0015	0.0015	0.0034	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0057	0.0015
Dissolved Metals												
Aluminum	0.0122	0.0126	0.0222	0.0195	0.1	0.0403	0.0303	0.027	0.0135	0.0106	0.0118	0.0204
Cadmium	0.000003	0.0000048	0.000003	0.000003	0.0000051	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0001	0.0001	0.00063	0.00037	0.0003	0.0001	0.0001	0.0001	0.00017	0.0001
Iron	0.045	0.043	0.0425	0.094	0.11	0.098	0.12	0.13	0.078	0.087	0.0395	0.056
Manganese	0.0056	0.0043	0.0037	0.0056	0.003	0.004	0.0052	0.0065	0.006	0.0062	0.0043	0.0059
Zinc	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ3 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4f: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–10 in Creek 661

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.42	0.27	0.32	0.37	0.27	0.25	0.32	0.27	0.22	0.27	0.27	0.32
Fluoride	0.0725	0.0635	0.0634	0.0601	0.0454	0.056	0.056	0.0466	0.052	0.0526	0.0529	0.0776
Sulphate	3.66	3.63	3.34	2.63	2.65	1.71	1.71	2.2	2.27	2.98	3.25	4.9
Nutrients												
Ammonia-N	0.011	0.0088	0.0099	0.0108	0.0068	0.0108	0.0108	0.0064	0.0109	0.0109	0.0085	0.011
Nitrate-N	0.19	0.1	0.19	0.26	0.0614	0.0753	0.0659	0.0641	0.0651	0.072	0.0753	0.0861
Nitrite-N	0.0022	0.0012	0.0026	0.0038	0.0011	0.0021	0.0021	0.0012	0.0021	0.0022	0.0019	0.0022
Total Phosphorous	0.0188	0.0198	0.0228	0.0229	0.0259	0.0149	0.005	0.0218	0.0218	0.0099	0.0188	0.0188
Orthophosphate	0.006	0.004	0.0079	0.012	0.0095	0.0036	0.005	0.004	0.002	0.0035	0.0027	0.0027
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0565	0.0418	0.0881	0.13	0.26	0.21	0.083	0.0656	0.0555	0.0736	0.0761	0.0703
Antimony	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.000049	0.000049
Arsenic	0.00074	0.0013	0.0013	0.0012	0.00091	0.00074	0.00077	0.0011	0.0008	0.00082	0.00098	0.00074
Barium	0.0072	0.0049	0.0063	0.0077	0.0045	0.0033	0.0041	0.0046	0.0052	0.0041	0.0044	0.0055
Beryllium	0.000068	0.000068	0.000069	0.000064	0.000065	0.000066	0.000066	0.000067	0.000067	0.000068	0.000068	0.000068
Boron	0.0024	0.0068	0.0057	0.0042	0.0065	0.0021	0.0021	0.0067	0.0023	0.0068	0.0049	0.0032
Cadmium	0.00011	0.000015	0.000016	0.000014	0.000025	0.000015	0.000015	0.000017	0.000015	0.000016	0.000022	0.000027
Chromium	0.00015	0.0003	0.00029	0.00027	0.00047	0.00015	0.00019	0.00032	0.00023	0.00015	0.00034	0.00015
Cobalt	0.00012	0.00011	0.00011	0.00009	0.000095	0.000089	0.000074	0.0001	0.000083	0.000086	0.000097	0.000097
Copper	0.00054	0.0003	0.00047	0.00063	0.00066	0.00029	0.00049	0.00037	0.00034	0.00025	0.0004	0.00045
Iron	0.37	0.17	0.17	0.17	0.22	0.11	0.1	0.19	0.21	0.12	0.17	0.19
Lead	0.00035	0.000036	0.00015	0.00027	0.000089	0.000034	0.000034	0.000035	0.000035	0.000035	0.000036	0.000077
Lithium	0.0012	0.0012	0.0012	0.001	0.001	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012
Manganese	0.0287	0.0214	0.0208	0.0182	0.0193	0.0116	0.0122	0.0177	0.0129	0.0131	0.0197	0.0229
Mercury	0.000004	0.000004	0.000004	0.0000037	0.0000078	0.0000038	0.0000038	0.0000038	0.0000039	0.0000039	0.0000061	0.0000047
Molybdenum	0.00041	0.00083	0.00059	0.0003	0.00035	0.00028	0.00033	0.00057	0.00051	0.00038	0.00041	0.00042
Nickel	0.0003	0.00034	0.00037	0.00039	0.00032	0.00027	0.00028	0.00033	0.00025	0.00019	0.00034	0.00029
Selenium	0.00031	0.000045	0.000058	0.000066	0.000071	0.00031	0.00019	0.000071	0.00011	0.00031	0.0002	0.00019
Silver	0.000027	0.0000069	0.000017	0.000026	0.00002	0.000026	0.000026	0.0000068	0.000026	0.000027	0.000021	0.000027
Strontium	0.0732	0.0681	0.0584	0.0476	0.0284	0.0275	0.0393	0.0466	0.0589	0.0452	0.0489	0.0615
Thallium	0.000031	0.000012	0.000022	0.00003	0.00001	0.000031	0.000031	0.000011	0.000031	0.000031	0.000022	0.000031
Uranium	0.00007	0.000099	0.00009	0.000076	0.00013	0.0001	0.000074	0.0001	0.000077	0.00007	0.000081	0.000058
Vanadium	0.0004	0.001	0.00065	0.00024	0.001	0.00041	0.00065	0.00092	0.00049	0.0004	0.00062	0.00061
Zinc	0.028	0.0019	0.0024	0.0029	0.0048	0.0017	0.0018	0.0035	0.0019	0.0028	0.002	0.0012
Dissolved Metals												
Aluminum	0.0466	0.0317	0.0748	0.12	0.17	0.19	0.0755	0.0539	0.0427	0.0577	0.0618	0.22
Cadmium	0.000064	0.000011	0.000013	0.000014	0.000018	0.000015	0.000015	0.000016	0.000015	0.000016	0.000019	0.000016
Copper	0.00054	0.0003	0.00047	0.00063	0.00061	0.00029	0.00037	0.00029	0.00034	0.0001	0.00027	0.00045
Iron	0.18	0.13	0.14	0.16	0.13	0.0918	0.1	0.15	0.11	0.1	0.12	0.11
Manganese	0.0261	0.0177	0.018	0.0162	0.0119	0.0096	0.0109	0.0136	0.0124	0.0122	0.0135	0.0164
Zinc	0.0128	0.0039	0.0035	0.0029	0.0036	0.0017	0.0018	0.0023	0.0019	0.0019	0.0023	0.00066

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ5 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4f: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–10 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.42	0.25	0.25	0.39	0.25	0.61	0.25	0.25	0.46		0.41
Fluoride	0.0445	0.051	0.0575	0.052	0.0356	0.039	0.046	0.046	0.045	0.0467		0.0455
Sulphate	2.2	2.48	2.08	2.21	1.76	1.24	3.49	1.34	1.37	1.43		2.09
Nutrients												
Ammonia-N	0.0062	0.0037	0.0025	0.0025	0.0051	0.0025	0.0077	0.0025	0.0025	0.0025		0.0088
Nitrate-N	0.0374	0.0318	0.0352	0.0257	0.028	0.0025	0.0025	0.0098	0.0025	0.0032		0.0377
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Total Phosphorous	0.0281	0.0235	0.0256	0.0224	0.0315	0.0223	0.0241	0.0311	0.0257	0.021		0.0208
Orthophosphate	0.0151	0.0149	0.0174	0.018	0.0057	0.0067	0.0088	0.0172	0.0119	0.0108		0.0112
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Total Metals												
Aluminum	0.0623	0.0445	0.0412	0.0388	0.36	0.15	0.12	0.0702	0.0469	0.0474		0.0572
Antimony	0.00005	0.00005	0.00005	0.00005	0.000076	0.00005	0.00005	0.00005	0.00005	0.00005		0.00005
Arsenic	0.00089	0.00093	0.00094	0.00096	0.00086	0.00099	0.0012	0.0013	0.0013	0.0011		0.00081
Barium	0.0054	0.0048	0.0048	0.0045	0.0054	0.0049	0.0056	0.0053	0.0051	0.0049		0.0051
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000028	0.00001	0.00001	0.00001	0.00001	0.00001		0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005
Cadmium	0.000011	0.0000094	0.000008	0.000006	0.000024	0.000018	0.000021	0.000014	0.000012	0.000011		0.000012
Chromium	0.00042	0.00038	0.00025	0.00025	0.00048	0.00025	0.00025	0.00025	0.00025	0.00028		0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.000094	0.00005	0.00005	0.00005	0.00005	0.000056		0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0008	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Iron	0.16	0.12	0.11	0.087	0.31	0.22	0.2	0.25	0.28	0.22		0.14
Lead	0.000025	0.000025	0.000025	0.000025	0.00017	0.000074	0.000064	0.000025	0.000025	0.000032		0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005
Manganese	0.0147	0.0092	0.0086	0.0073	0.0175	0.0144	0.017	0.0104	0.0076	0.0134		0.012
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000058	0.000003	0.000003	0.000003	0.000003	0.000003		0.000003
Molybdenum	0.00064	0.00065	0.00068	0.00067	0.0003	0.0004	0.00048	0.00061	0.00062	0.00064		0.00061
Nickel	0.00025	0.00025	0.00025	0.00025	0.0003	0.00025	0.00025	0.00025	0.00025	0.00025		0.00025
Selenium	0.000044	0.000025	0.000025	0.000061	0.000065	0.000025	0.000056	0.000059	0.000025	0.000033		0.000025
Silver	0.000005	0.000005	0.000005	0.000005	0.000015	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Strontium	0.0732	0.068	0.0707	0.0667	0.0329	0.0479	0.0592	0.0659	0.0704	0.07		0.0712
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005
Uranium	0.00012	0.00012	0.00012	0.00014	0.00014	0.0001	0.000097	0.00011	0.000097	0.00011		0.000092
Vanadium	0.001	0.0009	0.00088	0.0011	0.0015	0.0012	0.0011	0.0012	0.001	0.0009		0.0008
Zinc	0.0023	0.0015	0.0015	0.0015	0.0057	0.0043	0.0043	0.0015	0.0015	0.0018		0.0015
Dissolved Metals												
Aluminum	0.0214	0.0187	0.0188	0.0237	0.14	0.0511	0.0375	0.0337	0.0319	0.0211		0.0212
Cadmium	0.0000088	0.0000086	0.0000051	0.0000062	0.000013	0.000012	0.00001	0.0000098	0.000013	0.0000087		0.0000081
Copper	0.0001	0.0001	0.0001	0.0001	0.00066	0.00041	0.00036	0.00036	0.00046	0.00019		0.00015
Iron	0.0895	0.061	0.06	0.055	0.13	0.095	0.1	0.18	0.22	0.15		0.088
Manganese	0.0101	0.0059	0.0062	0.0055	0.0075	0.0051	0.0058	0.0049	0.0051	0.006		0.0086
Zinc	0.0022	0.002	0.0017	0.0012	0.0035	0.0025	0.0024	0.0017	0.0025	0.0018		0.002

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQ5 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4g: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–20 in Creek 661

Parameter	Predicted Concentration[1]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.41	0.26	0.31	0.36	0.26	0.24	0.31	0.26	0.21	0.26	0.26	0.31
Fluoride	0.0639	0.0549	0.0543	0.0536	0.0387	0.0487	0.0484	0.0383	0.0437	0.0437	0.0438	0.0687
Sulphate	2.51	2.5	2.15	1.77	1.78	0.74	0.7	1.13	1.18	1.83	2.07	3.74
Nutrients												
Ammonia-N	0.0103	0.0081	0.0092	0.0103	0.0063	0.0103	0.0103	0.0057	0.0103	0.0103	0.0078	0.0103
Nitrate-N	0.14	0.0558	0.14	0.23	0.0265	0.0369	0.0261	0.0213	0.0217	0.0256	0.0277	0.0385
Nitrite-N	0.0017	0.00072	0.0021	0.0034	0.0007	0.0017	0.0017	0.0008	0.0017	0.0017	0.0015	0.0017
Total Phosphorous	0.0189	0.0199	0.023	0.023	0.0259	0.015	0.005	0.0219	0.0219	0.01	0.0189	0.0189
Orthophosphate	0.006	0.004	0.008	0.012	0.0095	0.0037	0.005	0.004	0.002	0.0035	0.0027	0.0027
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0568	0.042	0.0886	0.14	0.26	0.21	0.0833	0.0659	0.0558	0.0738	0.0765	0.0708
Antimony	0.00016	0.00016	0.00015	0.00013	0.00015	0.00013	0.00012	0.00015	0.00013	0.00013	0.00014	0.00013
Arsenic	0.00043	0.00097	0.001	0.001	0.00068	0.00049	0.00052	0.00087	0.00052	0.00052	0.00067	0.00043
Barium	0.007	0.0047	0.0061	0.0075	0.0043	0.0031	0.0039	0.0043	0.005	0.0039	0.0041	0.0052
Beryllium	0.000056	0.000056	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055
Boron	0.0011	0.0056	0.0044	0.0033	0.0055	0.0011	0.001	0.0055	0.001	0.0055	0.0035	0.0018
Cadmium	0.00011	0.0000098	0.0000099	0.0000096	0.000021	0.0000097	0.0000097	0.000012	0.0000098	0.0000099	0.000017	0.000022
Chromium	0.00015	0.0003	0.00029	0.00027	0.00047	0.00015	0.00019	0.00032	0.00023	0.00015	0.00034	0.00015
Cobalt	0.000077	0.000067	0.000065	0.000061	0.000066	0.000056	0.00004	0.000066	0.000046	0.000046	0.000057	0.000057
Copper	0.00051	0.00027	0.00044	0.00061	0.00064	0.00026	0.00046	0.00034	0.00031	0.00021	0.00037	0.00041
Iron	0.37	0.17	0.17	0.17	0.22	0.11	0.1	0.19	0.21	0.12	0.17	0.19
Lead	0.00035	0.000028	0.00015	0.00027	0.000084	0.000028	0.000028	0.000028	0.000028	0.000028	0.000028	0.00007
Lithium	0.00071	0.00071	0.0007	0.00069	0.00069	0.0007	0.00068	0.00069	0.00069	0.00069	0.0007	0.0007
Manganese	0.0233	0.016	0.0151	0.0141	0.0152	0.007	0.0074	0.0126	0.0076	0.0075	0.0141	0.0173
Mercury	0.000003	0.000003	0.0000029	0.0000029	0.0000071	0.0000029	0.0000029	0.0000029	0.0000029	0.0000029	0.0000051	0.0000037
Molybdenum	0.00026	0.00069	0.00044	0.00019	0.00024	0.00016	0.0002	0.00043	0.00037	0.00023	0.00025	0.00027
Nickel	0.00024	0.00028	0.00031	0.00034	0.00028	0.00022	0.00023	0.00028	0.00019	0.00013	0.00028	0.00022
Selenium	0.0003	0.000031	0.000044	0.000056	0.000061	0.0003	0.00018	0.000059	0.000098	0.0003	0.00019	0.00018
Silver	0.000025	0.0000056	0.000016	0.000025	0.000019	0.000025	0.000025	0.0000055	0.000025	0.000025	0.00002	0.000025
Strontium	0.0702	0.0651	0.0551	0.0451	0.0257	0.0245	0.0363	0.0435	0.0559	0.0418	0.0455	0.0582
Thallium	0.000027	0.0000071	0.000017	0.000027	0.0000069	0.000027	0.000027	0.0000069	0.000027	0.000027	0.000017	0.000027
Uranium	0.000056	0.000086	0.000076	0.000066	0.00012	0.000092	0.000062	0.000087	0.000064	0.000056	0.000067	0.000044
Vanadium	0.00026	0.00088	0.00051	0.00014	0.00093	0.00029	0.00053	0.0008	0.00036	0.00026	0.00048	0.00047
Zinc	0.0281	0.0016	0.0022	0.0027	0.0046	0.0015	0.0016	0.0033	0.0017	0.0026	0.0018	0.00094
Dissolved Metals												
Aluminum	0.0469	0.0318	0.0753	0.12	0.17	0.19	0.0758	0.0542	0.0429	0.0578	0.0621	0.22
Cadmium	0.000059	0.0000051	0.0000075	0.0000096	0.000013	0.0000097	0.0000097	0.00001	0.0000098	0.0000099	0.000013	0.00001
Copper	0.00051	0.00027	0.00044	0.00061	0.00059	0.00026	0.00034	0.00026	0.00031	0.000065	0.00024	0.00041
Iron	0.18	0.13	0.14	0.16	0.13	0.0921	0.1	0.15	0.11	0.1	0.12	0.11
Manganese	0.0207	0.0123	0.0122	0.0121	0.0077	0.005	0.0061	0.0085	0.0071	0.0067	0.0078	0.0107
Zinc	0.0127	0.0037	0.0032	0.0027	0.0035	0.0015	0.0016	0.0021	0.0017	0.0016	0.0021	0.00037

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQCk661 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix E-4g: Comparison of Mean Monthly Water Quality and Predicted Water Quality for 661–20 in Creek 661

Parameter	Observed Mean Concentration[2]											
	January	February	March	April	May	June	July	August	September	October	November	December
Dissolved Anions												
Chloride	0.25	0.25	0.25	0.25	0.75	0.25	0.25	0.25		0.25	0.25	0.25
Fluoride	0.056	0.06	0.068	0.06	0.048	0.051	0.061	0.063		0.058	0.0578	0.06
Sulphate	2.48	2.79	2.62	2.25	2.35	1.37	1.08	1.78		1.61	2.22	2.31
Nutrients												
Ammonia-N	0.0073	0.0043	0.0025	0.0025	0.0068	0.0025	0.0025	0.0123		0.0025	0.0025	0.0093
Nitrate-N	0.0782	0.075	0.0517	0.0158	0.25	0.0025	0.0025	0.0064		0.0025	0.0244	0.0454
Nitrite-N	0.0005	0.0005	0.0005	0.0005	0.0015	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Total Phosphorous	0.0285	0.025	0.0243	0.0331	0.0779	0.0271	0.0297	0.0293		0.0239	0.0224	0.0269
Orthophosphate	0.0234	0.0217	0.0227	0.0186	0.0094	0.0157	0.0141	0.0197		0.0172	0.0188	0.0166
Cyanides												
Total Cyanide	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Cyanide, Weak Acid Dissociable	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025
Total Metals												
Aluminum	0.0227	0.0253	0.0228	0.19	0.64	0.22	0.11	0.0305		0.0163	0.024	0.0234
Antimony	0.00005	0.00005	0.00005	0.00012	0.00005	0.00005	0.00005	0.00005		0.00005	0.00005	0.00005
Arsenic	0.00092	0.00095	0.00087	0.00088	0.0016	0.0012	0.0012	0.0011		0.001	0.00093	0.00084
Barium	0.007	0.0067	0.0067	0.0071	0.0118	0.009	0.008	0.0077		0.0067	0.0069	0.0073
Beryllium	0.00001	0.00001	0.00001	0.00001	0.000036	0.00001	0.00001	0.00001		0.00001	0.00001	0.00001
Boron	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005		0.005	0.005	0.005
Cadmium	0.000003	0.000003	0.000003	0.0000067	0.00003	0.00001	0.000005	0.000003		0.000003	0.000003	0.000003
Chromium	0.00025	0.00025	0.00025	0.00025	0.0012	0.00064	0.00025	0.00025		0.00025	0.00025	0.00025
Cobalt	0.00005	0.00005	0.00005	0.00005	0.00034	0.00012	0.00005	0.00005		0.00005	0.00005	0.00005
Copper	0.00025	0.00025	0.00025	0.00025	0.0015	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Iron	0.18	0.14	0.13	0.27	0.99	0.41	0.3	0.13		0.15	0.16	0.13
Lead	0.000025	0.000025	0.000025	0.000025	0.00028	0.00011	0.000025	0.000025		0.000025	0.000025	0.000025
Lithium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005
Manganese	0.0071	0.0055	0.0057	0.0078	0.0821	0.0333	0.0121	0.0069		0.0071	0.0087	0.0092
Mercury	0.000003	0.000003	0.000003	0.000003	0.0000083	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Molybdenum	0.00093	0.00099	0.00097	0.0009	0.00067	0.00093	0.00089	0.0012		0.00095	0.00096	0.00096
Nickel	0.00025	0.00025	0.00025	0.00025	0.00086	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025
Selenium	0.000093	0.000069	0.000073	0.000065	0.000096	0.0001	0.000064	0.000068		0.000056	0.00006	0.00006
Silver	0.000005	0.000005	0.000005	0.000005	0.000017	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Strontium	0.097	0.0947	0.0941	0.0853	0.0602	0.0936	0.0926	0.11		0.1	0.099	0.1
Thallium	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005	0.000005	0.000005
Uranium	0.00035	0.00034	0.00031	0.00032	0.0003	0.00033	0.00024	0.00035		0.00027	0.00035	0.00035
Vanadium	0.00081	0.00078	0.00068	0.001	0.003	0.0016	0.0011	0.00089		0.0007	0.00065	0.00065
Zinc	0.0015	0.0015	0.0015	0.0015	0.0045	0.0015	0.0015	0.0015		0.0015	0.0015	0.0015
Dissolved Metals												
Aluminum	0.0101	0.0116	0.0081	0.0884	0.13	0.0194	0.0609	0.0147		0.0099	0.0069	0.0063
Cadmium	0.000003	0.000003	0.000003	0.000003	0.0000056	0.000003	0.000003	0.000003		0.000003	0.000003	0.000003
Copper	0.0001	0.0001	0.0001	0.00033	0.00077	0.00031	0.00036	0.00023		0.0001	0.0001	0.0001
Iron	0.13	0.0875	0.086	0.16	0.21	0.11	0.21	0.12		0.11	0.1	0.083
Manganese	0.004	0.0028	0.0029	0.0042	0.0119	0.0052	0.005	0.0041		0.0043	0.0043	0.0047
Zinc	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005

Notes:

Concentrations in mg/L.

Shaded cells indicate the mean monthly concentration is greater than the predicted concentration for that month.

[1] Maximum monthly base case (95th percentile) predicted concentration predicted in base case in Construction and Operations phases at WQCk661 in the water quality prediction model v.13e (Lorax 2022)

[2] Mean monthly concentration October 2022 to March 31, 2024, Construction

Appendix F Water Level Data

Appendix F-1: Monitoring Well Data

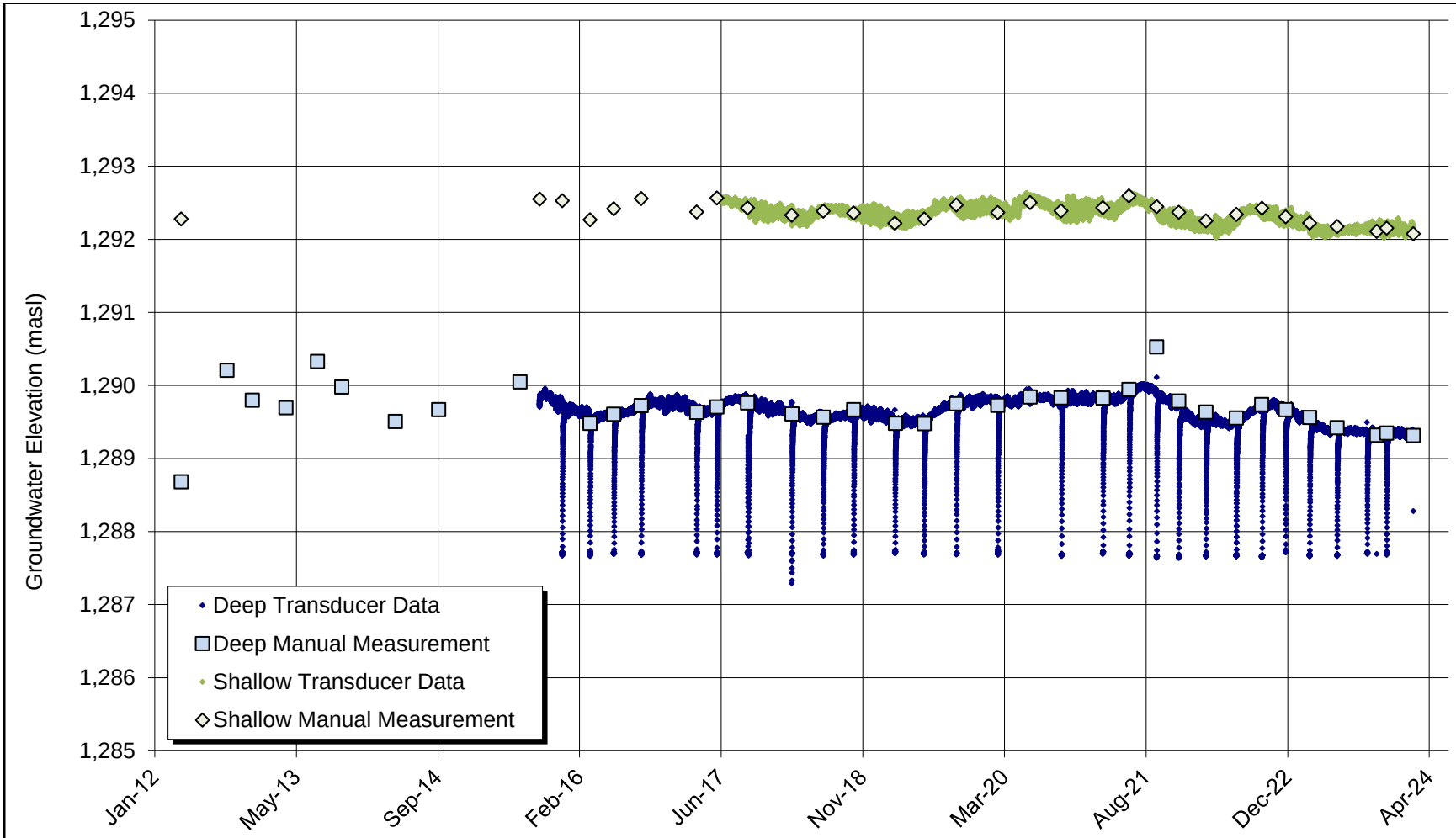
Appendix F-2: Standpipe Data

Appendix F-3: Vibrating Wire Piezometer Data

Appendix F-4: Background Water Level Summary

Appendix F-5: Groundwater Seep Survey

Appendix F-1 Monitoring Well Data



NOTES:

1. GROUND ELEVATION AT MW12-01D IS 1301.8 masl AND MW12-01S IS 1301.8 masl BASED ON 2013 SURVEY.
2. MW12-01D SCREENED INTERVAL IS FROM 36.6 TO 39.6 mbgs. MW12-01S SCREENED INTERVAL IS FROM 9.1 TO 12.2 mbgs.
3. MW12-01S WAS DRY IN APRIL 2014 AND WATER LEVELS WERE NOT MEASURED AT THE SITE AGAIN UNITL SEPTEMBER 2015.
4. A PRESSURE TRANSDUCER WAS INSTALLED IN MW12-01D JULY 2015 AND IN MW12-01S IN JUNE 2017.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-01D/S
GROUNDWATER ELEVATION

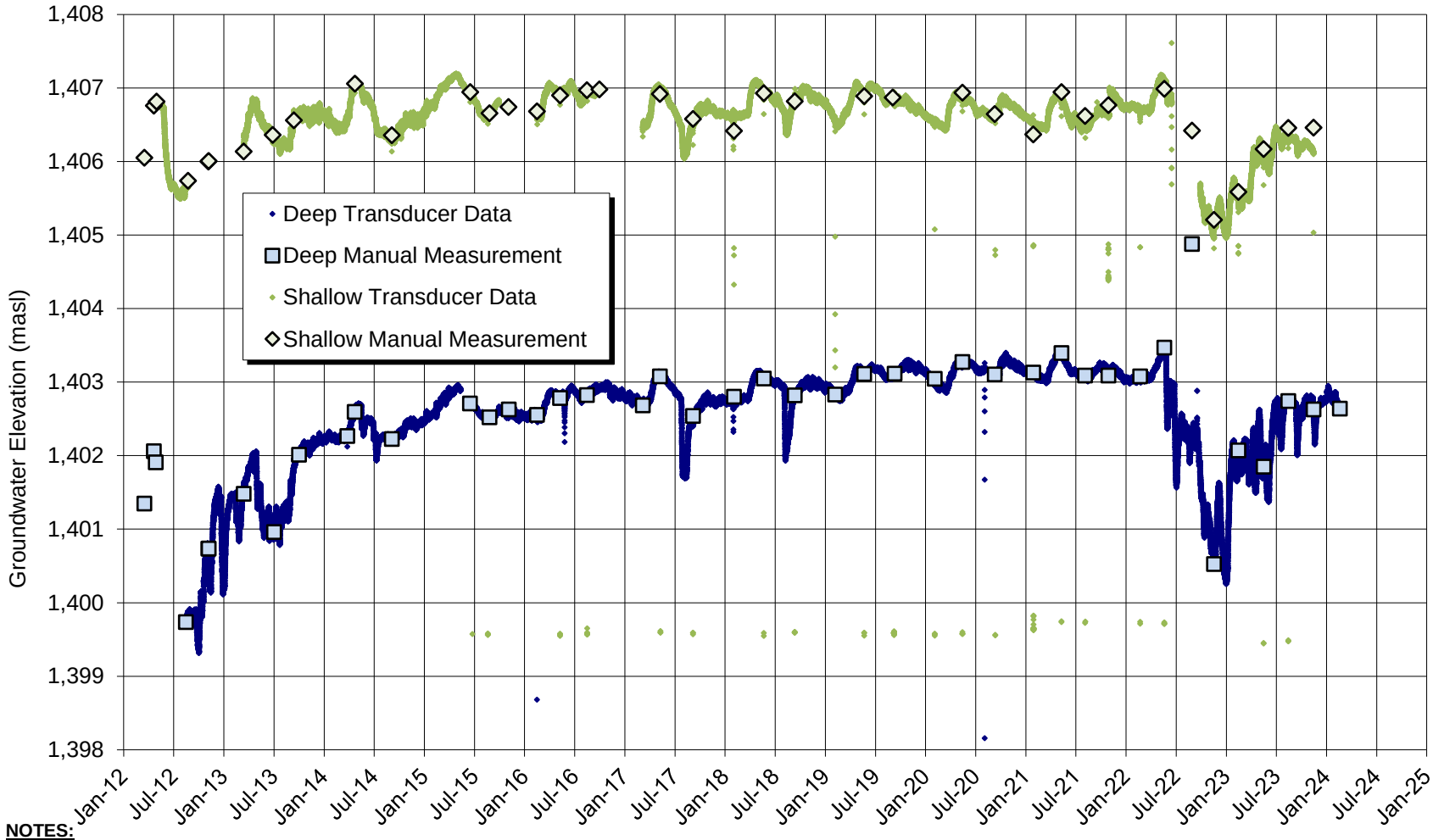
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.1

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-02D IS 1406.5 masl AND MW12-02S IS 1406.9 masl BASED ON 2013 SURVEY.
2. MW12-02D SCREENED FROM 36 TO 39 mbgs. MW12-02S SCREENED FROM 8.2 TO 9.8 mbgs.
3. MW12-02D TRANSDUCER MEMORY FILLED JUNE 2015. DATA DOWNLOADED AND TRANSDUCER RESTARTED IN JULY 2015.
4. A MARGO PLUG WAS INSTALLED IN MW12-02S BETWEEN SEPTEMBER 2012 AND APRIL 2013; SEPTEMBER 2015 AND MARCH 2016; AND IN OCTOBER 2016 AND APRIL 2017. THE PRESSURE TRANSDUCER WAS REMOVED FROM THE WELL WHEN THE PLUG WAS INSTALLED.
5. A WELL BUSTER WAS INSTALLED IN MW12-02S DURING THE WINTER MONTHS OF 2017 ONWARDS; THE PRESSURE TRANSDUCER REMAINED IN THE WELL WHEN THE PLUG WAS INSTALLED.
6. THE MW12-02D PRESSURE TRANSDUCER MALFUNCTIONED SEPTEMBER 2020 AND WAS REPLACED OCTOBER 2020, NO DATA WAS COLLECTED DURING THIS PERIOD.
7. THE MW12-02S PRESSURE TRANSDUCER MALFUNCTIONED IN JULY 2022 AND WAS REPLACED IN OCTOBER 2022, NO DATA WAS RECORDED DURING THIS PERIOD.
8. SUSPECTED READING ERROR ASSOCIATED WITH SEPTEMBER 2022 MANUAL WATER LEVEL MEASUREMENT AT MW12-02D.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-02D/S
GROUNDWATER ELEVATION

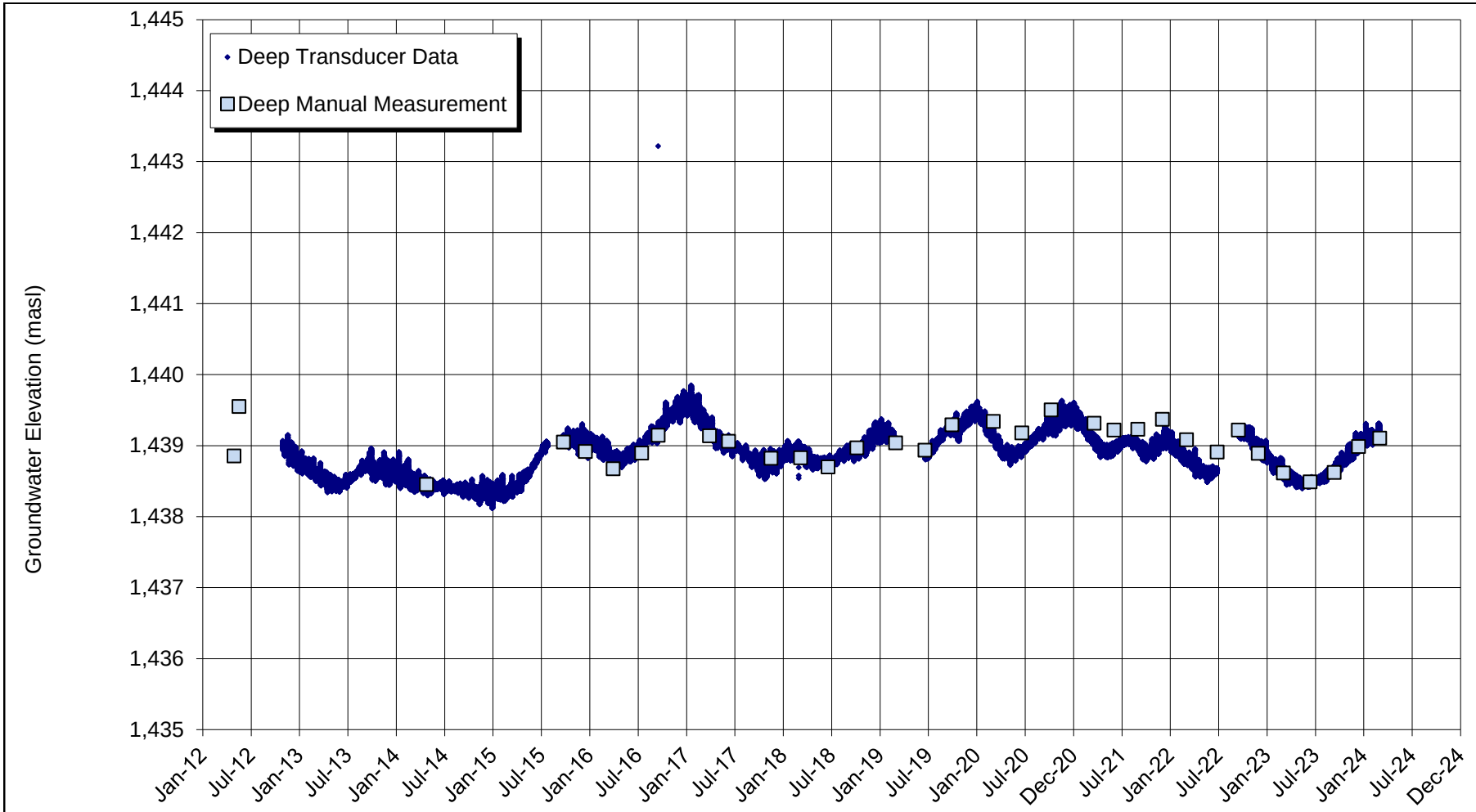
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.2

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-03D IS 1464.8 masl AND MW12-03S IS 1465.0 masl BASED ON 2013 SURVEY.
2. MW12-03D SCREENED FROM 33.5 TO 36.6 mbgs. MW12-03D SCREENED FROM 15.9 TO 21.9 mbgs.
3. MW12-03S HAS BEEN DRY SINCE INSTALLATION.
4. MW12-03D TRANSDUCER MEMORY FULL JULY 2015. DATA DOWNLOADED AND TRANSDUCER RESTARTED SEPTEMBER 2015.
5. THE PRESSURE TRANSDUCER COULD NOT BE DOWNLOADED IN FEBRUARY 2019 AND WAS REPLACED. NO DATA IS AVAILABLE FROM FEBRUARY 28 TO JUNE 21, 2019.
6. THE PRESSURE TRANSDUCER MALFUNCTIONED IN JUNE 2022 AND WAS RESET IN SEPTEMBER 2022, NO DATA WAS COLLECTED DURING THAT PERIOD.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-03D
GROUNDWATER ELEVATION

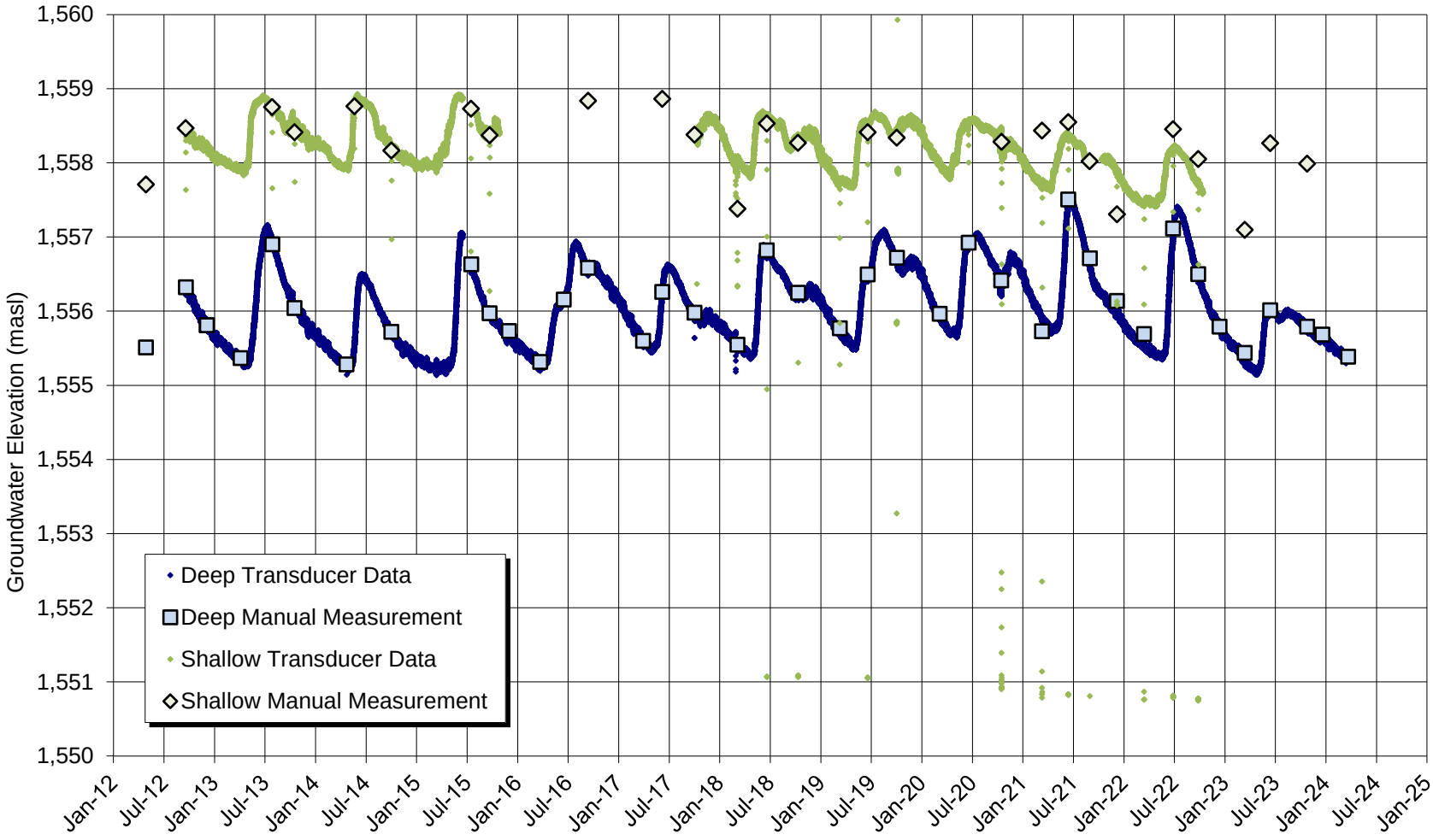
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.3

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-04D IS 1558.0 masl AND MW12-04S IS 1558.3 masl BASED ON 2013 SURVEY.
2. MW12-04D SCREENED FROM 33.4 TO 36.4 mbgs. MW12-04S SCREENED FROM 10.5 TO 13.6 mbgs.
3. MW12-04D AND MW12-04S TRANSDUCER MEMORIES FILLED JUNE 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY 2015.
4. MW12-04S PRESSURE TRANSDUCER REMOVED FROM WELL IN OCTOBER 2015 TO INSTALL MARGO PLUG. TRANSDUCER REINSTALLED IN JUNE 2016 BUT MALFUNCTIONED. NEW TRANSDUCER INSTALLED IN JUNE 2017.
5. A WELL BUSTER WAS INSTALLED DURING THE WINTER MONTHS IN 2017, 2018, 2019 AND 2020; THE TRANSDUCER REMAINED IN THE WELL WHEN THE PLUG WAS INSTALLED.
6. MW12-04S WELL REMAINED PLUGGED DURING SITE MARCH 2020, 2021, AND 2022 SITE VISITS AND NO MANUAL MEASUREMENTS WERE COMPLETED.
7. MW12-04S PRESSURE TRANSDUCER MALFUNCTION IN OCTOBER 2022. THE DEVICE HAS NOT YET BEEN REPLACED.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-04D/S
GROUNDWATER ELEVATION

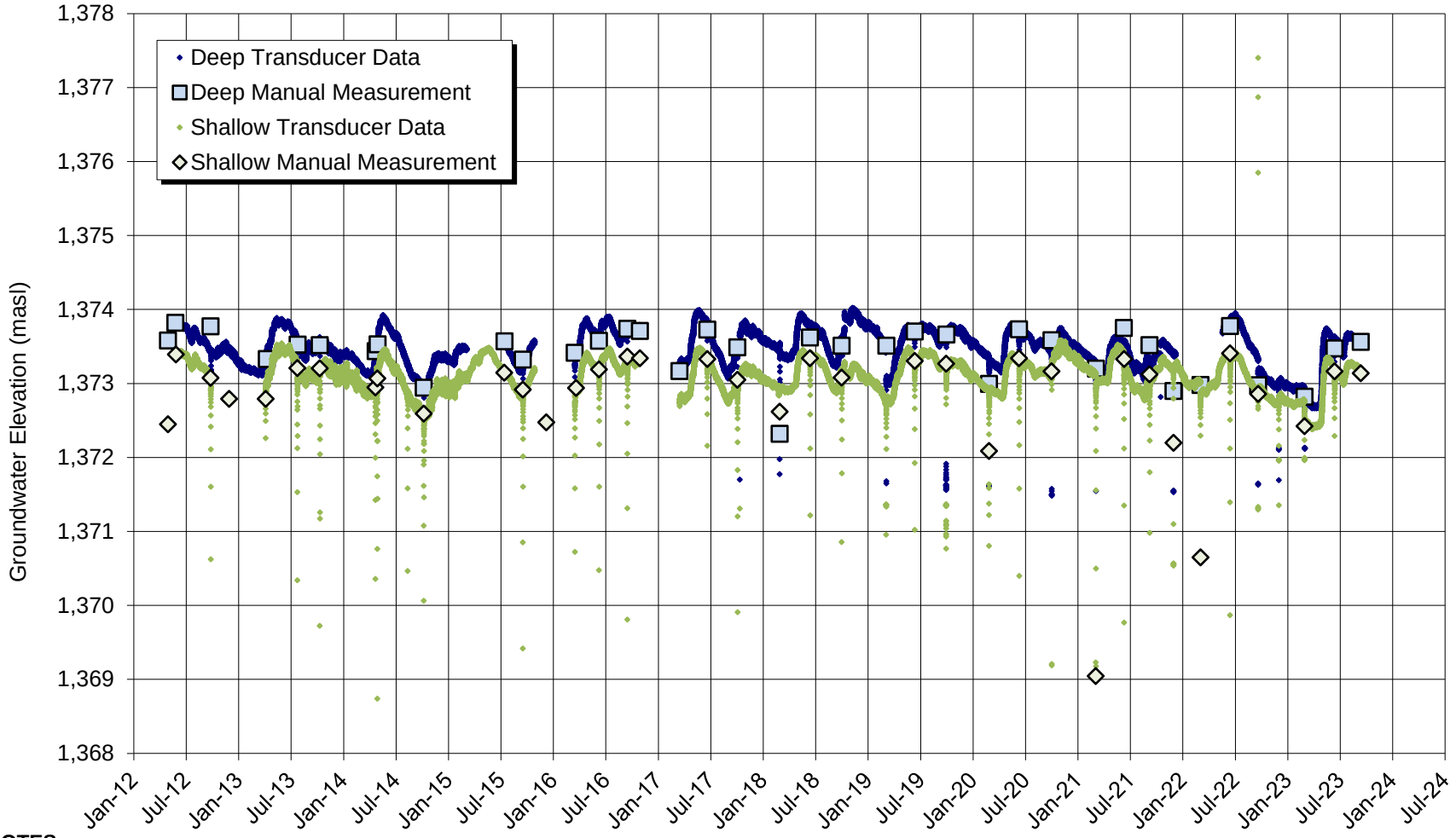
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.4

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-05D IS 1373.5 masl AND MW12-05S IS 1373.3 masl BASED ON 2013 SURVEY.
2. MW12-05D SCREENED FROM 23.2 TO 26.2 mbgs. MW12-05S SCREENED FROM 7.6 TO 10.7 mbgs.
3. MW12-05D TRANSDUCER MEMORY FILLED MARCH 2015. DATA DOWNLOADED AND TRANSDUCER RESTARTED IN JULY 2015.
4. A MARGO PLUG WAS INSTALLED IN MW12-05S BETWEEN SPETEMBER 2012 AND APRIL 2013.
5. MARGO PLUGS INSTALLED IN MW12-05S&D BETWEEN OCTOBER 2015 AND MARCH 2016, AND FROM OCTOBER 2016 TO MARCH 2017. TRANSDUCERS WERE REMOVED DURING THESE PERIODS.
6. WELL BUSTER PLUGS WERE INSTALLED IN MW12-05D/S DURING THE WINTER MONTHS OF 2017 ONWARDS; THE TRANSDUCERS REMAINED IN THE WELLS WHEN THE PLUG WERE INSTALLED. MEASURED WATER LEVELS ARE DEPRESSED WHEN THE PLUG WAS REMOVED EACH VISIT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSIMITTAL	EB	JDZ

BW GOLD LTD.

BLACKWATER GOLD PROJECT

MW12-05D/S
GROUNDWATER ELEVATION

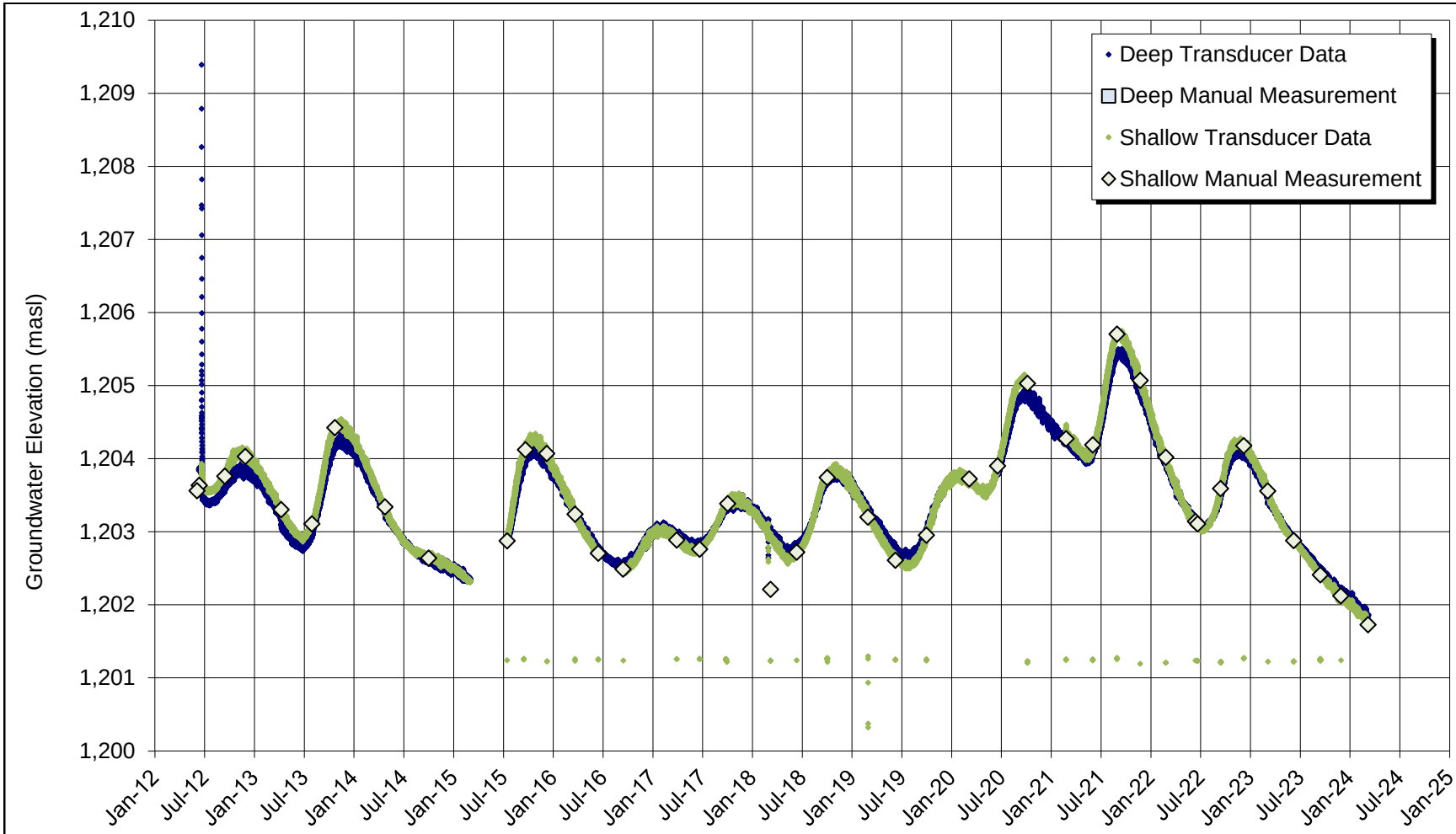
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.5

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-07D IS 1221.2 masl AND MW12-07S IS 1221.2 masl BASED ON 2013 SURVEY.
2. MW12-07D SCREENED FROM 35.4 TO 38.6 mbgs. MW12-07S SCREENED FROM 19.8 TO 22.9 mbgs.
3. MW12-07D AND MW12-07S TRANSDUCER MEMORIES FILLED MARCH 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY 2015.
4. THE PRESSURE TRANSDUCER DATA FOR MW12-07D FROM OCTOBER 2019 - MARCH 2020 IS UNAVAILABLE DUE TO

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-07D/S
GROUNDWATER ELEVATION

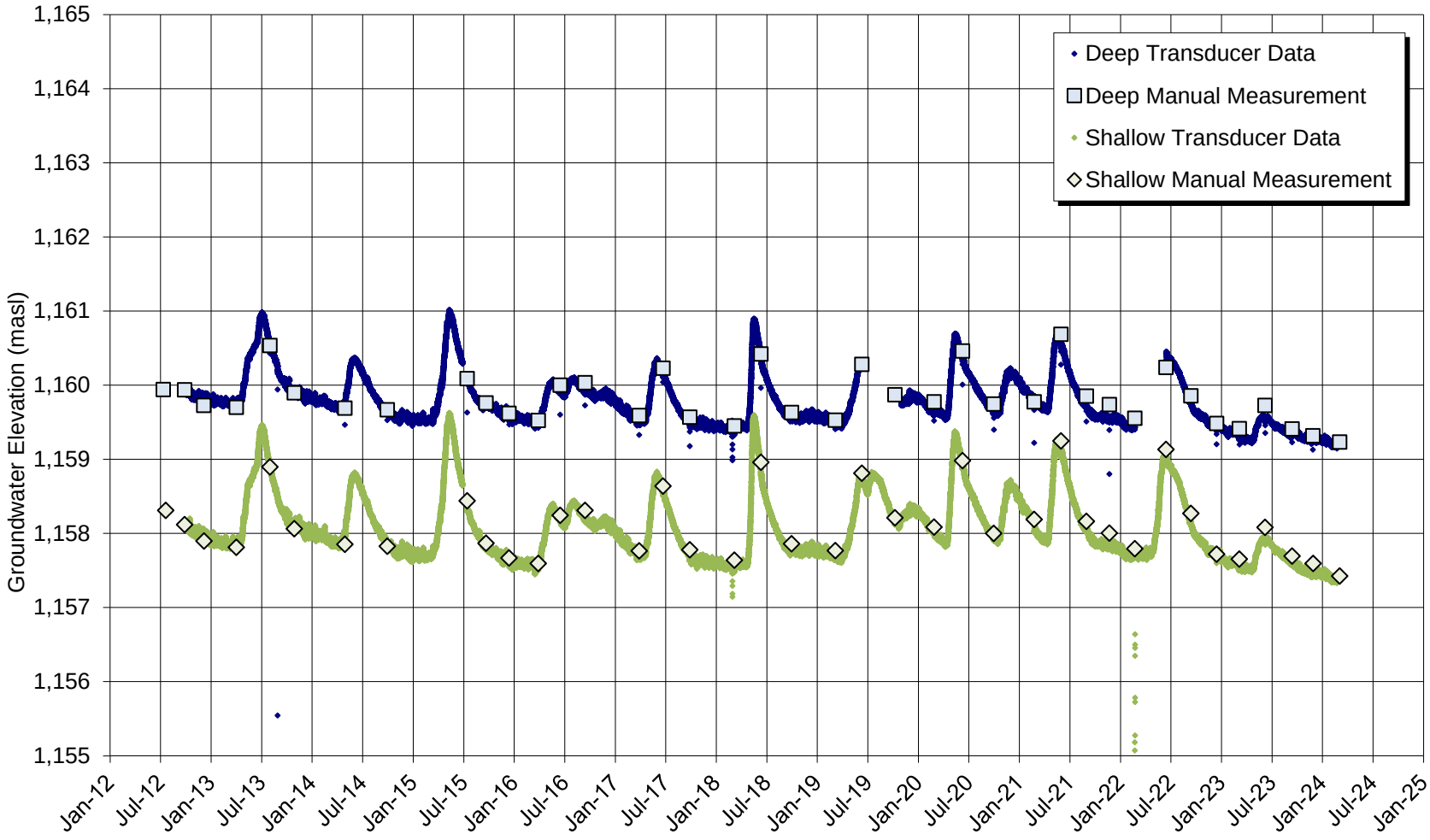
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.6

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-08D IS 1169.7 masl AND MW12-08S IS 1169.7 masl BASED ON 2013 SURVEY.
2. MW12-08D SCREENED FROM 32.6 TO 35.6 mbgs. MW12-08S SCREENED INTERVAL 16.2 TO 19.3 mbgs.
3. MW12-08D AND MW12-08S TRANSDUCER MEMORIES FILLED JUNE 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY 2015.
4. TRANSDUCER IN MW12-08D FAILED TO COMMUNICATE IN OCT 2019 AND WAS REPLACED WITH A NEW TRANSDUCER. NO DATA AVAILABLE JUNE TO OCTOBER 2019.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-08D/S
GROUNDWATER ELEVATION

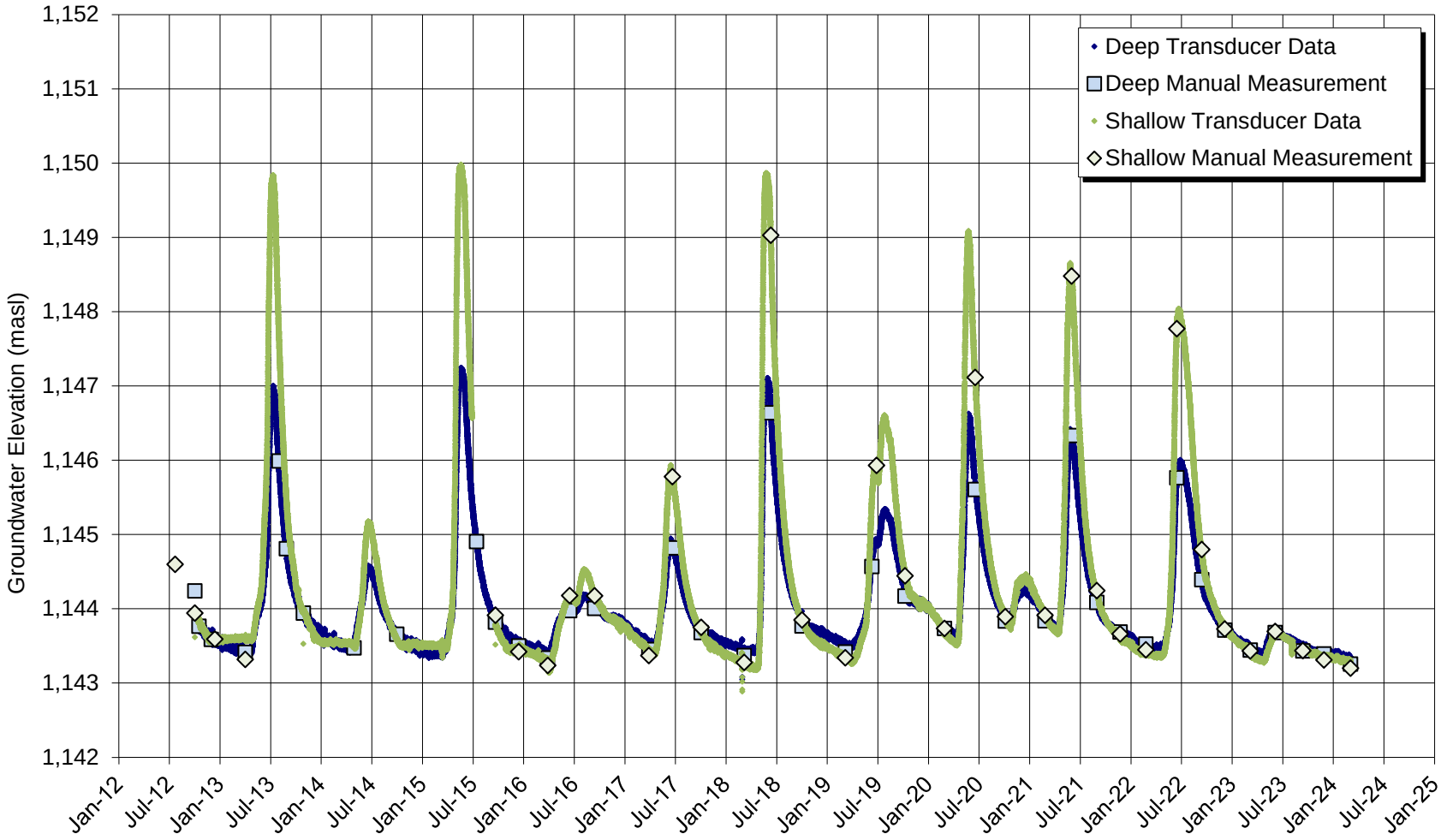
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.7

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-09D IS 1154.8 masl AND 1155.1 masl AT MW12-09S BASED ON 2013 SURVEY.
2. MW12-09D SCREENED FROM 30.5 TO 33.6 mbgs. MW12-09S SCREENED FROM 11.9 TO 15 mbgs.
3. WATER LEVEL AT MW12-09S DROPS BELOW THE TRANSDUCER IN 2013, 2014, AND 2015 WINTER MONTHS AS INDICATED BY A STRAIGHT LINE IN THE PLOTTED DATA SERIES. THE TRANSDUCER WAS LOWERED IN DECEMBER 2015.
4. MW12-09S TRANSDUCER MEMORY FULL JUNE 2015. DATA DOWNLOADED AND TRANSDUCER RESTARTED IN SEPTEMBER 2015.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-09D/S
GROUNDWATER ELEVATION

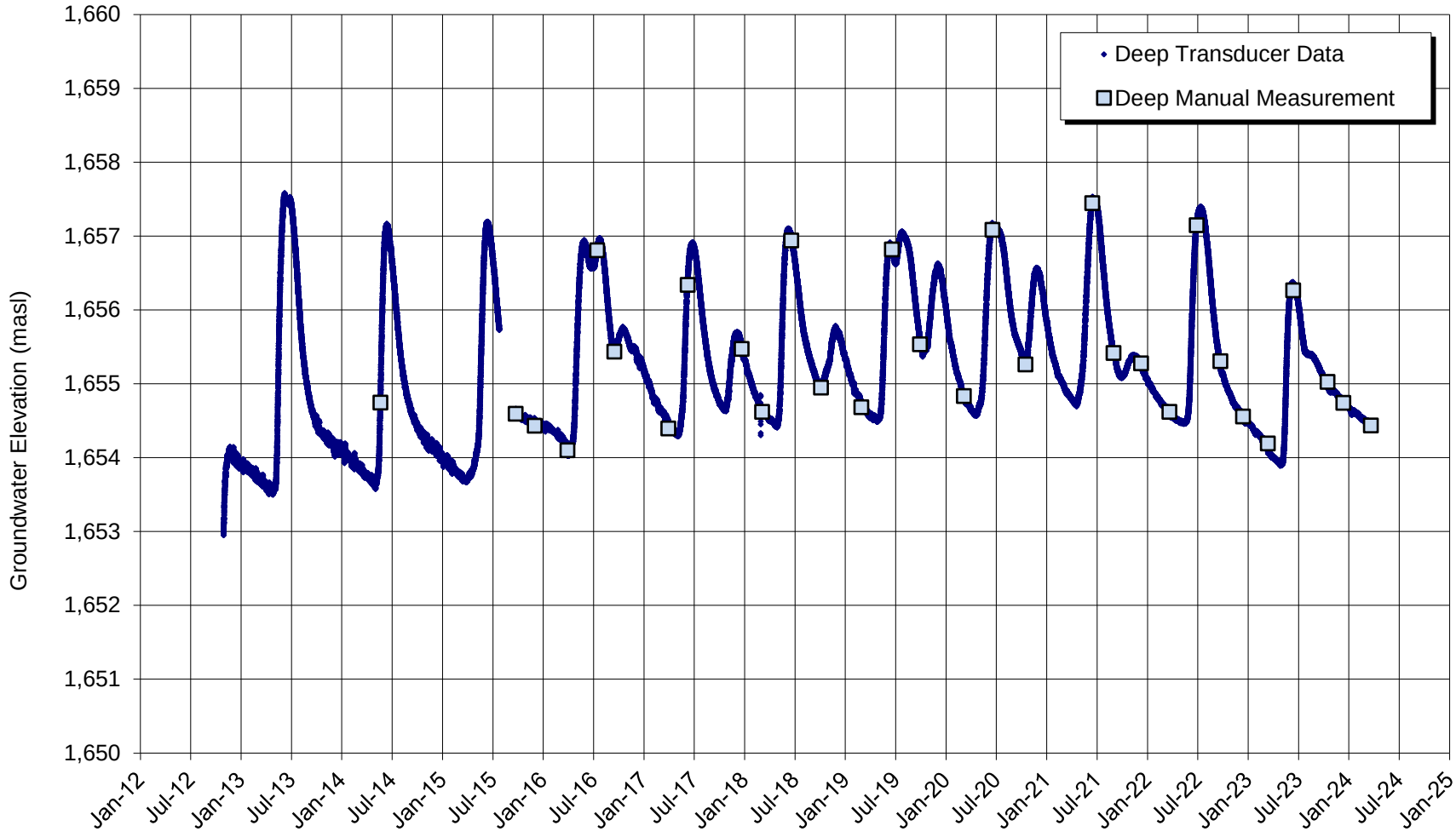
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.8

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-10D IS 1664.8 masl AND MW12-10S IS 1665.0 masl BASED ON 2013 SURVEY.
2. MW12-10D SCREENED FROM 36.3 TO 39.3 mbgs. MW12-10S SCREENED FROM 4.5 TO 6.0 mbgs.
3. MW12-10S HAS BEEN DRY SINCE INSTALLATION.
4. MW12-10D TRANSDUCER MEMORY FILLED JULY 2015. DATA DOWNLOADED AND TRANSDUCER RESTARTED IN SEPTEMBER 2015.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-10D/S
GROUNDWATER ELEVATION

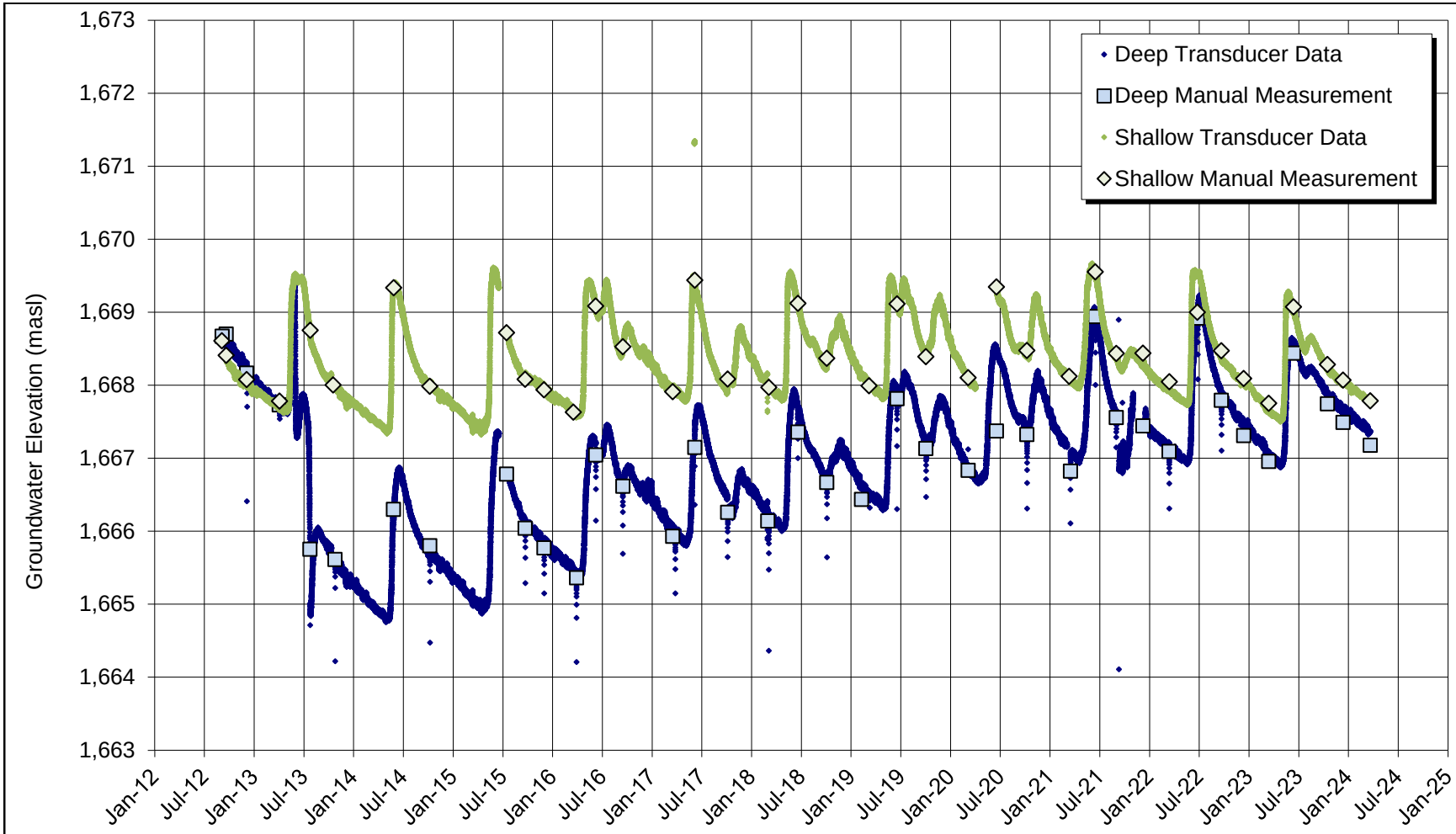
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.9

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-11D IS 1676.3 masl AND MW12-11S 1676.1 masl BASED ON 2013 SURVEY.
2. MW12-11D SCREENED FROM 40.3 TO 43.4 mbgs. MW12-11S SCREENED FROM 15.9 TO 18.9 mbgs.
3. MW12-11D AND MW12-11S TRANSDUCER MEMORIES FILLED JUNE 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY 2015.
4. THE MW12-11S TRANSDUCER MALFUNCTIONED IN APRIL 2020 AND STOPPED RECORDING, THE TRANSDUCER WAS REPLACED IN JUNE 2020.
5. THE MW12-11D PRESSURE TRANSDUCER MALFUNCTIONED IN NOVEMBER 2021 AND STOPPED RECORDING, THE TRANSDUCER WAS REPLACED IN DECEMBER 2021.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-11D/S
GROUNDWATER ELEVATION

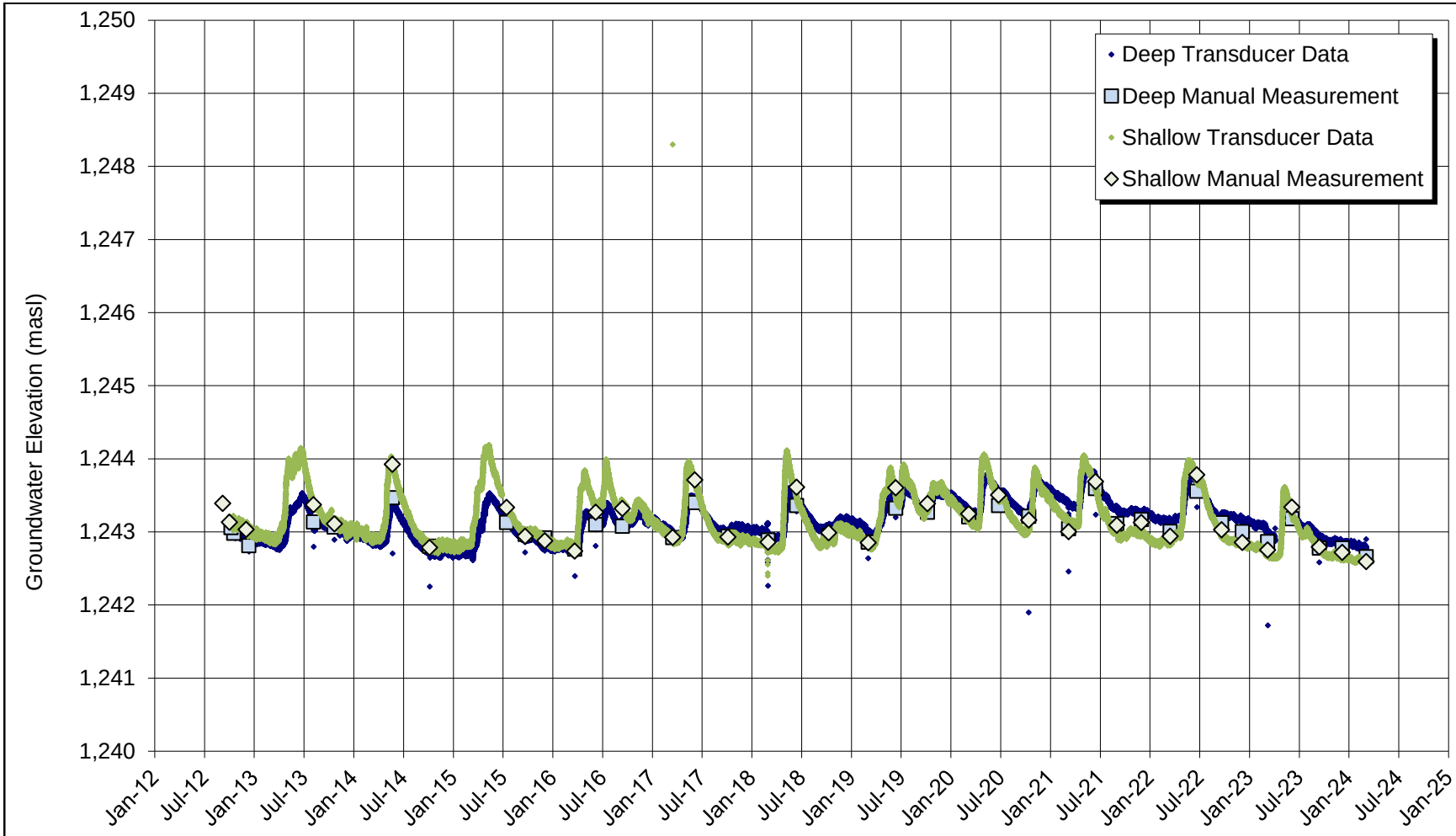
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.10

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-12D IS 1244.4 masl AND MW12-12S IS 1244.4 masl BASED ON 2013 SURVEY.
2. MW12-12D SCREENED FROM 31.2 TO 34.2 mbgs. MW12-12S SCREENED FROM 11.2 TO 14.2 mbgs.
3. MW12-12S AND MW12-12D TRANSDUCER MEMORIES FILLED JUNE AND JULY 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY 2015.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-12D/S
GROUNDWATER ELEVATION

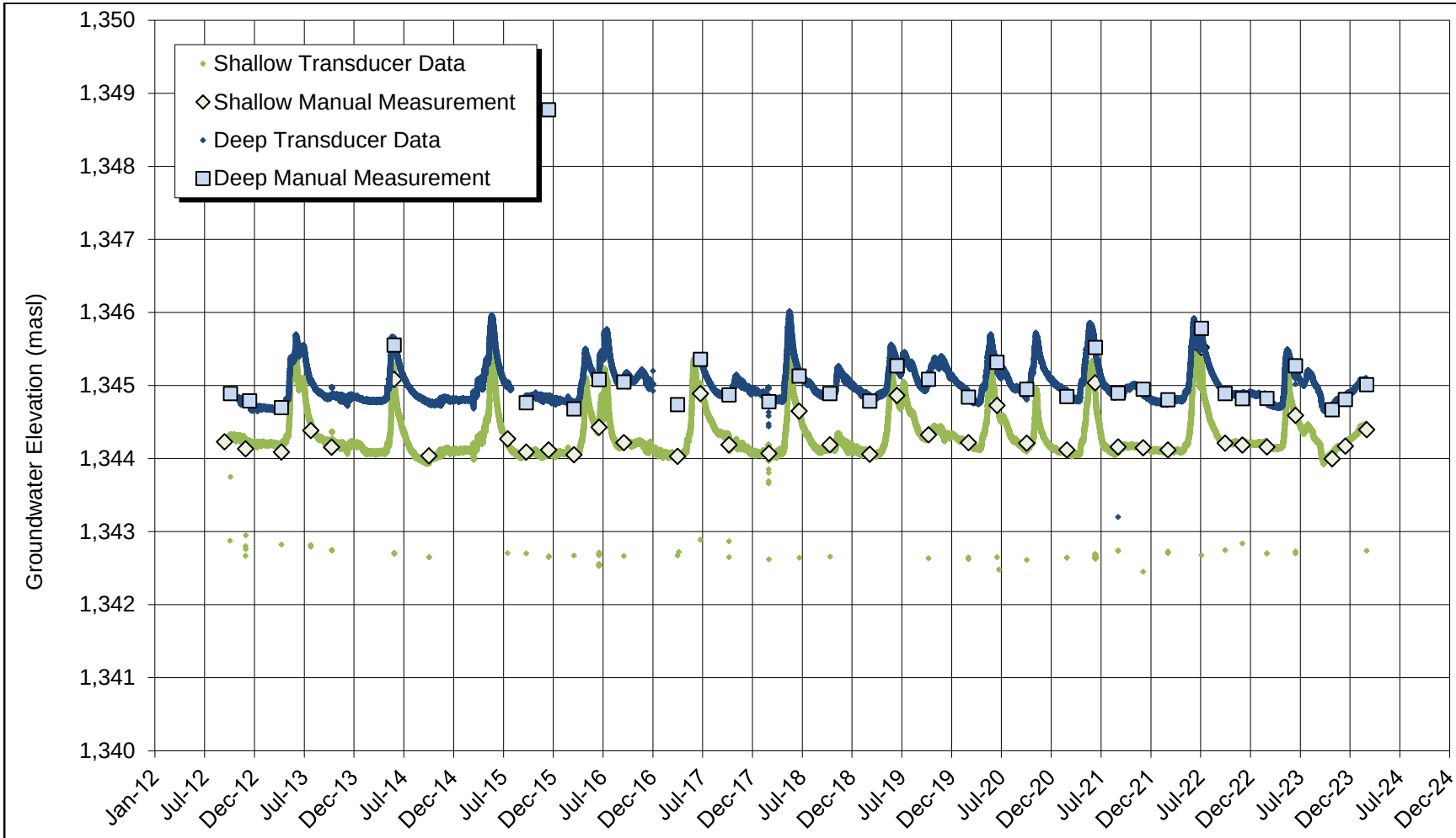
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.11

REV 0



NOTES:

1. GROUND ELEVATION AT MW12-13D 1352.7 masl AND MW12-13S IS 1352.9 masl BASED ON 2013 SURVEY.
2. MW12-13D IS SCREENED FROM 35.8 TO 38.9 mbgs. MW12-13S SCREENED FROM 10 TO 13.1 mbgs.
3. MW12-13S AND MW12-13D TRANSDUCER MEMORIES FILLED JUNE AND JULY 2015. DATA DOWNLOADED AND TRANSDUCERS RESTARTED IN JULY AND SEPTEMBER 2015.
4. THE MANUAL MEASUREMENT AT MW12-13D RECORDED ON DECEMBER 15, 2015 DOES NOT MATCH THE TRANSDUCER DATA OR TYPICAL VALUES AND IS INTERPRETED TO BE AN ERROR .
5. THE BATTERY OF THE PRESSURE TRANSDUCER IN MW12-13D DIED IN DECEMBER 2016. THE PRESSURE TRANSDUCER WAS REPLACED IN JUNE 2017.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW12-13D/S
GROUNDWATER ELEVATION

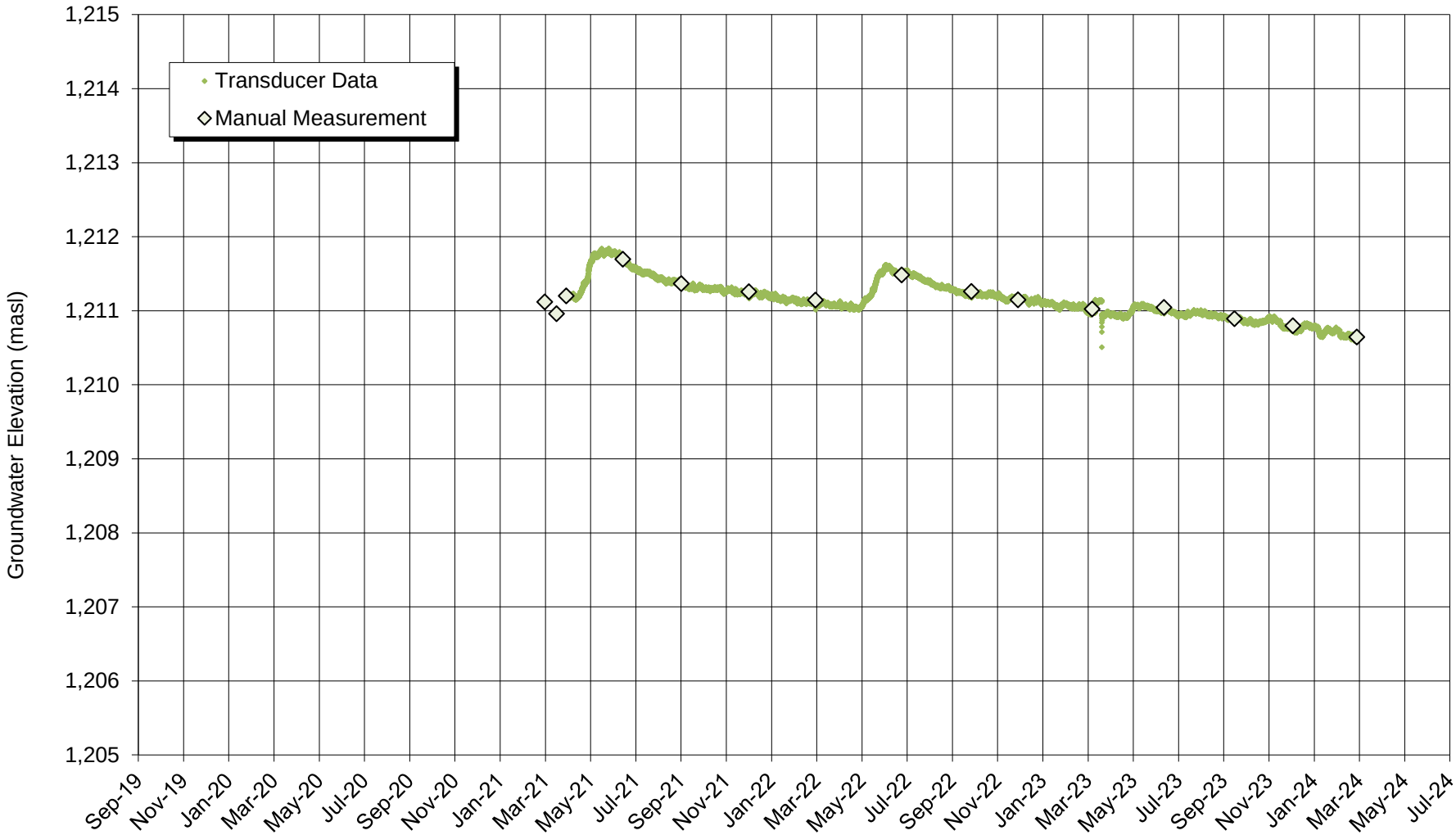
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.12

REV 0



NOTES:

1. GROUND ELEVATION IS 1214 masl BASED ON 2021 SURVEY BY AVISON MANAGEMENT SERVICES.
2. SCREENED INTERVAL IS FROM 22.17 TO 27.94 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT20-04
GROUNDWATER ELEVATION

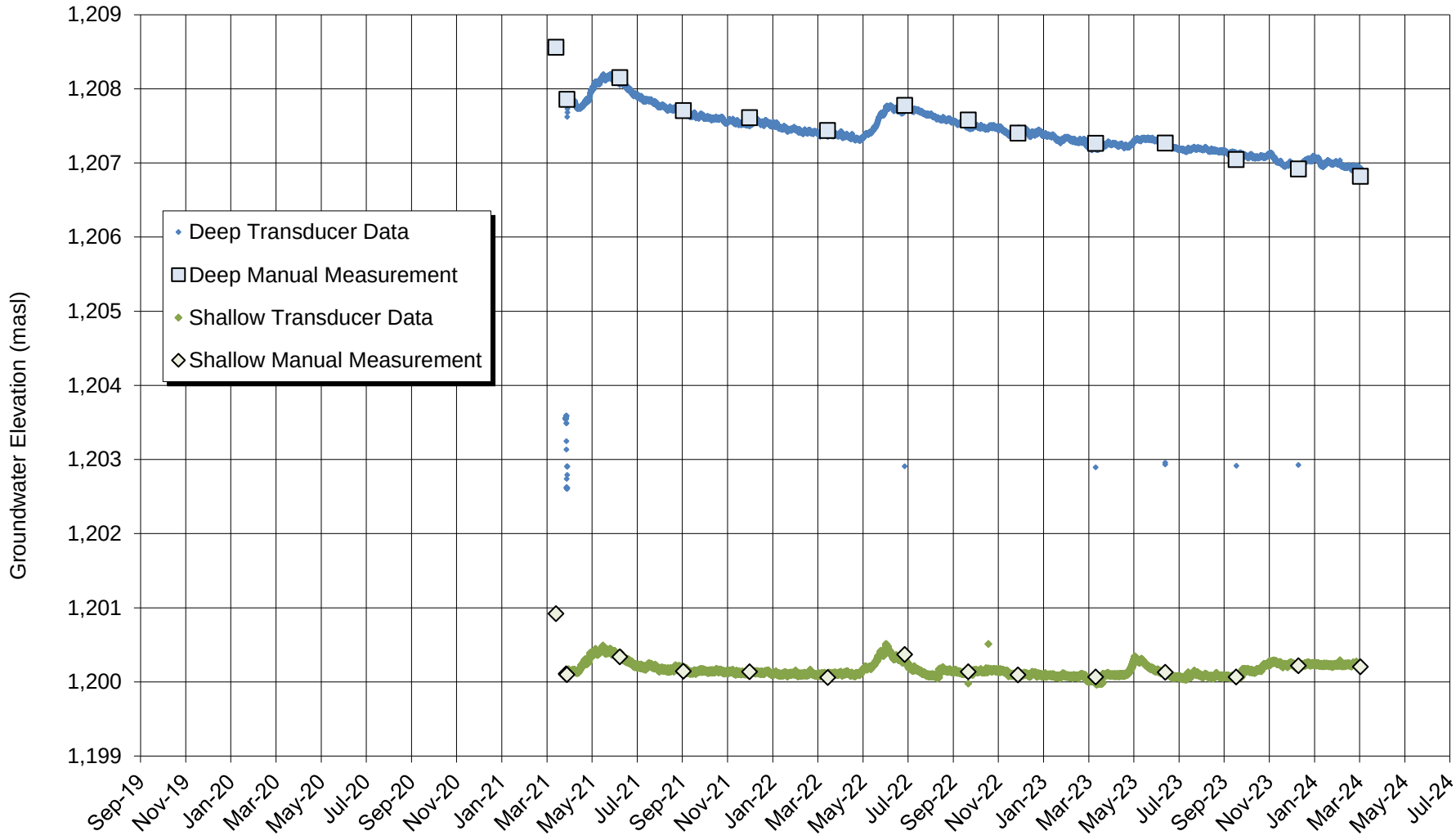
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F1.13

REV 0



NOTES:

1. GROUND ELEVATION IS 1212 masl BASED 2021 SURVEY BY AVISON MANAGEMENT SERVICES.
2. GT21-03D SCREENED INTERVAL IS FROM 46.76 TO 49.84 mbgs.
3. GT21-03S SCREENED INTERVAL IS FROM 16.64 TO 19.78 mbgs.

BW GOLD LTD.

BLACKWATER GOLD MINE

GT21-03D/S
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

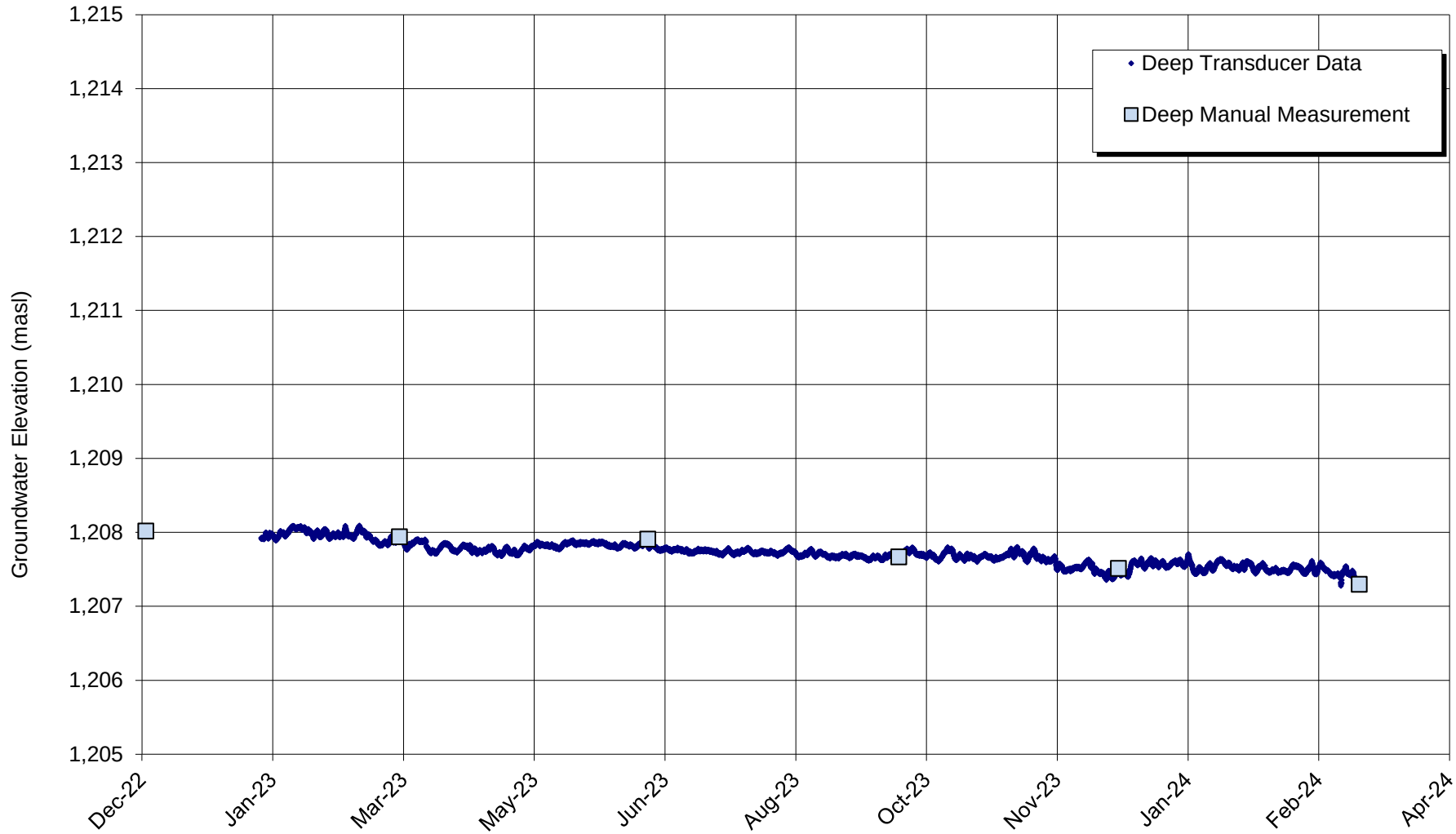
P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.14

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ



NOTES:

1. GROUND ELEVATION AT MW22-02D IS 1243.9 masl and 1243.7 masl MW22-02S IS BASED ON 2022 SURVEY PERFORMED BY BW GOLD LTD.
2. MW22-02D IS SCREENED FROM 43 TO 46 mbgs. MW22-02S IS SCREENED FROM 13.8 TO 15.3 mbgs.
3. MW22-02S IS DRY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW22-02D/S
GROUNDWATER ELEVATION

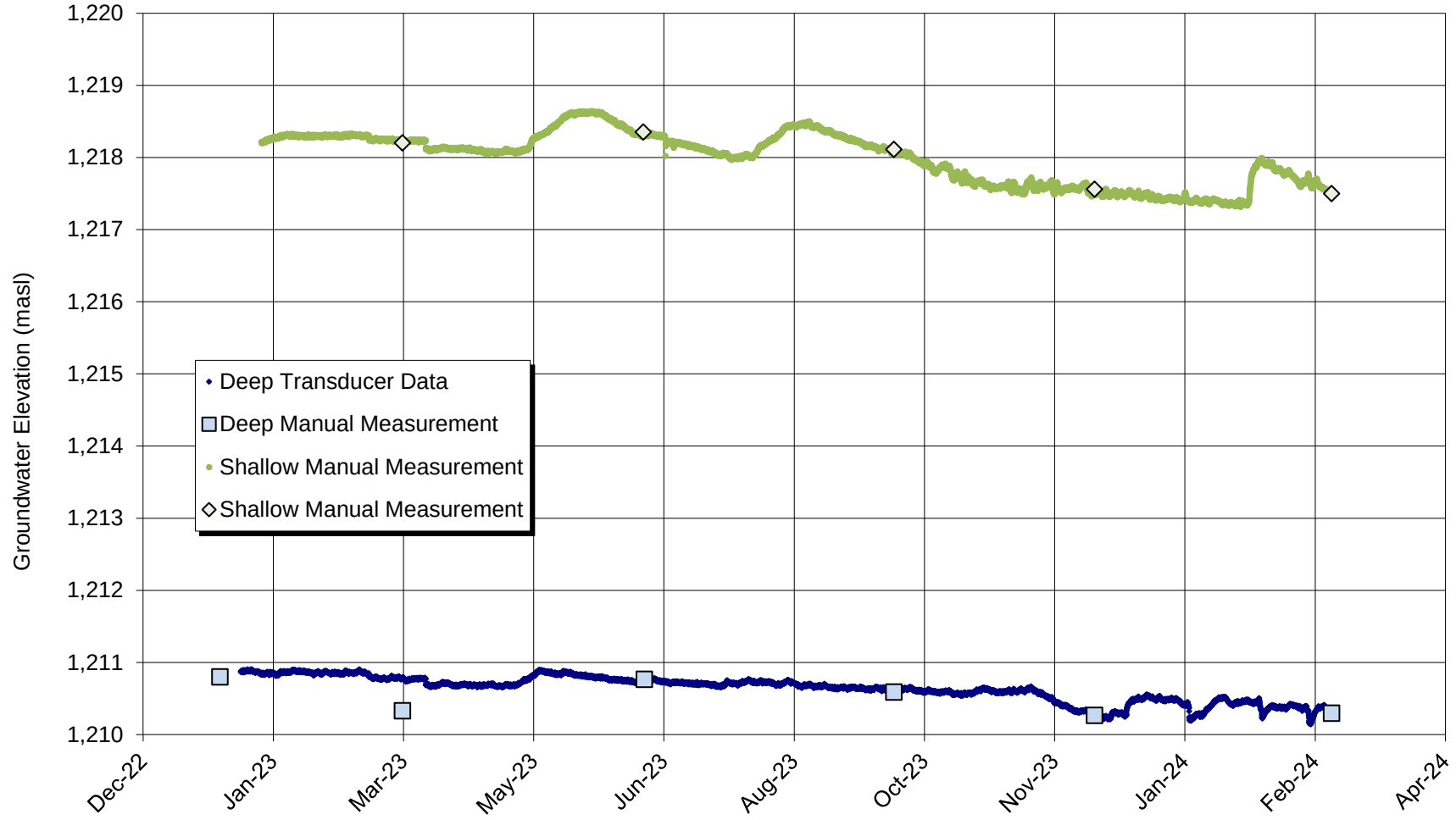
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.15

REV 0



NOTES:

1. GROUND ELEVATION AT BOTH MW22-03D AND MW22-03S IS 1228.8 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW22-03D IS SCREENED FROM 31.2 TO 34.1 mbgs. MW22-03S IS SCREENED FROM 10.6 TO 12.1 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW22-03D/S
GROUNDWATER ELEVATION

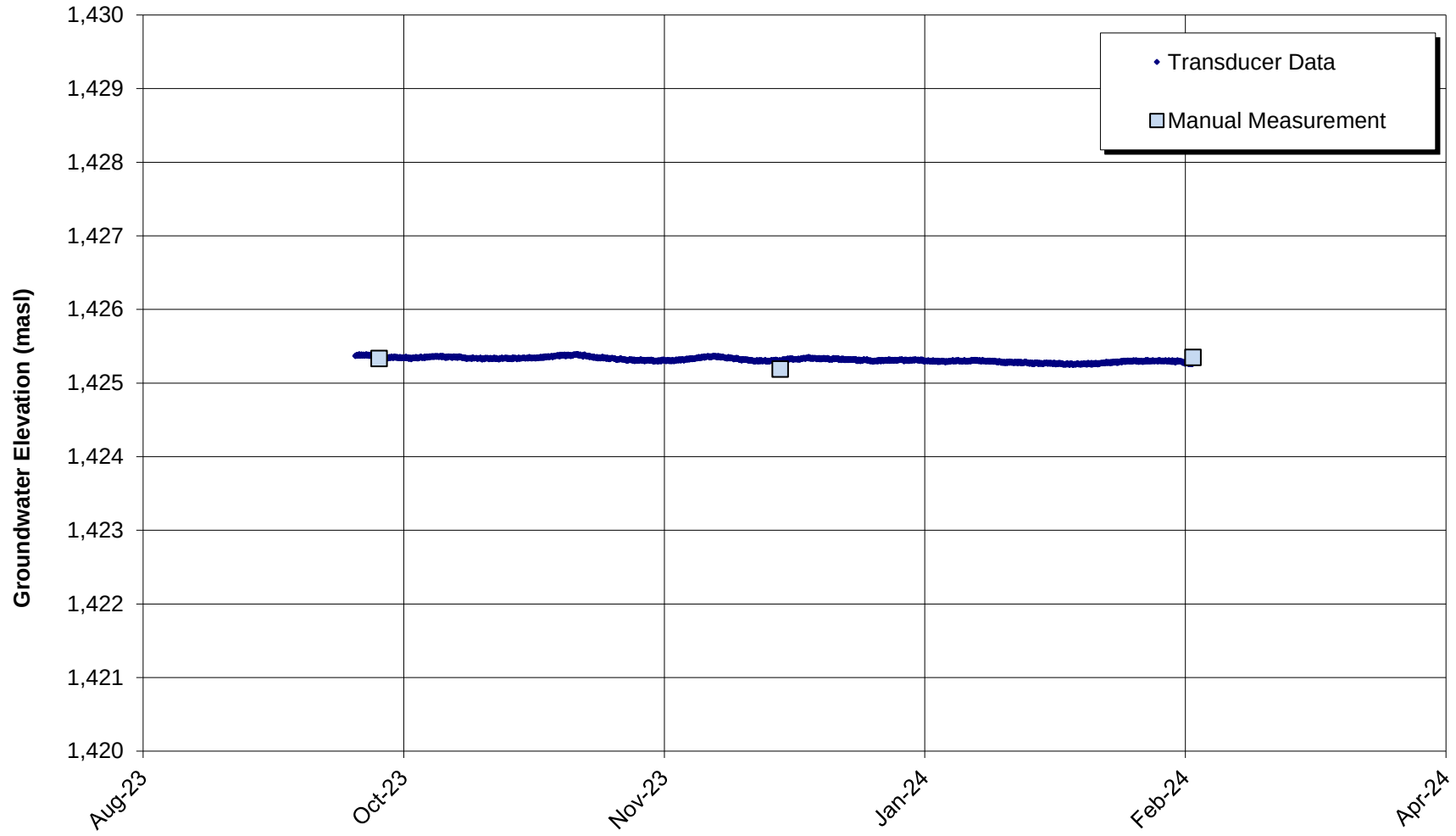
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.16

REV 0



NOTES:

1. GROUND ELEVATION AT MW23-01 IS 1468.4 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW23-01 IS SCREENED FROM 50.2 TO 53.2 mbgs.
3. WATER LEVEL DATA IS NOT INFLUENCED BY CHANGES IN BAROMETRIC PRESSURE AND HAS NOT BEEN COMPENSATED BY CHANGES IN BAROMETRIC PRESSURE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW23-01
GROUNDWATER ELEVATION

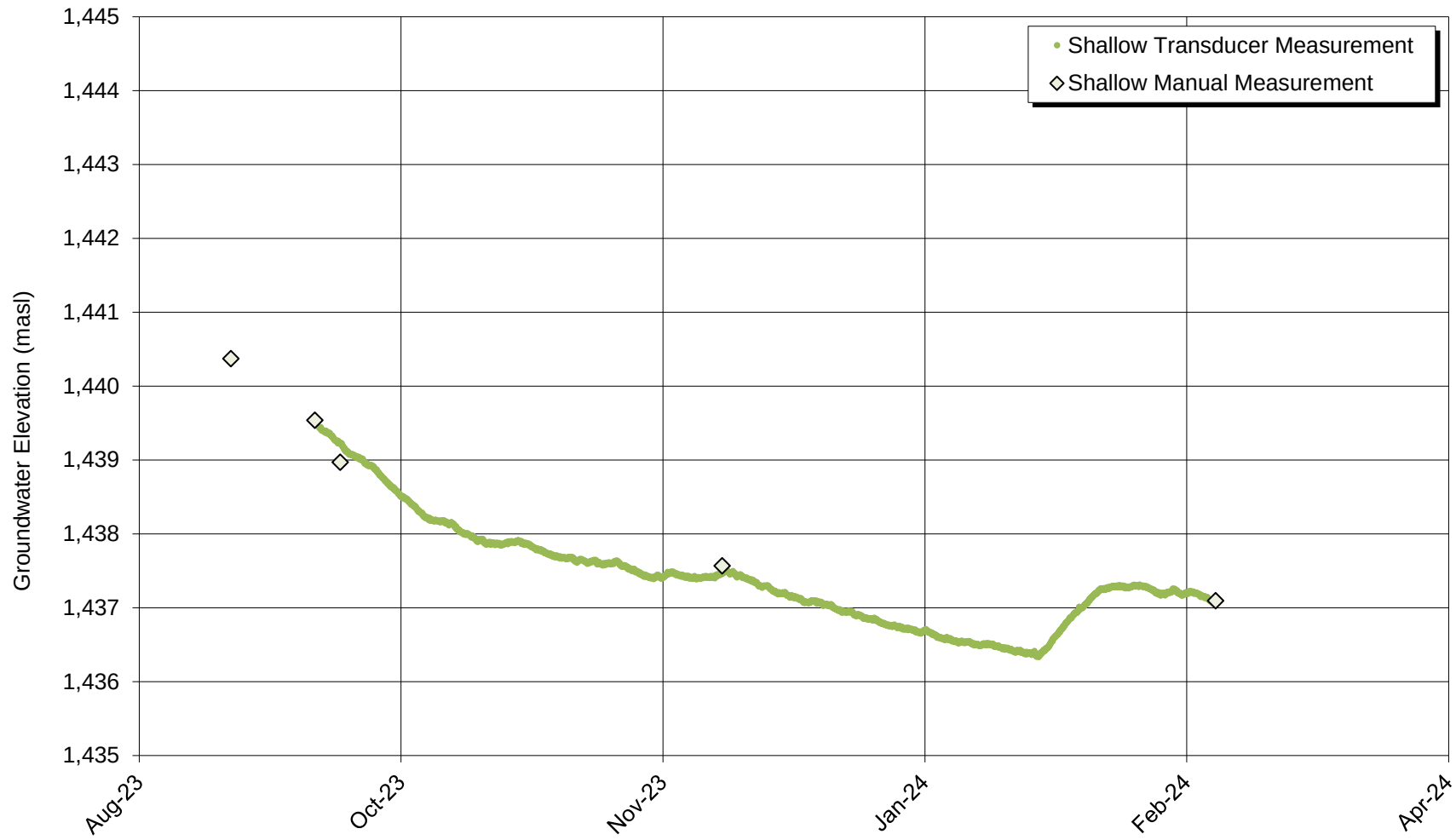
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.17

REV 0



NOTES:

1. GROUND ELEVATION AT MW23-02D 1443.3 masl AND MW23-02S 1442.8 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW23-02D IS SCREENED FROM 30.3 TO 33.4 mbgs. MW23-02S IS SCREENED FROM 7.9 TO 9.4 mbgs.
3. MONITORING WELL MW23-02D IS DRY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	JRN	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW23-02D/S
GROUNDWATER ELEVATION

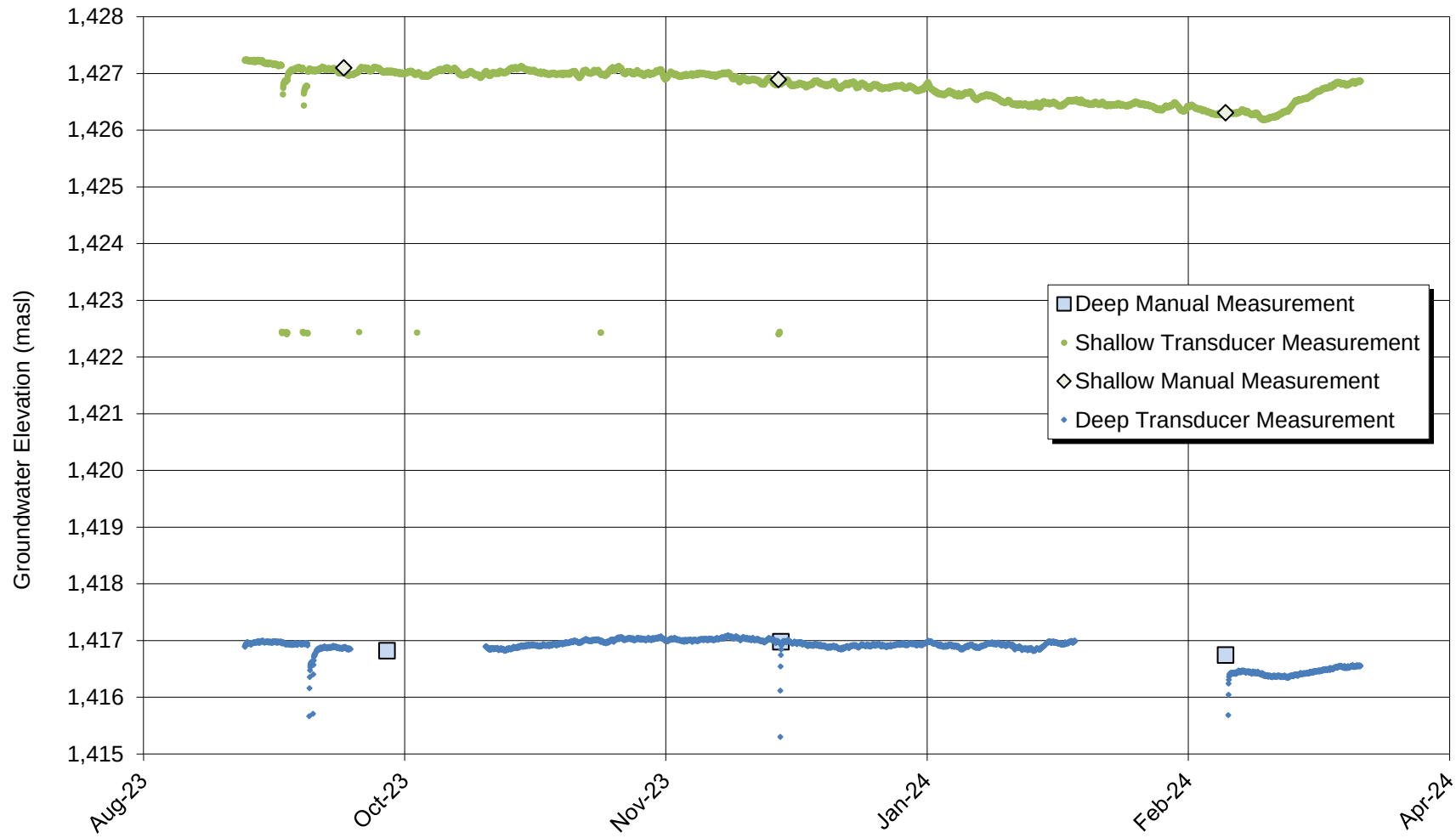
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.18

REV 0



NOTES:

1. GROUND ELEVATION AT MW23-03D 1430.5 masl AND MW23-03S 1430.4 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW23-03D IS SCREENED FROM 32.0 TO 35.0 mbgs. MW23-03S IS SCREENED FROM 5.2 TO 8.3 mbgs.
3. THE MW23-03D PRESSURE TRANSDUCER WAS REMOVED FROM THE WELL BETWEEN SEPTEMBER 19, 2023 AND OCTOBER 16, 2023. DATA WAS NOT RECORDED DURING THAT PERIOD.
3. THE MW23-03D PRESSURE TRANSDUCER WAS REMOVED FROM THE WELL DURING WELL DEVELOPMENT ACTIVITIES COMPLETED ON FEBRUARY 6, 2024. THE DEVICE WAS RE-INSTALLED DURING THE MARCH 6, 2024 SITE VISIT- NO DATA WAS COLLECTED DURING THIS PERIOD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	WM	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW23-03D/S
GROUNDWATER ELEVATION

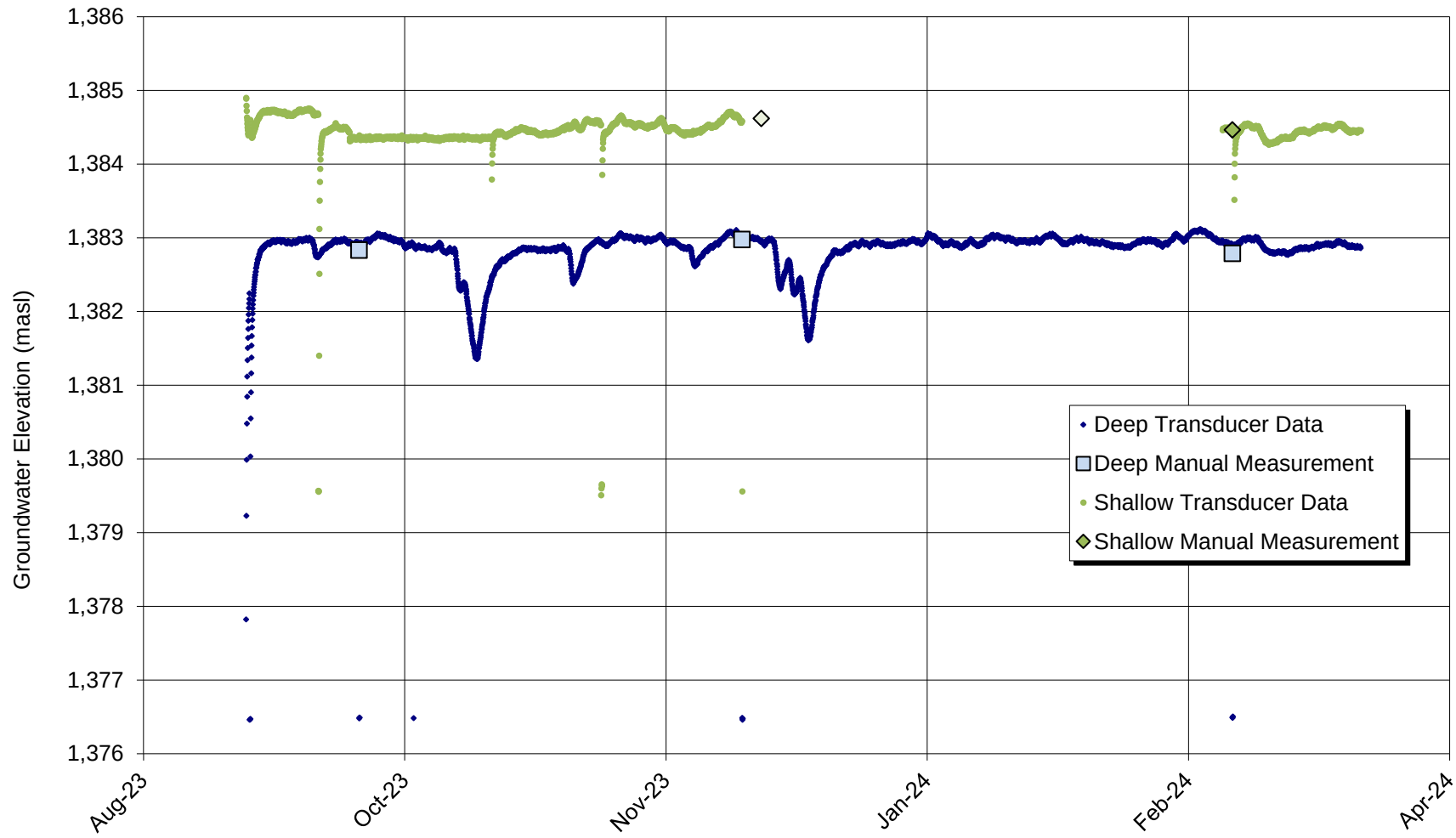
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.19

REV 0



NOTES:

1. GROUND ELEVATION AT MW23-04D IS 1395.4 masl AND MW23-04S IS 1395.4 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW23-04D IS SCREENED FROM 32.5 TO 35.6 mbgs. MW23-04S IS SCREENED FROM 14.5 TO 17.5 mbgs.
3. THE MW23-04S PRESSURE TRANSDUCER WAS NOT IN THE WELL DURING THE PERIOD OF DECEMBER 4, 2023 AND MARCH 5, 2024, DATA WAS NOT COLLECTED DURING THAT PERIOD.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	WM	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW23-04D/S
GROUNDWATER ELEVATION

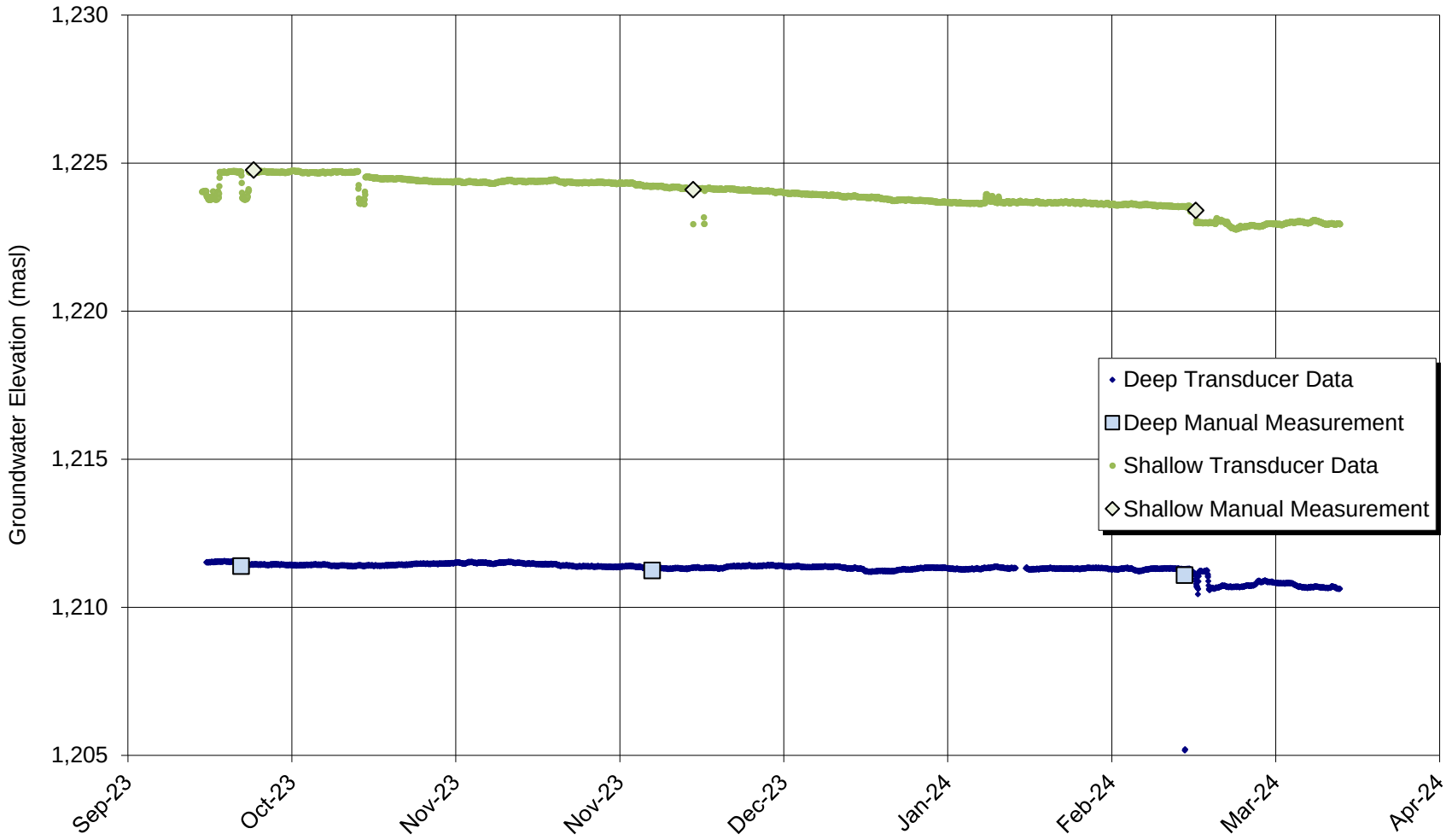
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.20

REV 0



NOTES:

1. GROUND ELEVATION AT MW23-05D 1231.0 masl AND MW23-05S 1231.2 masl BASED ON 2023 SURVEY PERFORMED BY BW GOLD LTD.
2. MW23-05D IS SCREENED FROM 32.5 TO 35.5 mbgs. MW23-05S IS SCREENED FROM 5.95 TO 9.00 mbgs.
3. WATER LEVELS AT MW23-05D ARE INFLUENCED BY PUMPING TESTS COMPLETED AT PW24-01 AND PW24-02 DURING THE PERIOD OF APRIL 5 TO APRIL 15, 2024.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	WM	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

MW23-05D/S
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

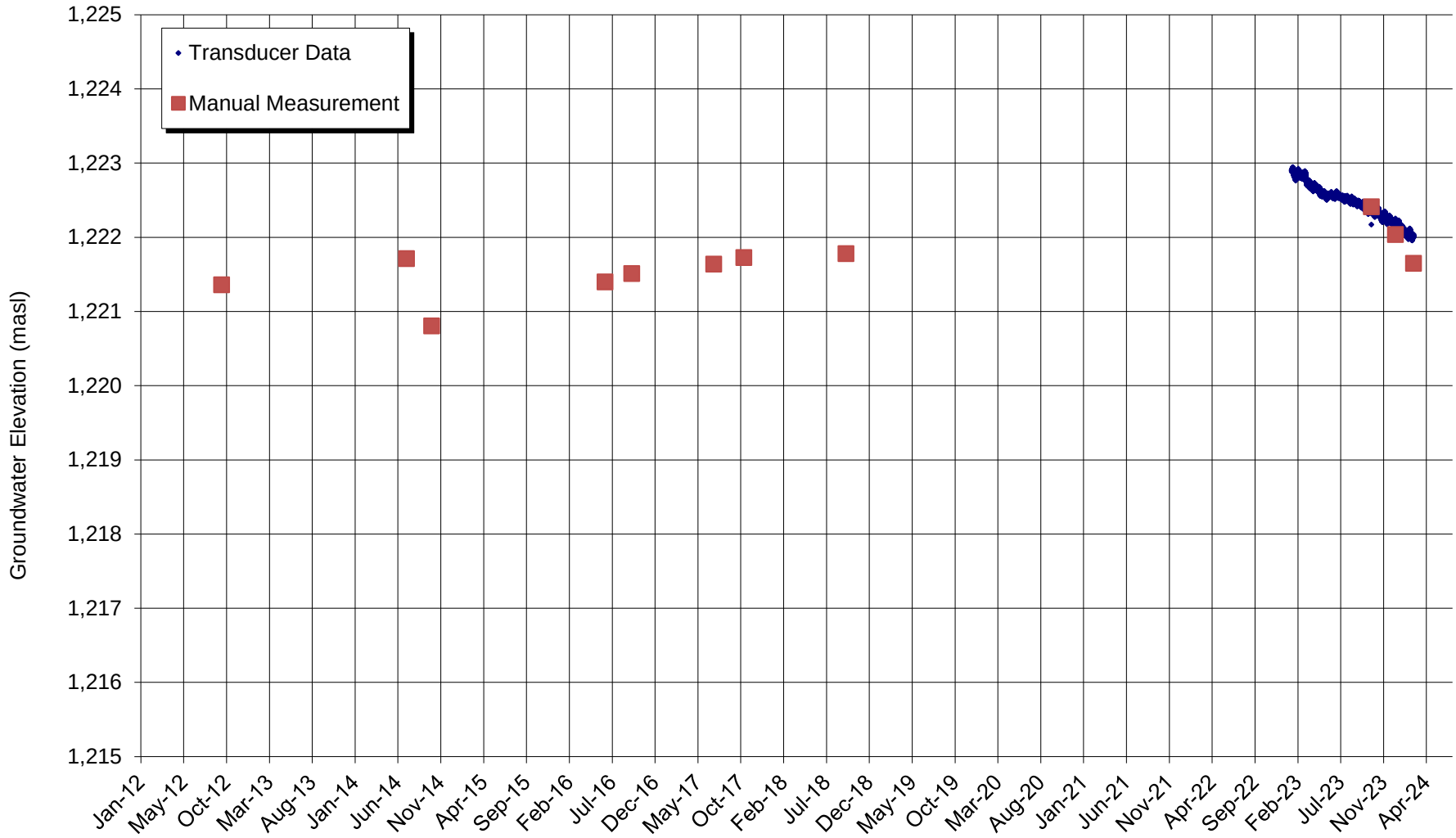
P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F1.21

REV 0

Appendix F-2 Standpipe Data



NOTES:

1. GROUND ELEVATION IS 1245 masl BASED ON 2012 ALLNORTH SURVEY.
2. SCREENED INTERVAL IS FROM 68.6 TO 71.6 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT12-01
GROUNDWATER ELEVATION

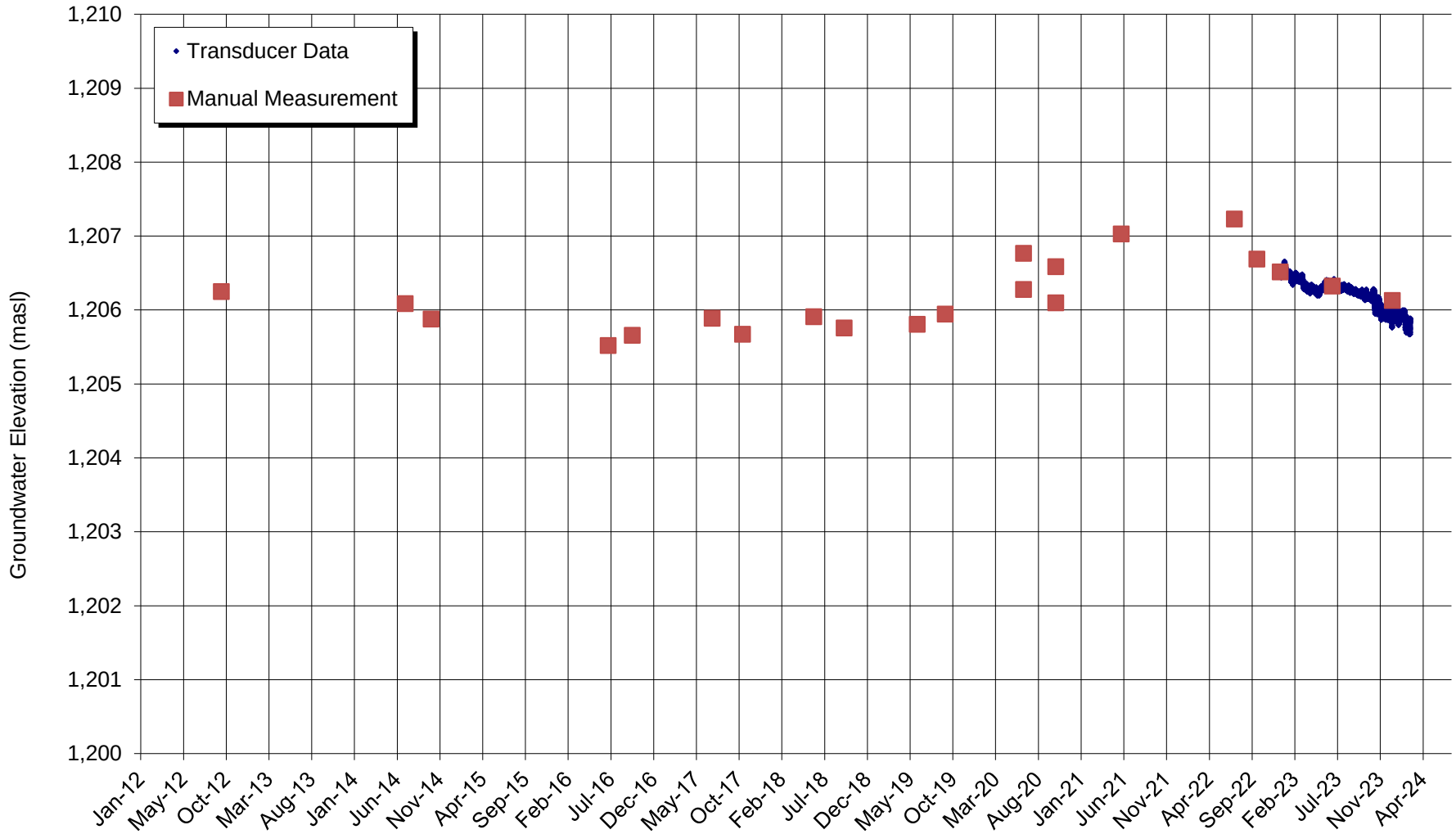
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.1

REV 0



NOTES:

1. GROUND ELEVATION IS 1239 masl BASED ON ALLNORTH 2012 SURVEY.
2. SCREENED INTERVAL IS FROM 106.7 TO 109.7 mbgs.

BW GOLD LTD.

BLACKWATER GOLD MINE

GT12-09
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

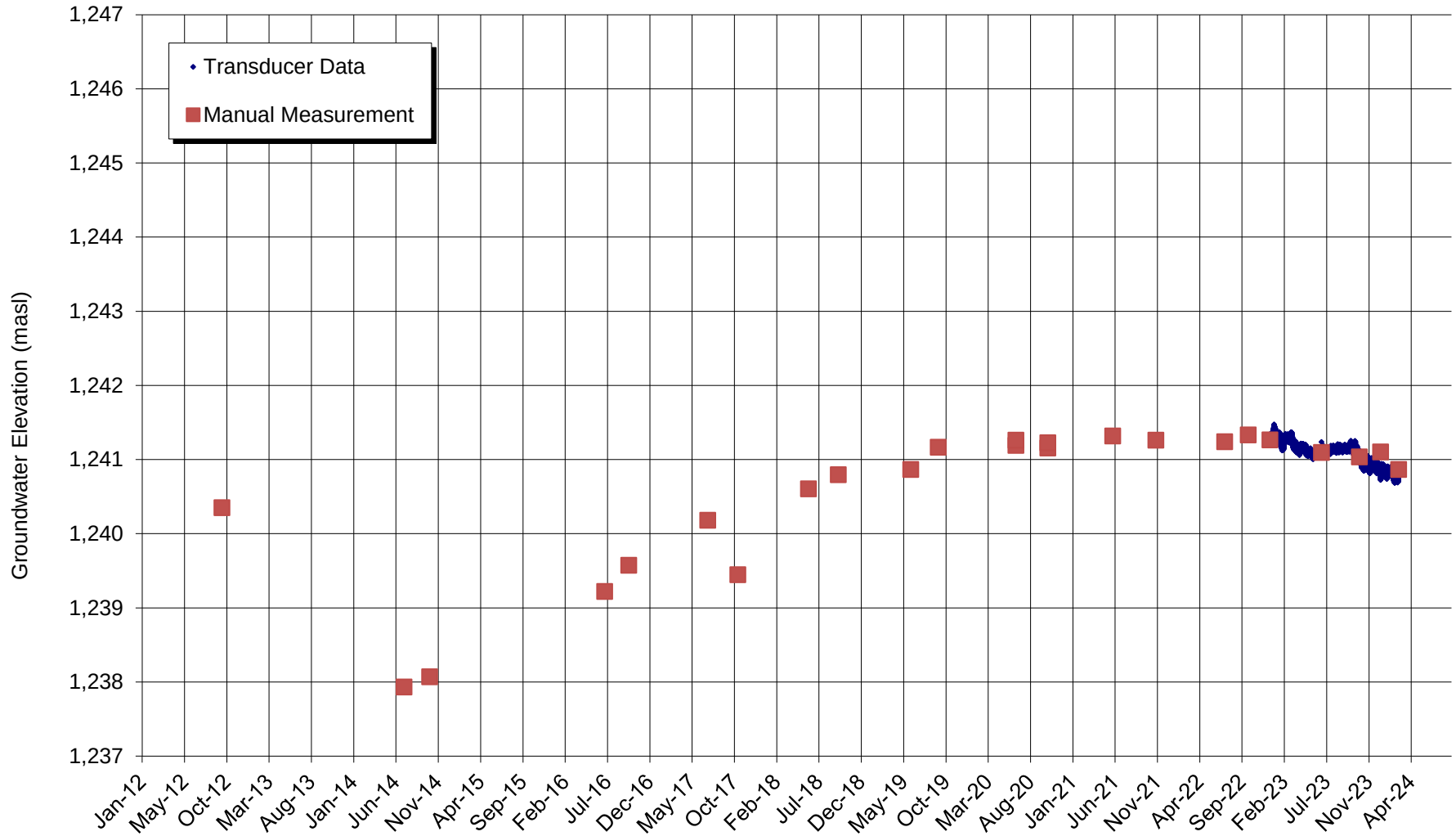
P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.2

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ



NOTES:

1. GROUND ELEVATION IS 1258 masl BASED ON ALLNORTH 2012 SURVEY
2. SCREENED INTERVAL IS FROM 28.3 TO 31.4 mbgs.

BW GOLD LTD.

BLACKWATER GOLD MINE

GT12-10
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

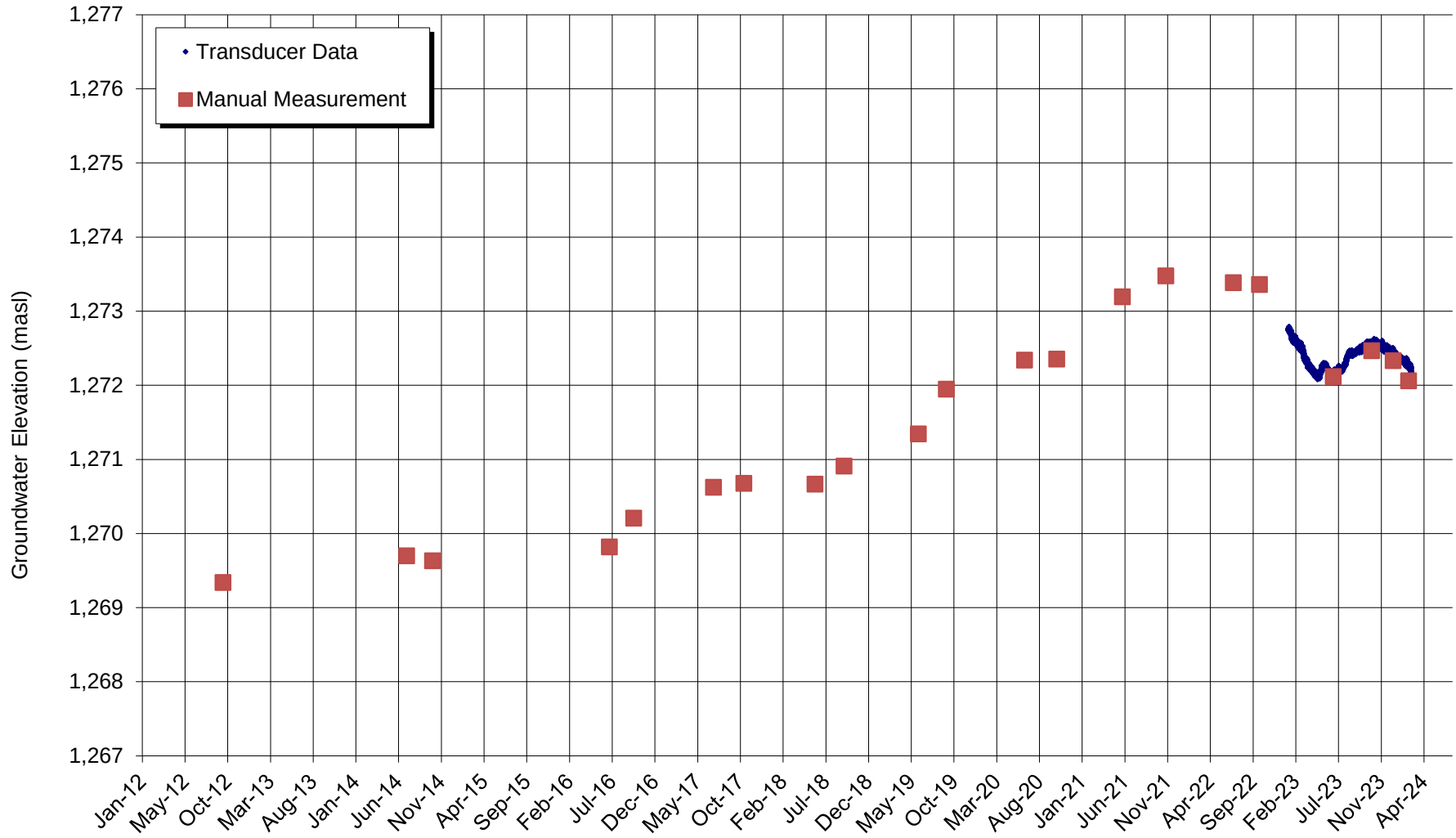
P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.3

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ



NOTES:

1. GROUND ELEVATION IS 1282 masl BASED ON ALLNORTH 2012 SURVEY
2. SCREENED INTERVAL IS FROM 11.6 TO 14.6 mbgs.

BW GOLD LTD.

BLACKWATER GOLD MINE

GT12-11
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

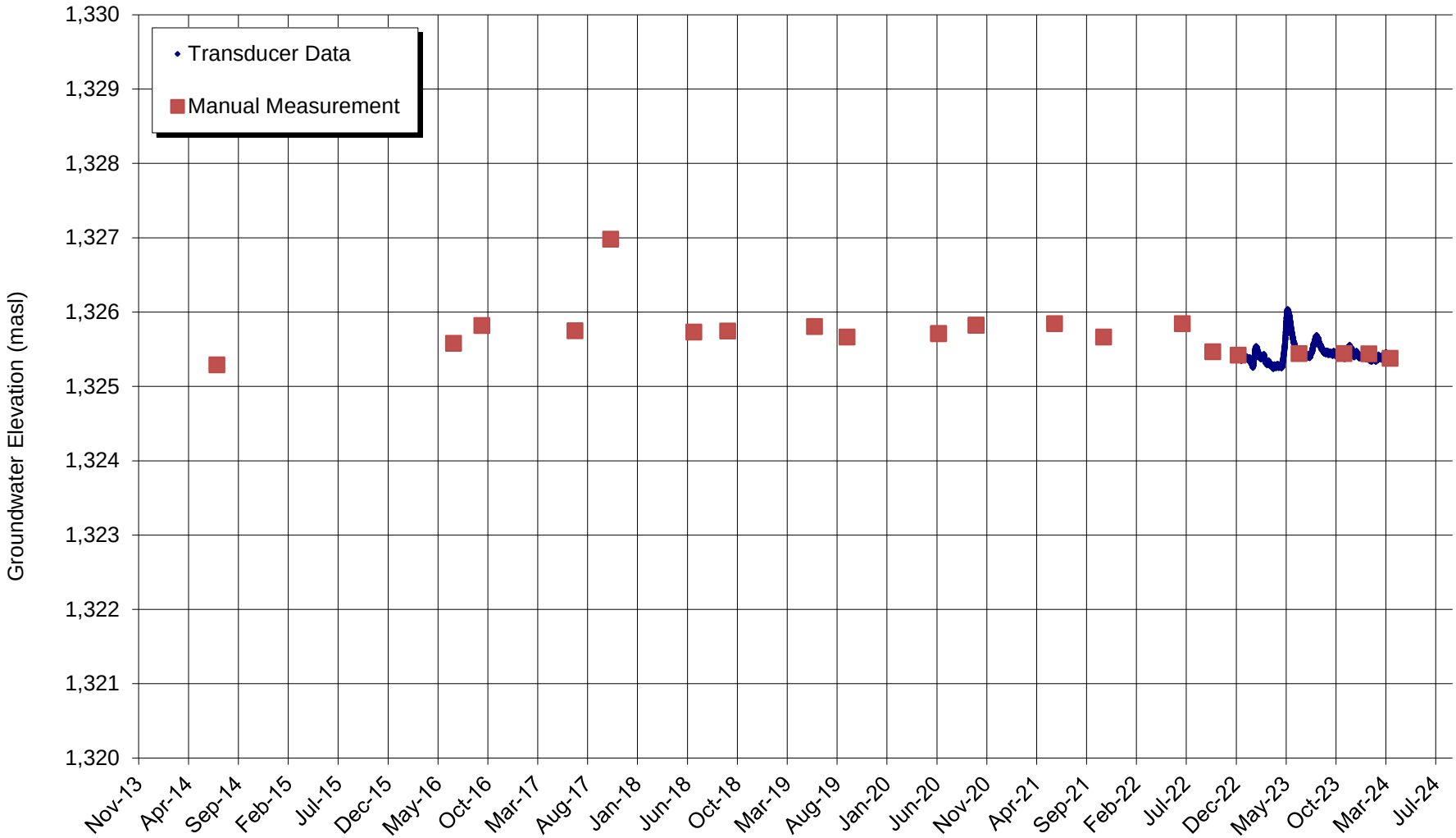
P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.4

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ



NOTES:

1. GROUND ELEVATION IS 1332 masl BASED ON ALLNORTH 2013 SURVEY
2. SCREENED INTERVAL IS FROM 7.0 TO 10.1 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT13-19
GROUNDWATER ELEVATION

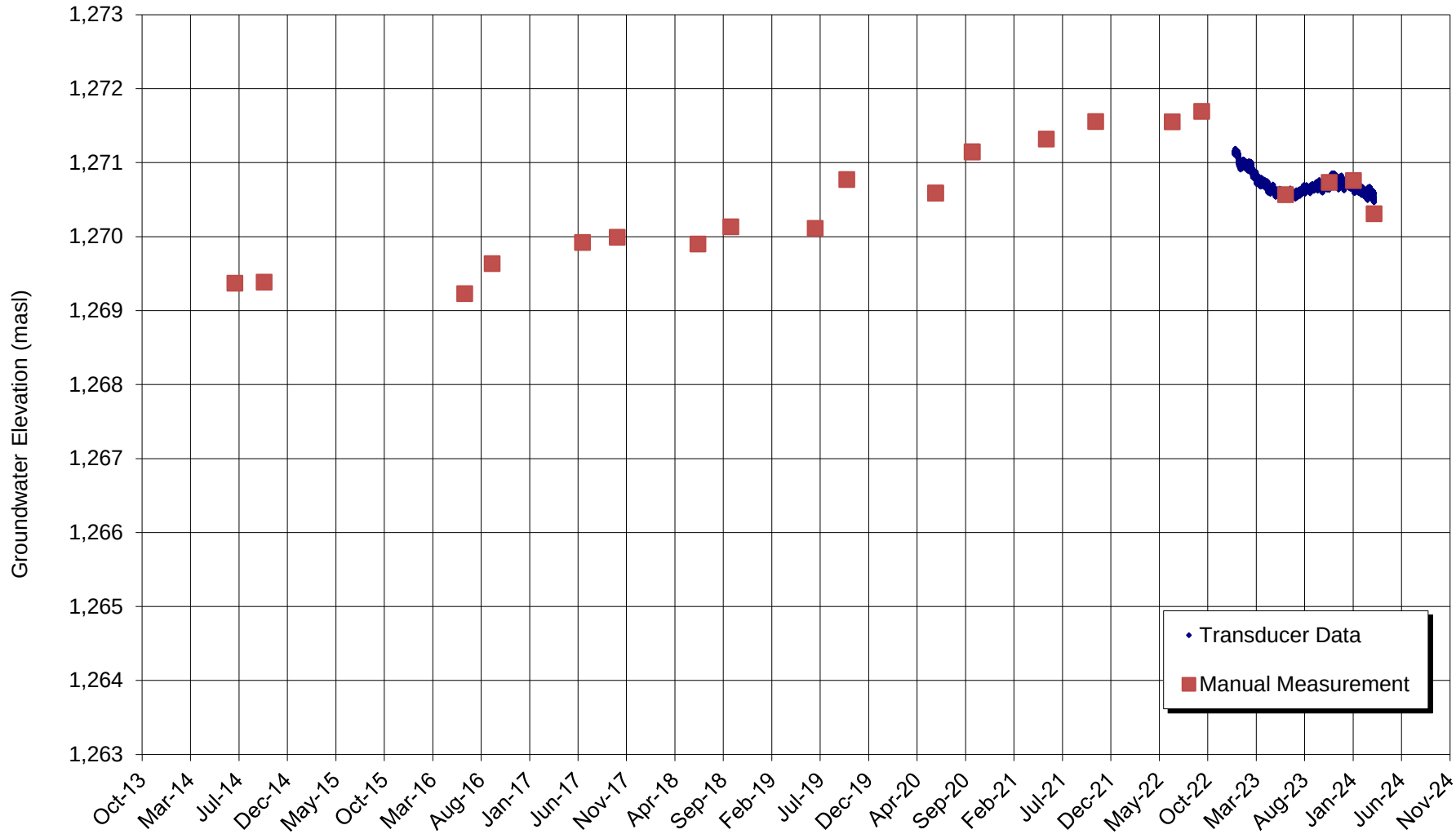
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.5

REV 0



NOTES:

1. GROUND ELEVATION IS 1275 masl BASED ON ALLNORTH 2013 SURVEY
2. SCREENED INTERVAL IS FROM 35.1 TO 32.2 mbgs.

BW GOLD LTD.

BLACKWATER GOLD MINE

GT13-20
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

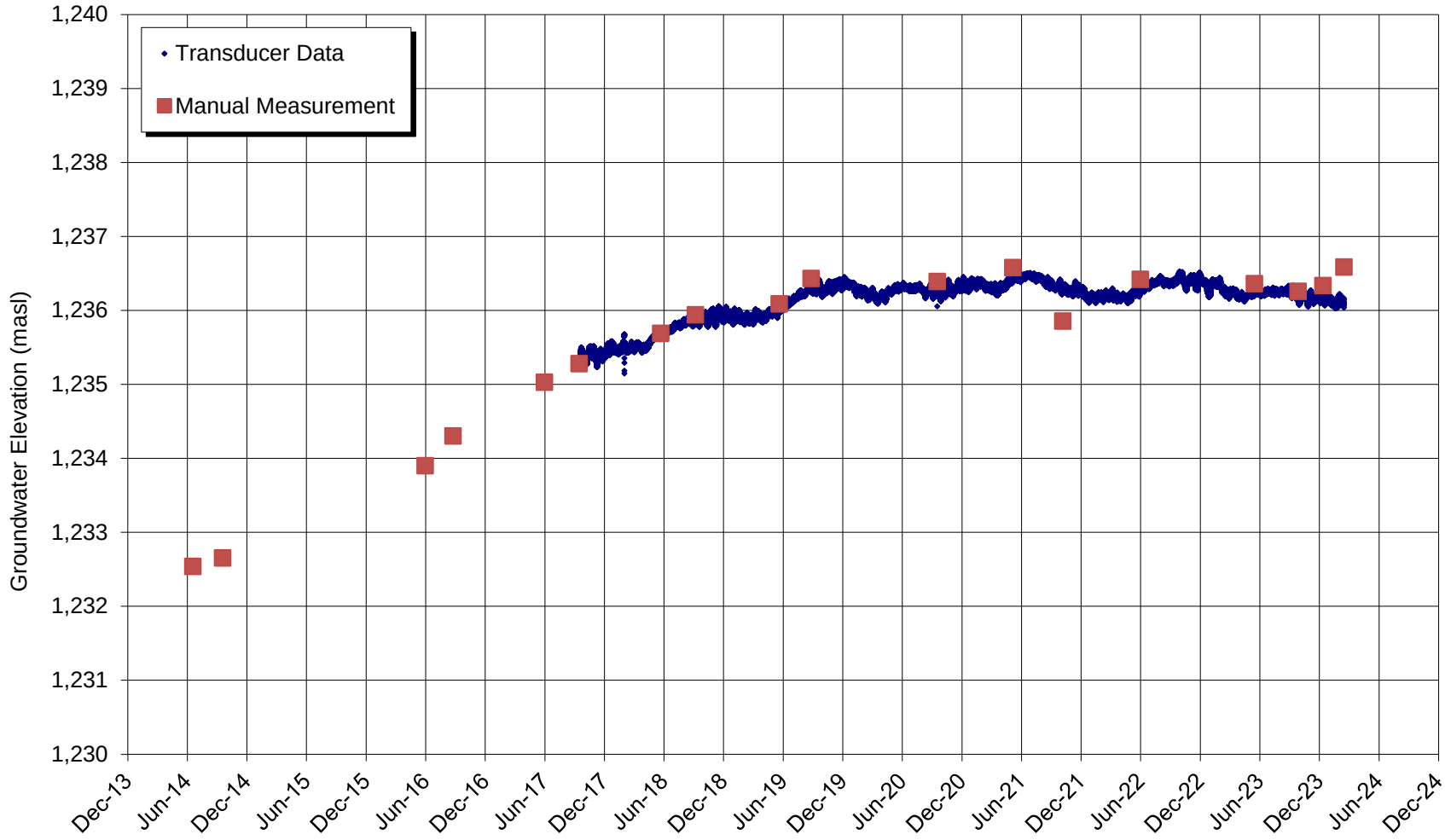
P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.6

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ



NOTES:

1. GROUND ELEVATION IS 1259.4 masl BASED ON 2013 SURVEY.
2. SCREENED INTERVAL IS FROM 69.2 TO 72.1 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT13-21
GROUNDWATER ELEVATION

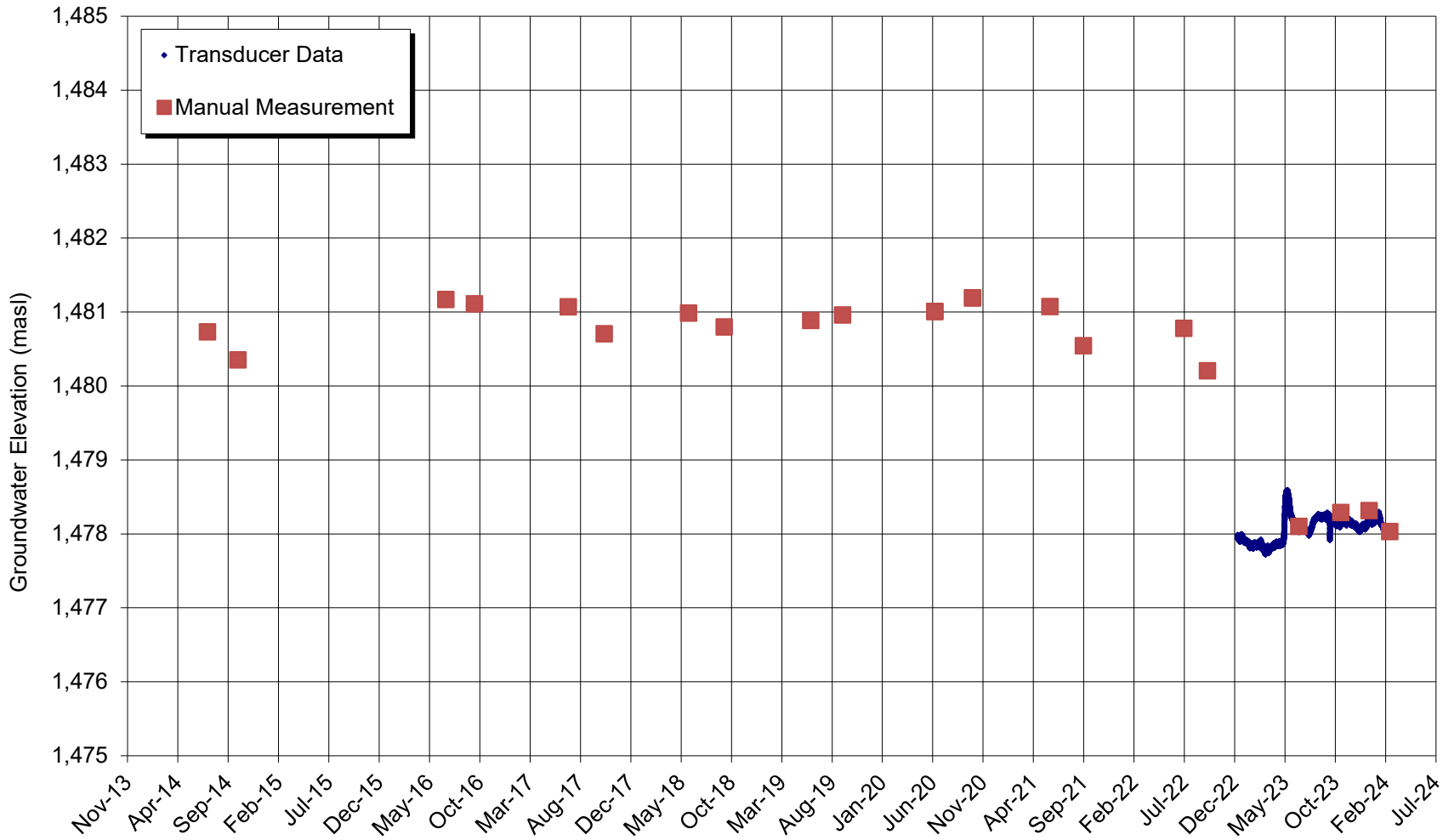
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F2.7

REV 0



NOTES:

1. GROUND ELEVATION IS 1482 masl BASED ON ALLNORTH 2013 SURVEY
2. SCREENED INTERVAL IS FROM 25.3 TO 28.4 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT13-25
GROUNDWATER ELEVATION

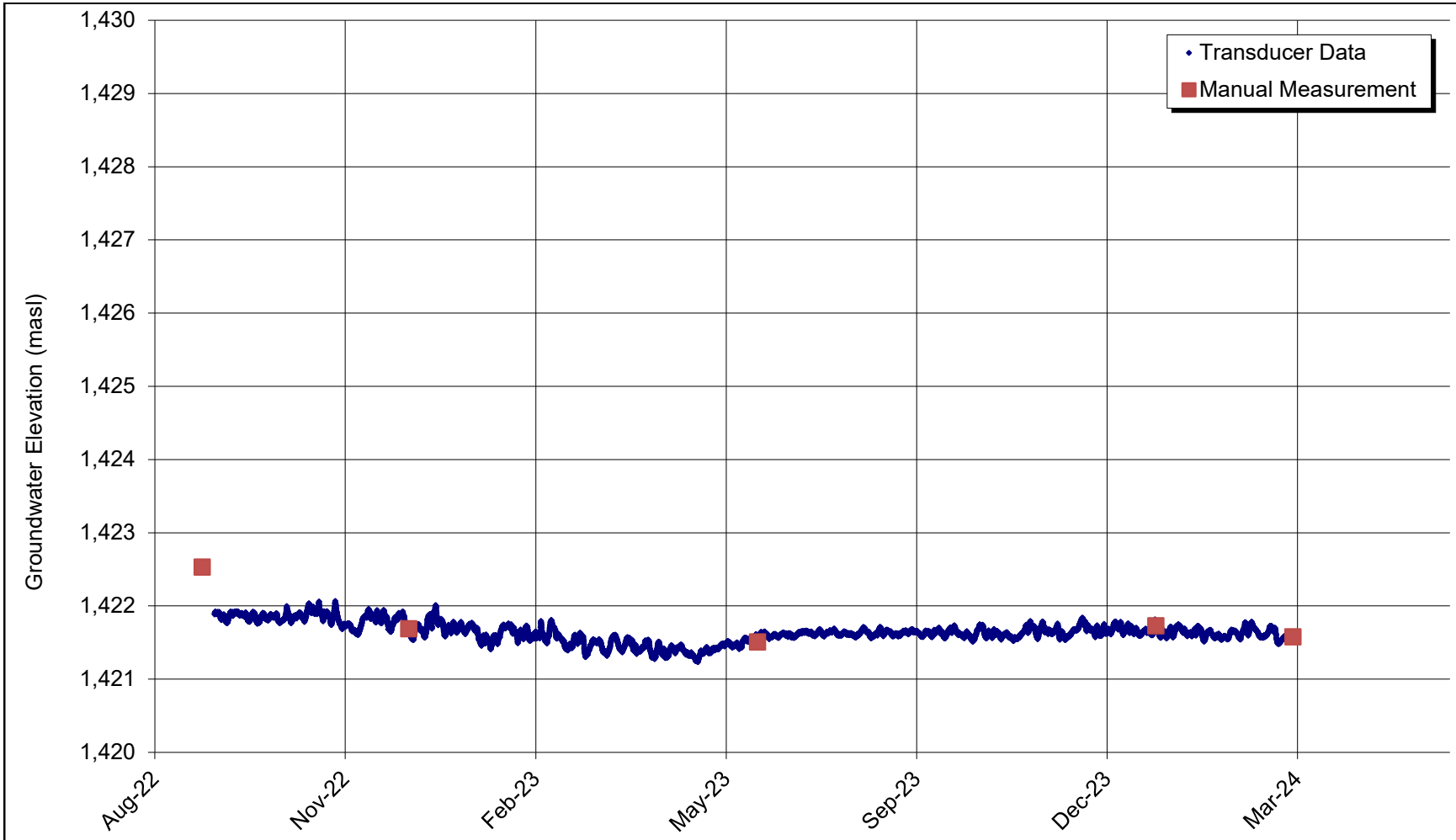
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF NO. VA24-01910

FIGURE F2.8

REV 0



NOTES:
1. GROUND ELEVATION IS 1456.3 masl BASED ON FIELD SURVEY.
2. SCREENED INTERVAL IS FROM 61.42 TO 64.42 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT13-44
GROUNDWATER ELEVATION

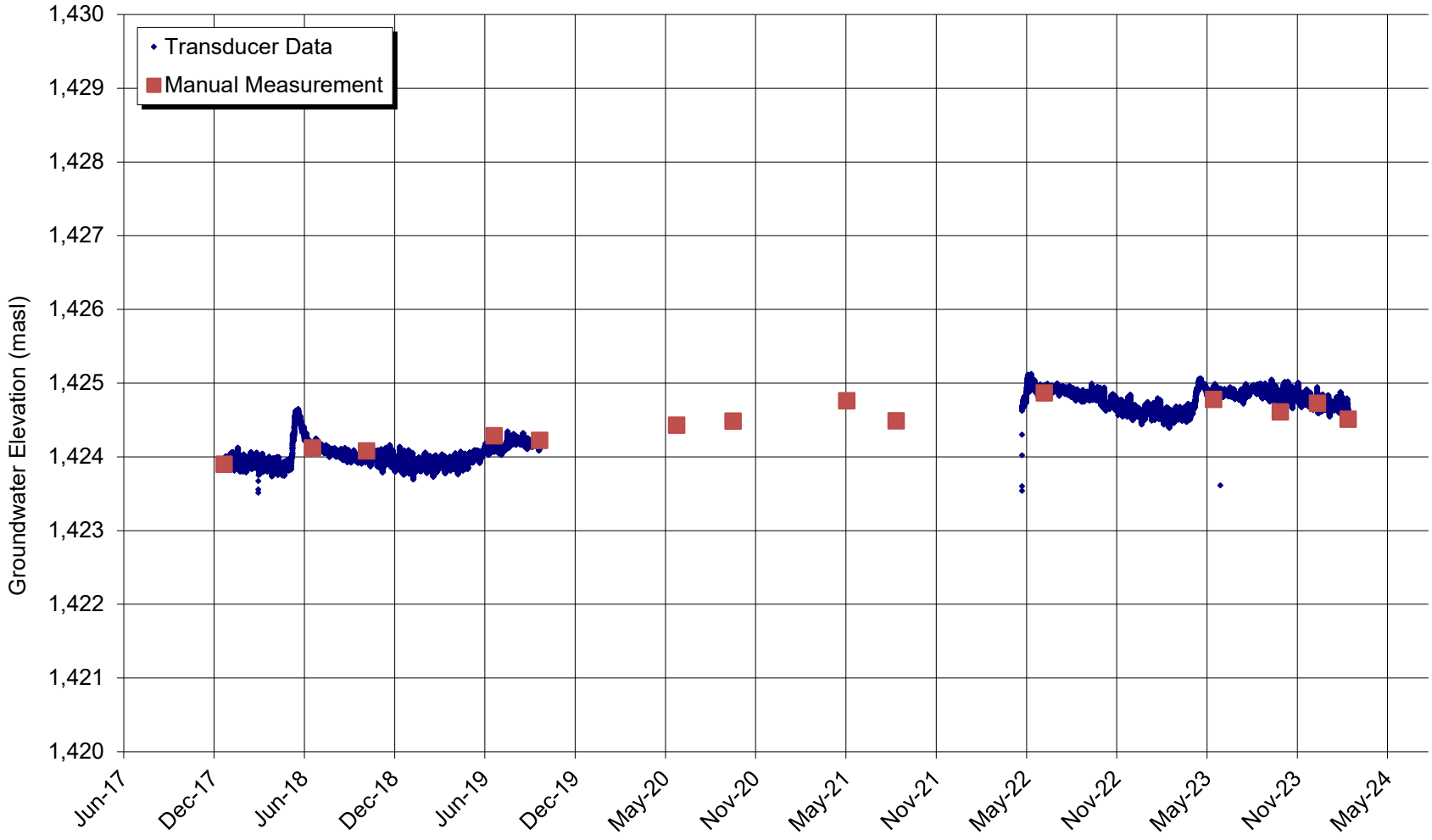
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.9

REV 0



NOTES:

1. GROUND ELEVATION IS 1461.1 masl SURVEY SOURCE IS UNKNOWN.
2. SCREENED INTERVAL IS FROM 35.3 TO 38.4 mbgs.
3. A PRESSURE TRANSDUCER WAS INSTALLED IN DECEMBER 2017. THE DEVICE WAS REMOVED IN DECEMBER 2019 AND WAS RE-INSTALLED IN MAY 2022.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

DK/MW-05
GROUNDWATER ELEVATION

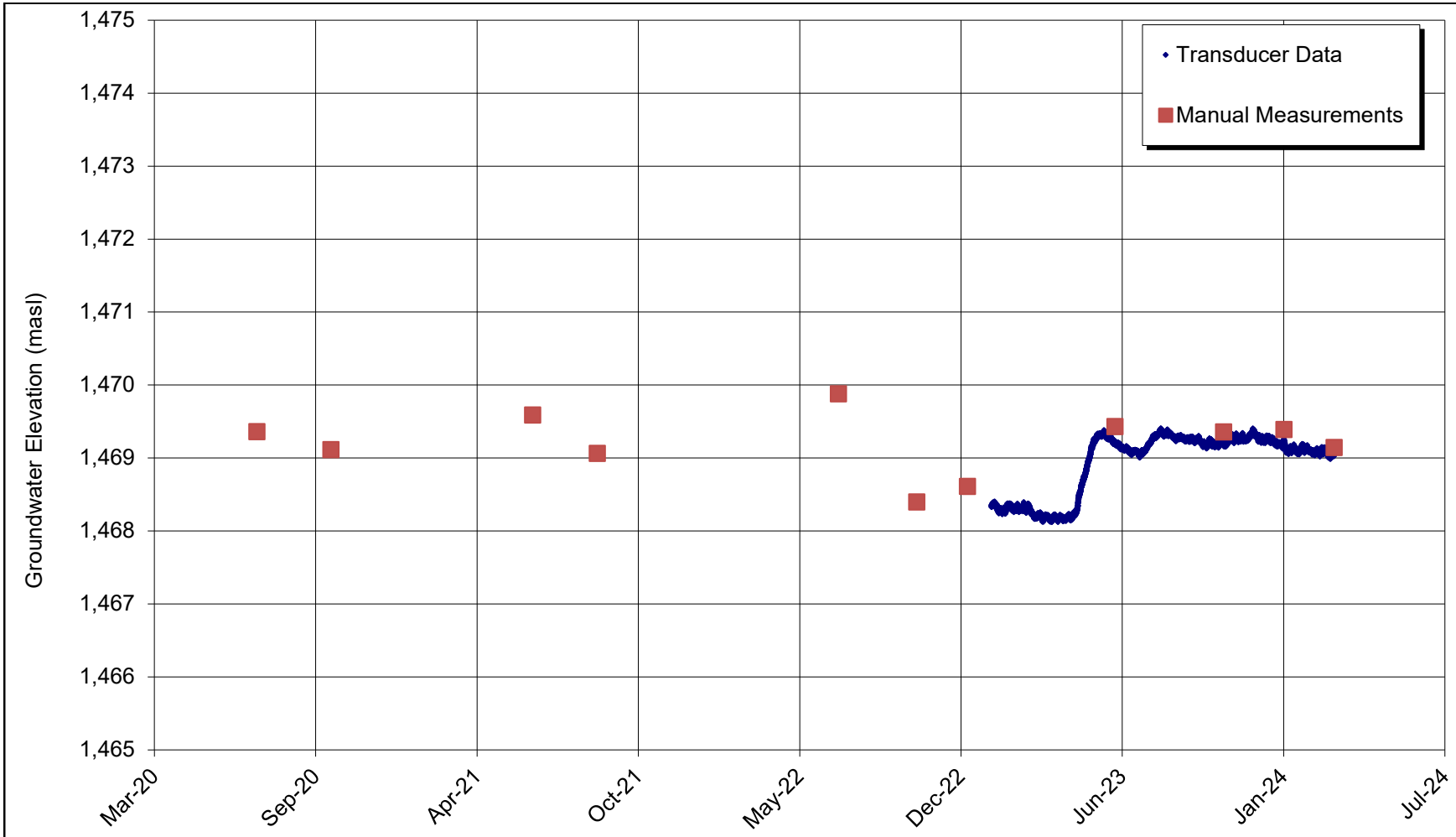
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.10

REV 0



NOTES:

1. GROUND ELEVATION IS 1473.6 masl BASED ON SURVEY.
2. SCREENED INTERVAL IS FROM 16.14 TO 19.20 mbgs.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

GT19-03
GROUNDWATER ELEVATION

Knight Piésold CONSULTING

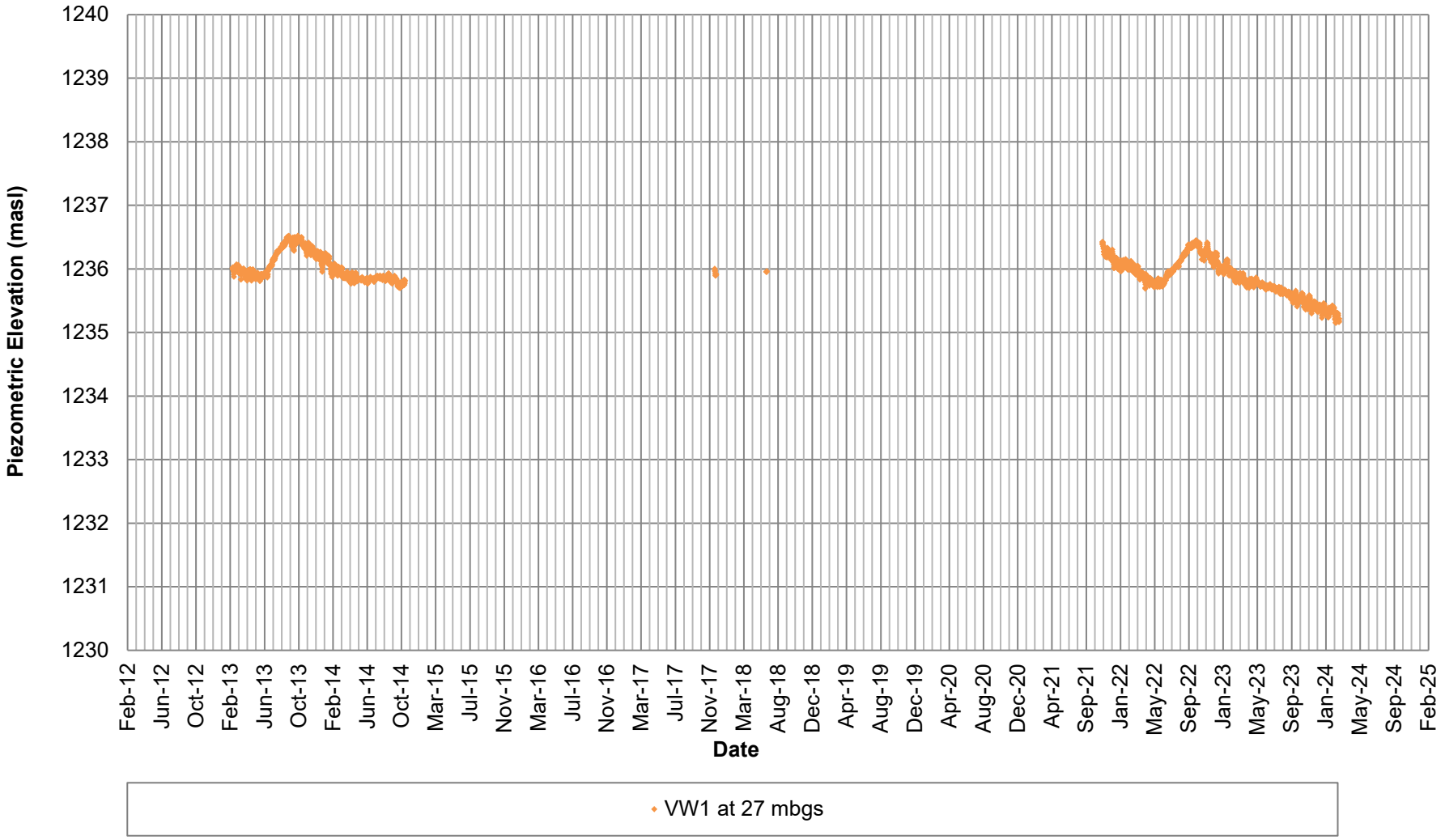
P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F2.11

REV 0

Appendix F-3 Vibrating Wire Piezometer Data



NOTES:

1. SENSOR DEPTHS SHOWN IN THE LEGEND ARE VERTICAL DEPTHS BELOW GROUND SURFACE.
2. GROUND ELEVATION IS 1245 METERS ABOVE SEA LEVEL.
3. DATA LOGGER STOPPED RECORDING DATA IN NOVEMBER 2014, THE DATALOGGER BATTERIES WERE REPLACED IN DECEMBER 2017. DATA LOGGER RECORDED DATA FOR SIX DAYS THEN STOPPED. BATTERIES WERE REPLACED AGAIN IN DECEMBER 2018 AND DATA WAS DOWNLOADED. ONLY FOUR DAYS OF DATA WERE RECORDED FROM DECEMBER 2017 TO OCTOBER 2021.

REV	DATE	DESCRIPTION	PREP'D	CHK'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD PROJECT

PIEZOMETER DATA
GT12-01
ELEVATION (masl)

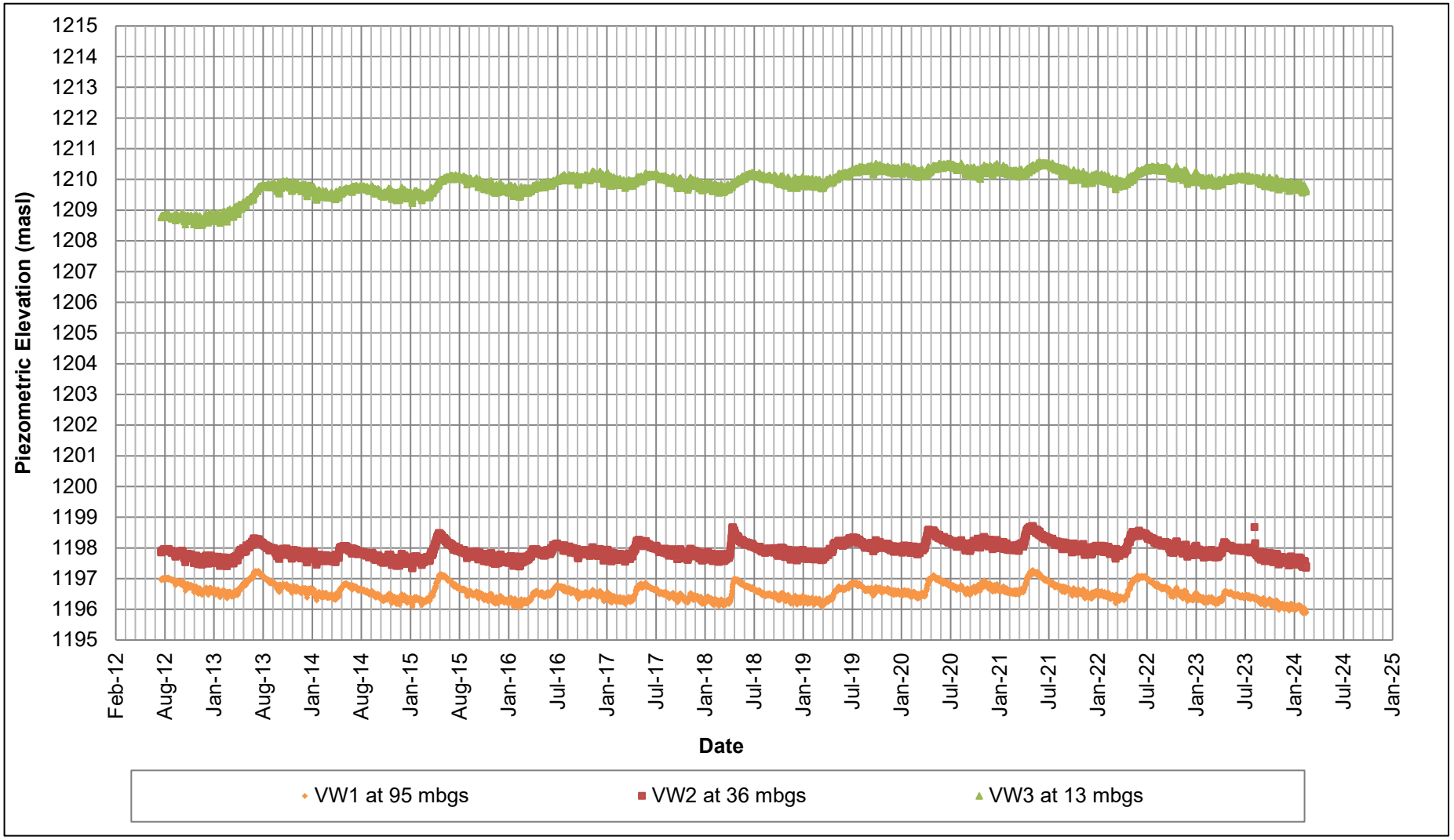
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F3.1

REV 0



NOTES:

1. SENSOR DEPTHS SHOWN IN THE LEGEND ARE VERTICAL DEPTHS BELOW GROUND SURFACE.
2. GROUND ELEVATION IS 1218 METERS ABOVE SEA LEVEL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD PROJECT

PIEZOMETER DATA
GT12-02
ELEVATION (masl)

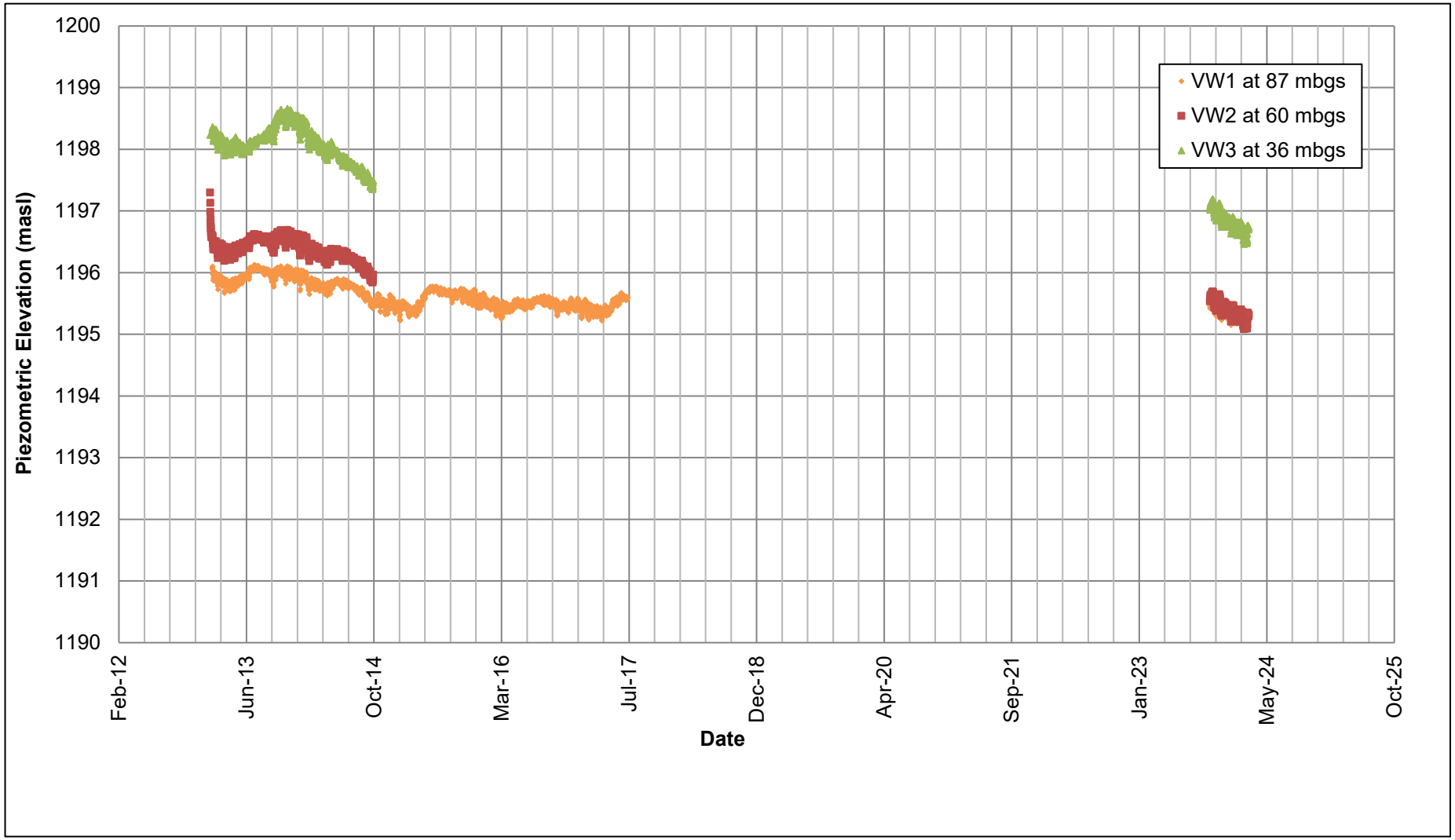
Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO. VA24-01910

FIGURE F3.2

REV 0



NOTES:

1. SENSOR DEPTHS SHOWN IN THE LEGEND ARE VERTICAL DEPTHS BELOW GROUND SURFACE.
2. GROUND ELEVATION IS 1223 METERS ABOVE SEA LEVEL.
3. SENSORS VW2 AND VW3 BEGAN MALFUNCTIONING IN OCTOBER 2014, AND SENSOR VW3 BEGAN MALFUNCTIONING IN JUNE 2017. DATA WAS NOT RECORCED FROM WHEN MALFUNCTIONS BEGAN UNTIL A NEW DATA LOGGER WAS INSTALLED IN OCTOBER 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD PROJECT

PIEZOMETER DATA
GT13-02
ELEVATION (masl)

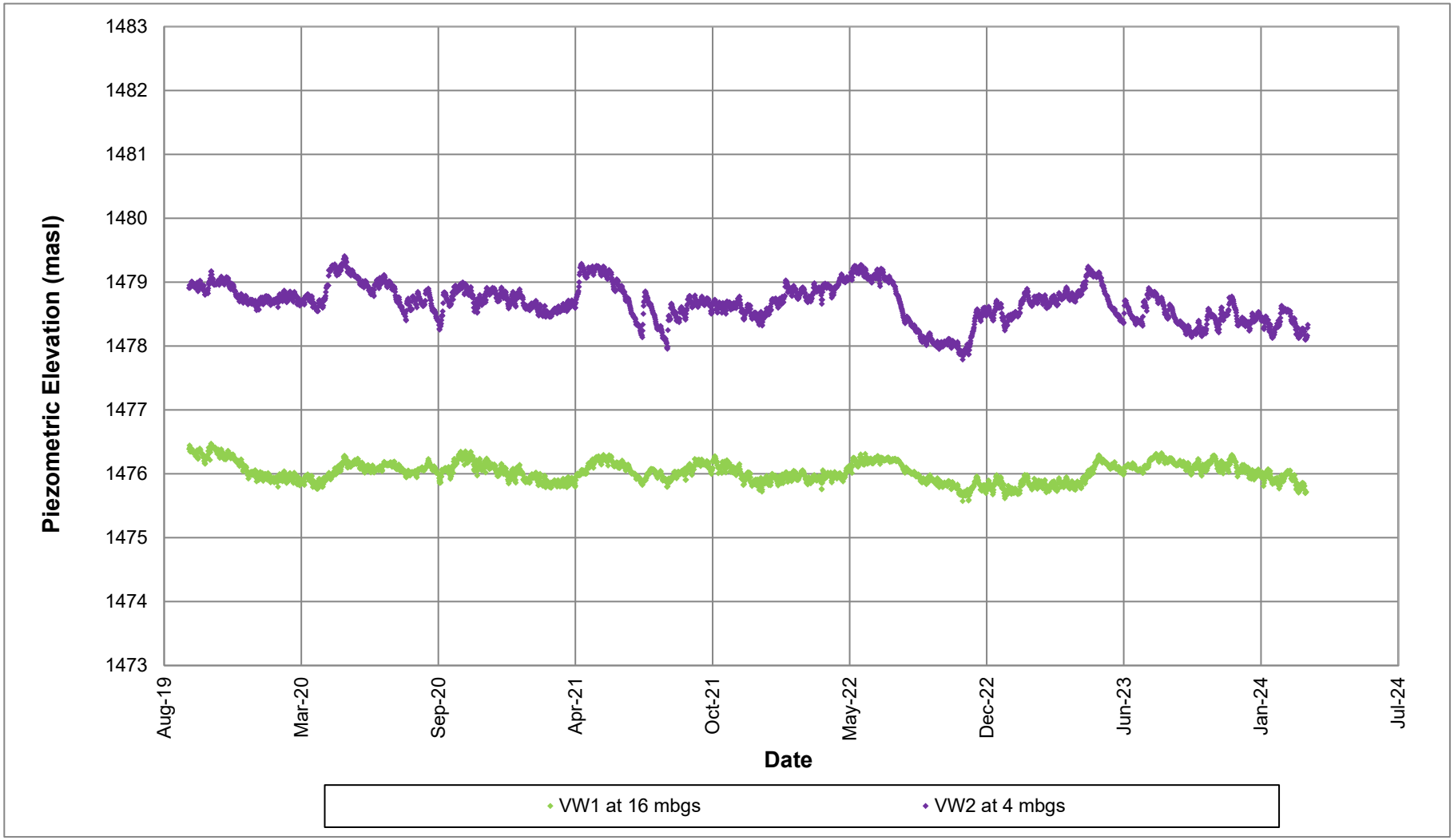
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE F3.3

REV 0



NOTES:

1. GROUND ELEVATION IS 1479 m ABOVE SEA LEVEL.
2. SENSOR ELEVATIONS SHOWN IN LEGEND ARE VERTICAL DEPTHS BELOW GROUND SURFACE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD PROJECT

PIEZOMETER DATA
GT19-04
ELEVATION (masl)

Knight Piésold CONSULTING

P/A NO. VA101-00457/40

REF. NO VA24-01910

FIGURE F3.4

REV 0

Appendix F-4 Background Water Level Summary

Knight Piésold CONSULTING

TABLE F4.1

BW GOLD LTD.
BLACKWATER GOLD MINE

FOLLOW-UP PROGRAM CONDITION 3.15 - 2023 ANNUAL REPORT
WATER LEVEL SUMMARY TABLE - WATER QUALITY MONITORING LOCATIONS

Print Sep/26/24 16:15:23

Drillhole ID	Location Monitored	Background Water Level Information						Post-Disturbance Water Level Information					Construction Activity
		Period		Minimum	Maximum	Average	Seasonal Water Level Fluctuations	Period of Record Start Date	Minimum	Maximum	Average	Seasonal Water Level Fluctuations (2023)	
		From	To				(m)					(m)	
Monitoring Wells Located Between TSF C and the IECD													
GT20-04	TSF C	28-Mar-21	30-Sep-22	1211.0	1211.8	1211.3	<1	1-Oct-22	1210.5	1211.3	1211.0	1	Main Dam C initial fill placement and foundation preparation involving: grubbing and stripping of surficial materials in select areas and excavation of the cut-off trench. Construction of the Water Management Pond and Lake 16 Diversion Berm.
GT21-03S		28-Mar-21	30-Sep-22	1200.1	1200.9	1200.3	<1	1-Oct-22	1200.1	1200.2	1200.1	<1	
MW22-02D		-	-	-	-	-	-	17-Jan-23	1207.3	1208.1	1207.7	<1	
MW22-02S		-	-	-	-	-	-	17-Jan-23	Well is dry				
MW22-03D		-	-	-	-	-	-	11-Jan-23	1210.1	1210.9	1210.6	1	
MW22-03S		-	-	-	-	-	-	19-Jan-23	1217.3	1218.6	1218.0	1	
MW23-05D		-	-	-	-	-	-	19-Sep-23	1211.3	1211.6	1211.4	1	
MW23-05S		-	-	-	-	-	-	19-Sep-23	1223.4	1224.8	1224.1	1	
Monitoring Wells Located Between TSF D and the ECD / Seepage Collection Trenches													
MW12-07D	TSF D	12-Jun-12	30-Sep-22	1202.6	1209.7	1203.7	1	1-Oct-22	1201.9	1203.6	1202.5	1	As above.
MW12-07S		12-Jun-12	30-Sep-22	1202.2	1205.7	1203.5	1	1-Oct-22	1201.7	1203.6	1202.5	1	
Monitoring Wells Located at the FWR and Downgradient													
MW12-08D	TSF and ECD	02-Oct-12	30-Sep-22	1159.5	1160.7	1159.9	2	1-Oct-22	1159.2	1159.7	1159.4	<1	As above.
MW12-08S		02-Oct-12	30-Sep-22	1157.6	1159.2	1158.2	2	1-Oct-22	1157.4	1158.1	1157.7	<1	
MW12-09D		17-Oct-12	30-Sep-22	1143.3	1146.6	1144.2	3	1-Oct-22	1143.3	1143.7	1143.4	<1	
Monitoring Wells Located at the Saddle Dam and Spillway													
MW12-12D	TSF	18-Oct-12	30-Sep-22	1242.8	1243.6	1243.1	<1	1-Oct-22	1242.7	1243.2	1242.9	<1	As above.
MW12-12S		01-Oct-12	30-Sep-22	1242.7	1243.9	1243.2	1	1-Oct-22	1242.6	1243.3	1242.8	<1	
Monitoring Wells Downgradient of Stockpiles Area													
MW12-02S	LGO	12-Jun-12	31-Mar-24	1405.2	1407.1	1406.5	<1	-	-	-	-	-	None
MW23-03D		31-Aug-23	31-Mar-24	1416.7	1417.0	1416.8	<1	-	-	-	-	-	
MW23-03S		31-Aug-23	31-Mar-24	1426.3	1427.1	1426.8	Dry	-	-	-	-	-	
MW23-04D	LWS	31-Aug-23	31-Mar-24	1381.5	1383.1	1382.8	1	-	-	-	-	-	
MW23-04S		31-Aug-23	31-Mar-24	1384.3	1384.9	1384.5	1	-	-	-	-	-	
Monitoring Wells Downgradient of Deposit Area													
MW12-03D	Open Pit	29-Oct-12	31-Mar-24	1438.5	1439.6	1439.0	<1	-	-	-	-	<1	None
Monitoring Wells Downgradient of Plant Site Area													
MW23-01	Plant Site	-	-	-	-	-	-	21-Sep-23	1425.2	1425.7	1425.4	<1	Plant Site Construction Plant Site Pad Construction Activities and Implementation of RIBs
MW23-02D	Plant Site RIBs	-	-	-	-	-	-	06-Sep-23	Well is dry				
MW23-02S		-	-	-	-	-	-	15-Sep-23	1436.3	1439.4	1437.4	3	
Background Monitoring Wells													
MW12-01D	-	14-Jul-15	31-Mar-24	1288.7	1290.5	1289.7	<1	-	-	-	-	<1	None
MW12-05D	-	08-Jun-12	31-Mar-24	1372.3	1373.8	1373.4	<1	-	-	-	-	1	
MW12-05S		12-Jun-12	31-Mar-24	1369.0	1373.4	1372.8	<1	-	-	-	-	1	
MW12-13S	-	01-Oct-12	31-Mar-24	1344.0	1345.5	1344.3	1	-	-	-	-	1	

NOTES:

1. masl IS METERS ABOVE SEA LEVEL; mbgs IS METERS BELOW GROUND SURFACE.
2. TSF = TAILINGS STORAGE FACILITY; ECD = ENVIRONMENTAL CONTROL DAM; FWR = FRESH WATER RESERVOIR; LWS = LOWER WASTE STOCKPILE; WMP = WATER MANAGEMENT POND; RIBs = RAPID INFILTRATION BASINS; SCP = SEDIMENT CONTROL POND.
3. THE WATER LEVEL RECORD AT MONITORING WELLS MW12-02D/S AND MW23-04D/S ARE INFLUENCED BY INTERMITENT USE OF SUPPLY WELL 3. SEASONAL FLUCTUATIONS ARE INTENDED TO REFLECT NATURAL VARIABILITY IN GROUNDWATER LEVELS RATHER THAN RESPONSE TO USE OF THE PUMPING WELL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL VA24-01910	JRN	JDZ

Knight Piésold CONSULTING

TABLE F4.2

BW GOLD LTD.
BLACKWATER GOLD MINE

FOLLOW-UP PROGRAM CONDITION 3.15 - 2023 ANNUAL REPORT
WATER LEVEL SUMMARY TABLE - WATER LEVEL MONITORING LOCATIONS

Print Sep/26/24 16:15:23

Drillhole ID	Installation [1] Type	Status of Monitoring Well	VW Sensor ID	Background Water Level Information						Post-Disturbance Water Level Information					Construction Activity
				Period		Minimum	Maximum	Average	Seasonal Water Level Fluctuations	Period of Record Start Date	Minimum	Maximum	Average	Seasonal Water Level Fluctuations (2023)	
				From	To	(masl)			(m)		(masl)			(m)	
Water Level Monitoring Locations in the TSF Area															
MW12-09S	SP	Existing	-	2-Oct-12	30-Sep-22	1143.2	1149.0	1144.6	6	1-Oct-22	1143.2	1143.7	1143.5	<1	Main Dam C initial fill placement and foundation preparation involving: grubbing and stripping of surficial materials in select areas and excavation of the cut-off trench. Construction of the Water Management Pond and Lake 16 Diversion Berm.
GT21-03D	SP	Existing	-	28-Mar-21	30-Sep-22	1207.4	1208.6	1207.8	<1	1-Oct-22	1206.8	1207.4	1207.1	<1	
GT12-01	SP	Existing	-	10-Oct-12	30-Sep-22	1220.8	1221.8	1221.5	2	1-Oct-22	1221.7	1222.4	1222.0	2	
	VWP		VW1	18-Feb-13	30-Sep-22	1235.7	1236.5	1236.0	<1	1-Oct-22	1235.2	1236.4	1235.8	1	
GT12-02	VWP	Existing	VW1	18-Jul-12	30-Sep-22	1196.1	1197.3	1196.6	1	1-Oct-22	1195.9	1196.7	1196.3	1	
			VW2	18-Jul-12	30-Sep-22	1197.3	1198.7	1197.9	1	1-Oct-22	1195.9	1196.7	1196.3	1	
			VW3	18-Jul-12	30-Sep-22	1208.5	1210.6	1209.9	1	1-Oct-22	1209.6	1210.4	1210.0	1	
GT13-02	VWP	Existing	VW1	23-Jan-13	30-Sep-22	1195.2	1196.1	1195.6	<1	1-Oct-22	1195.1	1195.6	1195.3	<1	
			VW2	23-Jan-13	30-Sep-22	1195.8	1196.7	1196.4	<1	1-Oct-22	1195.1	1195.7	1195.4	<1	
			VW3	23-Jan-13	30-Sep-22	1186.9	1198.7	1198.1	<1	1-Oct-22	1196.5	1197.2	1197.2	<1	
GT12-09	SP	Existing	-	10-Oct-12	30-Sep-22	1205.5	1207.2	1206.2	<1	1-Oct-22	1206.1	1206.5	1206.4	1	
GT12-10	SP	Existing	-	10-Oct-12	30-Sep-22	1237.9	1241.3	1240.4	<1	1-Oct-22	1240.9	1241.3	1241.1	<1	
GT12-11	SP	Existing	-	10-Oct-12	30-Sep-22	1269.3	1273.5	1271.4	<1	1-Oct-22	1272.1	1272.5	1272.2	<1	
GT13-19	SP	Existing	-	17-Jul-14	30-Sep-22	1325.3	1327.0	1325.8	2	1-Oct-22	1325.4	1325.4	1325.4	<1	
GT13-20	SP	Existing	-	17-Jul-14	30-Sep-22	1269.2	1271.7	1270.4	2	1-Oct-22	1270.3	1270.8	1270.6	1	
GT13-21	SP	Existing	-	12-Oct-17	30-Sep-22	1232.5	1236.6	1235.2	<1	1-Oct-22	1236.3	1236.6	1236.4	<1	
Water Level Monitoring Locations in the Open Pit Area															
MW12-04D	SP	Existing	-	20-Sep-12	31-Mar-24	1555.4	1557.5	1556.2	2	-	-	-	-	2	None
MW12-04S	SP	Existing	-	19-Sep-12	31-Mar-24	1557.1	1558.9	1558.3	1	-	-	-	-	1	
MW12-10D	SP	Existing	-	29-Oct-12	31-Mar-24	1654.1	1657.4	1655.4	2	-	-	-	-	2	
MW12-11D	SP	Existing	-	21-Sep-12	31-Mar-24	1665.4	1668.9	1667.1	2	-	-	-	-	2	
MW12-11S	SP	Existing	-	21-Sep-12	31-Mar-24	1667.6	1669.6	1668.4	1	-	-	-	-	2	
GT19-04	VWP	Existing	VW1	24-Sep-19	31-Mar-24	1475.6	1476.5	1476.0	<1	-	-	-	-	<1	
			VW2	24-Sep-19	31-Mar-24	1477.8	1479.4	1478.7	<1	-	-	-	-	<1	
GT13-25	SP	Existing	-	13-Dec-22	31-Mar-24	1478.0	1481.2	1480.4	<1	-	-	-	-	<1	
GT13-44	SP	Existing	-	2-Sep-22	31-Mar-24	1421.5	1422.5	1421.8	<1	-	-	-	-	<1	
GT19-03	SP	Existing	-	13-Dec-22	31-Mar-24	1468.4	1469.9	1469.2	<1	-	-	-	-	1	
DK/MW-05	SP	Existing	-	21-Dec-17	31-Mar-24	1423.9	1424.9	1424.4	1	-	-	-	-	<1	
Background Water Level Monitoring Locations															
MW12-01S	SP	Existing	-	14-Jul-15	31-Mar-24	1292.0	1292.6	1292.3	<1	-	-	-	-	<1	None
MW12-13D	SP	Existing	-	2-Nov-12	31-Mar-24	1344.7	1348.8	1345.1	<1	-	-	-	-	<1	

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix F - Water Level data\Appendix F4 - Background Water Level Summary\[Table F4.1 and F4.2 - Monitoring Location Summary.xlsx]Table F4.2_Water Level summary

NOTES:

1. SP = STANDPIPE PIEZOMETER; VWP = VIBRATING WIRE PIEZOMETER.

2. mbgs IS METERS BELOW GROUND SURFACE; masl IS METERS ABOVE SEA LEVEL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL VA24-01910	JRN	JDZ

Appendix F-5 Groundwater Seep Survey

Knight Piésold CONSULTING

TABLE F5.1

BW GOLD LTD.
BLACKWATER GOLD PROJECT

FOLLOW-UP PROGRAM CONDITION 3.15 - 2023 ANNUAL REPORT
SEEP TRACKING TABLE

Print Sep-24-24 13:29:17

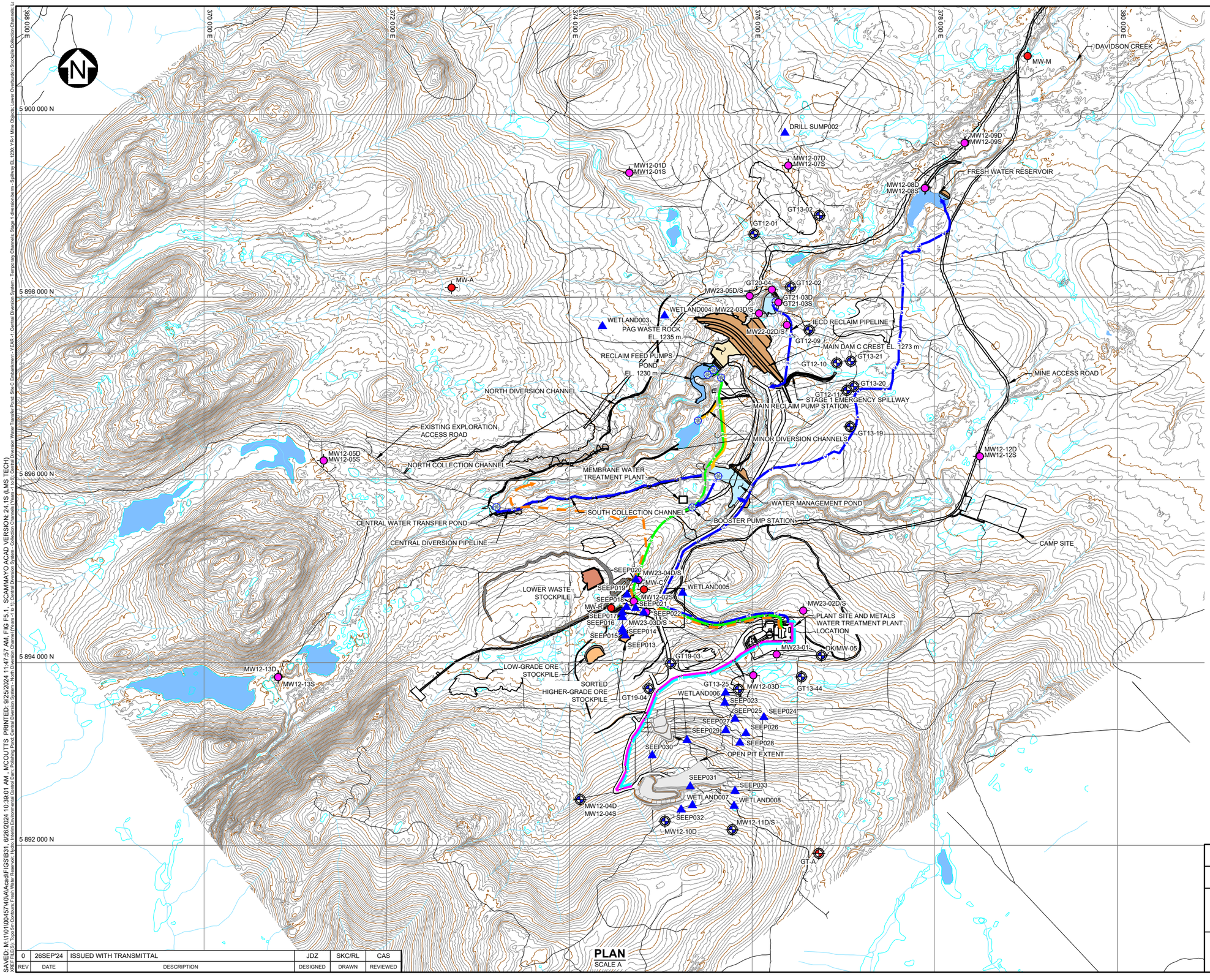
Name	Area	Description	Date	Easting (m)	Northing (m)	Notes
Seep013	Stockpiles	Localized seep	10-Sep-23	374,614	5,894,294	Water pooling at ground level in historic drill sump, ditches, and across the GT22-09 drill pad.
Seep014	Stockpiles	Localized seep	10-Sep-23	374,586	5,894,338	Water pooling around the historic GT13-47 drill pad.
Seep015	Stockpiles	Localized seep	10-Sep-23	374,581	5,894,364	Pond in ditch along road pooling about 0.5 m below ground surface.
Seep016	Stockpiles	Localized seep	10-Sep-23	374,581	5,894,496	Seepage at ground level in ditch along road, water trickling slowly across road and downslope towards Mine Area Creek.
Seep017	Stockpiles	Localized seep	10-Sep-23	374,578	5,894,547	Water ponded up to ground level in roadside ditches and the historic GT22-01 drill pad and sump.
Seep018	Stockpiles	Localized seep	10-Sep-23	374,626	5,894,607	Ponding water at multiple points along road and ditch between main access road and the historic GT22-01 drill pad.
Seep019	Stockpiles	Localized seep	10-Sep-23	374,632	5,894,742	Seep and ponding water along banks of Mine Area Creek.
Seep020	Stockpiles	Localized seep	10-Sep-23	374,728	5,894,907	Seepage in ditch at MW23-04D/S pad about 0.5 m below ground surface.
Seep021	Stockpiles	Localized seep	10-Sep-23	374,724	5,894,595	Seep occurring at downstream end of natural topographic drainage.
Seep022	Stockpiles	Localized seep	10-Sep-23	374,812	5,894,546	Water ponding about 0.3 m below ground surface higher in natural topographic drainage in depressions.
Seep023	Deposit	Localized seep	11-Sep-23	375,702	5,893,559	Seep along roadside and in ditches surrounding core storage area between construction camp and deposit area.
Seep024	Deposit	Localized seep	11-Sep-23	376,129	5,893,401	Water ponding around culverts near headwaters of Creek 661.
Seep025	Deposit	Localized seep	11-Sep-23	375,813	5,893,382	Seep occuring along roadside ditches near headwaters of Creek 661.
Seep026	Deposit	Localized seep	11-Sep-23	375,932	5,893,225	Seepage about 1 m deep in ditch near headwaters of Creek 661.
Seep027	Deposit	Localized seep	11-Sep-23	375,712	5,893,257	Seepage about 0.5 m deep in ditch in northeastern deposit area. Water ponding on opposite side of road.
Seep028	Deposit	Localized seep	11-Sep-23	375,866	5,893,121	Very low flow through shallow ditch (approximately at ground surface) in northeastern deposit area. Origin of water unknown.
Seep029	Deposit	Localized seep	11-Sep-23	375,288	5,893,151	Minor seepage along road in center of deposit. Field staff noted the area was significantly wetter earlier in the summer.
Seep030	Deposit	Localized seep	11-Sep-23	374,907	5,892,983	Multiple seepage points with ponding water in western area of deposit.
Seep031	Deposit	Localized seep	11-Sep-23	375,323	5,892,642	Many minor seepage points in southern area of deposit, some flowing into small stream.
Seep032	Deposit	Localized seep	11-Sep-23	375,224	5,892,390	Seepage in ditch in southern area of pit, flowing along ditch towards wetland.
Seep033	Deposit	Localized seep	10-Sep-23	375,813	5,892,593	Multiple seepage points at ground surface and in ditches in southeastern area of deposit.
Wetland003	TSF C	Wetland	10-Sep-23	374,362	5,897,682	Wetland, about 100 x 100 m, between two mapped drainages. No standing water observed but very soft saturated ground. Did not observe an inflow or outflow location.
Wetland004	TSF C	Wetland	10-Sep-23	375,042	5,897,797	Dry wetland, about 50 x 30 m, following dry mapped drainage.
Wetland005	Stockpiles	Wetland	10-Sep-23	375,239	5,894,763	Wetland, about 300 x 100 m, downstream of glaciofluvial channel. Did not observe an inflow or outflow location.
Wetland006	Deposit	Wetland	11-Sep-23	375,710	5,893,668	Wetland, about 100 x 100 m, between construction camp and deposit area within a topographic depression.
Wetland007	Deposit	Wetland	11-Sep-23	375,347	5,892,438	Wetland, about 100 x 100 m, in southern area of deposit. Did not observe an outflow location.
Wetland008	Deposit	Wetland	11-Sep-23	375,803	5,892,430	Wetland, about 200 x 200 m, in southeast area of deposit. Did not observe an inflow or outflow location.
Drill Sump002	TSF D	Historic drill pad sump	10-Sep-23	376,360	5,899,796	Four sumps at the historic GT13-30 drill pad, observed water level about 1 m below ground.

\\KPL\VA-Prj$\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix F - Water Level data\Appendix F5 - Groundwater Seep Survey\[Table F5.1 - Seep Summary Table.xlsx]Table F5.1 -Seep Tracking Table

NOTES:

1. COORDINATE GRID IS NAD83 ZONE 10U. MEASURED USING HANDHELD GPS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL VA24-01910	PRN	JDZ



LEGEND:

- MINE WATER
- FRESH WATER
- EMBANKMENT FILL
- PAG WASTE ROCK
- PUMP STATION
- SEEP
- EXISTING ACCESS TRAILS
- SEEPAGE / WATER SUPPLY PIPELINES
- WATER DIVERSION PIPELINE
- OPEN PIT PERIMETER WELL DEWATERING PIPELINE
- OPEN PIT SUMP DEWATERING PIPELINE
- TSF C RECLAIM PIPELINE
- TEMPORARY DEWATERING SYSTEM PIPELINE
- CONCEPTUAL WATER MANAGEMENT PIPELINE
- TAILINGS PIPELINE
- TAILINGS DISCHARGE SPIGOT
- EXISTING MONITORING WELLS
- PROPOSED MONITORING WELLS
- EXISTING WATER LEVEL SITE
- PROPOSED WATER LEVEL SITE

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 10U.
2. NATURAL GROUND CONTOUR INTERVAL IS 5 METRES AND STOCKPILE CONTOUR INTERVAL IS 10 METRES.
3. MODIFY ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
4. GROUND WATER QUALITY AND WATER LEVEL DATA ARE COLLECTED AT EXISTING MONITORING WELLS.

SCALE A: 400 200 0 400 800 1200 1600 2000 m

PLAN
SCALE A

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
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2023 SEEP LOCATIONS

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REF NO. VA24-01910

FIGURE F5.1

REV 0

SAVED: M:\101\00457\40\A\acad\FIGS\B31, 6/26/2024 10:39:01 AM, MCOUTTS PRINTED: 9/25/2024 11:47:57 AM, FIG F5.1, SCAMMAYO ACAD VERSION: 24.1S (LMS TECH)
XREF FILES: Topo 5m Contours; Fresh Water Reservoir Hydro; Interim Environmental Control Dam; Polishing Pond; Central Diversion System - North Diversion Channel (Years -1 to 1); Central Diversion System - Temporary Channels; Stage 1 diversion.tx.brm - Spillway EL. 1230; YR-1 Mine Objects; Lower Overburden Stockpile Collection Channels; Lc

Appendix G Time Series Water Quality Plots

Appendix G-1: Water Quality Time Series Plots Background Sites

Appendix G-2: Water Quality Time Series Plots TSF Area Sites

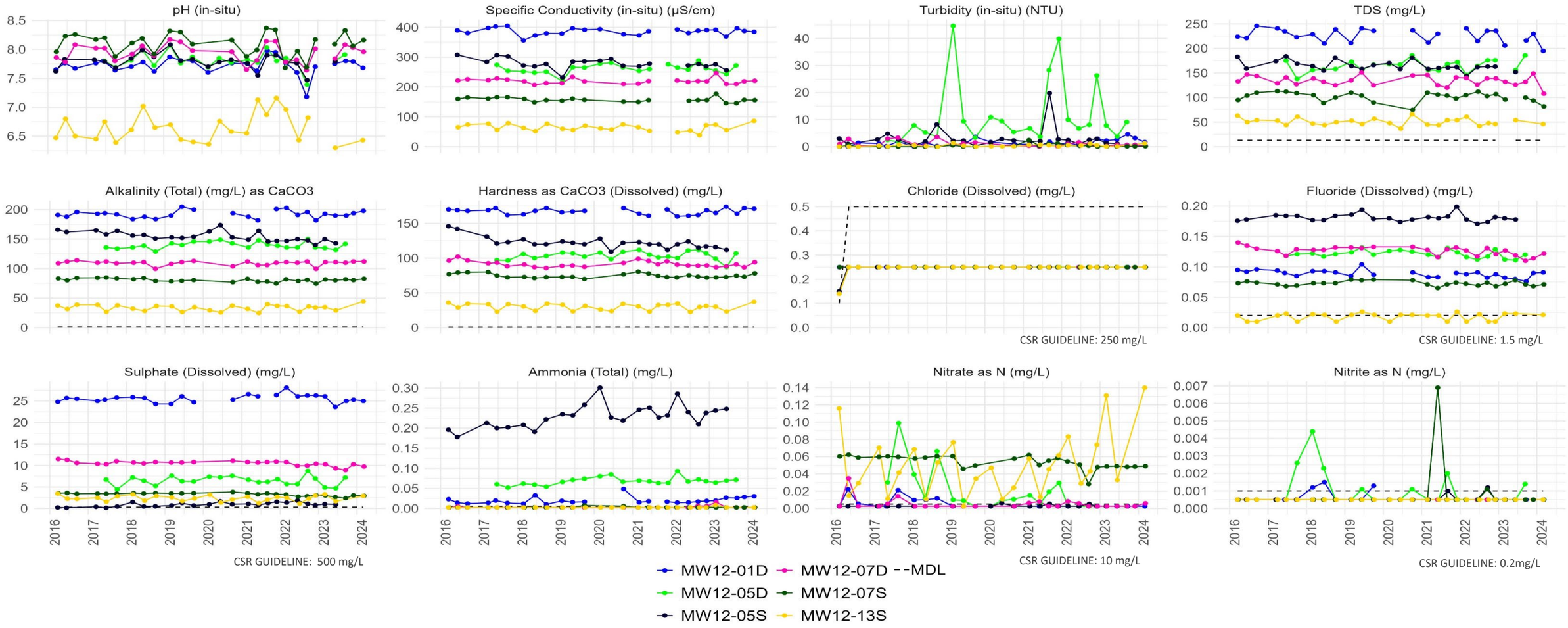
Appendix G-3: Water Quality Time Series Plots Stockpile Area Sites

Appendix G-4: Water Quality Time Series Plots Plant Site and RIBs Area Sites

Appendix G-5: Water Quality Time Series Plots Camp Area Sites

Appendix G-6: Water Quality Time Series Plots Deposit Area Sites

Appendix G-1 Water Quality Time Series Plots Background Sites



NOTES:

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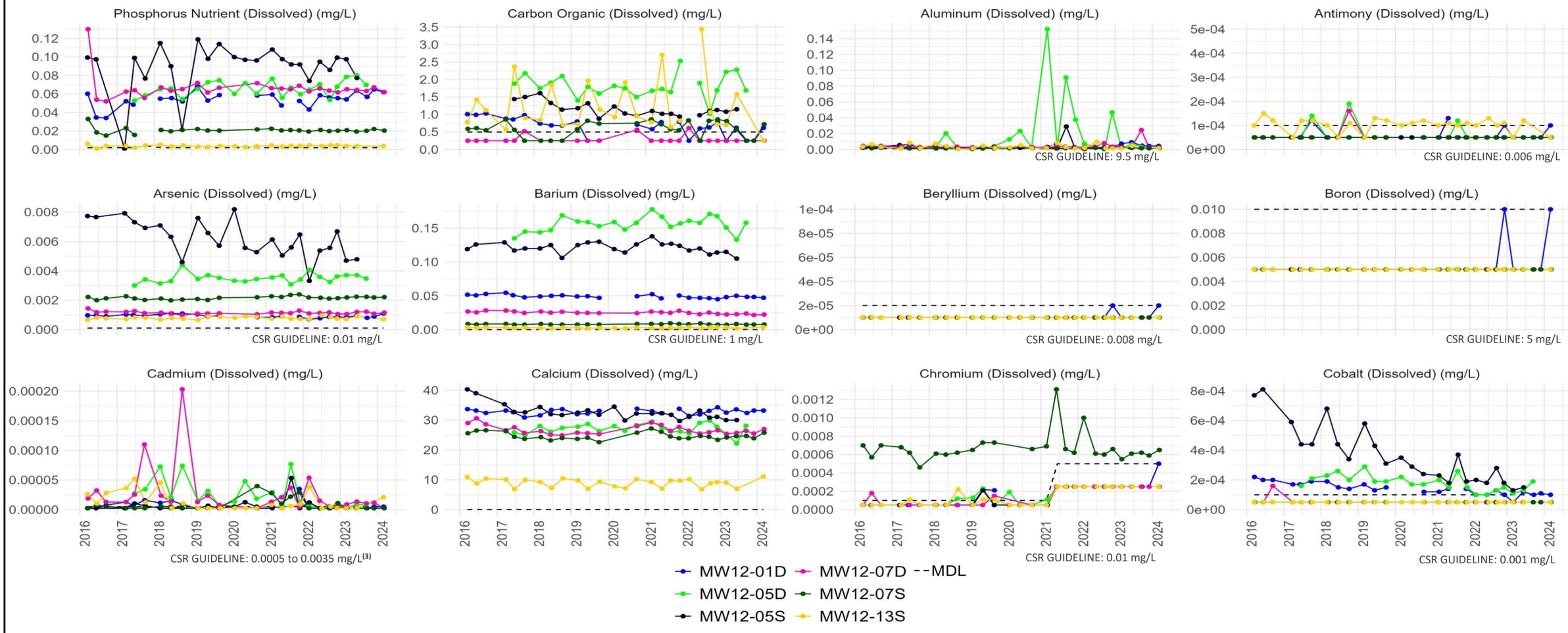
FIGURE G-1.1

REV 0



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REF. NO. VA24-01910

FIGURE G-1.2

REV 0

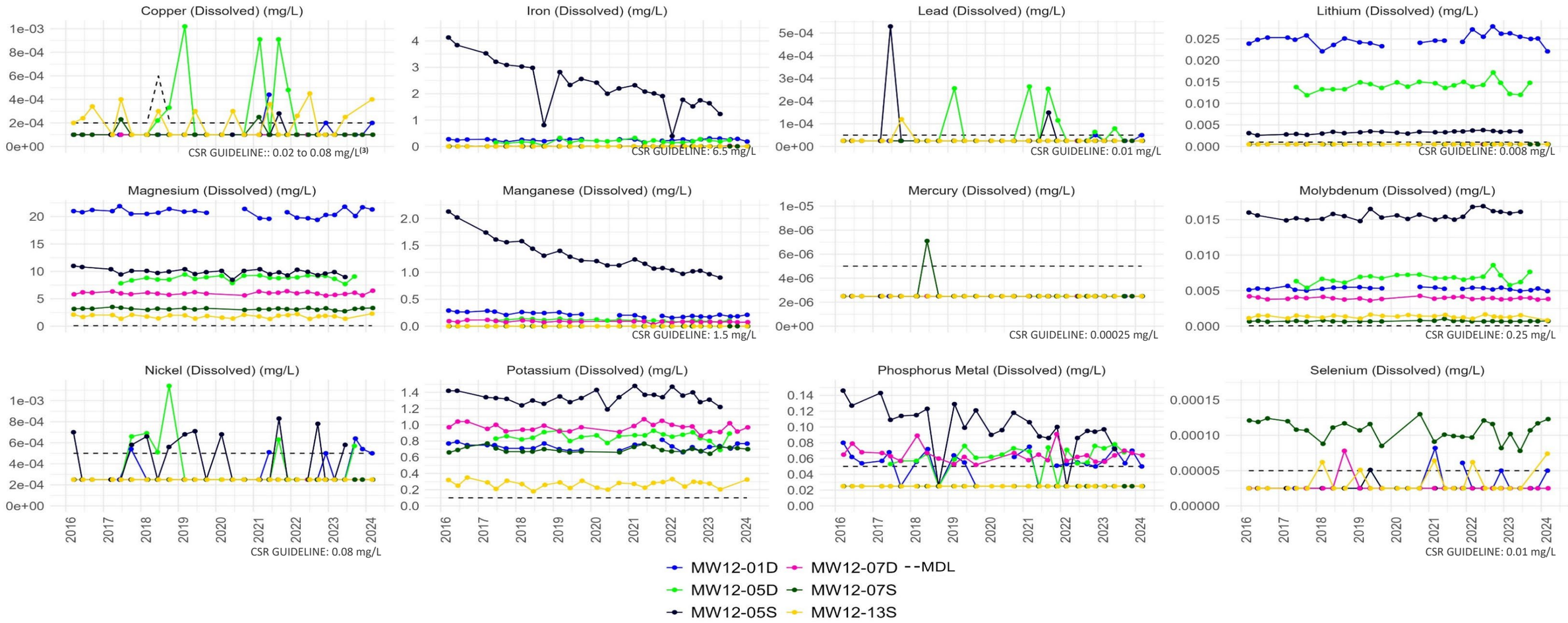

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FIGURE G-1.3

REV 0

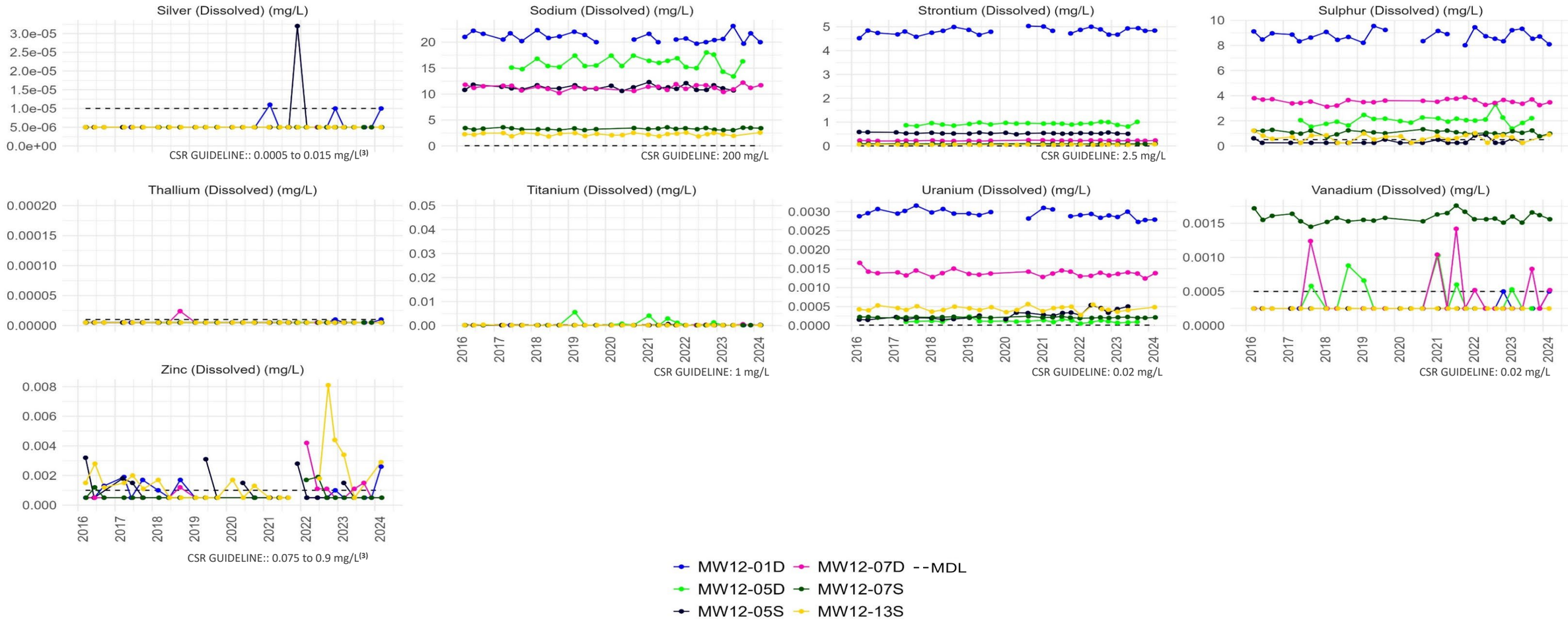

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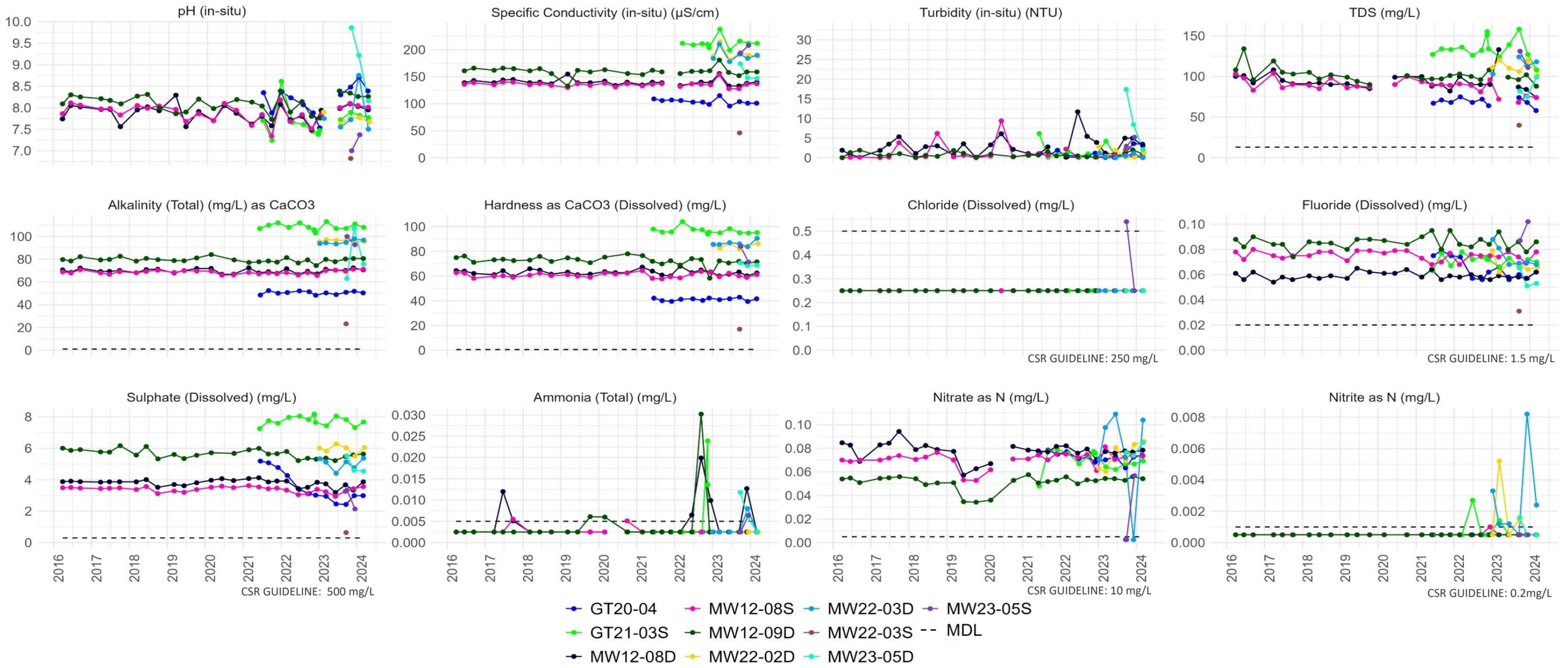
FIGURE G-1.4

REV 0

Appendix G-2 Water Quality Time Series Plots TSF Area Sites



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
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TSF AREA SITES

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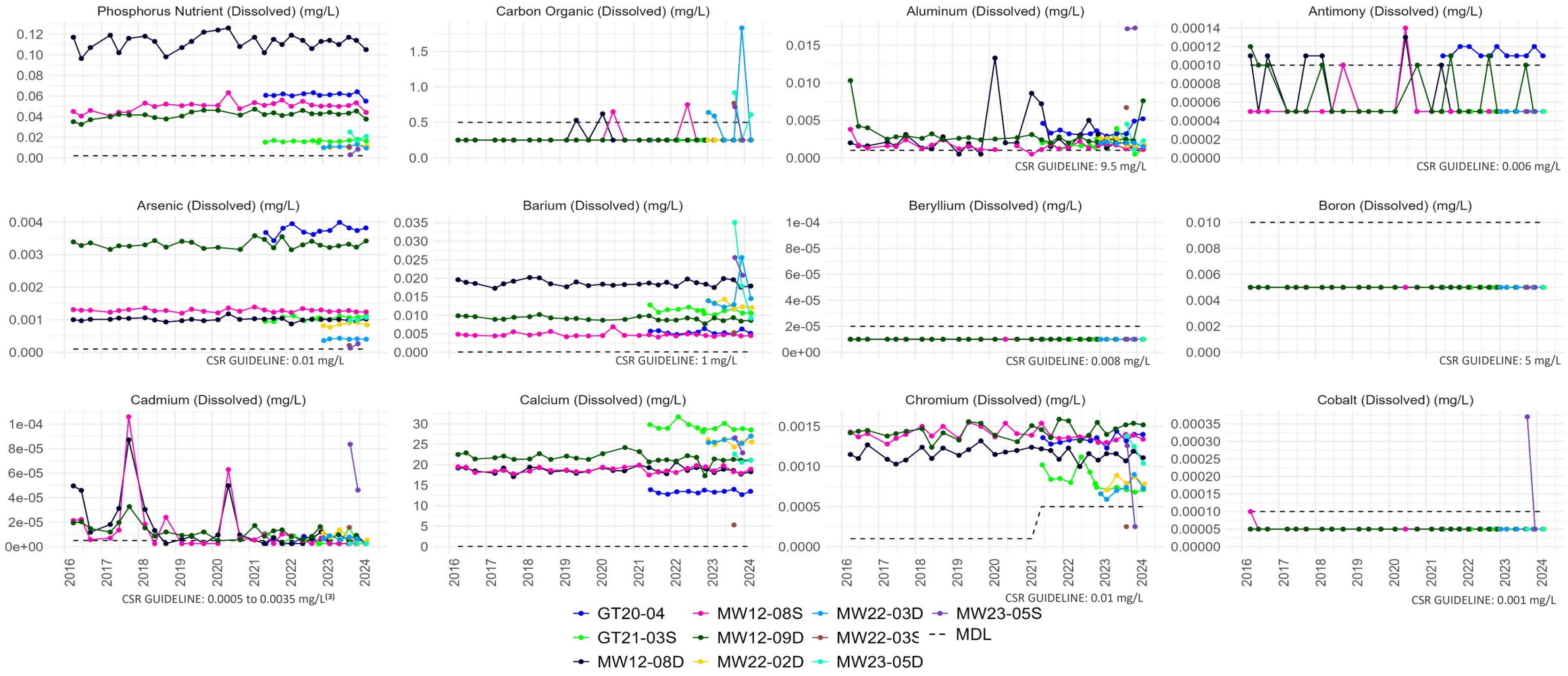
REF. NO. VA24-01910

FIGURE G-2.1

REV 0



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REF. NO. VA24-01910

FIGURE G-2.2

REV 0

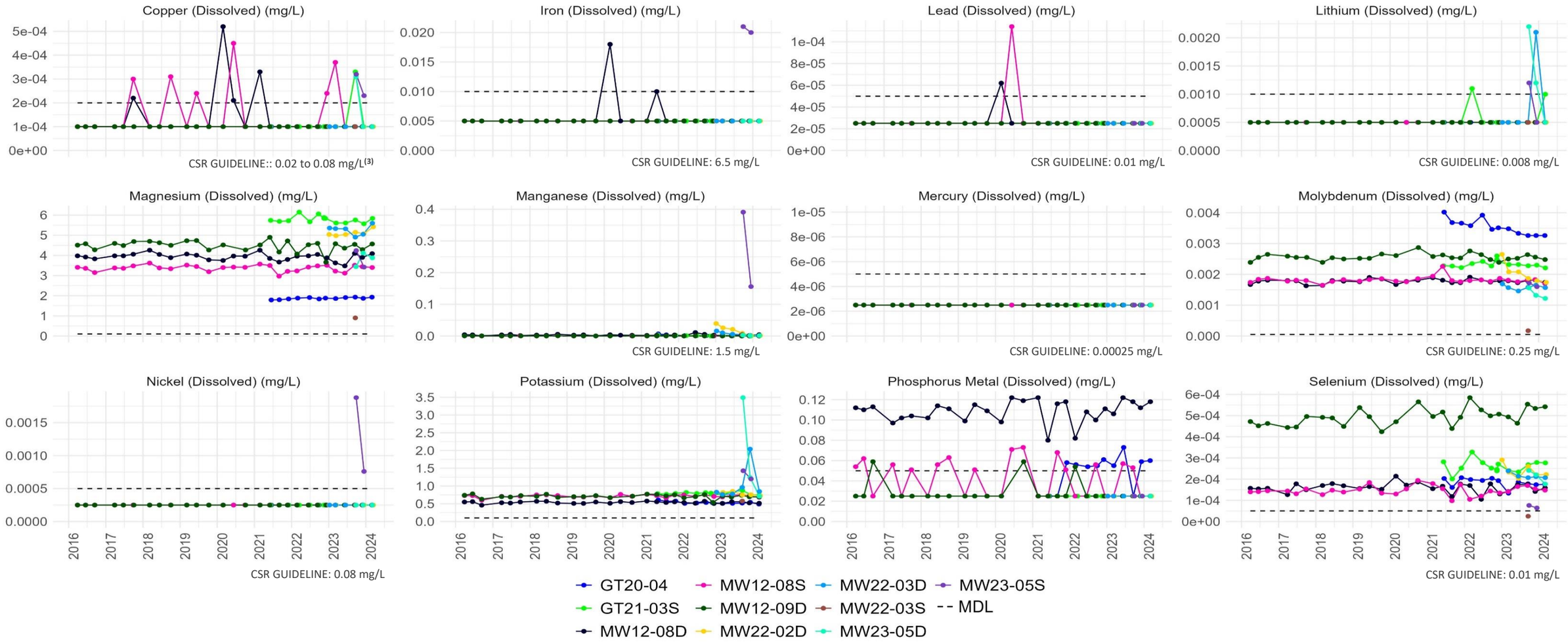

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FIGURE G-2.3

REV 0

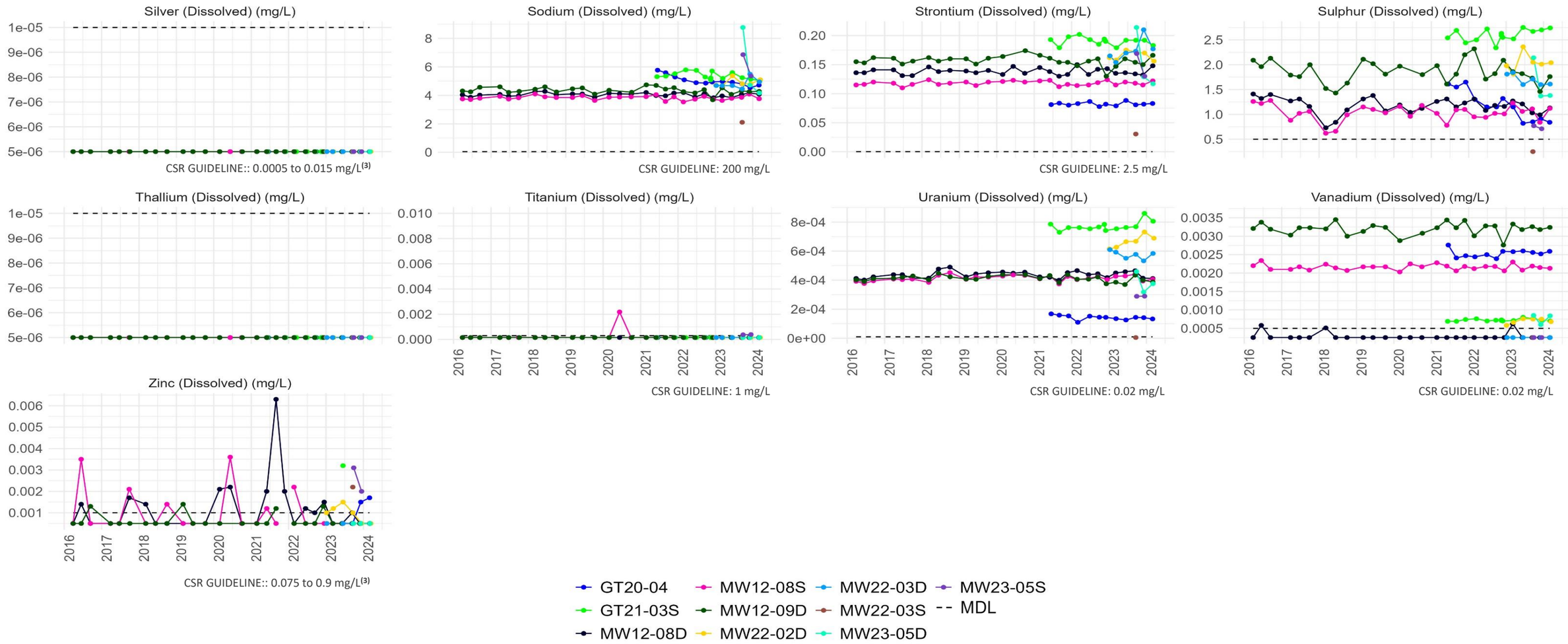

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FIGURE G-2.4

REV 0

Appendix G-3 Water Quality Time Series Plots Stockpile Area Sites

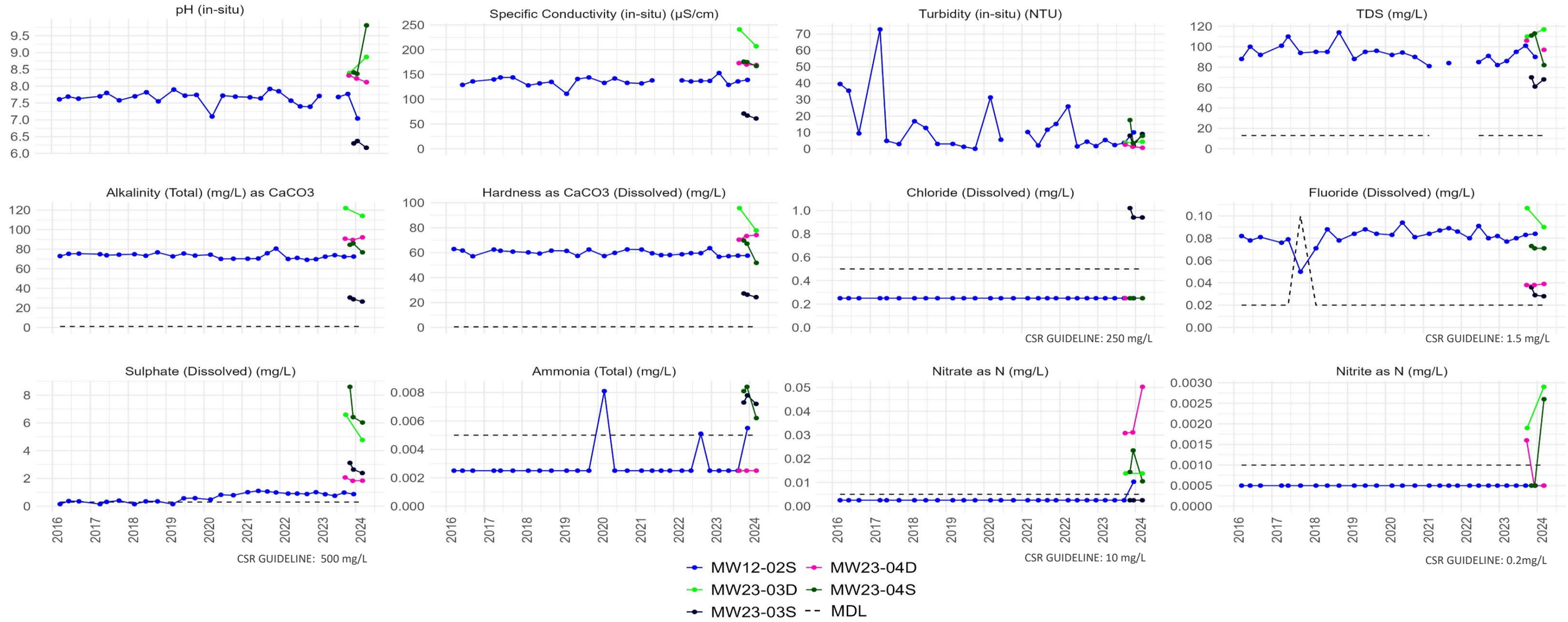

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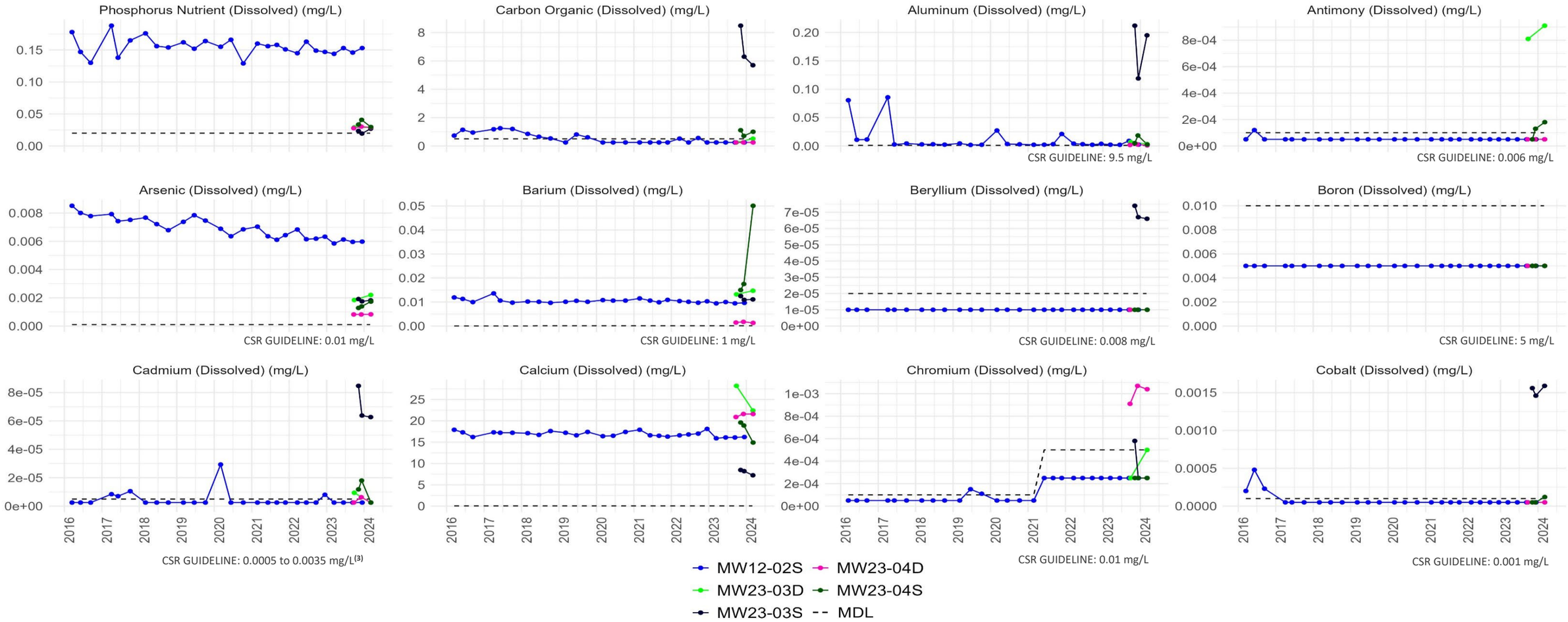
FIGURE G-3.1

REV 0



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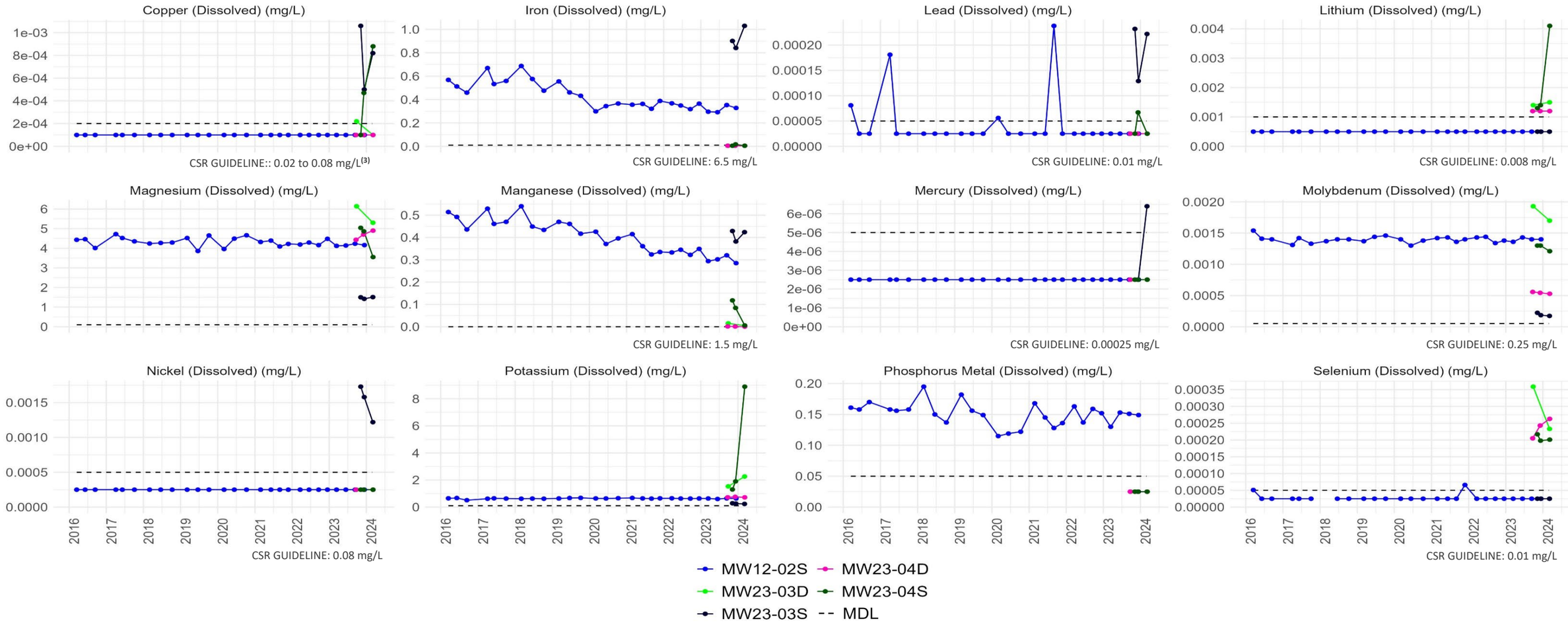
REF. NO. VA24-01910

FIGURE G-3.2

REV 0



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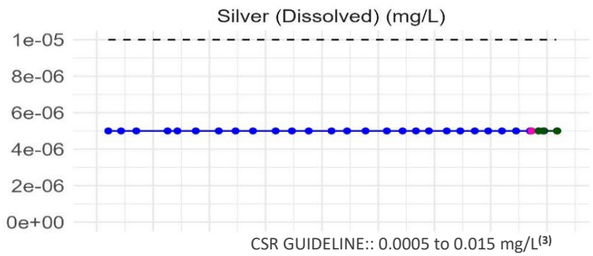
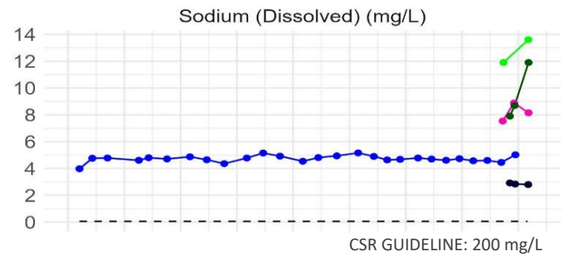
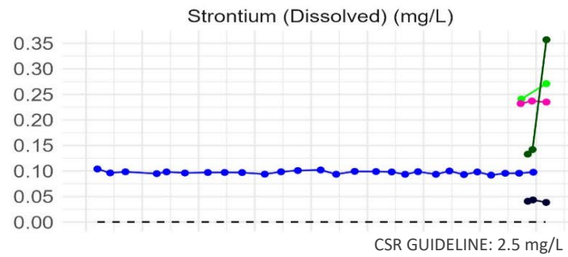
REF. NO. VA24-01910

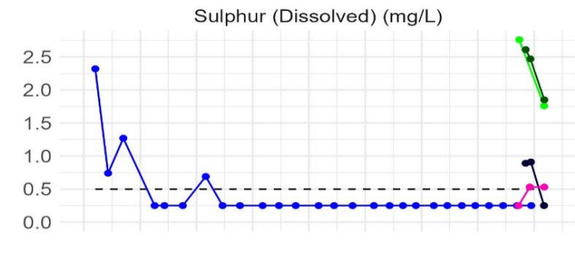
FIGURE G-3.3

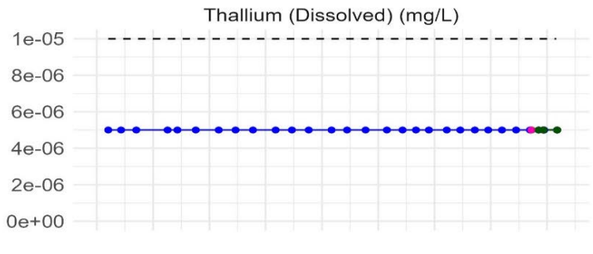
REV 0

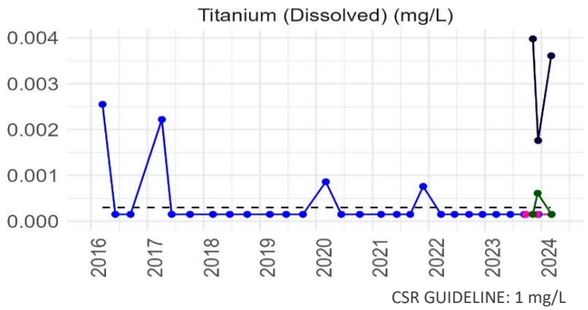


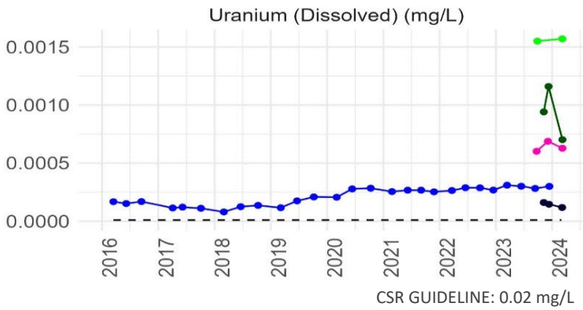


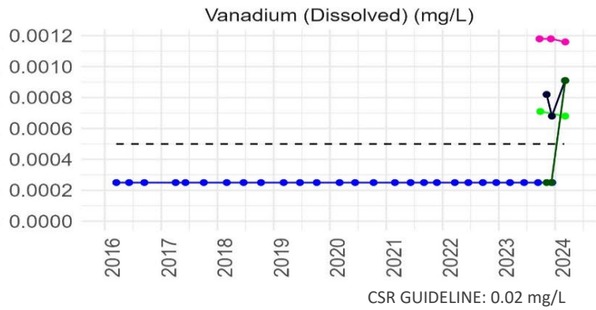


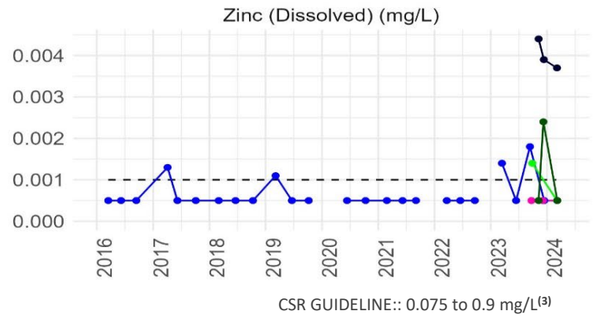












MW12-02S
MW23-03D
MW23-03S
MW23-04D
MW23-04S
MDL

NOTES:

1. CSR GUIDELINES INCLUDED IN PLOT FOOTNOTES REPRESENT THE MOST CONSERVATIVE APPLICABLE CSR GUIDELINE (DRINKING WATER OR AQUATIC LIFE).
2. CONCENTRATIONS REPORTED BELOW THE METHOD DETECTION LIMIT (MDL) ARE SHOWN AT 1/2 THE MDL.
3. HARDNESS DEPENDENT GUIDELINE. RANGE OF GUIDELINE CONCENTRATIONS SHOWN FOR HARDNESS VALUES UP TO 200 mg/L.
4. SAMPLES COLLECTED FROM MONITORING WELL MW23-03D HAVE BEEN FLAGGED DUE TO HIGH pH VALUES (>10) AND MAY BE REMOVED FROM THE BASELINE DATASET AS ADDITIONAL DATA IS COLLECTED IN THE FUTURE.
5. WATER QUALITY AT MONITORING WELLS INSTALLED IN 2023 APPEAR TO BE INFLUENCED BY DRILLING CONDITIONS. RESULTS OF ALL AVAILABLE SAMPLES ARE SHOWN BUT SOME SAMPLE RESULTS MAY BE EXCLUDED FROM THE BASELINE DATASET IN THE FUTURE AS ADDITIONAL DATA ARE COLLECTED.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
STOCKPILES AREA SITES

Knight Piésold CONSULTING

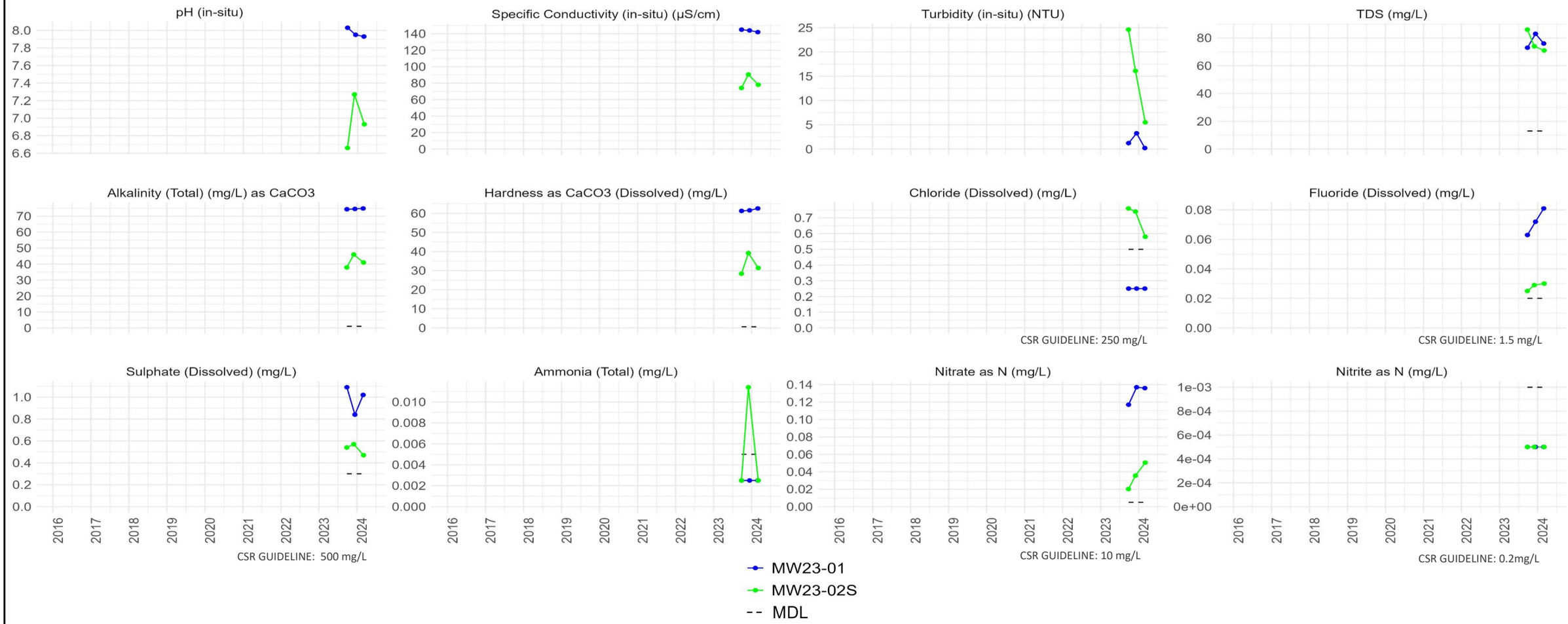
P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-3.4

REV 0

Appendix G-4 Water Quality Time Series Plots Plant Site and RIBs Area Sites



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
PLANT SITE AND RIBs AREA SITES

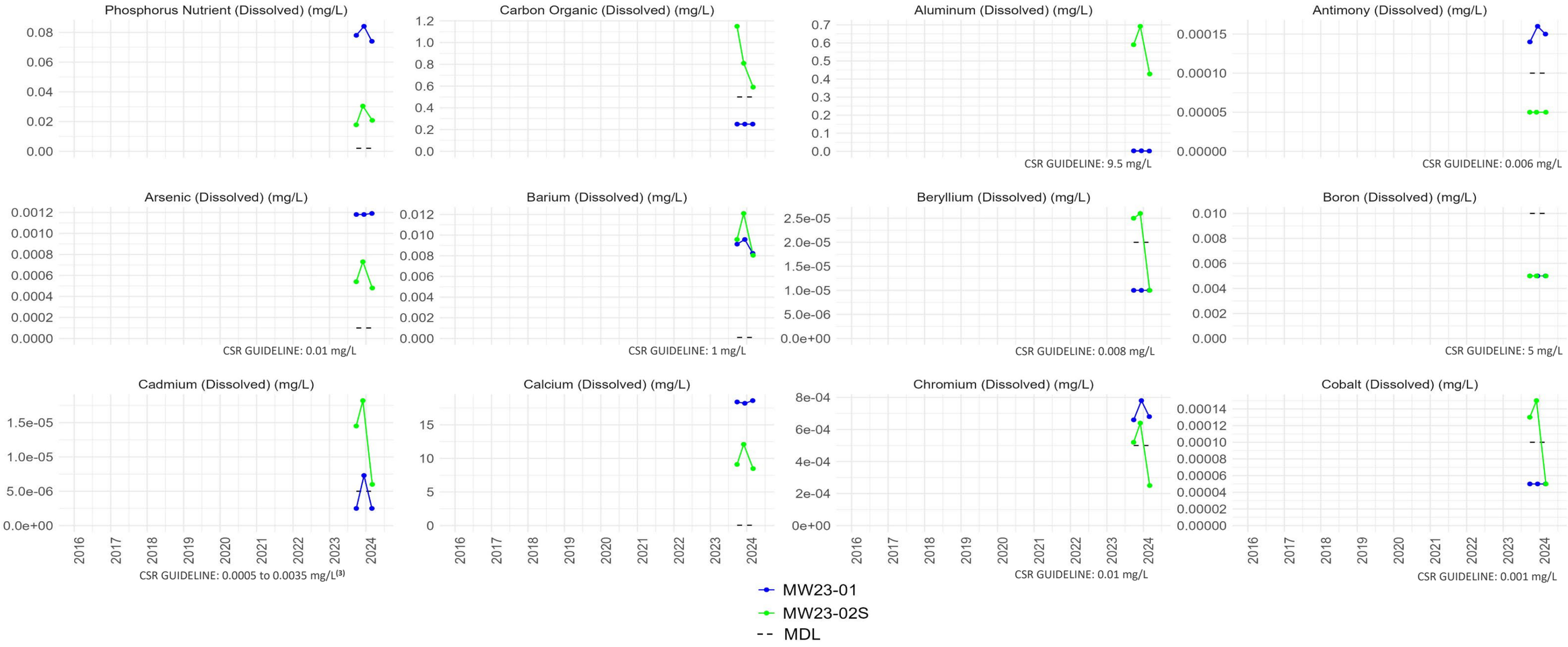
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-4.1

REV 0



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4. GUIDELINE FOR CHROMIUM IS THE MOST STRINGENT CHROMIUM GUIDELINE AND REPRESENTS TRIVALENT CHROMIUM.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
PLANT SITE AND RIBs AREA SITES

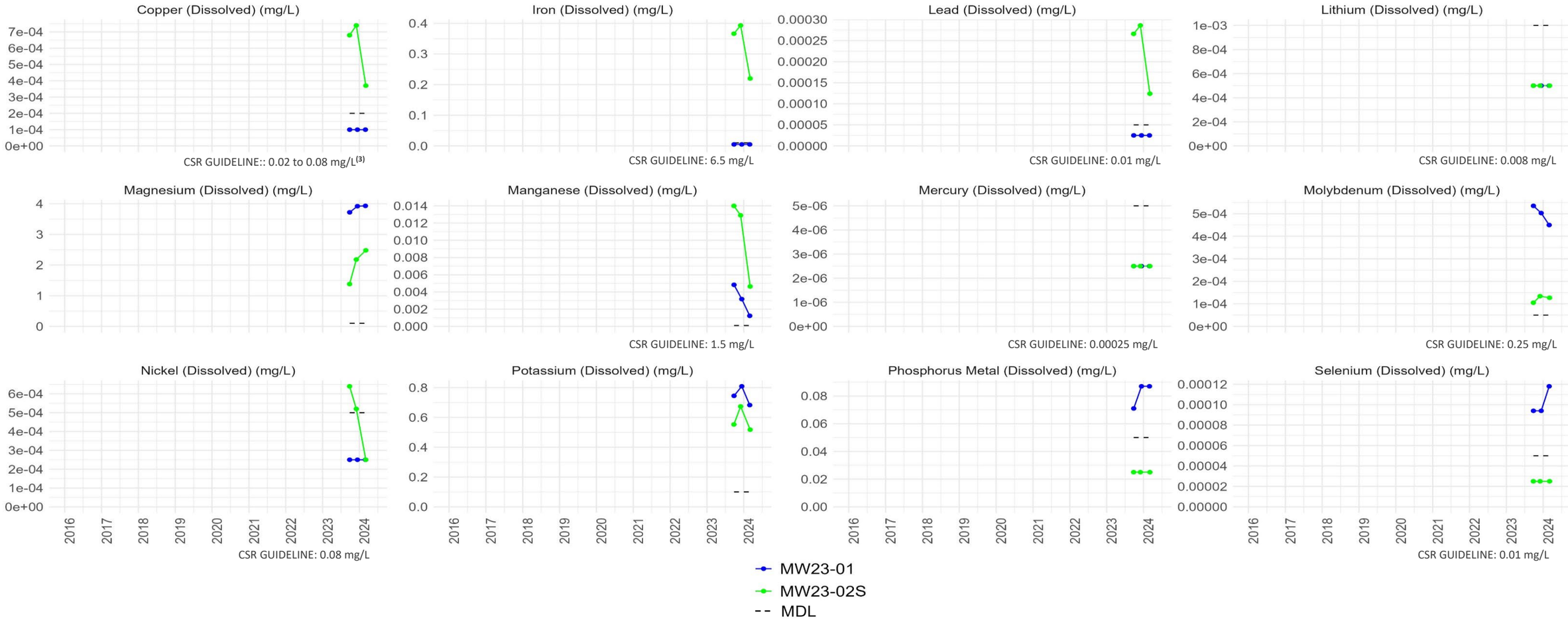
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-4.2

REV 0



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
PLANT SITE AND RIBs AREA SITES

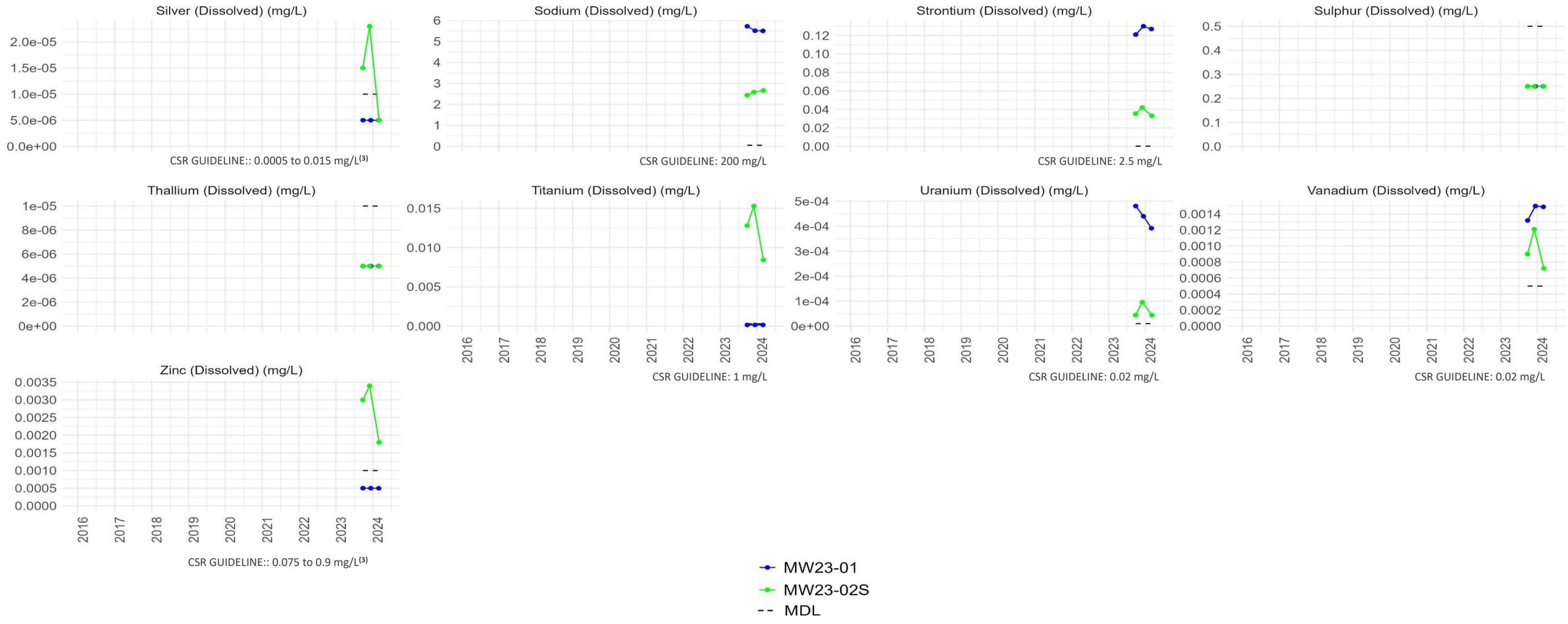
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-4.3

REV 0



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
PLANT SITE AND RIBs AREA SITES

Knight Piésold CONSULTING

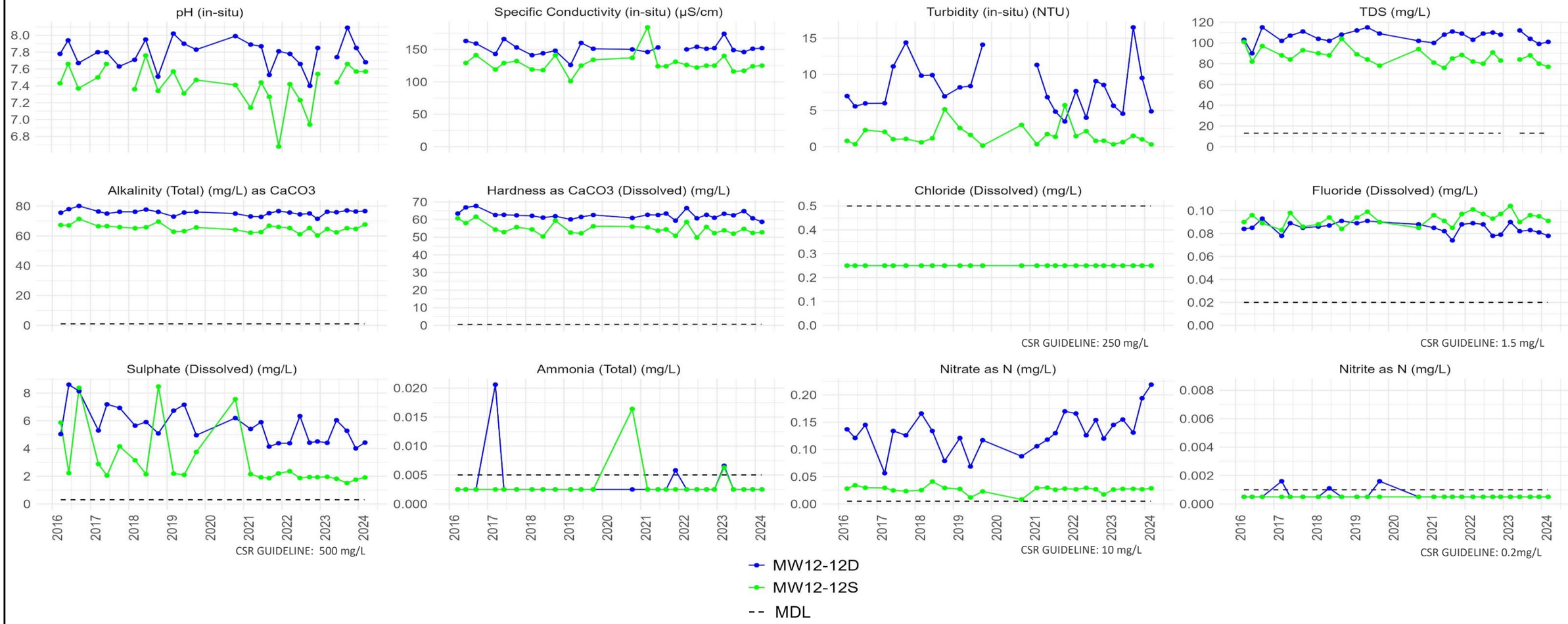
P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-4.4

REV 0

Appendix G-5 Water Quality Time Series Plots Camp Area Sites



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
CAMP AREA SITES

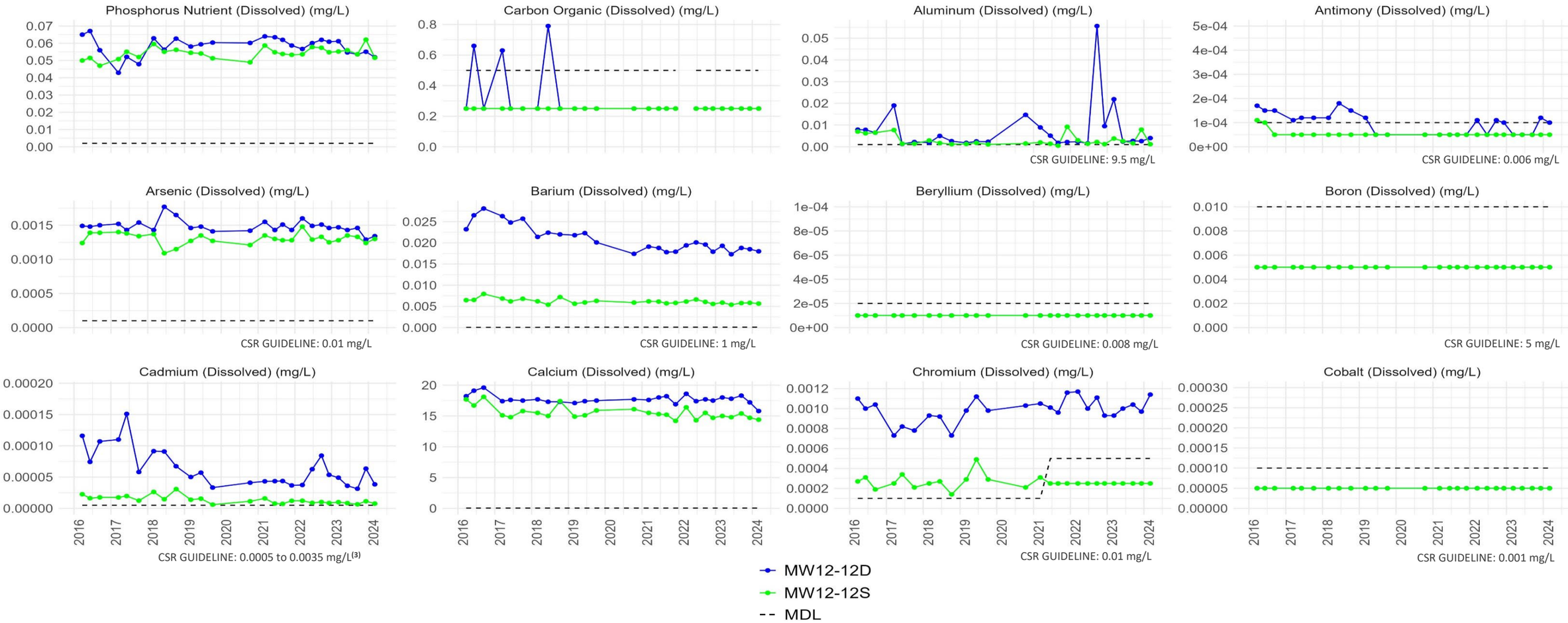
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-5.1

REV 0



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4. GUIDELINE FOR CHROMIUM IS THE MOST STRINGENT CHROMIUM GUIDELINE AND REPRESENTS TRIVALENT CHROMIUM.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
CAMP AREA SITES

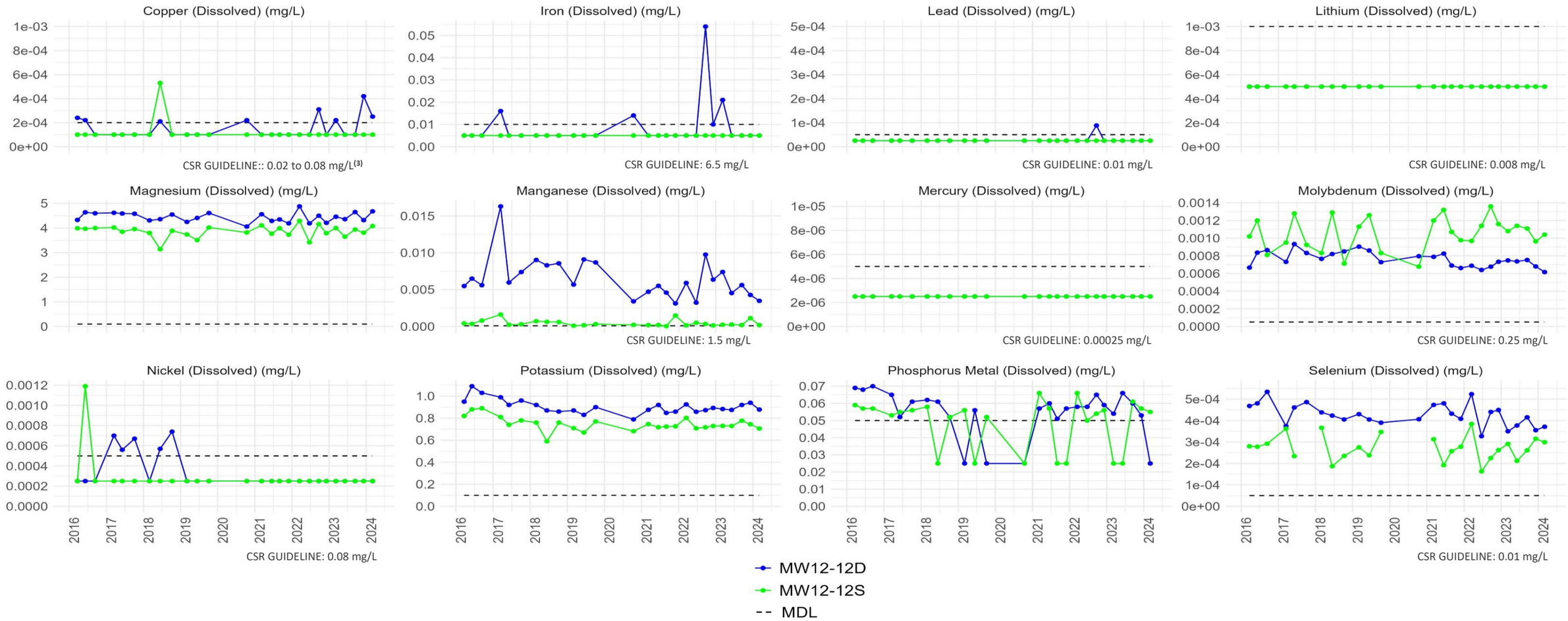
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-5.2

REV 0



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
CAMP AREA SITES

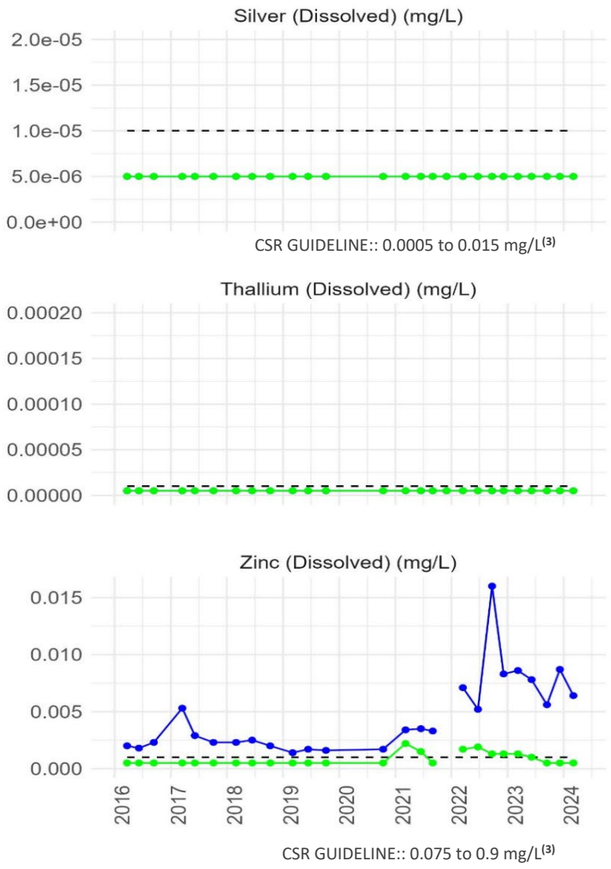
Knight Piésold CONSULTING

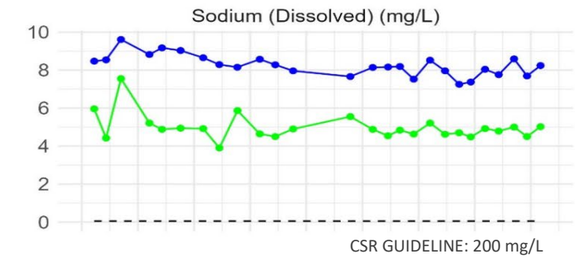
P/A NO. VA101-457/40

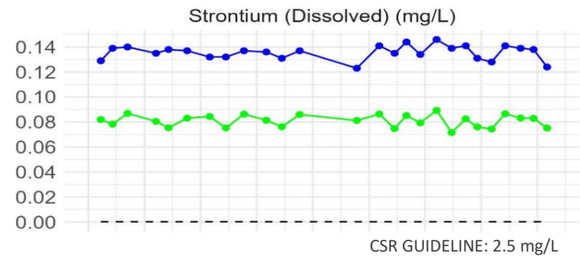
REF. NO. VA24-01910

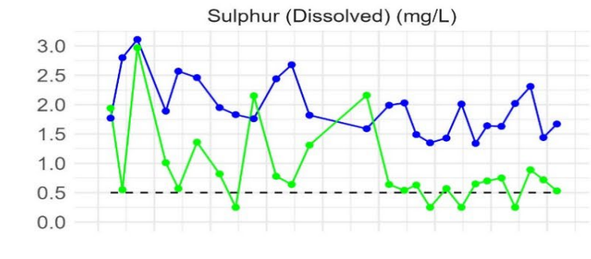
FIGURE G-5.3

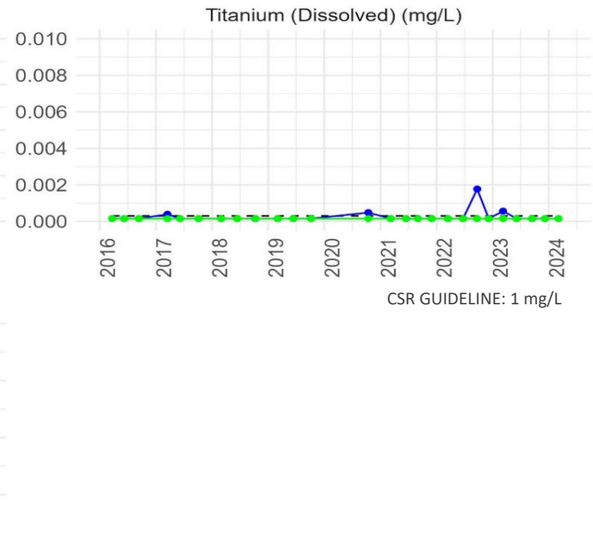
REV 0

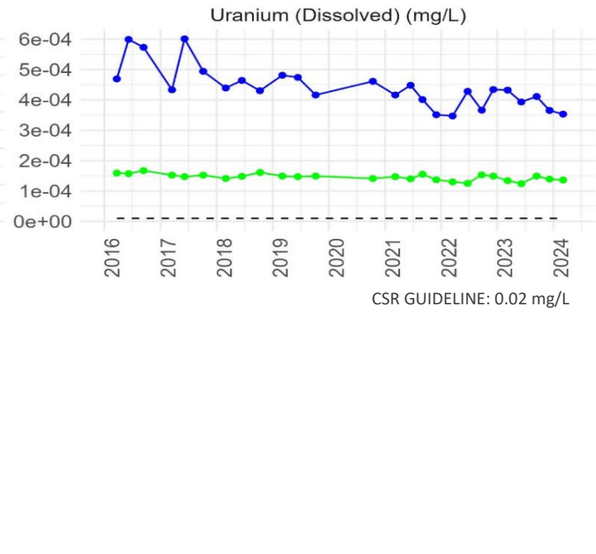


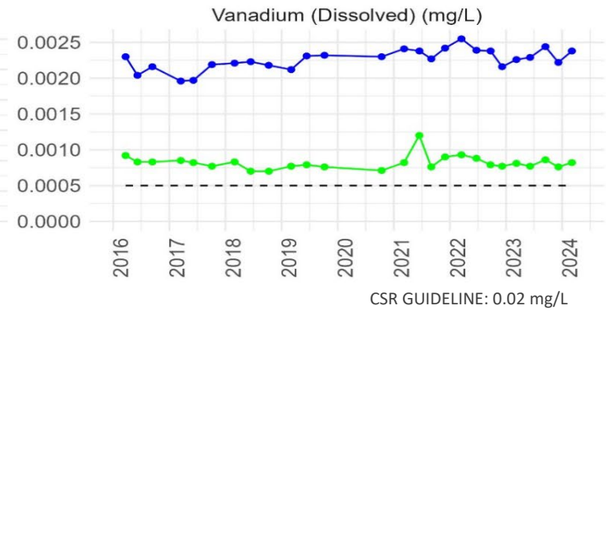












MW12-12D
MW12-12S
MDL

NOTES:

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2. CONCENTRATIONS REPORTED BELOW THE METHOD DETECTION LIMIT (MDL) ARE SHOWN AT 1/2 THE MDL.
3. HARDNESS DEPENDENT GUIDELINE. RANGE OF GUIDELINE CONCENTRATIONS SHOWN FOR HARDNESS VALUES UP TO 200 mg/L.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
CAMP AREA SITES

Knight Piésold CONSULTING

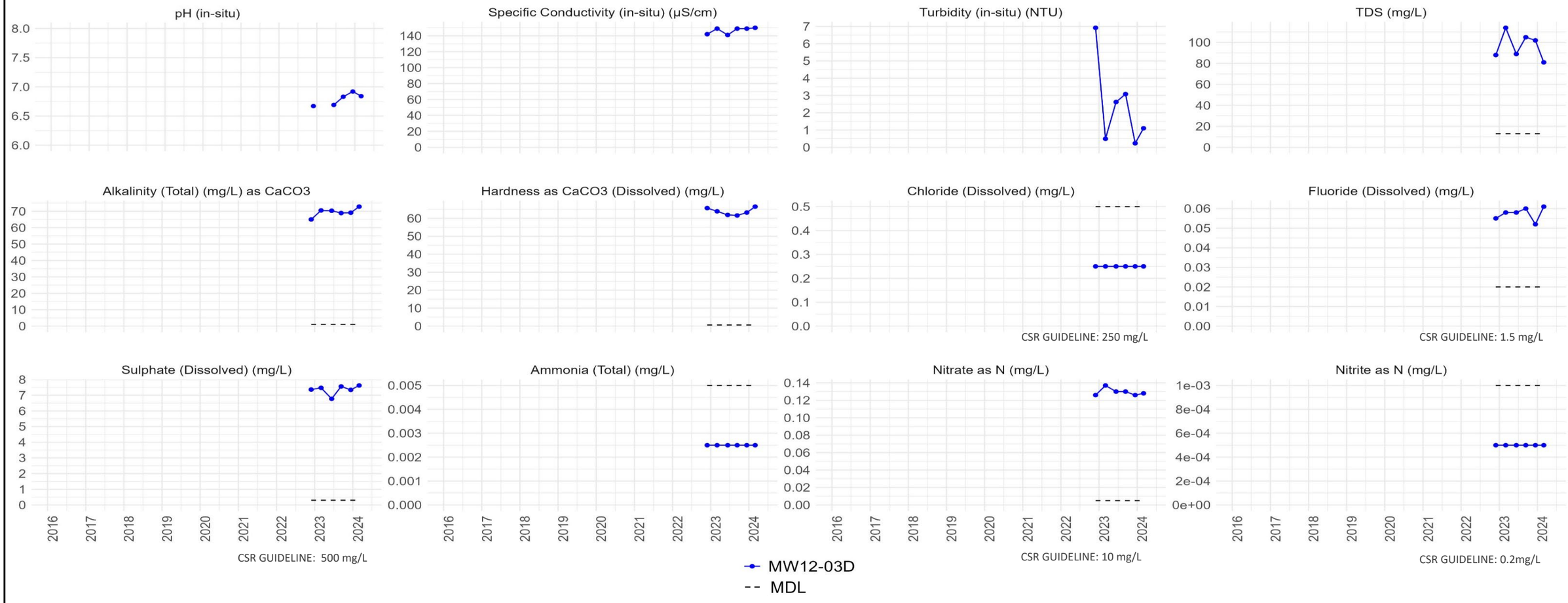
P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-5.4

REV 0

Appendix G-6 Water Quality Time Series Plots Deposit Area Sites



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
DEPOSIT AREA SITES

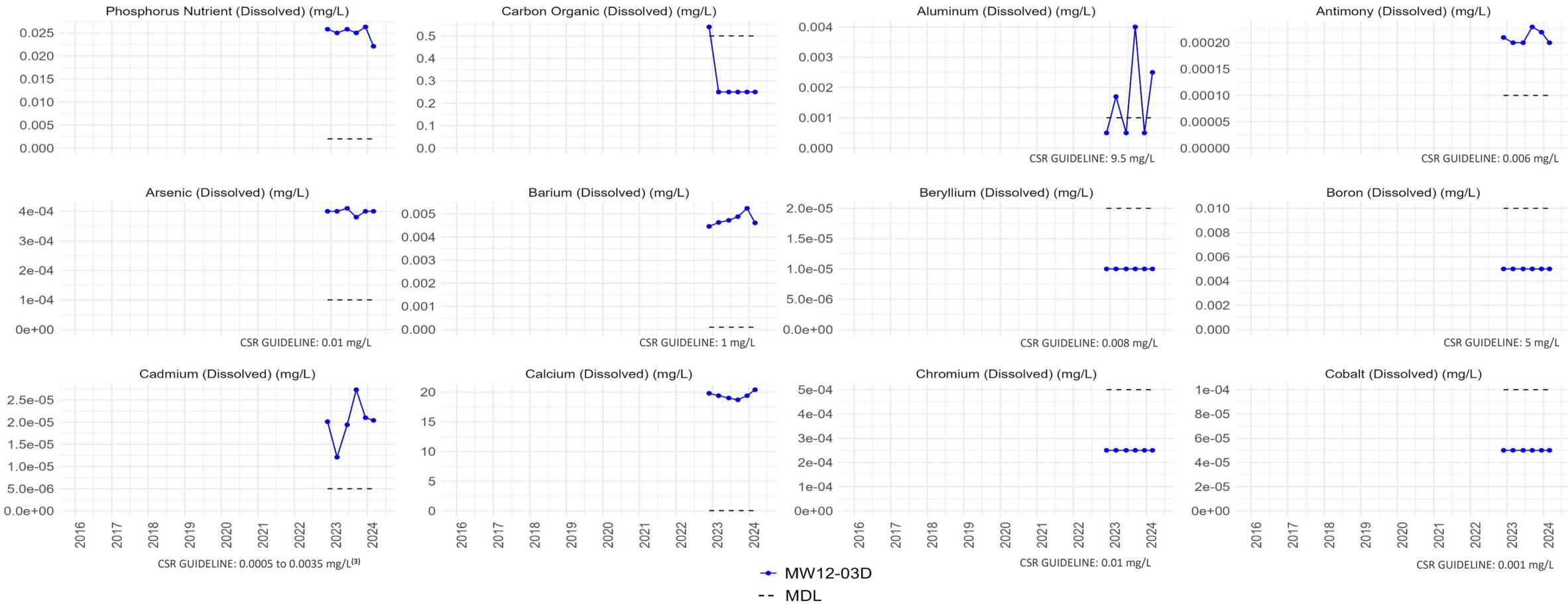
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-6.1

REV 0



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0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
DEPOSIT AREA SITES

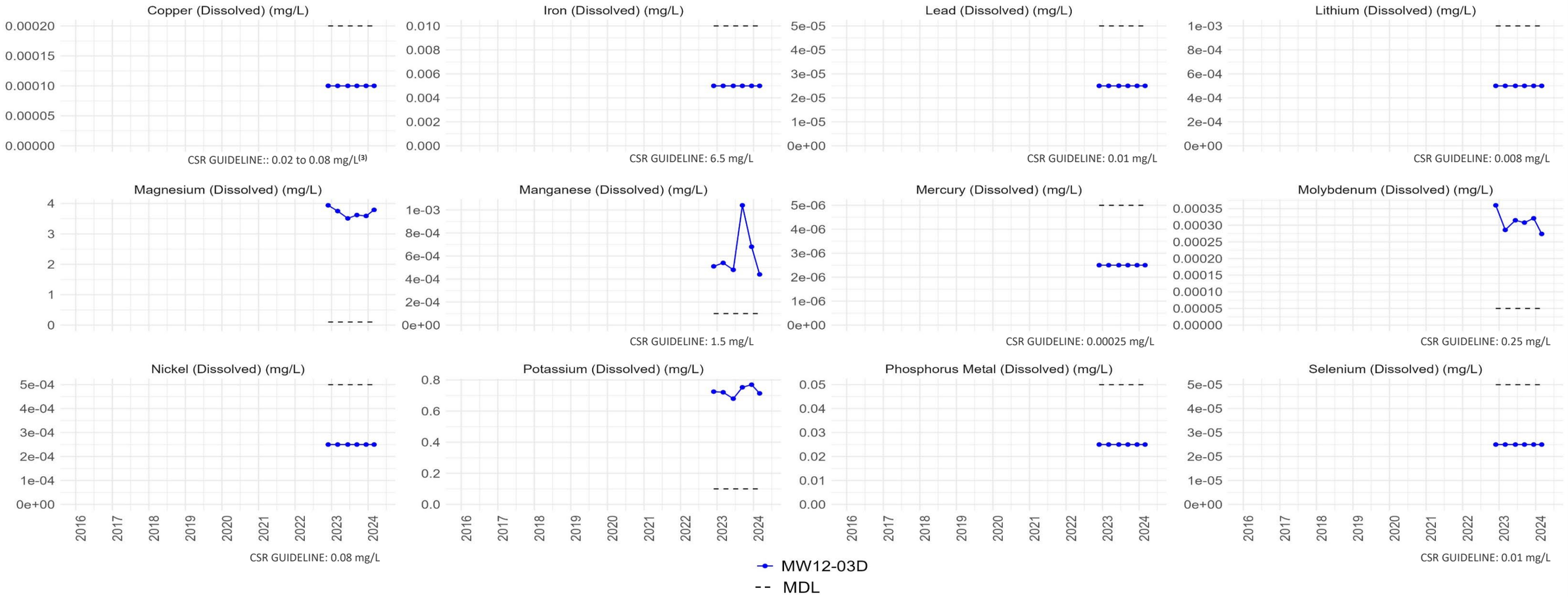
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-6.2

REV 0



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
DEPOSIT AREA SITES

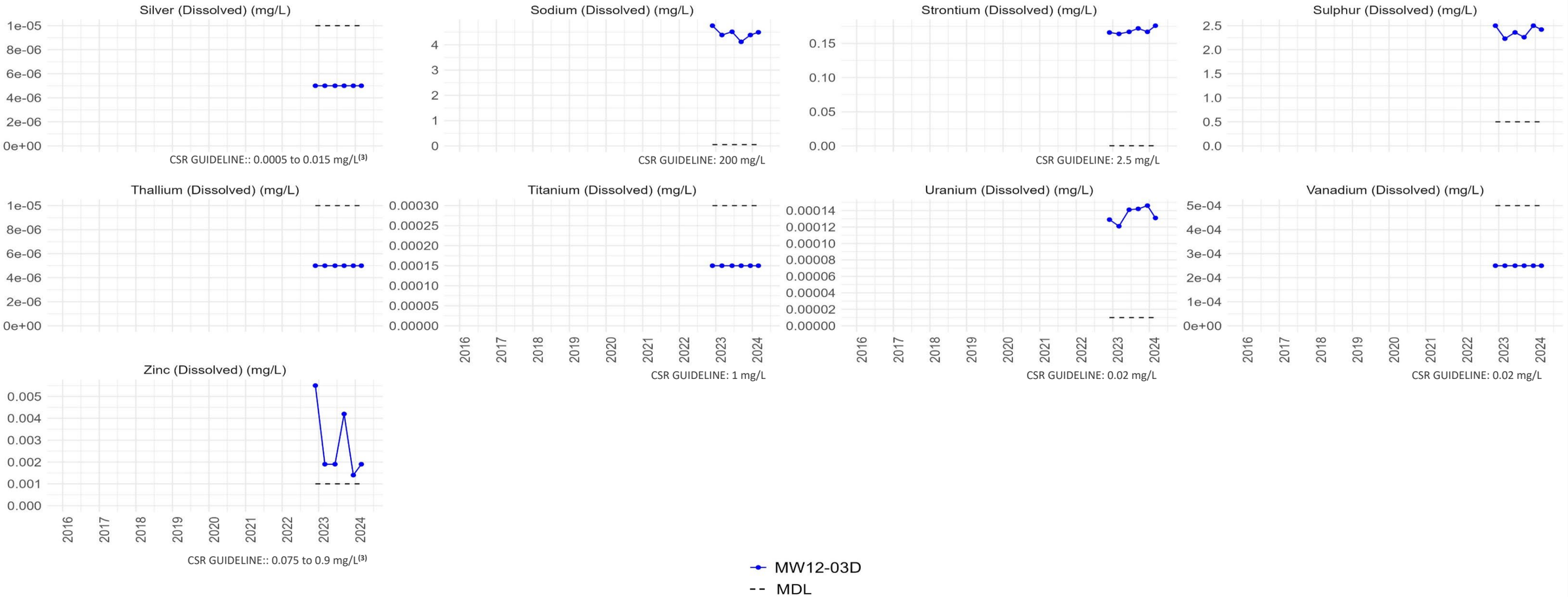
Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-6.3

REV 0



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REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL	MDR	JDZ

BW GOLD LTD.

BLACKWATER GOLD MINE

WATER QUALITY TIME SERIES PLOTS
DEPOSIT AREA SITES

Knight Piésold CONSULTING

P/A NO. VA101-457/40

REF. NO. VA24-01910

FIGURE G-6.4

REV 0

Appendix H Ground Water Quality Results

Appendix H-1: Ground Water Quality Sample Results (March 2023 – March 2024)

Appendix H-2: Ground Water Quality Sample Summary Statistics (Jan 2023 – March 2024)

Appendix H-3: Summary of Water Quality Standards

Appendix H-1 Ground Water Quality Sample Results (March 2023 – March 2024)

TABLE H.1

BW GOLD LTD.
BLACKWATER GOLD MINE

CONDITION 3.15 REPORT
GROUNDWATER QUALITY SAMPLE RESULTS

Sample ID		VA23A4774-001	VA23B3036-001	VA23C2725-003	VA23C9040-001	VA24A4455-012	VA23A5633-003	VA23B3696-005	VA23C1673-001	VA23D0191-003	VA23A4774-002	VA23B3696-002	VA23C1673-003	VA23D0040-001	VA24A4455-005	VA23A4564-001	VA23B3696-003	VA23A5067-002	VA23B3696-001
Lab ID		VA23A4774	VA23B3036	VA23C2725	VA23C9040	VA24A4455	VA23A5633	VA23B3696	VA23C1673	VA23D0191	VA23A4774	VA23B3696	VA23C1673	VA23D0040	VA24A4455	VA23A4564	VA23B3696	VA23A5067	VA23B3696
Site ID	MDL	MW12-01D	MW12-01D	MW12-01D	MW12-01D	MW12-01D	MW12-02S	MW12-02S	MW12-02S	MW12-02S	MW12-03D	MW12-03D	MW12-03D	MW12-03D	MW12-03D	MW12-05S	MW12-05S	MW12-07D	MW12-07D
Date/Time Sampled		02/Mar/2023 4:57 PM	09/Jun/2023 11:58 AM	21/Sep/2023 1:59 PM	29/Nov/2023 1:20 PM	02/Mar/2024 4:30 PM	14/Mar/2023 2:34 PM	14/Jun/2023 9:45 AM	12/Sep/2023 12:40 PM	13/Dec/2023 4:56 PM	03/Mar/2023 10:16 AM	12/Jun/2023 5:40 PM	11/Sep/2023 2:21 PM	12/Dec/2023 4:00 PM	01/Mar/2024 4:50 PM	28/Feb/2023 4:30 PM	13/Jun/2023 11:50 AM	06/Mar/2023 4:41 PM	12/Jun/2023 1:00 PM
In Situ Parameters																			
Conductivity (In Situ) µS/cm	...	244	272	288	221	233	87.4	82.8	91.2	77.7	89.9	107	97.6	88.5	90.2	170	162	153	149
Oxygen Dissolved (In Situ %) %	...	2.7	1.9	5.2	1.7	37.7	2.7	7.6	6.5	11	19.4	20.9	19.2	28.1	21.6	9.2	45	3.2	1.9
Oxygen Dissolved (In Situ)	...	0.34	0.00021	0.58	0.23	4.87	0.37	0.93	0.76	1.54	2.54	2.21	2.33	3.72	2.85	1.17	5.17	0.41	0.21
pH (In Situ) pH	...	6.35	7.75	7.8	7.79	7.68	6.75	7.68	7.77	7.04	5.74	6.69	6.83	6.92	6.84	7.11	7.79	7.19	7.84
Redox Potential (In Situ) mV	...	-42	-30.9	-43.4	-263	-62.1	-45.5	-29.3	-55.1	-53.8	266	-22.7	199	26.1	-67.9	-69.3	-28.5	178	-27.7
Salinity (In Situ) ppt	...		0.18	0.019	0.18	0.18		0.06	0.06	0.07		0.07	0.07	0.07	0.07		0.12		0.1
Specific Conductivity (In Situ) µS/cm	...	392	369	397	388	385	153	129	136	139	149	141	149	149	150	276	256	247	210
Temperature (In Situ) °C	...	5.1	11.1	10.6	2.4	4.3	2.3	6.4	7.7	1.9	4.1	12.4	6.9	3.8	4.1	4.8	5.6	5.1	9.9
Total Dissolved Solids (In Situ)	...		244	258	252	250		84.5	88.5	90.3		91	96.9	96.9	97.5		167		135
Turbidity (In Situ) NTU	...	2.22	2.64	4.6	3.17	1.68	5.37	2.26	3.59	10	0.49	2.62	3.08	0.23	1.1	1.3	1.1	0.23	0.67
Physical Tests																			
Acidity to pH 8.3 (as CaCO3)	2				<2	<2				<2				2.5	3.1				
Alkalinity (PP as CaCO3)	1					1.3									<1				
Alkalinity (Total as CaCO3)	1	193	190	190	194	198	72.4	73.9	72.4	72.5	70.5	70.3	68.9	69.1	72.8	150	143	111	111
Alkalinity/ Bicarbonate as CaCO3	1	186	180	182	179	195	72.4	73.9	72.4	72.5	70.5	70.3	68.9	69.1	72.8	150	140	111	111
Alkalinity/ Carbonate as CaCO3	1	6.1	10.7	8.4	14.5	2.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.8	<1	<1
Alkalinity/ Hydroxide as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Color TCU	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3 (Dissolved)	0.6	165	174	164	172	171	56.7	57.2	57.6	57.6	63.9	61.9	61.6	63.2	66.5	116	112	86.9	88.3
Hardness as CaCO3 (Total)	0.6	166	178	167	167	171	55.8	59.5	58.6	63	63.2	62.5	64.4	61.8	67.2	118	114	88.7	87.6
pH pH	0.1	8.35	8.41	8.44	8.54	8.3	7.74	8.01	8.02	8.09	7.87	7.98	7.67	7.78	7.9	8.29	8.3	8.07	8.22
Specific Conductivity µS/cm	2	391	392	377	389	383	139	137	138	140	150	150	151	151	153	274	269	220	216
Total Dissolved Solids	1 to 2	206		216	230	195	86	95	101	90	114	89	105	102	81		152	132	126
Total Dissolved Solids (Calculated)	1		238													165			
Total Suspended Solids	3	<3	<3	<3	6.4	<3	5.8	<3	<3	24	<3	<3	4.7	<3	<3	<3	3.4	<3	<3
Turbidity NTU	0.1	3.55	1.2	3.54	2.83	1.66	4.08	2.18	2.89	10.9	0.4	0.22	1.07	0.38	1.36	14.9	5.03	0.22	0.19
Dissolved Anions																			
Bromide (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (Dissolved)	0.02	0.082	0.08	0.076	0.09	0.091	0.077	0.08	0.083	0.084	0.058	0.058	0.06	0.052	0.061	0.18	0.178	0.127	0.119
Sulphate (Dissolved)	0.3	26.1	23.6	25	25.3	25	0.86	0.75	0.98	0.87	7.47	6.77	7.56	7.34	7.62	1.02	0.92	10.3	9.35
Nutrients																			
Ammonia (Dissolved)	0.005		0.0242	0.025	0.0277	0.0385	0.0057	<0.005	<0.005	<0.005		<0.005	<0.005	0.007	<0.005	0.254	0.243	0.0191	<0.005
Ammonia (Total)	0.005	0.0194	0.0268	0.0259	0.0285	0.0304	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	0.244	0.248	0.0154	<0.005
Nitrate (as N)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0103	0.137	0.13	0.13	0.126	0.128	<0.005	<0.005	<0.005	<0.005
Nitrate+Nitrite (Dissolved)	0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	0.0103	0.137	0.13	0.13	0.126	0.128	<0.0051	<0.0051	<0.0051	<0.0051
Nitrite (as N)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nitrogen (Dissolved)	0.03	<0.03	<0.03	<0.03	0.034	0.084	<0.03	<0.03	<0.03	<0.03	0.132	0.109	0.132	0.138	0.12	0.282	0.274	<0.03	<0.03
Nitrogen (Total)	0.03 to 0.15	<0.03	<0.03	0.04	0.065	0.051	<0.03	<0.03	<0.03	0.067	0.13	0.11	0.118	0.14	0.12	0.302	0.3	0.032	<0.03
Nitrogen Kjeldahl (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	0.065	0.064	<0.05	<0.05	<0.05	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	0.302	0.3	<0.05	<0.05
Nitrogen Organic (Dissolved)	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrogen Organic (Total)	0.05 to 0.15		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.067		<0.05	<0.05	<0.05	<0.05	0.058	0.052	<0.05	<0.05
Orthophosphate (Dissolved)	0.001 to 0.02	0.0244	0.029	0.0284	0.0362	0.0176	0.117	0.102	0.103	0.0928	0.0251	0.0224	0.0234	0.0215	0.0221	0.0042	0.0013	0.066	0.0538
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.0541	0.0636	0.0568	0.0649	0.0619	0.144	0.153	0.146	0.153	0.025	0.0258	0.025	0.0263	0.0221	0.0975	0.0773	0.0651	0.0643
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0575	0.0672	0.0695	0.0715	0.0774	0.149	0.157	0.158	0.176	0.026	0.0271	0.0268	0.0266	0.0252	0.109	0.0997	0.0683	0.066
Total Inorganic Nitrogen	0.025					0.03									0.128				
Cyanide																			
Cyanate	0.2 to 0.4	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Metals																			
Aluminum (Dissolved)	0.001 to 0.002	0.0073	0.0091	0.0047	0.0044	0.0044	0.0022	0.002	0.0089	0.0024	0.0017	<0.001	0.004	<0.001	0.0025	0.0033	0.0022	0.0031	0.0033
Antimony (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0002	0.00023	0.00022	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Dissolved)	0.0001 to 0.0002	0.00084	0.00094	0.0008	0.00089	0.00109	0.00585	0.00613	0.00596	0.00598	0.0004	0.00041	0.00038	0.0004	0.0004	0.0047	0.00479	0.00106	0.0012
Barium (Dissolved)	0.0001 to 0.0002	0.048	0.05	0.0483	0.0482	0.0471	0.00944	0.01	0.00946	0.00965	0.00463	0.00472	0.00488	0.00524	0.00461	0.115	0.105	0.0224	0.0227
Beryllium (Dissolved)	2E-005 to 4E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	<0.000005	<0.000005	<0.000005	<0.00001	<0.00001	<0.000005	<0.000005	<0.000005	<0.000005	0.0000121	0.0000194	0.0000273	0.000021	0.0000204	<0.000005	<0.000005	0.0000089	0.0000135
Calcium (Dissolved)	0.05 to 0.1	32.5	33.6	32.4	33.2	33.2	15.9	16.1	16.1	16.2	19.4	19	18.7	19.4	20.4	30	30	25.4	25.7
Chromium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium III (Dissolved)	0.0005																		
Chromium VI (Dissolved)	0.0005				<0.0005	<0.0005				<0.0005				<0.0005	<0.0005				
Cobalt (Dissolved)	0.0001 to 0.0002	<0.0001	0.00012	0.0001	0.00011	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	0.00015	<0.0001	<0.0001
Copper (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron (Dissolved)	0.01 to 0.02	0.306	0.301	0.27	0.287	0.187	0.296	0.292	0.353	0.328	<0.01	<0.01	<0.01	<0.01	<0.01	1.64	1.23	<0.01	<0.01
Lead (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Lithium (Dissolved)	0.001 to 0.002	0.0263	0.0255	0.025	0.0251	0.0221	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0035	0.0035	<0.001	<0.001
Magnesium (Dissolved)	0.1	20.3	21.8	20.1	21.7	21.3	4.12	4.14	4.23	4.16	3.75	3.51	3.62	3.59	3.79	9.88	8.97	5.71	5.87
Manganese (Dissolved)	0.0001 to 0.0002	0.17	0.213	0.181	0.184	0.211	0.294	0.302	0.32	0.285	0.00054	0.00048	0.00104	0.00068	0.00044	0.967	0.903	0.0817	0.0745
Mercury (Dissolved)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Dissolved)	5E-005 to 0.0001	0.00517	0.00496	0.00507	0.00531	0.00494	0.00136	0.00143	0.0014	0.0014	0.000286	0.000315	0.000308	0.000321	0.000274	0.0159	0.0161	0.00382	0.00398
Nickel (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	0.00064	0.00054	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00058	<0.0005	<0.0005
Phosphorus (Metal) Dissolved	0.05 to 0.1	0.057	0.073	0.054	0.07	<0.1	0.13	0.153	0.151	0.149	<0.05	<0.05	<0.05	<0.05	<0.05	0.097	0.072	0.056	0.064
Potassium (Dissolved)	0.1	0.727	0.738	0.708	0.769	0.768	0.636	0.6	0.646	0.637	0.721	0.68	0.753	0.77	0.714	1.31	1.22	0.915	0.911
Selenium (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silicon (Dissolved)	0.05 to 0.1	6.72	7.23	7.1	6.92	6.72	9.33	9.57	9.18	9.52	9.5	10.2	9.64	9.96	10.1	6.38	6.65	6.32	6.73
Silver (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	20.6	23.1	19.7	21.7	20	4.57	4.6	4.45	5.02	4.39	4.52	4.12	4.39	4.5	11.1	10.7	10.4	10.9
Strontium (Dissolved)	0.0002 to 0.0004	4.67	4.93	4.94	4.83	4.84	0.0919	0.0956	0.0957	0.0977	0.164	0.167	0.172	0.167	0.176	0.521	0.512	0.216	0.224
Sulfur (Dissolved)	0.5 to 1	9.21	9.32	8.53	8.71	8.09	<0.5	<0.5	<0.5	<0.5	2.23	2.36	2.26	2.5	2.42	0.58	<0.5	3.5	3.36
Thallium (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Dissolved)	0.0003 to 0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium (Dissolved)	1E-005 to 2E-005	0.00286	0.003	0.00273	0.00278	0.00279	0.00031	0.000301	0.000282	0.0003	0.000121	0.000141	0.000142	0.000146	0.000131	0.000435	0.000502	0.00136	0.0014
Vanadium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc (Dissolved)	0.001 to 0.002	<0.001	<0.001	<0.001	<0.001	0.0026	0.0014	<0.001	0.0018	<0.001	0.0019	0.0019	0.0042	0.0014	0.0019	0.0015	<0.001	<0.001	0.0011
Zirconium (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Metals																			
Aluminum (Total)	0.003	0.0683	0.0836	0.115	0.0553	0.0521	0.0605	0.0527	0.0483	0.414	0.0196	0.0223	0.0629	0.021	0.0798	0.0169	0.0446	0.01	0.021
Antimony (Total)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00022	0.0002	0.00024	0.00023	0.00021	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Total)	0.0001	0.00088	0.0011	0.00097	0.00094	0.00124	0.00643	0.00632	0.00662	0.0077	0.00045	0.00042	0.00049	0.00044	0.00042	0.00482	0.00483	0.00119	0.00115
Barium (Total)	0.0001	0.0486	0.0482	0.0481	0.0478	0.0433	0.0103	0.0109	0.0103	0.0148	0.00476	0.00505	0.0053	0.00552	0.00499	0.118	0.11	0.0222	0.0253
Beryllium (Total)	2E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	0.0000349	0.0000566	0.0000455	0.000098	0.0000966	0.0000216	0.0000275	0.0000403	0.000166	0.0000122	0.0000244	0.0000282	0.0000272	0.0000222	0.00002	0.000123	0.0000164	0.0000641
Calcium (Total)	0.05	32.4	34.4	34.2	33.1	35.2	15.5	16.8	16.4	17.8	19.2	19.2	19.7	18.8	20.6	31	30.6	26.1	25.6
Chromium (Total)	0.0005	<0.0005	<0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	0.00094	0.00099	<0.0005	<0.0005	0.00146	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium III (Total)	0.0005 to 0.00053			0.00051															
Chromium VI (Total)	0.0005			<0.0005	<0.0005	<0.0005				<0.0005				<0.0005	<0.0005				
Cobalt (Total)	0.0001	0.00012	0.00018	0.00016	0.00013	0.00018	<0.0001	<0.0001	<0.0001	0.00026	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00015	0.00021	<0.0001	<0.0001
Copper (Total)	0.0005	<0.0005	<0.0005	0.00054	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00101	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00079	<0.0005	<0.0005
Iron (Total)	0.01	0.38	0.4	0.406	0.34	0.318	0.38	0.385	0.521	0.878	0.015	0.03	0.065	0.021	0.041	1.72	1.61	0.012	0.027
Lead (Total)	5E-005	<0.00005	0.000096	0.000133	0.000098	0.000088	0.000076	0.000214	0.000298	0.000766	<0.00005	<0.00005	0.000101	<0.00005	0.000078	<0.00005	0.000241	<0.00005	0.000053
Lithium (Total)	0.001	0.0261	0.0244	0.0248	0.0238	0.0265	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0036	0.0033	<0.001	<0.001
Magnesium (Total)	0.1	20.7	22.3	19.8	20.6	20.1	4.15	4.26	4.29	4.52	3.7	3.54	3.7	3.61	3.84	9.82	9.02	5.71	5.75
Manganese (Total)	0.0001	0.182	0.217	0.192	0.181	0.208	0.3	0.322	0.33	0.258	0.00114	0.00264	0.00389	0.00174	0.00222	0.952	0.964	0.0859	0.132
Mercury (Total)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Total)	5E-005	0.00516	0.00572	0.00544	0.0054	0.00579	0.00139	0.00141	0.00143	0.00153	0.000325	0.000322	0.000406	0.000334	0.000297	0.0159	0.0157	0.004	0.00369
Nickel (Total)	0.0005	<0.0005	0.00055	0.00088	0.0006	<0.0005	<0.0005	<0.0005	0.00086	0.00117	<0.0005	<0.0005	0.001	<0.0005	<0.0005	0.00062	0.00359	<0.0005	<0.0005
Phosphorus (Metal) Total	0.05	0.073	0.08	0.078	0.089	0.088	0.212	0.185	0.2	0.186	<0.05	<0.05	0.05	<0.05	<0.05	0.112	0.12	0.066	0.08
Potassium (Total)	0.1	0.746	0.783	0.69	0.73	0.718	0.668	0.643	0.625	0.817	0.772	0.717	0.734	0.726	0.717	1.4	1.35	0.919	0.932
Selenium (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silicon (Total)	0.1	7	7.26	6.85	6.71	6.97	8.87	9.82	9.4	10.3	10.3	10.2	10.2	10	10.5	6.67	6.72	6.47	6.84
Silver (Total)	1E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Total)	0.05	20.6	23	19	20.2	19.7	4.61	4.68	4.74	5.4	4.6	4.26	4.61	4.3	4.56	11.4	10.9	10.8	10.8
Strontium (Total)	0.0002	4.67	5.22	5.09	4.94	4.91	0.0938	0.0999	0.0983	0.108	0.172	0.167	0.176	0.171	0.166	0.529	0.538	0.221	0.229
Sulfur (Total)	0.5	9.09	9.64	8.28	8.63	8.22	<0.5	<0.5	<0.5	<0.5	2.8	2.33	2.53	2.48	2.39	<0.5	<0.5	3.7	4.06
Thallium (Total)	1E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

Sample ID		VA23C1992-004	VA23C8803-003	VA24A4973-007	VA23A5067-001	VA23B3135-003	VA23C1992-005	VA23C9040-002	VA24A4973-006	VA23A4775-001	VA23B3696-004	VA23C1673-002	VA23A5067-003	VA23B3135-001	VA23C1852-005	VA23C8803	VA24A4455-009	VA23A5067-004	VA23B3135-002
Lab ID		VA23C1992	VA23C8803	VA24A4973	VA23A5067	VA23B3135	VA23C1992	VA23C9040	VA24A4973	VA23A4775	VA23B3696	VA23C1673	VA23A5067	VA23B3135	VA23C1852	VA23C8803	VA24A4455	VA23A5067	VA23B3135
Site ID	**MDL**	**MW12-07D**	**MW12-07D**	**MW12-07D**	**MW12-07S**	**MW12-07S**	**MW12-07S**	**MW12-07S**	**MW12-07S**	**MW12-05D**	**MW12-05D**	**MW12-05D**	**MW12-08S**	**MW12-08S**	**MW12-08S**	**MW12-08S**	**MW12-08S**	**MW12-08D**	**MW12-08D**
Date/Time Sampled		14/Sep/2023 2:44 PM	28/Nov/2023 2:58 PM	08/Mar/2024 9:21 AM	06/Mar/2023 2:06 PM	09/Jun/2023 9:00 AM	15/Sep/2023 6:40 PM	28/Nov/2023 3:32 PM	08/Mar/2024 11:59 AM	01/Mar/2023 2:17 PM	13/Jun/2023 2:30 PM	12/Sep/2023 9:00 AM	07/Mar/2023 10:54 AM	08/Jun/2023 9:10 AM	13/Sep/2023 11:40 AM	27/Nov/2023 8:40 AM	03/Mar/2024 12:05 PM	07/Mar/2023 2:44 PM	08/Jun/2023 12:30 PM
In Situ Parameters																			
Conductivity (In Situ) µS/cm	...	146	132	136	109	94	89.9	93.5	96.2	153	163	188	95.3	88.9	87.1	77.1	82.9	101	99
Oxygen Dissolved (In Situ %) %	...	2	4.9	6.4	74.9	76.1	70.1	102	72.9	2.2	2.3	1	45.7	59.6	57.4	46.6	58.2	43.1	52.5
Oxygen Dissolved (In Situ)	...	0.23	0.64	0.83	9.45	9.47	10	13.3	9.33	0.29	0.27	0.12	5.59	6.93	6.77	6.5	8.3	5.28	5.92
pH (In Situ) pH	...	8.08	8.03	7.96	**7.47**	8.09	8.33	8.06	8.16	**7.16**	7.8	7.91	**6.94**	8	8.1	8.05	8.01	**6.63**	7.98
Redox Potential (In Situ) mV	...	2.1	-42	-54.9	278	18.7	-45.1	-288	-58	-51	-26.2	-9.5	253	-73.5	67.5	-46.4	-68.3	250	-84.4
Salinity (In Situ) ppt	...	0.1	0.1	0.1		0.07	0.07	0.07	0.07		0.12	0.13		0.06	0.06	0.06	0.06		0.06
Specific Conductivity (In Situ) µS/cm	...	210	219	221	177	146	146	157	156	255	243	272	154	128	128	136	137	156	133
Temperature (In Situ) °C	...	8.9	4.1	5	5	6.5	4.8	3.8	4.6	4.1	7.8	8.8	5	8.8	8.3	2.4	4.4	6.8	12.2
Total Dissolved Solids (In Situ)	...	136	143	0.000143		94.9	95.3	102	0.000101		158	177		83.8	83.3	88.8	88.7		86.4
Turbidity (In Situ) NTU	...	0.64	0.65	0.31	0.08	0.05	0.1	0.11	0.13	7.81	3.75	9.11	0.39	0.61	0.86	0.61	0.03	1.19	0.91
Physical Tests																			
Acidity to pH 8.3 (as CaCO3)	2		<2	<2				<2	<2							<2	<2		
Alkalinity (PP as CaCO3)	1																<1		
Alkalinity (Total as CaCO3)	1	110	112	112	81.6	80.1	81.8	80.4	82.8	135	132	142	70.1	70.3	69.5	71.1	71.2	71.2	70.4
Alkalinity/ Bicarbonate as CaCO3	1	110	106	108	81.6	80.1	81.8	80.4	82.8	135	128	142	70.1	70.3	69.5	71.1	71.2	71.2	70.4
Alkalinity/ Carbonate as CaCO3	1	<1	5.2	3.6	<1	<1	<1	<1	<1	<1	4.4	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity/ Hydroxide as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Color TCU	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3 (Dissolved)	0.6	91	86.8	94.1	72.2	72.7	74.7	73.1	78.1	99	87.1	107	59.4	62.3	60.1	58.9	61.2	60.1	61.5
Hardness as CaCO3 (Total)	0.6	88.5	86.6	93.6	73.6	73.2	70.7	72.6	74.5	102	98.9	107	62.4	63	62.5	58.7	62.6	62.7	64.2
pH pH	0.1	8.29	8.35	8.34	8.07	8.16	8.16	8.13	8.13	8.27	8.32	8.26	7.97	8.06	8.09	8.12	8.08	7.97	8.08
Specific Conductivity µS/cm	2	212	227	216	158	160	152	157	155	256	257	273	137	141	136	141	138	140	145
Total Dissolved Solids	1 to 2	132	149	108	96		100	94	82		156	186	72		68	76	74	133	
Total Dissolved Solids (Calculated)	1					102				155				92.4					94.9
Total Suspended Solids	3	5	<3	<3	<3	<3	<3	<3	<3	7	<3	12.9	<3	<3	<3	<3	<3	<3	<3
Turbidity NTU	0.1	0.47	0.32	0.15	<0.1	<0.1	<0.1	<0.1	0.23	5.46	2.97	8.76	0.24	<0.1	0.48	0.46	0.32	0.87	0.18
Dissolved Anions																			
Bromide (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (Dissolved)	0.02	0.11	0.114	0.122	0.072	0.078	0.071	0.068	0.071	0.112	0.111	0.12	0.074	0.078	0.074	0.069	0.078	0.059	0.058
Sulphate (Dissolved)	0.3	8.91	10.3	9.77	3.01	2.65	2.38	3.06	2.96	4.88	4.7	7.18	3.24	2.95	3.27	3.43	3.56	3.74	3.19
Nutrients																			
Ammonia (Dissolved)	0.005	<0.005	0.0076	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0787	0.0736	0.0692	0.0055	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005
Ammonia (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0642	0.0694	0.0712	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (as N)	0.005	<0.005	<0.005	0.0059	0.0488	0.0491	0.0483	0.0486	0.0491	<0.005	<0.005	<0.005	0.0813	0.0705	0.0725	0.0741	0.0734	0.0772	0.0759
Nitrate+Nitrite (Dissolved)	0.0051	<0.0051	<0.0051	0.0059	0.0488	0.0491	0.0483	0.0486	0.0491	<0.0051	<0.0051	<0.0051	0.0813	0.0705	0.0725	0.0741	0.0734	0.0772	0.0759
Nitrite (as N)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nitrogen (Dissolved)	0.03	<0.03	<0.03	<0.03	0.056	0.062	0.042	0.054	0.043	0.109	0.097	0.113	0.08	0.077	0.07	0.072	0.062	0.079	0.083
Nitrogen (Total)	0.03 to 0.15	<0.03	<0.03	<0.03	0.054	0.052	0.033	0.055	0.047	0.132	0.092	0.2	0.076	0.074	0.055	0.073	0.054	0.085	0.078
Nitrogen Kjeldahl (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.132	0.092	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrogen Organic (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrogen Organic (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.068	<0.05	0.127	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Orthophosphate (Dissolved)	0.001 to 0.02	0.0555	0.0623	0.0622	0.0197	0.0175	0.0176	0.0196	0.0178	0.0511	0.0533	0.047	0.0482	0.0494	0.0461	0.0477	0.038	0.106	0.106
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.0632	0.0672	0.062	0.0208	0.0194	0.0202	0.0221	0.0204	0.0785	0.0802	0.0697	0.0507	0.0499	0.0508	0.0534	0.0441	0.114	0.11
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0636	0.0678	0.0625	0.0214	0.0205	0.0201	0.0227	0.0208	0.0898	0.0809	0.132	0.0522	0.0506	0.0509	0.0536	0.0472	0.12	0.119
Total Inorganic Nitrogen	0.025																0.073		
Cyanide																			
Cyanate	0.2 to 0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Metals																			
Aluminum (Dissolved)	0.001 to 0.002	0.0245	0.0023	0.0022	0.0023	0.002	0.0017	0.0015	0.0016	0.002	0.0063	0.0035	0.0018	0.0017	0.0012	0.0014	0.0011	0.0013	0.002
Antimony (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Dissolved)	0.0001 to 0.0002	0.00122	0.00108	0.00115	0.00219	0.00224	0.00223	0.00219	0.00221	0.00371	0.00371	0.00348	0.00125	0.00126	0.00128	0.00124	0.00124	0.001	0.00101
Barium (Dissolved)	0.0001 to 0.0002	0.0237	0.0215	0.0222	0.00713	0.00822	0.0074	0.00748	0.00752	0.151	0.133	0.158	0.00428	0.00471	0.00485	0.00441	0.00449	0.0175	0.0199
Beryllium (Dissolved)	2E-005 to 4E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	0.0000106	0.0000117	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000096	0.0000072	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Calcium (Dissolved)	0.05 to 0.1	26.4	25.5	27	24.2	24.6	24.7	23.9	25.8	25.4	22.2	28.1	18.5	19.8	18.3	17.9	18.9	18.1	18.9
Chromium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	0.00055	0.00061	0.00062	0.00059	0.00065	<0.0005	<0.0005	<0.0005	0.0013	0.00133	0.0014	0.00139	0.00134	0.00116	0.00116
Chromium III (Dissolved)	0.0005																		
Chromium VI (Dissolved)	0.0005		<0.0005	<0.0005				0.00057	0.00065							0.00098	0.00138		
Cobalt (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00013	0.00019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00037	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron (Dissolved)	0.01 to 0.02	0.028	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.228	0.188	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000079	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Lithium (Dissolved)	0.001 to 0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0122	0.012	0.0148	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Dissolved)	0.1	6.1	5.63	6.48	2.85	2.74	3.17	3.27	3.32	8.64	7.7	9.06	3.22	3.12	3.51	3.44	3.4	3.63	3.48
Manganese (Dissolved)	0.0001 to 0.0002	0.0834	0.0732	0.0748	<0.0001	<0.0001	<0.0001	0.00021	0.00023	0.0878	0.0834	0.108	0.00022	0.00022	0.00021	0.00037	<0.0001	0.00128	0.00057
Mercury (Dissolved)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Dissolved)	5E-005 to 0.0001	0.00398	0.00375	0.00383	0.00066	0.000697	0.000712	0.000702	0.000732	0.00578	0.00621	0.00765	0.00181	0.00176	0.00182	0.00183	0.0017	0.00179	0.00173
Nickel (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00057	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus (Metal) Dissolved	0.05 to 0.1	0.07	0.067	0.064	<0.05	<0.05	<0.05	<0.05	<0.05	0.073	0.078	0.068	<0.05	0.057	0.053	<0.05	<0.05	0.106	0.122
Potassium (Dissolved)	0.1	1.02	0.917	0.969	0.643	0.726	0.718	0.712	0.7	0.803	0.69	0.892	0.692	0.74	0.749	0.712	0.683	0.512	0.557
Selenium (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	0.000102	0.000078	0.000107	0.000117	0.000123	<0.00005	<0.00005	<0.00005	0.000141	0.000165	0.00017	0.000154	0.000148	0.000142	0.000174
Silicon (Dissolved)	0.05 to 0.1	6.87	6.46	6.78	7.05	6.99	7.61	7.21	7.27	6.54	7.23	6.73	7.09	7.18	7.9	7.39	7.66	8.19	8.24
Silver (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	12.2	11.2	11.7	3.06	3.04	3.52	3.48	3.42	14.3	13.4	16.3	3.64	3.79	3.86	4.09	3.76	3.96	3.84
Strontium (Dissolved)	0.0002 to 0.0004	0.224	0.215	0.229	0.0886	0.0882	0.0895	0.0872	0.0932	0.882	0.816	1.01	0.115	0.12	0.118	0.115	0.122	0.135	0.136
Sulfur (Dissolved)	0.5 to 1	3.7	3.25	3.47	1.17	1.05	1.23	0.77	0.98	1.38	1.83	2.21	1.23	1.06	1.11	0.84	1.12	1.27	1.21
Thallium (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Dissolved)	0.0003 to 0.0006	0.00055	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium (Dissolved)	1E-005 to 2E-005	0.00137	0.00124	0.00138	0.000215	0.000225	0.000204	0.000202	0.000214	0.000071	0.000082	0.000096	0.000427	0.000429	0.000441	0.000394	0.000407	0.00045	0.000458
Vanadium (Dissolved)	0.0005 to 0.001	0.00083	<0.0005	0.00052	0.0016	0.00151	0.00166	0.00162	0.00156	0.00053	<0.0005	<0.0005	0.0023	0.00208	0.00219	0.00215	0.00213	0.00062	<0.0005
Zinc (Dissolved)	0.001 to 0.002	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.024**	**0.0304**	**0.0143**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zirconium (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Metals																			
Aluminum (Total)	0.003	0.0264	0.015	0.0075	0.0039	0.0045	0.0031	0.0095	0.0041	0.211	0.0869	0.26	0.0033	0.0218	0.0077	0.0146	0.004	0.0311	0.0172
Antimony (Total)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	0.00011	0.00011
Arsenic (Total)	0.0001	0.00117	0.00122	0.00119	0.00222	0.0022	0.00224	0.00222	0.00222	0.00394	0.00359	0.00464	0.00135	0.00135	0.00136	0.00139	0.00131	0.00101	0.00111
Barium (Total)	0.0001	0.0236	0.024	0.0231	0.00707	0.00762	0.00734	0.00739	0.00775	0.152	0.151	0.171	0.00428	0.00481	0.00498	0.00519	0.00454	0.0179	0.0188
Beryllium (Total)	2E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000023	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	0.0000234	0.0000178	0.0000097	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00015	0.0000334	0.000389	0.0000066	<0.000005	<0.000005	<0.000005	<0.000005	0.0000114	0.0000076
Calcium (Total)	0.05	25.1	24.6	26.8	24.4	24.4	23.3	24.2	24.2	26.6	26	28.3	19.6	19.8	19.2	17.9	19.2	18.8	19.1
Chromium (Total)	0.0005	<0.0005	<0.0005	<0.0005	0.00065	0.00082	0.00086	0.00088	0.00072	0.00069	<0.0005	0.00187	0.00157	0.00147	0.00162	0.00176	0.00145	0.00151	0.00134
Chromium III (Total)	0.0005 to 0.00053					0.00082	<0.0005							<0.0005	<0.00052				<0.0005
Chromium VI (Total)	0.0005		<0.0005	<0.0005		<0.0005	0.00061	0.00055	0.00082					0.00114	0.00128	0.00131	0.00127		0.00094
Cobalt (Total)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.00017	0.00039	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00138	<0.0005	0.00216	<0.0005	<0.0005	0.00409	<0.0005	<0.0005	<0.0005	<0.0005
Iron (Total)	0.01	0.037	0.018	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.48	0.328	0.843	<0.01	0.036	0.01	0.016	<0.01	0.04	0.018
Lead (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000405	0.000193	0.00136	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000052	<0.00005
Lithium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0133	0.0123	0.0165	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Total)	0.1	6.28	6.12	6.48	3.08	2.98	3.05	2.95	3.42	8.53	8.26	8.94	3.27	3.29	3.54	3.41	3.56	3.82	4
Manganese (Total)	0.0001	0.0866	0.0862	0.0777	0.00017	0.00016	0.00011	0.00054	0.00032	0.0951	0.0998	0.121	0.00027	0.00085	0.00044	0.0008	0.00014	0.00243	0.00102
Mercury (Total)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Total)	5E-005	0.00397	0.00398	0.00413	0.000698	0.000749	0.000724	0.000726	0.000756	0.00622	0.00614	0.00752	0.00201	0.00185	0.00185	0.00196	0.00179	0.0019	0.0018
Nickel (Total)	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00073	<0.0005	0.00169	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus (Metal) Total	0.05	0.09	0.075	0.082	<0.05	0.051	<0.05	<0.05	<0.05	0.08	0.122	0.147	0.05	0.067	0.064	0.073	0.07	0.119	0.122
Potassium (Total)	0.1	0.914	0.993	0.875	0.655	0.682	0.632	0.678	0.63	0.884	0.848	0.896	0.691	0.735	0.733	0.754	0.702	0.525	0.551
Selenium (Total)	5E-005	<0.00005	<0.00005	<0.00005	0.000109	0.000122	0.00013	0.0001	0.000149	<0.00005	<0.00005	<0.00005	0.000135	0.000144	0.000155	0.000164	0.000153	0.000166	0.000154
Silicon (Total)	0.1	6.36	6.64	6.69	7.35	7.2	6.94	7.1	7.44	7.48	7.22	7.5	7.28	7.27	7.54	7.57	7.87	8.47	8.37
Silver (Total)	1E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Total)	0.05	11.2	11.6	11.5	3.18	3.18	3.32	3.23	3.52	14.2	14.7	17	3.73	3.77	3.84	3.91	3.86	4.03	4.06
Strontium (Total)	0.0002	0.226	0.224	0.225	0.0879	0.0895	0.0876	0.0887	0.0849	0.907	0.932	0.997	0.124	0.122	0.117	0.122	0.117	0.141	0.139
Sulfur (Total)	0.5	3.2	3.6	3.2	1.24	0.94	1.14	0.56	0.76	1.74	1.79	2.51	1.27	0.92	0.97	1.04	0.94	1.

Sample ID		VA23C1852-004		VA24A4455-010	VA23A5294-001	VA23B2851-001	VA23C1852-002	VA23C8803-004	VA24A4455-011	VA23A5294-004	VA23B2851-002	VA23C1992-001	VA23C9669-001	VA24A4724-001	VA23A5294-005	VA23B2851-003	VA23C1992-002	VA23C9669-002	VA24A4724-002
Lab ID		VA23C1852	VA23C8803	VA24A4455	VA23A5294	VA23B2851	VA23C1852	VA23C8803	VA24A4455	VA23A5294	VA23B2851	VA23C1992	VA23C9669	VA24A4724	VA23A5294	VA23B2851	VA23C1992	VA23C9669	VA24A4724
Site ID	MDL	MW12-08D	MW12-08D	MW12-08D	MW12-09D	MW12-09D	MW12-09D	MW12-09D	MW12-09D	MW12-12S	MW12-12S	MW12-12S	MW12-12S	MW12-12S	MW12-12D	MW12-12D	MW12-12D	MW12-12D	MW12-12D
Date/Time Sampled		13/Sep/2023 9:30 AM	27/Nov/2023 4:26 PM	03/Mar/2024 9:47 AM	08/Mar/2023 11:16 AM	05/Jun/2023 1:14 PM	13/Sep/2023 2:27 PM	28/Nov/2023 11:30 AM	03/Mar/2024 2:50 PM	09/Mar/2023 3:30 PM	06/Jun/2023 12:38 PM	14/Sep/2023 11:22 AM	07/Dec/2023 2:37 PM	04/Mar/2024 11:38 AM	09/Mar/2023 12:06 PM	06/Jun/2023 10:18 AM	14/Sep/2023 8:46 AM	07/Dec/2023 12:18 PM	04/Mar/2024 9:37 AM
In Situ Parameters																			
Conductivity (In Situ) µS/cm	...	89	83.4	84.3	114	105	104	94.1	95.9	92.4	79.3	81.8	73.9	76.1	106	98.2	92.6	92	91.5
Oxygen Dissolved (In Situ %) %	...	54.8	55.6	69	19.1	19.6	22.2	33.5	23.2	27	33.5	30.6	28.8	30.1	12.9	12.9	16.9	52.4	29.1
Oxygen Dissolved (In Situ)	...	6.53	7.25	8.95	2.36	2.34	2.55	4.44	3.02	3.28	3.91	3.52	3.78	3.8	1.67	1.51	2.09	6.82	3.81
pH (In Situ) pH	...	8.09	8.03	7.95	6.98	8.39	8.34	8.26	8.26	5.62	7.44	7.66	7.57	7.57	6.27	7.74	8.09	7.85	7.68
Redox Potential (In Situ) mV	...	109	-48.2	-64	271	-56.4	62.3	-34.8	-67.9	308	6.1	79.6	25.2	-209	242	-32.8	-9.6	25.7	-218
Salinity (In Situ) ppt	...	0.06		0.06		0.07	0.07	0.07	0.07		0.05	0.06	0.06	0.06		0.07	0.07	0.07	0.07
Specific Conductivity (In Situ) µS/cm	...	133	138	140	181	158	152	159	159	140	116	117	124	125	174	149	146	151	152
Temperature (In Situ) °C	...	8.2	4.1	4.5	5.9	7.3	8.6	3.6	4.5	7.1	8.1	9.1	3.8	4.3	4.5	7.2	5.8	5	4.2
Total Dissolved Solids (In Situ)	...	85.8		90.4		103	98.7	103	104		75.4	76.2	80.6	81.7		99.4	94.8	98.7	99
Turbidity (In Situ) NTU	...	5	5	3.1	0.05	0.03	1.06	2.01	0.93	0.32	0.63	1.5	1.01	0.31	5.66	4.56	16.5	9.5	4.89
Physical Tests																			
Acidity to pH 8.3 (as CaCO3)	2		2.1	<2				<2	<2				<2	<2				<2	<2
Alkalinity (PP as CaCO3)	1			<1					<1										
Alkalinity (Total as CaCO3)	1	70.2	72.4	70.6	79.9	77.8	80.2	80.6	80.6	64.6	62.4	65.2	64.7	67.7	76.2	75.9	77.1	76.4	76.7
Alkalinity/ Bicarbonate as CaCO3	1	70.2	72.4	70.6	79.9	77.8	80.2	80.6	80.6	64.6	62.4	65.2	64.7	67.7	76.2	75.9	77.1	76.4	76.7
Alkalinity/ Carbonate as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity/ Hydroxide as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Color TCU	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3 (Dissolved)	0.6	63.3	60.2	62.5	72.3	70.6	71.9	70.4	71.5	53.9	52	54.7	52.4	52.8	63.3	62.4	64.8	60.7	58.7
Hardness as CaCO3 (Total)	0.6	62.9	59.8	64.2	70.3	71.5	74.4	69.6	74.6	52.7	52.3	52.6	51.4	53.8	61.5	65.4	62.7	58.8	61.1
pH pH	0.1	8.1	8.13	8.06	7.98	8.16	8.16	8.2	8.17	7.88	7.98	8.01	7.95	8.12	7.99	8.11	8.11	8.06	8.16
Specific Conductivity µS/cm	2	138	143	141	153	159	158	165	162	124	123	122	124	132	155	158	151	156	157
Total Dissolved Solids	1 to 2	87	84	74		99	96	102	88		84	88	80	77		112	104	99	101
Total Dissolved Solids (Calculated)	1				103					89.8					111				
Total Suspended Solids	3	13.6	5.6	3.8	<3	<3	<3	6.4	<3	<3	<3	7	<3	<3	9.1	5.7	42.8	30.6	7.2
Turbidity NTU	0.1	4.05	1.22	2.16	0.23	0.4	0.35	0.82	0.24	0.33	0.3	0.45	0.43	0.42	3.89	2.32	9.25	5.45	3.11
Dissolved Anions																			
Bromide (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (Dissolved)	0.02	0.058	0.057	0.062	0.094	0.08	0.086	0.078	0.086	0.104	0.09	0.096	0.095	0.091	0.09	0.082	0.083	0.081	0.078
Sulphate (Dissolved)	0.3	3.68	3.34	3.87	5.38	5.22	5.48	5.58	5.64	1.96	1.82	1.51	1.75	1.91	4.41	6.04	5.28	4.01	4.43
Nutrients																			
Ammonia (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ammonia (Total)	0.005	<0.005	0.0127	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	<0.005	<0.005	0.0066	<0.005	<0.005	<0.005	<0.005
Nitrate (as N)	0.005	0.0777	0.0768	0.0784	0.0544	0.0542	0.0528	0.056	0.0542	0.0264	0.0276	0.0277	0.0269	0.0286	0.145	0.155	0.131	0.194	0.219
Nitrate+Nitrite (Dissolved)	0.0051	0.0777	0.0768	0.0784	0.0544	0.0542	0.0528	0.056	0.0542	0.0264	0.0276	0.0277	0.0269	0.0286	0.145	0.155	0.131	0.194	0.219
Nitrite (as N)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nitrogen (Dissolved)	0.03	0.074	0.067	0.066	0.06	0.057	0.055	0.049	0.043	0.032	<0.03	<0.03	<0.03	<0.03	0.151	0.149	0.111	0.202	0.196
Nitrogen (Total)	0.03 to 0.15	0.071	0.088	0.07	0.057	0.061	0.036	0.054	0.039	0.039	0.033	0.04	<0.03	<0.03	0.172	0.169	0.208	0.394	0.221
Nitrogen Kjeldahl (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.077	0.2	<0.05
Nitrogen Organic (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrogen Organic (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.077	0.2	<0.05
Orthophosphate (Dissolved)	0.001 to 0.02	0.102	0.112	0.0996	0.0425	0.042	0.0387	0.0441	0.0398	0.0502	0.0532	0.0499	0.0555	0.0529	0.0558	0.0541	0.0471	0.0531	0.0521
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.117	0.114	0.105	0.0441	0.0423	0.0433	0.0454	0.0376	0.0552	0.056	0.0536	0.0621	0.0516	0.0612	0.0547	0.0536	0.0551	0.0519
Phosphorus (Nutrient) Total	0.002 to 0.02	0.122	0.123	0.116	0.045	0.0427	0.0445	0.0478	0.0429	0.0555	0.0548	0.0564	0.0567	0.0611	0.0668	0.0619	0.103	0.0787	0.0662
Total Inorganic Nitrogen	0.025			0.078					0.054										
Cyanide																			
Cyanate	0.2 to 0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	<0.5	<0.5	<0.5	<0.5	<1	<5	<1	<0.5	<0.5	<1	<5	<0.5	<0.5	<0.5	<1	<5	<0.5	<0.5
Dissolved Metals																			
Aluminum (Dissolved)	0.001 to 0.002	0.002	0.0013	0.0012	0.0025	0.0024	0.0025	0.0023	0.0076	0.0038	0.0026	0.0016	0.0079	0.0012	0.0219	0.0024	0.0027	0.0026	0.004
Antimony (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	0.0001
Arsenic (Dissolved)	0.0001 to 0.0002	0.00098	0.00096	0.00102	0.00322	0.00327	0.00332	0.00323	0.00342	0.00128	0.00135	0.00133	0.00124	0.0013	0.00147	0.00143	0.00146	0.00129	0.00134
Barium (Dissolved)	0.0001 to 0.0002	0.0196	0.0176	0.0179	0.00926	0.00853	0.00934	0.00842	0.00861	0.00589	0.0054	0.00578	0.00584	0.00566	0.0193	0.0173	0.0188	0.0185	0.018
Beryllium (Dissolved)	2E-005 to 4E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	<0.000005	<0.000005	<0.000005	0.0000067	0.0000098	0.0000056	0.0000093	<0.000005	0.0000099	0.0000084	0.0000065	0.0000114	0.0000076	0.0000491	0.0000361	0.0000314	0.0000635	0.0000384
Calcium (Dissolved)	0.05 to 0.1	18.6	17.7	18.3	21.4	21.1	21.3	21.1	21.1	15	14.8	15.4	14.7	14.4	18	17.8	18.3	17.2	15.8
Chromium (Dissolved)	0.0005 to 0.001	0.00107	0.00119	0.00111	0.0014	0.00147	0.00152	0.00154	0.00152	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00093	0.001	0.00104	0.00097	0.00114
Chromium III (Dissolved)	0.0005																		
Chromium VI (Dissolved)	0.0005		0.00116	0.00085				0.00138	0.00143				<0.0005	<0.0005				0.00132	0.00197
Cobalt (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00022	<0.0002	<0.0002	0.00042	0.00025
Iron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	<0.01	<0.01
Lead (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Lithium (Dissolved)	0.001 to 0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Dissolved)	0.1	4.1	3.9	4.09	4.58	4.36	4.55	4.29	4.57	4	3.65	3.94	3.81	4.08	4.46	4.36	4.65	4.32	4.68
Manganese (Dissolved)	0.0001 to 0.0002	0.00486	0.00166	0.00425	0.00012	0.00035	0.00016	0.00027	0.00027	0.00024	0.00027	0.0002	0.00113	0.00019	0.0074	0.00454	0.00562	0.00428	0.00348
Mercury (Dissolved)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Dissolved)	5E-005 to 0.0001	0.0018	0.00182	0.00174	0.0025	0.00252	0.00264	0.00256	0.00248	0.00108	0.00114	0.00111	0.000964	0.00104	0.000748	0.000737	0.000753	0.00068	0.000616
Nickel (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus (Metal) Dissolved	0.05 to 0.1	0.118	0.112	0.118	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.061	0.057	0.055	0.054	0.066	0.06	0.053	<0.05
Potassium (Dissolved)	0.1	0.556	0.524	0.516	0.716	0.69	0.739	0.696	0.694	0.73	0.729	0.777	0.745	0.706	0.883	0.875	0.92	0.94	0.878
Selenium (Dissolved)	5E-005 to 0.0001	0.000176	0.000142	0.000159	0.000494	0.000464	0.000554	0.000534	0.000542	0.000291	0.000212	0.000261	0.000315	0.000299	0.00035	0.000377	0.000415	0.000355	0.000371
Silicon (Dissolved)	0.05 to 0.1	8.88	8.41	8.79	6.58	6.3	6.98	6.54	7.01	8.93	8.88	9.26	9.19	9.01	10.5	10.5	11.2	10.9	11.2
Silver (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	4.06	4.17	4.08	4.53	4.07	4.32	4.26	4.28	4.92	4.79	5	4.5	5.02	8.04	7.76	8.59	7.69	8.24
Strontium (Dissolved)	0.0002 to 0.0004	0.134	0.132	0.148	0.147	0.16	0.154	0.15	0.166	0.0744	0.0866	0.0832	0.0829	0.0752	0.128	0.141	0.139	0.138	0.124
Sulfur (Dissolved)	0.5 to 1	1.03	0.99	1.13	1.86	1.82	1.73	1.46	1.76	0.75	<0.5	0.89	0.72	0.53	1.63	2.02	2.31	1.44	1.67
Thallium (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Dissolved)	0.0003 to 0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00056	<0.0003	<0.0003	<0.0003	<0.0003
Uranium (Dissolved)	1E-005 to 2E-005	0.000465	0.000414	0.000412	0.000386	0.00037	0.000435	0.0004	0.000388	0.000134	0.000124	0.000149	0.000139	0.000136	0.000432	0.000393	0.000411	0.000365	0.000353
Vanadium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	0.00333	0.00318	0.00326	0.00318	0.00324	0.00081	0.00077	0.00086	0.00076	0.00082	0.00226	0.00229	0.00244	0.00222	0.00238
Zinc (Dissolved)	0.001 to 0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013	0.001	<0.001	<0.001	<0.001	0.0086	0.0078	0.0056	0.0087	0.0064
Zirconium (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Metals																			
Aluminum (Total)	0.003	0.225	0.0714	0.105	0.0087	0.0085	0.0241	0.0334	0.0191	0.0134	0.0258	0.068	0.0291	0.0218	0.178	0.184	0.505	0.341	0.184
Antimony (Total)	0.0001	0.00014	0.00012	0.00012	0.00011	<0.0001	0.00011	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00014	0.00011	0.00019	0.00043	0.00014
Arsenic (Total)	0.0001	0.00118	0.00113	0.00112	0.00334	0.00336	0.0035	0.00363	0.00348	0.00139	0.00137	0.00143	0.00136	0.0013	0.00155	0.00146	0.00174	0.00166	0.00145
Barium (Total)	0.0001	0.0232	0.0197	0.0196	0.00841	0.00909	0.0101	0.00985	0.00922	0.00573	0.00636	0.00659	0.00612	0.0058	0.02	0.0204	0.0235	0.0238	0.0184
Beryllium (Total)	2E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000027	<0.00002	<0.00002
Bismuth (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	0.000028	0.0000095	0.0000145	0.0000202	0.0000111	0.0000238	0.0000209	0.0000074	0.0000112	0.0000139	0.0000138	0.0000217	0.0000149	0.000129	0.000138	0.000175	0.000199	0.000123
Calcium (Total)	0.05	18.4	17.3	18.6	20.8	20.7	22.1	20.3	22.1	14.4	14.6	14.6	14.5	15	17.1	18.6	17.2	16.8	17.3
Chromium (Total)	0.0005	0.00209	0.00197	0.00167	0.00152	0.00154	0.00183	0.00222	0.00169	<0.0005	<0.0005	0.00095	0.00052	0.0005	0.00172	0.00158	0.00296	0.00263	0.00178
Chromium III (Total)	0.0005 to 0.00053	0.00131												0.0005					0.00059
Chromium VI (Total)	0.0005	0.00078	0.00133	0.001				0.00172	0.00153				<0.0005	<0.0005				0.00094	0.00119
Cobalt (Total)	0.0001	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00029	0.00024	<0.0001
Copper (Total)	0.0005	0.00069	<0.0005	<0.0005	0.137	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00063	0.0006	0.00172	0.00237	0.00084
Iron (Total)	0.01	0.277	0.09	0.128	<0.01	<0.01	0.04	0.045	0.018	0.011	0.022	0.078	0.031	0.023	0.149	0.166	0.531	0.386	0.163
Lead (Total)	5E-005	0.000277	0.000106	0.000133	0.00344	<0.00005	<0.00005	0.000055	<0.00005	<0.00005	<0.00005	0.000066	<0.00005	<0.00005	0.000199	0.000175	0.000546	0.00116	0.000274
Lithium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Total)	0.1	4.11	4.04	4.3	4.47	4.82	4.66	4.59	4.71	4.06	3.85	3.93	3.7	3.97	4.56	4.6	4.79	4.08	4.34
Manganese (Total)	0.0001	0.013	0.00455	0.00824	0.00127	0.00079	0.00401	0.00544	0.00266	0.00111	0.00276	0.0062	0.00313	0.0017	0.0106	0.00728	0.021	0.0212	0.00666
Mercury (Total)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Total)	5E-005	0.00191	0.00196	0.00182	0.00255	0.00251	0.00274	0.00278	0.00254	0.00111	0.00109	0.00168	0.00104	0.00106	0.000773	0.000704	0.000903	0.000779	0.000694
Nickel (Total)	0.0005	0.0008	<0.0005	<0.0005	0.00227	<0.0005	<0.0005	0.00054	<0.0005	<0.0005	<0.0005	0.00057	<0.0005	<0.0005	0.00074	0.00055	0.00169	0.00196	0.00074
Phosphorus (Metal) Total	0.05	0.154	0.153	0.152	0.09	0.065	0.06	0.075	0.056	0.112	0.079	0.081	0.059	0.066	0.13	0.053	0.103	0.086	0.074
Potassium (Total)	0.1	0.586	0.573	0.536	0.68	0.693	0.738	0.768	0.702	0.721	0.715	0.707	0.724	0.727	0.898	0.892	0.925	0.926	0.911
Selenium (Total)	5E-005	0.000182	0.000176	0.000188	0.00052	0.0005	0.000551	0.000577	0.000517	0.000279	0.00021	0.00028	0.000327	0.000314	0.000384	0.000365	0.000459	0.000385	0.000376
Silicon (Total)	0.1	9.17	8.69	9.09	6.5	6.84	7.07	6.69	6.94	8.7	9.33	9.06	9.05	8.8	10.8	11.3	11.2	11.2	10.8
Silver (Total)	1E-005	0.000013	<0.00001	<0.00001	0.000018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001	0.000036	0.000013	<0.00001
Sodium (Total)	0.05	3.99	4.12	4.11	4.51	4.44	4.32	4.37	4.3	5.05	4.93	4.72	4.62	4.35	8.4	8.03	8.12	7.19	7.07
Strontium (Total)	0.0002	0.142	0.14	0.137	0.147	0.159	0.161	0.16	0.154	0.0794	0.0832	0.08	0.0856	0.079	0.135	0.145	0.139	0.139	0.127
Sulfur (Total)	0.5	1.15	1.22	1.19	1.86	1.92	1.9	1.91	1.75	0.82	0.67	0.64	<0.5	<0.5	1.56	2.18	2.11	1.24	1.

Sample ID		VA23A4775-002	VA23B3696-006	VA24A4455-008	VA23C2365-002	VA23A5633-002	VA23B3835-001	VA23C2725-001	VA23D0191-002	VA24A4978-002	VA23A5294-003	VA23B3738-001	VA23C2361-001	VA23C9627-001	VA24A4455-004	VA23A0571-001	VA23A5294-002	VA23B3738-002	VA23C2365-001
Lab ID		VA23A4775	VA23B3696	VA24A4455	VA23C2365	VA23A5633	VA23B3835	VA23C2725	VA23D0191	VA24A4978	VA23A5294	VA23B3738	VA23C2361	VA23C9627	VA24A4455	VA23A0571	VA23A5294	VA23B3738	VA23C2365
Site ID	MDL	MW12-13S	MW12-13S	MW12-13S	MW22-03S	GT21-03S	GT21-03S	GT21-03S	GT21-03S	GT21-03S	GT20-04	GT20-04	GT20-04	GT20-04	GT20-04	MW22-03D	MW22-03D	MW22-03D	MW22-03D
Date/Time Sampled		01/Mar/2023 5:49 PM	14/Jun/2023 12:55 PM	01/Mar/2024 1:20 PM	19/Sep/2023 2:37 PM	14/Mar/2023 11:00 AM	16/Jun/2023 10:10 AM	20/Sep/2023 7:56 AM	13/Dec/2023 8:42 AM	06/Mar/2024 4:01 PM	10/Mar/2023 8:43 AM	15/Jun/2023 11:08 AM	18/Sep/2023 3:26 PM	06/Dec/2023 2:30 PM	01/Mar/2024 9:06 AM	09/Jan/2023 3:34 PM	08/Mar/2023 4:50 PM	15/Jun/2023 2:10 PM	19/Sep/2023 9:04 AM
In Situ Parameters																			
Conductivity (In Situ) µS/cm	...	46.8	35.6	55.5	29.2	141	130	134	125	123	69.6	60.2	64.9	58.3	61.9	111	147	132	118
Oxygen Dissolved (In Situ %) %	...	56.4	61.7	40.2	67.3	36.6	35.8	31	44.4	29.1	37.1	41.3	37.6	48.9	36.5	49.9	44.9	50.3	47.9
Oxygen Dissolved (In Situ)	...	6.96	7.66	4.81	8.47	4.85	4.35	3.94	5.75	3.94	4.78	0.00522	4.74	6.4	4.67	6.36	5.17	0.00613	6.13
pH (In Situ) pH	...	5.54	6.3	6.43	6.82	7.2	7.72	7.89	7.82	7.77	7	8.3	8.48	8.71	8.39	7.75	5.88	7.55	7.72
Redox Potential (In Situ) mV	...	298	-243	-73.9	73.2	153	30.8	-48.6	26.9	-45.6	278	-33.7	87.5	20	-78.5	246	290	-91.9	41.9
Salinity (In Situ) ppt	...		0.03	0.04	0.02		0.09	0.1	0.1	0.1		0.04	0.05	0.05	0.05	0.08		0.08	0.09
Specific Conductivity (In Situ) µS/cm	...	73.8	55.5	86.4	46.1	238	199	216	212	212	115	95.8	104	101	101	184	210	178	192
Temperature (In Situ) °C	...	5.8	7	6.5	5.9	3.7	6.4	5.2	3.6	2.9	4.4	5.4	5.4	4	4.6	4.4	9.1	12	4.9
Total Dissolved Solids (In Situ)	...		36.4	55	30		137	141	138	138		62.4	67.4	65.7	66	119		115	125
Turbidity (In Situ) NTU	...	0.08	0.14	1.23	2.03	4.21	0.54	0.42	0.14	0.08	0.66	0.1	1.35	3.6	3.47	1.18	0.27	0.01	0.49
Physical Tests																			
Acidity to pH 8.3 (as CaCO3)	2			3.8					<2	<2				<2	<2				
Alkalinity (PP as CaCO3)	1			<1											<1				
Alkalinity (Total as CaCO3)	1	34.5	29	44.3	23.2	113	107	107	111	108	50.4	48.9	50.9	51.8	50.4	93.8	94.3	93.4	94.7
Alkalinity/ Bicarbonate as CaCO3	1	34.5	29	44.3	23.2	113	107	107	111	108	50.4	48.9	50.9	51.8	50.4	93.8	94.3	93.4	94.7
Alkalinity/ Carbonate as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity/ Hydroxide as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Color TCU	5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3 (Dissolved)	0.6	30	23	37.1	17	95	98.3	95.1	94.8	95.2	40.9	41.6	42.9	39.4	41.6	85.5	85.6	87.1	86.1
Hardness as CaCO3 (Total)	0.6	30.5	24	37.8	17.4	93.7	111	95.4	102	96.9	38.3	41.1	41.3	41	41.4	83.5	83.8	89.4	87.2
pH pH	0.1	7.62	7.48	7.67	7.61	8.02	8.12	8.28	8.22	8.28	7.85	7.91	7.99	7.95	7.96	8.04	7.98	8.07	8.24
Specific Conductivity µS/cm	2	74.1	58.2	88.8	44.6	211	201	208	214	222	101	102	103	105	102	191	182	185	187
Total Dissolved Solids	1 to 2		54	46	40	124	139	158	127	108			74	68	58	103			124
Total Dissolved Solids (Calculated)	1	52.3					132				73.5	73.4					118	118	
Total Suspended Solids	3	<3	<3	<3	<3	3.8	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity NTU	0.1	0.3	0.18	0.7	1.52	1.11	0.39	0.51	0.12	0.21	0.12	0.19	<0.1	2.81	2.6	0.14	<0.1	<0.1	0.19
Dissolved Anions																			
Bromide (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (Dissolved)	0.02	0.023	0.023	0.021	0.031	0.066	0.073	0.066	0.072	0.07	0.066	0.056	0.06	0.057	0.062	0.088	0.081	0.068	0.069
Sulphate (Dissolved)	0.3	3.3	1.67	2.93	0.64	7.44	8.05	7.83	7.32	7.68	2.95	2.46	2.43	2.99	2.99	5.34	5.12	4.41	5.14
Nutrients																			
Ammonia (Dissolved)	0.005	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ammonia (Total)	0.005	0.0083	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (as N)	0.005	0.131	0.0329	0.14	<0.005	0.0642	0.062	0.0669	0.0667	0.0692	0.0702	0.073	0.0633	0.0726	0.074	0.0706	0.0976	0.109	0.072
Nitrate+Nitrite (Dissolved)	0.0051	0.131	0.0329	0.14	<0.0051	0.0656	0.062	0.0669	0.0667	0.0692	0.0702	0.073	0.0633	0.0726	0.074	0.0739	0.0988	0.11	0.072
Nitrite (as N)	0.001	<0.001	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0033	0.0012	0.0012	<0.001
Nitrogen (Dissolved)	0.03	0.141	0.034	0.15	<0.03	0.078	0.075	0.077	0.072	0.059	0.066	0.06	0.065	0.077	0.062	0.107	0.104	0.107	0.123
Nitrogen (Total)	0.03 to 0.15	0.135	0.043	0.166	<0.03	0.078	0.072	0.072	0.051	0.058	0.094	0.065	0.064	0.09	0.058	0.094	0.113	0.108	0.132
Nitrogen Kjeldahl (Total)	0.05 to 0.15	<0.05	<0.05	0.056	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Nitrogen Organic (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.051
Nitrogen Organic (Total)	0.05 to 0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Orthophosphate (Dissolved)	0.001 to 0.02	<0.001	0.0016	<0.001	0.0082	0.0166	0.0161	0.0136	0.0147	0.014	0.0584	0.057	0.057	0.0583	0.0526	0.0075	0.0092	0.004	0.008
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.0038	0.0036	0.0037	0.0101	0.0157	0.0159	0.0169	0.0179	0.0163	0.0612	0.0623	0.061	0.0641	0.055	0.0098	0.0109	0.0107	0.0111
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0034	0.0042	0.0059	0.0116	0.0178	0.0202	0.0214	0.0179	0.0167	0.062	0.0646	0.06	0.0687	0.0644	0.0101	0.0111	0.0111	0.0119
Total Inorganic Nitrogen	0.025			0.14											0.074				
Cyanide																			
Cyanate	0.2 to 0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Metals																			
Aluminum (Dissolved)	0.001 to 0.002	0.0014	0.0046	0.0017	0.0067	0.0012	0.0039	0.0021	<0.001	0.0011	0.0029	0.0032	0.0032	0.0049	0.0052	0.002	0.0021	0.0019	0.002
Antimony (Dissolved)	0.0001 to 0.0002	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00011	0.00011	0.00012	0.00011	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Dissolved)	0.0001 to 0.0002	0.00072	0.00091	0.0007	0.00021	0.00101	0.00111	0.00107	0.00108	0.00112	0.00374	0.00399	0.00382	0.00374	0.00382	0.00036	0.00041	0.00043	0.0004
Barium (Dissolved)	0.0001 to 0.0002	0.00302	0.00183	0.00334	0.00531	0.0101	0.0112	0.0117	0.0106	0.0106	0.00504	0.00526	0.00493	0.00628	0.00511	0.0139	0.0132	0.0122	0.0129
Beryllium (Dissolved)	2E-005 to 4E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	<0.000005	<0.000005	0.0000208	0.0000157	<0.000005	<0.000005	0.0000157	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000073	<0.000005	0.0000064	0.0000089	0.0000058	0.0000079
Calcium (Dissolved)	0.05 to 0.1	9.05	6.97	11.1	5.31	28.8	30.1	28.6	28.8	28.5	13.3	13.5	14	12.7	13.5	25.4	25.5	26.1	26.4
Chromium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.00071	0.00074	0.00071	0.00068	0.00071	0.00123	0.00144	0.00132	0.0014	0.0014	0.00066	0.00059	0.0007	0.00074
Chromium III (Dissolved)	0.0005																		
Chromium VI (Dissolved)	0.0005			<0.0005	<0.0005				<0.0005	0.0008					0.0014				0.0006
Cobalt (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper (Dissolved)	0.0002 to 0.0004	<0.0002	0.00025	0.0004	<0.0002	<0.0002	<0.0002	0.00033	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Lithium (Dissolved)	0.001 to 0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Dissolved)	0.1	1.81	1.36	2.29	0.899	5.61	5.61	5.76	5.57	5.84	1.86	1.91	1.93	1.87	1.93	5.36	5.33	5.32	4.91
Manganese (Dissolved)	0.0001 to 0.0002	0.00044	0.00041	0.00046	0.00473	0.00095	0.00042	0.00157	0.00023	0.00037	0.00074	0.00038	0.00032	0.0005	0.00045	0.0159	0.01	0.00573	0.00403
Mercury (Dissolved)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Dissolved)	5E-005 to 0.0001	0.00127	0.00155	0.000818	0.000172	0.00232	0.00232	0.00228	0.0023	0.00221	0.00348	0.00333	0.00326	0.00326	0.00326	0.00169	0.00157	0.00146	0.00158
Nickel (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus (Metal) Dissolved	0.05 to 0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.055	0.073	<0.05	0.059	0.06	<0.05	<0.05	<0.05	<0.05
Potassium (Dissolved)	0.1	0.276	0.204	0.325	0.578	0.765	0.843	0.876	0.753	0.744	0.51	0.512	0.519	0.542	0.49	0.826	0.763	0.778	0.963
Selenium (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	0.000074	<0.00005	0.00024	0.000234	0.000268	0.000279	0.000277	0.000134	0.000186	0.000178	0.000174	0.000176	0.000282	0.000239	0.000214	0.000207
Silicon (Dissolved)	0.05 to 0.1	5.02	5.27	6.07	7.26	6.6	6.48	7.01	6.96	6.89	7.12	7.51	7.31	7.31	7.12	7.1	6.9	7.26	7.06
Silver (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	2.22	1.95	2.58	2.11	5.19	5.6	5.24	5.14	5.04	4.98	4.92	4.81	4.54	4.72	4.69	4.68	4.69	4.45
Strontium (Dissolved)	0.0002 to 0.0004	0.0546	0.0457	0.0741	0.0305	0.179	0.192	0.192	0.192	0.183	0.079	0.0883	0.0808	0.0819	0.0831	0.165	0.154	0.17	0.173
Sulfur (Dissolved)	0.5 to 1	0.69	<0.5	0.9	<0.5	2.52	2.75	2.67	2.7	2.74	1.15	0.82	0.85	0.91	0.84	1.81	1.84	1.6	1.71
Thallium (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Dissolved)	0.0003 to 0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium (Dissolved)	1E-005 to 2E-005	0.000364	0.000405	0.000484	<0.00001	0.000754	0.000763	0.000768	0.00086	0.000806	0.000135	0.000126	0.000144	0.000142	0.000133	0.00061	0.000593	0.000551	0.000578
Vanadium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.00071	0.0008	0.00076	0.00073	0.0007	0.00258	0.0026	0.00256	0.00252	0.00259	<0.0005	<0.0005	<0.0005	<0.0005
Zinc (Dissolved)	0.001 to 0.002	0.0034	<0.001	0.0029	0.0022	0.0197	0.0032	0.0063	<0.001	<0.001	0.008	<0.001	<0.001	0.0015	0.0017	<0.001	0.0059	<0.001	<0.001
Zirconium (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Metals																			
Aluminum (Total)	0.003	0.01	0.02	0.0321	0.0703	0.0271	0.072	0.017	0.0226	0.0095	0.0117	0.0087	0.0105	0.0685	0.11	0.0046	0.0048	0.0044	0.0041
Antimony (Total)	0.0001	0.00011	0.00011	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00014	0.00011	0.00012	0.00023	0.00014	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Total)	0.0001	0.00074	0.00089	0.00075	0.00026	0.00108	0.00123	0.00104	0.00111	0.00107	0.0038	0.00383	0.00398	0.00405	0.00403	0.00038	0.00044	0.00045	0.00046
Barium (Total)	0.0001	0.00319	0.00201	0.00369	0.00623	0.011	0.0136	0.0111	0.011	0.0109	0.00468	0.00496	0.0049	0.0071	0.00608	0.0147	0.0127	0.0126	0.0146
Beryllium (Total)	2E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Bismuth (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	0.0000082	<0.000005	0.0000325	0.0000115	0.0000073	0.0000088	0.0000064	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000217	0.000006	<0.000005	0.0000069	0.0000074	0.0000102
Calcium (Total)	0.05	9.29	7.25	11.4	5.44	28.4	33.5	29	30.9	28.7	12.4	13.6	13.4	13.3	13.4	24.8	24.9	27.6	26.5
Chromium (Total)	0.0005	<0.0005	<0.0005	0.00058	<0.0005	0.0008	0.00103	0.00084	0.00095	0.00093	0.00154	0.00149	0.00157	0.0017	0.00214	0.00078	0.00067	0.00078	0.00082
Chromium III (Total)	0.0005 to 0.00053				<0.0005			<0.0005											<0.0005
Chromium VI (Total)	0.0005			<0.0005	<0.0005			0.00072	0.00095	0.00072				0.00112	0.00141				0.0006
Cobalt (Total)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper (Total)	0.0005	<0.0005	<0.0005	0.00063	<0.0005	<0.0005	0.00082	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron (Total)	0.01	0.01	0.012	0.034	0.068	0.082	0.142	0.021	0.033	0.014	0.022	<0.01	0.012	0.099	0.134	<0.01	<0.01	<0.01	<0.01
Lead (Total)	5E-005	<0.00005	<0.00005	0.00006	<0.00005	0.000066	0.000086	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000271	0.000149	<0.00005	<0.00005	<0.00005	<0.00005
Lithium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium (Total)	0.1	1.78	1.43	2.28	0.941	5.54	6.61	5.58	5.92	6.14	1.79	1.74	1.9	1.88	1.94	5.25	5.25	4.98	5.11
Manganese (Total)	0.0001	0.00071	0.00055	0.00314	0.0058	0.00268	0.00466	0.00105	0.00117	0.00088	0.00133	0.00043	0.0007	0.014	0.01	0.0166	0.0101	0.0062	0.00453
Mercury (Total)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Total)	5E-005	0.00136	0.0015	0.000926	0.000143	0.00231	0.00256	0.00237	0.00239	0.00237	0.00349	0.00346	0.00353	0.00335	0.00336	0.00163	0.00157	0.00157	0.00153
Nickel (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus (Metal) Total	0.05	<0.05	<0.05	<0.05	<0.05	0.073	0.051	<0.05	<0.05	<0.05	0.115	0.099	0.086	0.082	0.083	<0.05	0.054	<0.05	<0.05
Potassium (Total)	0.1	0.29	0.22	0.333	0.579	0.781	0.944	0.736	0.79	0.727	0.472	0.472	0.535	0.544	0.505	0.796	0.757	0.758	1.05
Selenium (Total)	5E-005	0.000054	<0.00005	0.000079	<0.00005	0.000291	0.000322	0.000238	0.00029	0.000283	0.000231	0.000211	0.000213	0.000215	0.00021	0.000228	0.000202	0.000246	0.000256
Silicon (Total)	0.1	5.42	5.26	6.13	7.53	6.28	7.89	6.56	6.83	7	6.91	7.16	7.31	7.43	7.66	6.81	6.8	7.1	7.12
Silver (Total)	1E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Total)	0.05	2.28	1.96	2.63	2.24	5.2	6.04	4.94	5.78	5.3	4.7	4.55	4.97	4.62	4.7	4.66	4.81	4.36	4.64
Strontium (Total)	0.0002	0.0585	0.0455	0.0694	0.0303	0.18	0.216	0.188	0.194	0.186	0.077	0.0798	0.0863	0.0852	0.0808	0.159	0.156	0.171	0.18
Sulfur (Total)	0.5	0.96	<0.5	0.78	<0.5	2.37	3.15	2.23	2.68	2.71	1.12	0.86	0.99	0.88	0.8	2.04	1.82	1.64	1.8
Thallium (Total)	1E-005	<0.00001	<0.00001	<0.00001

Sample ID		VA23C9450-002	VA24A4766-001	VA23C3250-001	VA23C9893-003	VA24A4455-001	VA23A0375-001	VA23A5633-001	VA23B3835-002	VA23C2725-002	VA23D0191-001	VA24A5567-001	VA23C3177-001	VA23C9450-001	VA24A4766-002	VA23C2914-001	VA23C9040-004	VA24A4724-003	VA23C3250-002
Lab ID		VA23C9450	VA24A4766	VA23C3250	VA23C9893	VA24A4455	VA23A0375	VA23A5633	VA23B3835	VA23C2725	VA23D0191	VA24A5567	VA23C3177	VA23C9450	VA24A4766	VA23C2914	VA23C9040	VA24A4724	VA23C3250
Site ID	MDL	MW22-03D	MW22-03D	MW23-01	MW23-01	MW23-01	MW22-02D	MW22-02D	MW22-02D	MW22-02D	MW22-02D	MW22-02D	MW23-05D	MW23-05D	MW23-05D	MW23-02S	MW23-02S	MW23-02S	MW23-03D
Date/Time Sampled		05/Dec/2023 11:35 AM	05/Mar/2024 9:47 AM	26/Sep/2023 12:35 PM	12/Dec/2023 11:09 AM	29/Feb/2024 2:39 PM	05/Jan/2023 12:50 PM	13/Mar/2023 2:50 PM	16/Jun/2023 3:00 PM	20/Sep/2023 2:19 PM	13/Dec/2023 12:23 PM	14/Mar/2024 3:45 PM	26/Sep/2023 11:37 AM	05/Dec/2023 3:26 PM	05/Mar/2024 12:44 PM	25/Sep/2023 1:52 PM	01/Dec/2023 8:08 AM	04/Mar/2024 2:48 PM	27/Sep/2023 9:50 AM
In Situ Parameters																			
Conductivity (In Situ) µS/cm	...	112	118	94.2	83.3	81.7	115	124	126	134	106	116	114	87.5	91.2	46.5	51.9	46.7	144
Oxygen Dissolved (In Situ %) %	...	64.1	48.1	43	55.1	35.4	35	37.9	39.3	37	48.5	38.2	66	64.1	50.3	76.5	67	65.6	26.6
Oxygen Dissolved (In Situ)	...	8.29	6.43	5.27	7.39	4.78	4.48	5.09	4.32	4.3	6.65	4.84	7.99	8.51	6.42	9.66	9.16	8.48	3.44
pH (In Situ) pH	...	8.75	7.5	8.03	7.95	7.93	7.9	7.05	7.63	7.76	7.77	7.67	9.86	9.22	8.16	6.66	7.27	6.93	8.39
Redox Potential (In Situ) mV	...	-44.9	-184	22.5	23.6	-245	258	283	-48.6	62.3	26.8	-60.3	14.8	22.8	-193	35.5	-164	-224	-46.7
Salinity (In Situ) ppt	...	0.09	0.09	0.07	0.07	0.06	0.09		0.09	0.09	0.09	0.009	0.08	0.07	0.07	0.03	0.04	0.03	0.09
Specific Conductivity (In Situ) µS/cm	...	184	190	145	144	142	187	215	181	194	190	188	174	148	147	74.2	90.5	78.1	241
Temperature (In Situ) °C	...	4.2	5	6.8	3.1	2.7	3.7	3	9.4	8.7	2.1	4.9	7	3.7	5	5.5	2.5	3.9	4.1
Total Dissolved Solids (In Situ)	...	121	123	94.1	93	92.3	121		120	126	122	0.000119	113	96.9	96.1	48	60	50	125
Turbidity (In Situ) NTU	...	1.11	0.09	1.22	3.25	0.21	2.82	0.38	1.88	0.15	0.1	1.2	17.4	8.45	2.11	24.6	16.1	5.5	3.68
Physical Tests																			
Acidity to pH 8.3 (as CaCO3)	2	<2	3.9		<2	<2					<2	<2		<2	<2		2.7	2.2	
Alkalinity (PP as CaCO3)	1					<1													
Alkalinity (Total as CaCO3)	1	97.9	96.8	74.4	74.6	74.9	95.2	97.2	96.7	96.4	95.4	95.5	63	107	75.8	37.9	46	41	122
Alkalinity/ Bicarbonate as CaCO3	1	97.9	96.8	74.4	74.6	74.9	95.2	97.2	96.7	96.4	95.4	95.5	63	102	75.8	37.9	46	41	120
Alkalinity/ Carbonate as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	<1	<1	<1	<1	2
Alkalinity/ Hydroxide as CaCO3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Color TCU	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hardness as CaCO3 (Dissolved)	0.6	83.7	90.5	61.3	61.6	62.6	85.9	82.7	86.4	81.9	84.6	86.2	70.6	68.4	68.7	28.4	39.2	31.4	95.7
Hardness as CaCO3 (Total)	0.6	80.6	92.4	60.4	63.9	60.9	85.4	83.5	88.1	84	89.5	80.9	79.4	137	77.7	32.4	40.7	34.5	93.8
pH pH	0.1	8.15	8.11	8.15	8.1	8.09	8.17	7.92	8.11	8.25	8.13	8.16	8.11	8.83	8.22	7.39	7.85	7.88	8.36
Specific Conductivity µS/cm	2	189	193	146	146	143	195	192	185	186	190	189	130	136	153	73.2	90.9	79.3	240
Total Dissolved Solids	1 to 2	113	118	73	83	76	111	120	110	106	120	102	82	75	99	86	74	71	110
Total Dissolved Solids (Calculated)	1		122						120						99.5			64.2	
Total Suspended Solids	3	<3	<3	7	6.2	<3	3.3	<3	<3	<3	<3	<3	30.5	74.6	9.3	3	<3	<3	4.2
Turbidity NTU	0.1	0.51	<0.1	1.52	1.71	0.33	1.4	0.49	0.78	0.25	0.31	0.16	9.73	21.4	3.83	26.1	20	11.4	4.2
Dissolved Anions																			
Bromide (Dissolved)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	0.74	0.58	<0.5
Fluoride (Dissolved)	0.02	0.07	0.068	0.063	0.072	0.081	0.079	0.062	0.069	0.068	0.064	0.066	0.065	0.051	0.053	0.025	0.029	0.03	0.107
Sulphate (Dissolved)	0.3	4.77	5.37	1.09	0.84	1.02	6.02	5.83	6.29	6.03	5.5	6.05	5.52	4.6	4.55	0.54	0.57	0.47	6.59
Nutrients																			
Ammonia (Dissolved)	0.005	0.0061	<0.005	<0.005	0.0084	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0125	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ammonia (Total)	0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0118	0.0061	<0.005	<0.005	0.0114	<0.005	<0.005
Nitrate (as N)	0.005	<0.005	0.104	0.117	0.137	0.136	0.0628	0.0604	0.0806	0.0693	0.0833	0.0858	0.0764	0.0738	0.085	0.0202	0.0356	0.0505	0.0138
Nitrate+Nitrite (Dissolved)	0.0051		0.106	0.117	0.137	0.136	0.0628	0.0656	0.0806	0.0708	0.0833	0.0858	0.078		0.085	0.0202	0.0356	0.0505	0.0157
Nitrite (as N)	0.001	0.0082	0.0024	<0.001	<0.001	<0.001	<0.001	0.0052	<0.001	0.0015	<0.001	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0019
Nitrogen (Dissolved)	0.03	0.14	0.116	0.144	0.137	0.127	0.076	0.085	0.089	0.067	0.112	0.084	0.122	0.095	0.08	0.08	0.076	0.062	0.061
Nitrogen (Total)	0.03 to 0.15	0.154	0.116	0.154	0.141	0.124	0.093	0.086	0.094	0.066	0.081	0.102	0.128	0.109	0.088	0.105	0.088	0.057	0.07
Nitrogen Kjeldahl (Total)	0.05 to 0.15	0.146	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.085	0.052	<0.05	0.054
Nitrogen Organic (Dissolved)	0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.061
Nitrogen Organic (Total)	0.05 to 0.15	0.154	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.105	<0.05	<0.05	0.07
Orthophosphate (Dissolved)	0.001 to 0.02	0.0052	0.0085	0.066	0.0713	0.0824	0.0092	0.0109	0.0088	0.0076	0.0102	0.0098	<0.001	0.0035	0.0186	0.0127	0.02	0.0164	0.027
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.0131	0.0095	0.078	0.0841	0.074	0.0101	0.0099	0.0106	0.0111	0.0129	0.0114	0.0251	0.0167	0.0208	0.0178	0.0304	0.0208	0.0291
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0159	0.011	0.0791	0.0856	0.0788	0.0131	0.0111	0.0144	0.0114	0.0175	0.012	0.0279	0.0308	0.0224	0.0377	0.044	0.0362	0.0361
Total Inorganic Nitrogen	0.025					0.136													
Cyanide																			
Cyanate	0.2 to 0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Metals																			
Aluminum (Dissolved)	0.001 to 0.002	0.002	0.0015	0.0024	0.0028	0.0014	0.0026	0.0026	0.0026	0.0016	0.0016	0.0017	0.0045	0.0011	0.0023	0.59	0.692	0.428	0.0069
Antimony (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	0.00014	0.00016	0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00081
Arsenic (Dissolved)	0.0001 to 0.0002	0.00041	0.0004	0.00118	0.00118	0.00119	0.00082	0.00077	0.00086	0.0009	0.00091	0.00084	0.00098	0.00098	0.00107	0.00054	0.00073	0.00048	0.00184
Barium (Dissolved)	0.0001 to 0.0002	0.0256	0.0145	0.00913	0.00958	0.00824	0.014	0.0134	0.0143	0.0118	0.0123	0.0121	0.0351	0.0179	0.00922	0.00958	0.0121	0.00805	0.0132
Beryllium (Dissolved)	2E-005 to 4E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000025	0.000026	<0.00002	<0.00002
Bismuth (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	0.0000063	<0.000005	<0.000005	0.0000073	<0.000005	0.0000112	0.0000076	0.0000137	0.0000076	<0.000005	0.0000054	<0.000005	<0.000005	<0.000005	0.0000145	0.0000182	0.0000006	0.0000094
Calcium (Dissolved)	0.05 to 0.1	25.2	27	18.4	18.2	18.6	26.1	24.9	26.3	24.3	25.5	25.6	22.6	20.6	21.1	9.1	12.1	8.48	28.2
Chromium (Dissolved)	0.0005 to 0.001	0.0009	0.00073	0.00066	0.00078	0.00068	0.00066	0.00071	0.00089	0.00079	0.00087	0.00078	0.00138	0.00125	0.00104	0.00052	0.00064	<0.0005	<0.0005
Chromium III (Dissolved)	0.0005				<0.0005								<0.0005			0.00052			
Chromium VI (Dissolved)	0.0005	0.00076	0.00068	0.00088	0.00073	0.00063					0.00102	0.00082	0.00117	0.00112	0.00098	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	0.00015	<0.0001	<0.0001
Copper (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00031	<0.0002	<0.0002	0.00068	0.00074	0.00037	0.00022
Iron (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.366	0.393	0.22	<0.01
Lead (Dissolved)	5E-005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000266	0.000286	0.000124	<0.00005
Lithium (Dissolved)	0.001 to 0.002	0.0021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0022	0.0012	<0.001	<0.001	<0.001	<0.001	0.0014
Magnesium (Dissolved)	0.1	5.05	5.6	3.72	3.92	3.93	5.04	4.98	5.04	5.15	5.08	5.42	3.44	4.12	3.88	1.38	2.18	2.48	6.14
Manganese (Dissolved)	0.0001 to 0.0002	0.002	0.0017	0.00483	0.00317	0.00123	0.0395	0.0258	0.0211	0.00842	0.00178	0.00136	0.00295	0.00091	0.00128	0.014	0.0129	0.00464	0.0151
Mercury (Dissolved)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (Dissolved)	5E-005 to 0.0001	0.00165	0.00157	0.000535	0.000503	0.00045	0.00265	0.00208	0.00208	0.00187	0.00179	0.00174	0.00156	0.00132	0.00122	0.000105	0.000134	0.000127	0.00193
Nickel (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00064	0.00052	<0.0005	<0.0005
Phosphorus (Metal) Dissolved	0.05 to 0.1	<0.05	<0.05	0.071	0.087	0.087	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium (Dissolved)	0.1	2.04	0.846	0.745	0.809	0.683	0.824	0.819	0.85	0.751	0.753	0.725	3.49	1.24	0.713	0.553	0.674	0.518	1.53
Selenium (Dissolved)	5E-005 to 0.0001	0.000212	0.000207	0.000094	0.000094	0.000118	0.000291	0.000233	0.000203	0.000261	0.00022	0.000222	0.000241	0.000221	0.000177	<0.00005	<0.00005	<0.00005	0.000359
Silicon (Dissolved)	0.05 to 0.1	6.73	7.11	9.84	10.5	10.3	6.41	6.66	6.42	7.05	7.05	6.81	6.83	6.68	6.86	8.26	8.63	8.45	8.38
Silver (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000015	0.000023	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	5.49	4.95	5.72	5.51	5.5	4.72	4.68	5.38	4.81	4.81	5.1	8.77	4.72	4.17	2.44	2.58	2.66	11.9
Strontium (Dissolved)	0.0002 to 0.0004	0.21	0.177	0.121	0.13	0.127	0.162	0.158	0.175	0.172	0.17	0.156	0.214	0.129	0.117	0.0353	0.0421	0.033	0.241
Sulfur (Dissolved)	0.5 to 1	1.6	1.61	<0.5	<0.5	<0.5	1.98	1.81	2.36	2.05	2.01	2.04	2.14	1.37	1.38	<0.5	<0.5	<0.5	2.76
Thallium (Dissolved)	1E-005 to 2E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Titanium (Dissolved)	0.0003 to 0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0128	0.0153	0.00843	<0.0003
Uranium (Dissolved)	1E-005 to 2E-005	0.000533	0.000584	0.000481	0.00044	0.000392	0.000615	0.000627	0.000665	0.000668	0.000732	0.000689	0.000459	0.000318	0.000376	0.000044	0.000096	0.000044	0.00155
Vanadium (Dissolved)	0.0005 to 0.001	<0.0005	<0.0005	0.00132	0.0015	0.00149	0.00058	0.00066	0.00076	0.00075	0.00075	0.00068	0.00085	0.0006	0.00084	0.0009	0.00121	0.00072	0.00071
Zinc (Dissolved)	0.001 to 0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.0012	0.0015	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.0034	0.0018	0.0014
Zirconium (Dissolved)	0.0002 to 0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00023	0.00076	0.00052	<0.0002
Total Metals																			
Aluminum (Total)	0.003	0.0163	0.0071	0.0254	0.0306	0.0069	0.0515	0.0158	0.0447	0.0181	0.0679	0.0125	0.0992	0.158	0.0329	1.91	1.36	0.958	0.122
Antimony (Total)	0.0001	<0.0001	<0.0001	0.00015	0.00024	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.00015	<0.0001	<0.0001	0.00015	0.00012	0.00011	0.00087
Arsenic (Total)	0.0001	0.00043	0.00045	0.00127	0.0013	0.00119	0.00086	0.00085	0.001	0.00092	0.00096	0.00093	0.00122	0.00154	0.0013	0.0015	0.00138	0.00096	0.002
Barium (Total)	0.0001	0.0349	0.0161	0.00944	0.0102	0.00832	0.0153	0.0139	0.0155	0.0123	0.0131	0.0125	0.0402	0.0317	0.0149	0.0194	0.0175	0.0133	0.0142
Beryllium (Total)	2E-005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000065	0.000054	0.000036	<0.00002
Bismuth (Total)	5E-005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	0.000008	0.0000088	0.0000055	0.0000136	<0.000005	0.0000084	0.0000078	0.0000198	0.0000082	0.0000123	0.0000082	0.0000115	0.0000135	<0.000005	0.0000208	0.000024	0.0000127	0.0000199
Calcium (Total)	0.05	23.8	27.7	18	18.9	17.9	25.5	25.1	26.3	25	27.3	24.5	25.6	27.5	24.2	10.4	12.6	9.58	27.6
Chromium (Total)	0.0005	0.00132	0.00084	0.00101	0.00105	0.00074	0.00102	0.00092	0.00108	0.00116	0.00153	0.00091	0.00211	0.0018	0.00142	0.00284	0.00126	0.00109	0.00094
Chromium III (Total)	0.0005 to 0.00053		<0.0005	<0.0005	0.00105					0.00053			0.00095		<0.0005	0.00284		0.00109	0.00094
Chromium VI (Total)	0.0005	0.00091	0.00073	0.00053	<0.0005	0.00068				0.00063	0.00279	0.0007	0.00116	0.00117	0.00108	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt (Total)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00044	0.00036	0.00021	0.0001
Copper (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00061	0.00095	<0.0005	0.00218	0.00172	0.00106	<0.0005
Iron (Total)	0.01	0.022	<0.01	0.026	0.03	<0.01	0.071	0.013	0.057	0.019	0.085	0.013	0.114	0.081	0.022	1.38	1.15	0.717	0.097
Lead (Total)	5E-005	<0.00005	<0.00005	<0.00005	0.000072	<0.00005	<0.00005	<0.00005	0.000051	<0.00005	0.000057	<0.00005	0.000153	0.000126	<0.00005	0.000955	0.000802	0.000477	0.000162
Lithium (Total)	0.001	0.0029	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0023	0.0015	<0.001	<0.001	<0.001	<0.001	0.0015
Magnesium (Total)	0.1	5.15	5.65	3.76	4.06	3.93	5.27	5.05	5.44	5.23	5.19	4.8	3.76	16.6	4.2	1.56	2.25	2.56	6.04
Manganese (Total)	0.0001	0.00316	0.00203	0.00626	0.00527	0.00149	0.043	0.0258	0.0268	0.0101	0.0265	0.00843	0.00793	0.00918	0.0022	0.0336	0.0289	0.0156	0.0202
Mercury (Total)	5E-006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000052	0.0000052	<0.000005	<0.000005
Molybdenum (Total)	5E-005	0.00186	0.00162	0.000533	0.000529	0.000463	0.00281	0.002	0.00198	0.00185	0.0019	0.0018	0.00156	0.00158	0.00132	0.000281	0.000162	0.00017	0.00191
Nickel (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00069	0.00066	<0.0005	0.0022	0.00109	0.00076	0.00054
Phosphorus (Metal) Total	0.05	<0.05	<0.05	0.092	0.106	0.097	0.059	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.055	0.052	<0.05	<0.05	0.052	<0.05
Potassium (Total)	0.1	2.6	0.879	0.77	0.835	0.658	0.893	0.803	0.9	0.732	0.761	0.72	3.18	1.42	0.709	0.879	0.787	0.654	1.58
Selenium (Total)	5E-005	0.000231	0.00023	0.000082	0.000142	0.000102	0.000249	0.00028	0.000223	0.000265	0.000242	0.00025	0.000267	0.000229	0.00021	<0.00005	<0.00005	<0.00005	0.000378
Silicon (Total)	0.1	6.66	7.64	9.92	10.2	10.4	6.78	6.34	7.57	6.67	6.91	6.59	7.15	13.1	7.62	10.5	9.5	9.08	8.55
Silver (Total)	1E-005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000018	<0.00001	<0.00001	<0.00001	<0.00001	0.000044	0.000037	0.000027	<0.00001
Sodium (Total)	0.05	6.09	4.77	6.14	5.3	5.22	5.13	4.71	5.48	4.72	5.12	5.25	8.72	5.17	3.85	2.47	2.53	2.39	12.8
Strontium (Total)	0.0002	0.244	0.176	0.126	0.129	0.117	0.163	0.161	0.169	0.163	0.178	0.164	0.214	0.159	0.126

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Sample ID		VA23C9893-002	VA24A4978-001	VA23C2725-004	VA23C9249-001	VA24A4973-002	VA23C3387-001	VA23D0191-004	VA24A4973-004	VA23C7039-001	VA23C9669-003	VA24A4973-001	VA23C7039-002	VA23C9893-001	VA24A4766-003
Lab ID		VA23C9893	VA24A4978	VA23C2725	VA23C9249	VA24A4973	VA23C3387	VA23D0191	VA24A4973	VA23C7039	VA23C9669	VA24A4973	VA23C7039	VA23C9893	VA24A4766
Site ID	MDL	MW23-03D	MW23-03D	MW23-04D	MW23-04D	MW23-04D	MW23-05S	MW23-05S	MW23-05S	MW23-04S	MW23-04S	MW23-04S	MW23-03S	MW23-03S	MW23-03S
Date/Time Sampled		11/Dec/2023 6:31 PM	06/Mar/2024 11:49 AM	22/Sep/2023 8:41 AM	04/Dec/2023 4:15 PM	07/Mar/2024 11:35 AM	28/Sep/2023 2:15 PM	14/Dec/2023 9:30 AM	07/Mar/2024 7:53 AM	07/Nov/2023 1:18 PM	08/Dec/2023 8:47 AM	07/Mar/2024 4:30 PM	07/Nov/2023 1:18 PM	11/Dec/2023 1:55 PM	05/Mar/2024 4:48 PM
In Situ Parameters															
Conductivity (In Situ) µS/cm	...	**403**	121	113	95.7	102	130	131	**79.3**	97.7	94	110	43.3	39.2	34.7
Oxygen Dissolved (In Situ %) %	...	**16.8**	19.2	7.8	3.12	17.6	55.3	113	**67.8**	32.2	20	26.4	7	17.7	5.9
Oxygen Dissolved (In Situ)	...	**2.26**	2.57	0.95	24	2.32	6.54	13.8	**9.09**	3.99	2.85	2.78	0.9	2.39	0.81
pH (In Situ) pH	...	**11.6**	8.87	8.32	8.23	8.12	7	7.37	**7.32**	8.41	8.37	9.81	6.3	6.37	6.17
Redox Potential (In Situ) mV	...	**15.7**	-48.3	23.9	-42.7	-49			**-51**	-45.3	23.1	-61.8	-58.4	18.3	-74.4
Salinity (In Situ) ppt	...	**0.32**	0.1		0.08	0.08	0.09	0.1		0.08	0.08	0.08	0.03	0.03	0.03
Specific Conductivity (In Situ) µS/cm	...	**684**	207	173	170	169	194	208	**136**	176	175	167	71.1	67.1	61.1
Temperature (In Situ) °C	...	**3.5**	3.2	6.7	2.3	4.3	7.5	5	**3.1**	1.7	0.6	9.7	4.6	3.4	2.3
Total Dissolved Solids (In Situ)	...	**423**	134		110	110	126	140		114	114	112	46.1	43.6	39.7
Turbidity (In Situ) NTU	...	**13.1**	4.27	2.49	1.25	0.58	2.95	5.23	**820**	17.5	3.45	7.86	7.99	1.8	9.04
Physical Tests															
Acidity to pH 8.3 (as CaCO3)	2	**<2**	<2		<2	<2		<2	**2**		<2	<2		2.2	15.8
Alkalinity (PP as CaCO3)	1														
Alkalinity (Total as CaCO3)	1	**101**	114	90.7	89.5	92.1	100	92.7	**118**	84.5	86	76.8	30.6	28.8	26.5
Alkalinity/ Bicarbonate as CaCO3	1	**12.3**	109	90.7	89.5	92.1	100	92.7	**118**	84.5	82.9	75.6	30.6	28.8	26.5
Alkalinity/ Carbonate as CaCO3	1	**88.5**	4.4	<1	<1	<1	<1	<1	**<1**	<1	3	1.2	<1	<1	<1
Alkalinity/ Hydroxide as CaCO3	1	**<1**	<1	<1	<1	<1	<1	<1	**<1**	<1	<1	<1	<1	<1	<1
Color TCU	5	**<5**	<5	<5	<5	<5	<5	<5	**<5**	<5	<5	<5	30.4	27.4	19.2
Hardness as CaCO3 (Dissolved)	0.6	**77.5**	77.8	70.4	73.3	74.1	83.9	71.3	**94.1**	69.7	67.2	51.8	27.3	26.3	24.3
Hardness as CaCO3 (Total)	0.6	**110**	79.2	72.1	72.5	72.9	87.1	78.3	**106**	72	69.1	54.8	27.7	26.6	24.3
pH pH	0.1	**10.2**	8.37	8.26	8.19	8.19	8.06	7.99	**8.28**	8.15	8.12	8.3	6.98	7.17	6.96
Specific Conductivity µS/cm	2	**252**	206	168	173	171	196	182	**209**	177	178	159	67.8	64.7	59
Total Dissolved Solids	1 to 2	**164**	117	106		97	131	111	**126**	111	113	82	70	61	68
Total Dissolved Solids (Calculated)	1				115										65.5
Total Suspended Solids	3	**45.8**	<3	5.2	5.6	<3	6.2	3.6	**1590**	10.9	3.2	6.2	<3	3.8	6.9
Turbidity NTU	0.1	**7.13**	1.99	1.53	0.84	0.33	3.95	3.9	**535**	8.52	2.43	3.58	4.94	2.48	16
Dissolved Anions															
Bromide (Dissolved)	0.05	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride (Dissolved)	0.5	**0.71**	<0.5	<0.5	<0.5	<0.5	0.54	<0.5	**<0.5**	<0.5	<0.5	<0.5	1.02	0.94	0.94
Fluoride (Dissolved)	0.02	**0.268**	0.09	0.038	0.038	0.039	0.087	0.102	**0.101**	0.073	0.071	0.071	0.036	0.029	0.028
Sulphate (Dissolved)	0.3	**11.5**	4.77	2.07	1.83	1.84	3.34	2.14	**2.61**	8.6	6.42	6.03	3.12	2.64	2.39
Nutrients															
Ammonia (Dissolved)	0.005	**0.0414**	<0.005	<0.005	<0.005	<0.005	<0.005	0.0094	**0.0102**	0.0074	0.0086	0.0092	0.0075	0.0055	0.0087
Ammonia (Total)	0.005	**0.042**	<0.005	<0.005	<0.005	<0.005	<0.005	0.0064	**0.0055**	0.0081	0.0084	0.0062	0.0073	0.0078	0.0072
Nitrate (as N)	0.005	**0.0062**	0.0138	0.0308	0.0311	0.0503	<0.005	0.0568	**0.0636**	0.0144	0.0235	0.0105	<0.005	<0.005	<0.005
Nitrate+Nitrite (Dissolved)	0.0051	**0.0082**	0.0167	0.0324	0.0311	0.0503	<0.0051	0.0568	**0.0652**	0.0144	0.0235	0.0131	<0.0051	<0.0051	<0.0051
Nitrite (as N)	0.001	**0.002**	0.0029	0.0016	<0.001	<0.001	<0.001	<0.001	**0.0016**	<0.001	<0.001	0.0026	<0.001	<0.001	<0.001
Nitrogen (Dissolved)	0.03	**0.144**	0.046	<0.03	0.048	0.037	0.035	0.121	**0.203**	0.042	0.083	0.092	0.129	0.116	0.096
Nitrogen (Total)	0.03 to 0.15	**0.19**	0.052	0.033	0.061	0.038	0.043	0.083	**0.184**	0.04	0.092	0.085	0.127	0.117	0.097
Nitrogen Kjeldahl (Total)	0.05 to 0.15	**0.182**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**<0.15**	<0.05	0.068	0.072	0.127	0.117	0.097
Nitrogen Organic (Dissolved)	0.05	**0.094**	<0.05	<0.05	<0.05	<0.05	<0.05	0.055	**0.128**	<0.05	0.051	0.07	0.129	0.116	0.096
Nitrogen Organic (Total)	0.05 to 0.15	**0.14**	0.052	<0.05	<0.05	<0.05	<0.05	<0.05	**<0.15**	<0.05	0.06	0.085	0.127	0.117	0.097
Orthophosphate (Dissolved)	0.001 to 0.02	**<0.001**	0.0247	0.0262	0.0291	0.0264	<0.001	0.0035	**0.0072**	0.032	0.0332	0.0195	0.0121	0.0109	0.0069
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	**0.0252**	0.0289	0.0278	0.0302	0.0289	0.003	0.0083	**0.0069**	0.0335	0.0408	0.0296	0.0234	0.0194	0.027
Phosphorus (Nutrient) Total	0.002 to 0.02	**0.0386**	0.0323	0.0322	0.0306	0.0292	0.0067	0.015	**0.32**	0.0477	0.0452	0.0354	0.0237	0.0227	0.039
Total Inorganic Nitrogen	0.025														
Cyanide															
Cyanate	0.2 to 0.4	**<0.2**	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	**<0.2**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide (Free)	0.005 to 0.01	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (SAD)	0.005 to 0.02	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005 to 0.01	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thiocyante (SCN)	0.5 to 5	**<0.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Metals															
Aluminum (Dissolved)	0.001 to 0.002	**0.025**	0.0033	0.0017	0.0026	0.001	0.0172	0.0173	**0.007**	0.005	0.0184	0.0026	0.212	0.119	0.195
Antimony (Dissolved)	0.0001 to 0.0002	**0.00133**	0.00091	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.00014**	<0.0001	0.00013	0.00018	<0.0001	<0.0001	<0.0001
Arsenic (Dissolved)	0.0001 to 0.0002	**0.00461**	0.0022	0.00082	0.00082	0.00083	0.00013	0.00026	**0.00051**	0.00128	0.00139	0.00173	0.00191	0.00175	0.00182
Barium (Dissolved)	0.0001 to 0.0002	**0.109**	0.0147	0.00145	0.00174	0.0013	0.0256	0.0208	**0.0272**	0.015	0.0175	0.0501	0.0125	0.0109	0.0111
Beryllium (Dissolved)	2E-005 to 4E-005	**<0.00002**	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	**<0.00002**	<0.00002	<0.00002	<0.00002	0.000074	0.000067	0.000066
Bismuth (Dissolved)	5E-005 to 0.0001	**<0.00005**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**<0.00005**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Dissolved)	0.01 to 0.02	**<0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**<0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Dissolved)	5E-006 to 1E-005	**0.0000091**	<0.000005	<0.000005	0.0000063	<0.000005	0.0000836	0.0000462	**<0.000005**	0.0000118	0.000018	<0.000005	0.0000847	0.0000638	0.0000627
Calcium (Dissolved)	0.05 to 0.1	**29.1**	22.4	20.9	21.6	21.6	26.6	22.9	**29.9**	19.6	18.9	14.9	8.47	8.2	7.23
Chromium (Dissolved)	0.0005 to 0.001	**0.00053**	0.0005	0.00091	0.00107	0.00104	0.00126	<0.0005	**<0.0005**	<0.0005	<0.0005	<0.0005	0.00058	<0.0005	<0.0005
Chromium III (Dissolved)	0.0005	**0.00053**												<0.0005	
Chromium VI (Dissolved)	0.0005	**<0.0005**	<0.0005		0.00105	0.0013		<0.0005	**<0.0005**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt (Dissolved)	0.0001 to 0.0002	**0.00017**	<0.0001	<0.0001	<0.0001	<0.0001	0.00037	<0.0001	**<0.0001**	<0.0001	<0.0001	0.00012	0.00156	0.00146	0.00159
Copper (Dissolved)	0.0002 to 0.0004	**0.00084**	<0.0002	<0.0002	<0.0002	<0.0002	0.00032	0.00023	**0.00021**	<0.0002	0.00047	0.00088	0.00106	0.0005	0.00082
Iron (Dissolved)	0.01 to 0.02	**0.019**	<0.01	<0.01	<0.01	<0.01	0.021	0.02	**<0.01**	<0.01	0.017	<0.01	0.901	0.841	1.03
Lead (Dissolved)	5E-005 to 0.0001	**<0.00005**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**<0.00005**	<0.00005	0.000067	<0.00005	0.000232	0.000129	0.000222
Lithium (Dissolved)	0.001 to 0.002	**0.0025**	0.0015	0.0012	0.0012	0.0012	0.0012	<0.001	**0.001**	0.0013	0.0014	0.0041	<0.001	<0.001	<0.001
Magnesium (Dissolved)	0.1	**1.18**	5.3	4.43	4.7	4.9	4.24	3.42	**4.73**	5.04	4.86	3.55	1.5	1.42	1.51
Manganese (Dissolved)	0.0001 to 0.0002	**0.00031**	0.00497	0.00135	0.00112	0.00048	0.391	0.156	**0.0001**	0.118	0.0842	0.00563	0.429	0.382	0.424
Mercury (Dissolved)	5E-006	**<0.000005**	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	**<0.000005**	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000064
Molybdenum (Dissolved)	5E-005 to 0.0001	**0.00807**	0.0017	0.000557	0.000543	0.000528	0.00172	0.0016	**0.00183**	0.0013	0.0013	0.00121	0.000223	0.000185	0.000173
Nickel (Dissolved)	0.0005 to 0.001	**0.00089**	<0.0005	<0.0005	<0.0005	<0.0005	0.00188	0.00076	**<0.0005**	<0.0005	<0.0005	<0.0005	0.00173	0.00158	0.00122
Phosphorus (Metal) Dissolved	0.05 to 0.1	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium (Dissolved)	0.1	**18**	2.26	0.722	0.757	0.719	1.43	1.2	**1.3**	1.3	1.9	8.9	0.285	0.257	0.235
Selenium (Dissolved)	5E-005 to 0.0001	**0.000878**	0.000233	0.000205	0.000243	0.000263	0.000076	0.000064	**0.000096**	0.000217	0.000198	0.000201	<0.00005	<0.00005	<0.00005
Silicon (Dissolved)	0.05 to 0.1	**7.34**	8.16	8.67	8.64	8.26	8.04	8.48	**8.39**	9.18	9.02	7.9	10.1	9.9	10
Silver (Dissolved)	1E-005 to 2E-005	**<0.00001**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	**<0.00001**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium (Dissolved)	0.05 to 0.1	**34.6**	13.6	7.54	8.88	8.15	6.86	5.36	**5.8**	7.9	8.69	11.9	2.92	2.84	2.8
Strontium (Dissolved)	0.0002 to 0.0004	**0.804**	0.271	0.232	0.237	0.235	0.169	0.13	**0.138**	0.133	0.142	0.357	0.0408	0.0435	0.0386
Sulfur (Dissolved)	0.5 to 1	**3.78**	1.76	<0.5	0.53	0.53	0.77	0.71	**0.78**	2.61	2.47	1.85	0.89	0.91	<0.5
Thallium (Dissolved)	1E-005 to 2E-005	**<0.00001**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	**<0.00001**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin (Dissolved)	0.0001 to 0.0002	**<0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**<0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Dissolved)	0.0003 to 0.0006	**<0.0003**	<0.0003	<0.0003	<0.0003	<0.0003	0.00037	0.00039	**<0.0003**	<0.0003	0.00061	<0.0003	0.00398	0.00176	0.00361
Uranium (Dissolved)	1E-005 to 2E-005	**0.000929**	0.00157	0.000602	0.000688	0.000628	0.000289	0.00029	**0.000419**	0.000941	0.00116	0.000702	0.000161	0.000146	0.000118
Vanadium (Dissolved)	0.0005 to 0.001	**0.00479**	0.00068	0.00118	0.00118	0.00116	<0.0005	<0.0005	**<0.0005**	<0.0005	<0.0005	0.00091	0.00082	0.00068	0.00091
Zinc (Dissolved)	0.001 to 0.002	**<0.001**	<0.001	<0.001	<0.001	<0.001	0.0031	0.002	**<0.001**	<0.001	0.0024	<0.001	0.0044	0.0039	0.0037
Zirconium (Dissolved)	0.0002 to 0.0004	**<0.0002**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**<0.0002**	<0.0002	<0.0002	<0.0002	0.00065	0.00064	0.00064
Total Metals															
Aluminum (Total)	0.003	**0.108**	0.0831	0.0507	0.0328	0.0105	0.105	0.124	**4.27**	0.348	0.0652	0.0832	0.321	0.24	0.937
Antimony (Total)	0.0001	**0.00156**	0.00092	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	**0.00035**	0.00012	0.00013	0.0002	0.00011	0.00013	0.00012
Arsenic (Total)	0.0001	**0.00553**	0.00245	0.00082	0.00087	0.00083	0.00019	0.00039	**0.00328**	0.00149	0.00151	0.00183	0.00199	0.002	0.00253
Barium (Total)	0.0001	**0.134**	0.0174	0.00327	0.00318	0.00173	0.0259	0.0243	**0.0853**	0.0184	0.0186	0.0575	0.0121	0.012	0.0175
Beryllium (Total)	2E-005	**<0.00002**	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	**0.000179**	<0.00002	<0.00002	<0.00002	0.000074	0.000066	0.000102
Bismuth (Total)	5E-005	**<0.00005**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**<0.00005**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Boron (Total)	0.01	**<0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**<0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Total)	5E-006	**0.0000218**	0.0000082	0.0000083	0.0000096	<0.000005	0.0000787	0.0000581	**0.0000987**	0.0000192	0.0000227	0.0000066	0.0000866	0.0000758	0.000099
Calcium (Total)	0.05	**41.2**	22.4	21.4	21.5	20.9	28.1	25.2	**31.8**	20.2	19.5	15.6	8.67	8.22	7.08
Chromium (Total)	0.0005	**0.00132**	0.0008	0.00134	0.00147	0.00125	<0.0005	0.00071	**0.00637**	0.00075	<0.0005	0.00094	0.00092	0.00066	0.00108
Chromium III (Total)	0.0005 to 0.00053	**0.00132**		0.0006			<0.0005							0.00066	0.00108
Chromium VI (Total)	0.0005	**<0.0005**	0.0006	0.00074	0.00129	0.00104	0.00151	<0.0005	**<0.0005**		<0.0005	0.00076		<0.0005	<0.0005
Cobalt (Total)	0.0001	**0.00025**	<0.0001	<0.0001	<0.0001	<0.0001	0.00039	0.00015	**0.00233**	0.00024	<0.0001	0.00019	0.00155	0.00151	0.00178
Copper (Total)	0.0005	**0.0013**	<0.0005	<0.0005	<0.0005	<0.0005	0.00055	<0.0005	**0.00616**	0.00065	<0.0005	0.00078	0.00129	0.00102	0.00231
Iron (Total)	0.01	**0.104**	0.044	0.047	0.036	0.013	0.13	0.186	**5.75**	0.374	0.081	0.096	0.985	0.954	1.64
Lead (Total)	5E-005	**0.000177**	0.000075	0.000056	<0.00005	<0.00005	0.000094	0.000135	**0.00318**	0.000251	0.000164	0.000089	0.000345	0.000253	0.000802
Lithium (Total)	0.001	**0.0028**	0.0015	0.0013	0.0013	0.0013	0.0012	<0.001	**0.0032**	0.0014	0.0013	0.0041	<0.001	<0.001	0.0011
Magnesium (Total)	0.1	**1.61**	5.66	4.54	4.56	5.03	4.11	3.73	**6.37**	5.23	4.95	3.84	1.46	1.47	1.6
Manganese (Total)	0.0001	**0.00669**	0.00723	0.0086	0.00472	0.00152	0.41	0.175	**0.369**	0.134	0.102	0.012	0.399	0.38	0.441
Mercury (Total)	5E-006	**0.0000053**	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	**0.0000091**	<0.000005	<0.000005	<0.000005	0.0000058	<0.000005	<0.000005
Molybdenum (Total)	5E-005	**0.0093**	0.00182	0.000584	0.000572	0.000606	0.00151	0.00176	**0.0021**	0.00146	0.00126	0.00124	0.000304	0.000228	0.000227
Nickel (Total)	0.0005	**0.00145**	<0.0005	<0.0005	<0.0005	<0.0005	0.00184	0.0011	**0.00549**	0.00085	0.0005	<0.0005	0.00191	0.00178	0.00185
Phosphorus (Metal) Total	0.05	**<0.05**	0.058	0.06	<0.05	<0.05	<0.05	<0.05	**0.253**	0.061	0.052	0.051	<0.05	<0.05	0.05
Potassium (Total)	0.1	**18.9**	2.2	0.695	0.714	0.651	1.44	1.28	**2.07**	1.39	1.81	8.7	0.276	0.267	0.398
Selenium (Total)	5E-005	**0.00103**	0.000279	0.000246	0.000256	0.000264	0.000062	0.000069	**0.000126**	0.000239	0.0002	0.000169	<0.00005	0.000053	<0.00005
Silicon (Total)	0.1	**7.65**	8.25	8.32	8.33	8.42	8.1	8.3	**16.3**	9.45	9.46	8.76	9.68	9.98	11.8
Silver (Total)	1E-005	**<0.00001**	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	**0.000037**	<0.00001	<0.00001	<0.00001	0.000013	<0.00001	0.000018
Sodium (Total)	0.05	**36.3**	14.8	7.4	7.92	8.4	6.44	6.1	**6.43**	8.42	8.78	12.6	2.84	2.75	2.65
Strontium (Total)	0.0002	**0.973**	0.269	0.236	0.236	0.227	0.166	0.138	**0.163**	0.146	0.146	0.36	0.0436	0.0417	0.041
Sulfur (Total)	0.5	**3.99**	1.63	<0.5	0.62	<0.5	0.95	0.81	**0.75**	3.04	2.13	1.98	1.17	0.98	0.63
Thallium (Total)	1E-005	**<0.00001**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	**0.000056**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000016
Tin (Total)	0.0001	**0.00039**	0.00013	0.00011	0.00017	<0.0001	<0.0001	<0.0001	**0.00061**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium (Total)	0.0003 to 0.0081	**0.0021**	0.0014	0.00238	0.00096	0.0005	0.00436	0.00554	**0.24**	0.0199	0.00319	0.00446	0.00784	0.0056	0.0246
Uranium (Total)	1E-005	**0.00112**	0.00167	0.000628	0.000696	0.000665	0.000292	0.0003	**0.000647**	0.00108	0.00106	0.000803	0.000194	0.000167	0.000179
Vanadium (Total)	0.0005	**0.0056**	0.00093	0.00128	0.00128	0.00138	<0.0005	0.00056	**0.0102**	0.00124	0.00063	0.00129	0.00101	0.00096	0.00203
Zinc (Total)	0.003	**0.0043**	<0.003	0.0038	<0.003	<0.003	0.0038	0.0032	**0.0233**	0.0034	0.0035	<0.003	0.0057	0.0046	0.0066
Zirconium (Total)	0.0002	**<0.0002**	0.00049	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**0.00068**	0.00029	<0.0002	<0.0002	0.00075	0.00081	0.00105
Organics															
Carbon Organic (Dissolved)	0.5	**1.74**	0.51	<0.5	<0.5	<0.5	0.72	<0.5	**1.49**	1.11	0.71	1	8.49	6.3	5.7
Carbon Organic (Total)	0.5	**2.29**	0.89	<0.5	<0.5	<0.5	0.51	<0.5	**4.44**	1.26	0.68	0.75	9.23	6.61	5.84

Appendix H-2 Ground Water Quality Sample Summary Statistics (Jan 2023 – March 2024)

APPENDIX H-2 TABLE 1 MW12-01D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		221	252	284.8	288	19	3		223	251	272.2	274	0%
Oxygen Dissolved (In Situ %) %	...	5	0		1.7	9.84	31.2	37.7	20	0		0.7	11.1	24.355	44.4	-
Oxygen Dissolved (In Situ)	...	5	0		0.00021	1.2	4.012	4.87	20	0		0.09	1.27	2.9625	4.91	-
pH (In Situ) pH	...	4	1		7.68	7.76	7.7985	7.8	22	0		7.18	7.72	7.946	7.98	1%
Redox Potential (In Situ) mV	...	5	0		-262.5	-88.2	-33.12	-30.9	9	0		53.6	99.4	170.15	182	-
Salinity (In Situ) ppt	...	4	0		0.019	0.14	0.18	0.18	16	1		0.17	0.186	0.19	0.19	-
Specific Conductivity (In Situ) µS/cm	...	5	0		369	386	396	397	19	3		356	386	403.2	405	0%
Temperature (In Situ) °C	...	5	0		2.4	6.7	11	11.1	22	0		3.8	6.63	8.99	9.7	-
Total Dissolved Solids (In Situ)	...	4	0		244	251	257.1	258	16	1		236	252	262.25	263	0%
Turbidity (In Situ) NTU	...	5	0		1.68	2.86	4.314	4.6	22	0		0.01	1.15	2.9555	3.63	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		190	193	197.2	198	20	0		182	192	203.1	205	1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		179	184	193.2	195	19	0		172	190	201.4	205	-3%
Alkalinity/ Carbonate as CaCO3	1	5	0		2.6	8.46	13.74	14.5	19	0	13	0.5	2.57	9.7	10.6	**229%**
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	19	0	19	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	20	0	20	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		164	169	173.6	174	20	0		160	167	172	172	1%
Hardness as CaCO3 (Total)	0.6	5	0		166	170	176.6	178	8	0		162	172	180.6	182	-1%
pH pH	0.1	5	0		8.3	8.41	8.52	8.54	20	0		8.02	8.26	8.4135	8.48	2%
Specific Conductivity µS/cm	2	5	0		377	386	391.8	392	19	0		369	383	396.7	403	1%
Total Dissolved Solids	2	4	0		195	212	227.9	230	19	0		210	230	241.5	246	-8%
Total Suspended Solids	3	5	0	4	1.5	2.48	5.42	6.4	20	0	13	1.5	2.59	6.1	6.1	-
Turbidity NTU	0.1	5	0		1.2	2.56	3.548	3.55	20	0		1.03	1.74	2.6715	4.03	-
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	20	0	20	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	20	0	20	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.076	0.0838	0.0908	0.091	20	0		0.082	0.09	0.0964	0.104	-7%
Sulphate (Dissolved)	0.3	5	0		23.6	25	25.94	26.1	20	0		24.3	25.7	26.675	28.1	-3%
Nutrients																0%
Ammonia (Dissolved)	0.005	4	0		0.0242	0.0289	0.03688	0.0385	9	0		0.013	0.0185	0.02616	0.0282	**56%**
Ammonia (Total)	0.005	5	0		0.0194	0.0262	0.03002	0.0304	20	0		0.01	0.0182	0.03359	0.0486	**44%**
Nitrate (as N)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	20	0	14	0.0025	0.00577	0.021345	0.0222	-
Nitrate+Nitrite (Dissolved)	0.0051	5	0	5	0.00255	0.00255	0.00255	0.00255	7	0	7	0.00255	0.00255	0.00255	0.00255	-
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	20	0	17	0.0005	0.000625	0.00131	0.0015	-
Nitrogen (Dissolved)	0.03	5	0	3	0.015	0.0326	0.074	0.084	20	0	8	0.015	0.0366	0.0731	0.094	-11%
Nitrogen (Total)	0.03	5	0	2	0.015	0.0372	0.0622	0.065	20	0	7	0.015	0.0397	0.08015	0.121	-6%
Nitrogen Kjeldahl (Total)	0.05	5	0	3	0.025	0.0408	0.0648	0.065	20	0	16	0.025	0.0359	0.07915	0.12	0%
Nitrogen Organic (Dissolved)	0.05	4	0	4	0.025	0.025	0.025	0.025	20	0	19	0.025	0.0271	0.02705	0.066	-
Nitrogen Organic (Total)	0.05	4	0	4	0.025	0.025	0.025	0.025	20	0	18	0.025	0.0305	0.05455	0.103	-
Orthophosphate (Dissolved)	0.001	5	0		0.0176	0.0271	0.03476	0.0362	20	0		0.0224	0.0297	0.033915	0.0342	-9%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0541	0.0603	0.06464	0.0649	19	0		0.034	0.0528	0.06098	0.068	**14%**
Phosphorus (Nutrient) Total	0.002	5	0		0.0575	0.0686	0.07622	0.0774	20	0		0.0407	0.0595	0.07441	0.0898	**15%**
Cyanide																
Cyanate	0.2 to 0.4	5	0	5	0.1	0.12	0.18	0.2	20	0	19	0.1	0.112	0.1115	0.33	-
Cyanide (Free)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	20	0	20	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	8	0	8	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	0%
Cyanide (WAD)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	20	0	20	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	20	0	18	0.23	0.281	0.282	0.89	-
Dissolved Metals																
Aluminum (Dissolved)	0.001 to 0.002	5	0		0.0044	0.00598	0.00874	0.0091	20	0		0.0019	0.00275	0.003475	0.0068	**117%**
Antimony (Dissolved)	0.0001 to 0.0002	5	0	5	5E-005	0.00006	9E-005	0.0001	20	0	18	5E-005	0.00006	0.0001205	0.00013	-
Arsenic (Dissolved)	0.0001 to 0.0002	5	0		0.0008	0.000912	0.00106	0.00109	20	0		0.0007	0.000928	0.0010905	0.0011	-2%
Barium (Dissolved)	0.0001 to 0.0002	5	0		0.0471	0.0483	0.04966	0.05	20	0		0.0449	0.0493	0.05288	0.0544	-2%
Beryllium (Dissolved)	2E-005 to 4E-005	5	0	5	1E-005	0.000012	1.8E-005	2E-005	20	0	20	1E-005	0.0000105	1.05E-005	2E-005	-
Bismuth (Dissolved)	5E-005 to 0.0001	5	0	5	2.5E-005	0.00003	4.5E-005	5E-005	20	0	20	2.5E-005	0.0000263	2.625E-005	5E-005	-
Boron (Dissolved)	0.01 to 0.02	5	0	5	0.005	0.006	0.009	0.01	20	0	20	0.005	0.00525	0.00525	0.01	-
Cadmium (Dissolved)	5E-006 to 1E-005	5	0	5	2.5E-006	0.0000035	5E-006	5E-006	19	1	11	2.5E-006	0.00000769	1.779E-005	3.48E-005	-
Calcium (Dissolved)	0.05 to 0.1	5	0		32.4	33	33.52	33.6	20	0		30.9	32.8	33.825	34.3	1%
Chromium (Dissolved)	0.0005 to 0.001	5	0	5	0.00025	0.0003	0.00045	0.0005	20	0	18	5E-005	0.000127	0.00025	0.00025	0%
Chromium VI (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001 to 0.0002	5	0	2	5E-005	0.000096	0.000118	0.00012	20	0	1	0.0001	0.000152	0.000201	0.00022	-37%
Copper (Dissolved)	0.0002 to 0.0004	5	0	5	0.0001	0.00012	0.00018	0.0002	20	0	19	0.0001	0.000122	0.000212	0.00044	-
Iron (Dissolved)	0.01 to 0.02	5	0		0.187	0.27	0.305	0.306	20	0		0.157	0.24	0.27505	0.276	**13%**
Lead (Dissolved)	5E-005 to 0.0001	5	0	5	2.5E-005	0.00003	4.5E-005	5E-005	20	0	20	2.5E-005	0.0000263	2.625E-005	5E-005	-
Lithium (Dissolved)	0.001 to 0.002	5	0		0.0221	0.0248	0.02614	0.0263	20	0		0.0221	0.0248	0.027235	0.0279	0%
Magnesium (Dissolved)	0.1	5	0		20.1	21	21.78	21.8	20	0		19.4	20.6	21.425	21.9	2%
Manganese (Dissolved)	0.0001 to 0.0002	5	0		0.17	0.192	0.2126	0.213	20	0		0.157	0.224	0.2853	0.291	-14%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	20	0	20	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005 to 0.0001	5	0		0.00494	0.00509	0.005282	0.00531	20	0		0.00502	0.00533	0.005537	0.00567	-5%
Nickel (Dissolved)	0.0005 to 0.001	5	0	3	0.00025	0.000436	0.00062	0.00064	20	0	18	0.00025	0.00029	0.0005115	0.00054	50%
Phosphorus (Metal) Dissolved	0.05 to 0.1	5	0	1	0.05	0.0608	0.0724	0.073	20	0	5	0.025	0.0533	0.07525	0.08	14%
Potassium (Dissolved)	0.1	5	0		0.708	0.742	0.7688	0.769	20	0		0.662	0.73	0.79125	0.815	2%
Selenium (Dissolved)	5E-005 to 0.0001	5	0	5	2.5E-005	0.00003	4.5E-005	5E-005	20	0	18	2.5E-005	0.0000309	6.205E-005	8.2E-005	-
Silicon (Dissolved)	0.05 to 0.1	5	0		6.72	6.94	7.204	7.23	20	0		6.14	6.57	6.8605	6.87	6%
Silver (Dissolved)	1E-005 to 2E-005	5	0	5	5E-006	0.000006	9E-006	1E-005	20	0	19	5E-006	0.00000555	1.005E-005	1.1E-005	-
Sodium (Dissolved)	0.05 to 0.1	5	0		19.7	21	22.82	23.1	20	0		19.7	20.9	22.205	22.3	0%
Strontium (Dissolved)	0.0002 to 0.0004	5	0		4.67	4.84	4.938	4.94	20	0		4.52	4.8	5.011	5.03	1%
Sulfur (Dissolved)	0.5 to 1	5	0		8.09	8.77	9.298	9.32	20	0		8.01	8.75	9.445	9.54	0%
Thallium (Dissolved)	1E-005 to 2E-005	5	0	5	5E-006	0.000006	9E-006	1E-005	20	0	20	5E-006	0.00000525	5.25E-006	1E-005	-
Tin (Dissolved)	0.0001 to 0.0002	5	0	5	5E-005	0.00006	9E-005	0.0001	20	0	20	5E-005	0.0000525	5.25E-005	0.0001	-
Titanium (Dissolved)	0.0003 to 0.0006	5	0	5	0.00015	0.00018	0.00027	0.0003	20	0	20	0.00015	0.000157	0.0001575	0.0003	-
Uranium (Dissolved)	1E-005 to 2E-005	5	0		0.00273	0.00283	0.002972	0.003	20	0		0.00282	0.00297	0.003103	0.00316	-5%
Vanadium (Dissolved)	0.0005 to 0.001	5	0	5	0.00025	0.0003	0.00045	0.0005	20	0	20	0.00025	0.000263	0.0002625	0.0005	-
Zinc (Dissolved)	0.001 to 0.002	5	0	4	0.0005	0.00092	0.00218	0.0026	18	2	13	0.0005	0.000811	0.00173	0.0019	-
Zirconium (Dissolved)	0.0002 to 0.0004	5	0	5	0.0001	0.00012	0.00018	0.0002	20	0	20	0.0001	0.000135	0.0001525	0.0002	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0521	0.0749	0.10872	0.115	20	0		0.0081	0.0351	0.1172	0.121	113%
Antimony (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	20	0	16	5E-005	0.000083	0.0002305	0.00024	-
Arsenic (Total)	0.0001	5	0		0.00088	0.00103	0.001212	0.00124	20	0		0.00076	0.001	0.001222	0.00145	3%
Barium (Total)	0.0001	5	0		0.0433	0.0472	0.04852	0.0486	20	0		0.0473	0.05	0.05353	0.0541	-6%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	20	0	20	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	20	0	20	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	20	0	20	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0		3.49E-005	0.0000663	9.772E-005	9.8E-005	20	0		1.12E-005	0.0000565	0.0001218	0.000194	17%
Calcium (Total)	0.05	5	0		32.4	33.9	35.04	35.2	20	0		31.5	33.9	36.35	37.3	0%
Chromium (Total)	0.0005	5	0	4	0.00025	0.000302	0.000458	0.00051	20	0	9	5E-005	0.000189	0.000258	0.00041	-
Chromium III (Total)	0.0005	1	0		0.00051	0.00051	0.00051	0.00051	0	0		-	-	-	-	0%
Chromium VI (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	5	0		0.00012	0.000154	0.00018	0.00018	20	0		0.00012	0.000168	0.000202	0.00024	-8%
Copper (Total)	0.0005	5	0	4	0.00025	0.000308	0.000482	0.00054	19	1	19	0.00025	0.00025	0.00025	0.00025	-
Iron (Total)	0.01	5	0		0.318	0.369	0.4048	0.406	20	0		0.23	0.288	0.36875	0.383	28%
Lead (Total)	5E-005	5	0	1	2.5E-005	0.000088	0.000126	0.000133	19	1	15	2.5E-005	0.0000363	8.54E-005	0.000107	142%
Lithium (Total)	0.001	5	0		0.0238	0.0251	0.02642	0.0265	20	0		0.0229	0.0251	0.02794	0.0287	0%
Magnesium (Total)	0.1	5	0		19.8	20.7	21.98	22.3	20	0		19.3	21.1	22.105	22.2	-2%
Manganese (Total)	0.0001	5	0		0.181	0.196	0.2152	0.217	20	0		0.166	0.235	0.28795	0.306	-17%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	20	0	20	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00516	0.0055	0.005776	0.00579	20	0		0.00517	0.00565	0.006161	0.00618	-3%
Nickel (Total)	0.0005	5	0	2	0.00025	0.000506	0.000824	0.00088	19	1	15	0.00025	0.000329	0.000711	0.00072	54%
Phosphorus (Metal) Total	0.05	5	0		0.073	0.0816	0.0888	0.089	20	0	1	0.025	0.0764	0.10435	0.111	7%
Potassium (Total)	0.1	5	0		0.69	0.733	0.7756	0.783	20	0		0.65	0.737	0.8345	0.92	-1%
Selenium (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	20	0	20	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Silicon (Total)	0.1	5	0		6.71	6.96	7.208	7.26	20	0		6.06	6.72	7.265	7.74	4%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	20	0	18	5E-006	0.00000555	1.005E-005	1.1E-005	-
Sodium (Total)	0.05	5	0		19	20.5	22.52	23	20	0		20.1	21.5	22.835	23.5	-5%
Strontium (Total)	0.0002	5	0		4.67	4.97	5.194	5.22	20	0		4.49	5.06	5.6305	6.02	-2%
Sulfur (Total)	0.5	5	0		8.22	8.77	9.53	9.64	20	0		8.25	8.98	9.6565	9.78	-2%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	20	0	20	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	20	0	18	5E-005	0.000059	0.000113	0.00017	-
Titanium (Total)	0.0003 to 0.0033	5	0	1	0.00128	0.00225	0.004352	0.00499	20	0	7	0.00015	0.000862	0.00273	0.00349	161%
Uranium (Total)	1E-005	5	0		0.00282	0.00292	0.003078	0.00312	20	0		0.00272	0.00308	0.0032615	0.00329	-5%
Vanadium (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	20	0	20	0.00025	0.00025	0.00025	0.00025	-
Zinc (Total)	0.003	5	0	1	0.0015	0.0054	0.00834	0.0089	18	2	17	0.0015	0.0016	0.00177	0.0033	238%
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	20	0	20	0.0001	0.00013	0.00015	0.00015	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	3	0.25	0.398	0.62	0.62	20	0	3	0.25	0.714	1.011	1.03	-44%
Carbon Organic (Total)	0.5	5	0	1	0.25	0.674	0.974	1.03	20	0	2	0.25	0.884	1.6965	1.82	0%

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 1 MW12-01D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 2 MW12-02S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	4	0		77.7	84.8	90.63	91.2	20	3		67.2	88.1	104.05	91.2	-4%
Oxygen Dissolved (In Situ %) %	...	4	0		2.7	6.95	10.49	11	19	1		0.8	8.38	29.89	11	-
Oxygen Dissolved (In Situ)	...	4	0		0.37	0.9	1.4485	1.54	19	1		0.07	1.01	4.263	1.54	-
pH (In Situ) pH	...	3	1		7.04	7.5	7.761	7.77	23	0		7.1	7.66	7.895	7.77	-2%
Redox Potential (In Situ) mV	...	4	0		-55.1	-45.9	-31.73	-29.3	10	0		4.3	74.7	137.965	-29.3	-
Salinity (In Situ) ppt	...	3	0		0.06	0.0633	0.069	0.07	17	3		0.05	0.0629	0.07	0.07	-
Specific Conductivity (In Situ) µS/cm	...	4	0		129	139	150.9	153	20	3		111	136	144	153	2%
Temperature (In Situ) °C	...	4	0		1.9	4.58	7.505	7.7	23	0		1.9	6.96	13.65	7.7	-
Total Dissolved Solids (In Situ)	...	3	0		84.5	87.8	90.12	90.3	16	4		72.2	88.3	93.6	90.3	-1%
Turbidity (In Situ) NTU	...	4	0		2.26	5.31	9.3055	10	22	0		1.19	14.8	39.5	10	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	4	0		72.4	72.8	73.69	73.9	23	0		69.2	73.3	76.71	73.9	-1%
Alkalinity/ Bicarbonate as CaCO3	1	4	0		72.4	72.8	73.69	73.9	23	0		69.2	73.3	76.71	73.9	-1%
Alkalinity/ Carbonate as CaCO3	1	4	0	4	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	4	0	4	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Color TCU	5	4	0	4	2.5	2.5	2.5	2.5	23	0	18	2.5	3.62	9.07	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	4	0		56.7	57.3	57.6	57.6	23	0		57.1	60.4	62.87	57.6	-5%
Hardness as CaCO3 (Total)	0.6	4	0		55.8	59.2	62.475	63	11	0		57.9	61.5	64.9	63	-4%
pH pH	0.1	4	0		7.74	7.97	8.0795	8.09	23	0		7.71	7.94	8.089	8.09	0%
Specific Conductivity µS/cm	2	4	0		137	139	139.85	140	23	0		133	138	141	140	1%
Total Dissolved Solids	13	4	0		86	93	100.1	101	20	0		81	93.4	110.2	101	0%
Total Suspended Solids	3	4	0	2	1.5	8.2	21.27	24	23	0	4	1.5	16.7	42.36	24	-51%
Turbidity NTU	0.1	4	0		2.18	5.01	9.877	10.9	23	0		1.94	10.3	30.09	10.9	-51%
Dissolved Anions																
Bromide (Dissolved)	0.05	4	0	4	0.025	0.025	0.025	0.025	23	0	23	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	4	0	4	0.25	0.25	0.25	0.25	23	0	23	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	4	0		0.077	0.081	0.08385	0.084	23	0	1	0.05	0.0816	0.0908	0.084	-1%
Sulphate (Dissolved)	0.3	4	0		0.75	0.865	0.9635	0.98	23	0	4	0.15	0.602	1.055	0.98	44%
Nutrients																
Ammonia (Dissolved)	0.005	4	0	3	0.0025	0.0033	0.00522	0.0057	10	0	7	0.0025	0.00359	0.006535	0.0057	-
Ammonia (Total)	0.005	4	0	3	0.0025	0.00325	0.00505	0.0055	23	0	21	0.0025	0.00286	0.00484	0.0055	-
Nitrate (as N)	0.005	4	0	3	0.0025	0.00445	0.00913	0.0103	23	0	23	0.0025	0.0025	0.0025	0.0103	-
Nitrate+Nitrite (Dissolved)	0.0051	4	0	3	0.00255	0.00449	0.0091375	0.0103	8	0	8	0.00255	0.00255	0.00255	0.0103	-
Nitrite (as N)	0.001	4	0	4	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	4	0	4	0.015	0.015	0.015	0.015	23	0	20	0.015	0.0197	0.054	0.015	-
Nitrogen (Total)	0.03	4	0	3	0.015	0.028	0.0592	0.067	22	1	17	0.015	0.0253	0.0689	0.067	-
Nitrogen Kjeldahl (Total)	0.05	4	0	3	0.025	0.033	0.0522	0.057	22	1	18	0.025	0.0325	0.06785	0.057	-
Nitrogen Organic (Dissolved)	0.05	4	0	4	0.025	0.025	0.025	0.025	22	0	20	0.025	0.0279	0.0516	0.025	-
Nitrogen Organic (Total)	0.05	4	0	3	0.025	0.0355	0.0607	0.067	22	1	18	0.025	0.0319	0.06745	0.067	-
Orthophosphate (Dissolved)	0.01	4	0		0.0928	0.104	0.1149	0.117	23	0		0.0658	0.0928	0.1148	0.117	**12%**
Phosphorus (Nutrient) Dissolved	0.02	4	0		0.144	0.149	0.153	0.153	23	0		0.129	0.156	0.1778	0.153	-4%
Phosphorus (Nutrient) Total	0.02	4	0		0.149	0.16	0.1733	0.176	23	0		0.146	0.175	0.2275	0.176	-9%
Cyanide																
Cyanate	0.2	4	0	4	0.1	0.1	0.1	0.1	23	0	23	0.1	0.122	0.19	0.1	-
Cyanide (Free)	0.005	4	0	4	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	4	0	4	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	14	0	14	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	4	0	4	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	4	0	4	0.25	0.25	0.25	0.25	23	0	22	0.13	0.245	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	4	0		0.002	0.00388	0.007925	0.0089	23	0		0.0018	0.0125	0.07526	0.0089	-69%
Antimony (Dissolved)	0.0001	4	0	4	5E-005	0.00005	5E-005	5E-005	23	0	22	5E-005	0.000053	5E-005	5E-005	-
Arsenic (Dissolved)	0.0001	4	0		0.00585	0.00598	0.0061075	0.00613	23	0		0.00611	0.00709	0.008002	0.00613	-16%
Barium (Dissolved)	0.0001	4	0		0.00944	0.00964	0.0099475	0.01	23	0		0.00969	0.0106	0.01186	0.01	-9%
Beryllium (Dissolved)	2E-005	4	0	4	1E-005	0.00001	1E-005	1E-005	23	0	23	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	4	0	4	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	4	0	4	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	4	0	4	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	18	2.5E-006	0.0000047	1.029E-005	2.5E-006	-
Calcium (Dissolved)	0.05	4	0		15.9	16.1	16.185	16.2	23	0		16.2	17	17.9	16.2	-5%
Chromium (Dissolved)	0.0005	4	0	4	0.00025	0.00025	0.00025	0.00025	23	0	21	5E-005	0.000118	0.00025	0.00025	0%
Chromium VI (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025							0.00025	0%
Cobalt (Dissolved)	0.0001	4	0	4	5E-005	0.00005	5E-005	5E-005	23	0	20	5E-005	0.000083	0.000227	5E-005	-
Copper (Dissolved)	0.0002	4	0	4	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.0001	0.0001	0.0001	-
Iron (Dissolved)	0.01	4	0		0.292	0.317	0.34925	0.353	23	0		0.299	0.449	0.6597	0.353	-29%
Lead (Dissolved)	5E-005	4	0	4	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	19	2.5E-005	0.0000448	0.000171	2.5E-005	-
Lithium (Dissolved)	0.001	4	0	4	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	4	0		4.12	4.16	4.2195	4.23	23	0		3.86	4.33	4.659	4.23	-4%
Manganese (Dissolved)	0.0001	4	0		0.285	0.3	0.3173	0.32	23	0		0.322	0.42	0.5275	0.32	-29%
Mercury (Dissolved)	5E-006	4	0	4	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	4	0		0.00136	0.0014	0.0014255	0.00143	23	0		0.0013	0.0014	0.001458	0.00143	0%
Nickel (Dissolved)	0.0005	4	0	4	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	4	0		0.13	0.146	0.1527	0.153	23	0		0.115	0.151	0.1808	0.153	-3%
Potassium (Dissolved)	0.1	4	0		0.6	0.63	0.64465	0.646	23	0		0.51	0.638	0.6736	0.646	-1%
Selenium (Dissolved)	5E-005	4	0	4	2.5E-005	0.000025	2.5E-005	2.5E-005	22	1	20	2.5E-005	0.000028	4.97E-005	2.5E-005	-
Silicon (Dissolved)	0.05	4	0		9.18	9.4	9.5625	9.57	23	0		8.36	9.14	9.819	9.57	3%
Silver (Dissolved)	1E-005	4	0	4	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	4	0		4.45	4.66	4.957	5.02	23	0		3.98	4.73	5.129	5.02	-1%
Strontium (Dissolved)	0.0002	4	0		0.0919	0.0952	0.0974	0.0977	23	0		0.0931	0.0975	0.1019	0.0977	-2%
Sulfur (Dissolved)	0.5	4	0	4	0.25	0.25	0.25	0.25	23	0	19	0.25	0.425	1.217	0.25	-
Thallium (Dissolved)	1E-005	4	0	4	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	4	0	4	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	4	0	4	0.00015	0.00015	0.00015	0.00015	23	0	19	0.00015	0.000402	0.002084	0.00015	-
Uranium (Dissolved)	1E-005	4	0		0.000282	0.000298	0.00030865	0.00031	23	0		8E-005	0.0002	0.0002867	0.00031	**49%**
Vanadium (Dissolved)	0.0005	4	0	4	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Zinc (Dissolved)	0.001	4	0	2	0.0005	0.00105	0.00174	0.0018	20	3	18	0.0005	0.00057	0.00111	0.0018	0%
Zirconium (Dissolved)	0.0002	4	0	4	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.00013	0.00015	0.0001	-
Total Metals																
Aluminum (Total)	0.003	4	0		0.0483	0.144	0.360975	0.414	23	0	1	0.0075	0.35	1.4624	0.414	-59%
Antimony (Total)	0.0001	4	0	3	5E-005	0.000065	0.000101	0.00011	23	0	19	5E-005	0.0000713	0.000175	0.00011	-
Arsenic (Total)	0.0001	4	0		0.00632	0.00677	0.007538	0.0077	22	1		0.00612	0.00775	0.00896	0.0077	-13%
Barium (Total)	0.0001	4	0		0.0103	0.0116	0.014215	0.0148	23	0		0.0098	0.0147	0.02972	0.0148	-21%
Beryllium (Total)	2E-005	4	0	4	1E-005	0.00001	1E-005	1E-005	23	0	15	1E-005	0.00002	6.04E-005	1E-005	-
Bismuth (Total)	5E-005	4	0	4	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	4	0	4	0.005	0.005	0.005	0.005	23	0	22	0.005	0.006	0.005	0.005	-
Cadmium (Total)	5E-006	4	0		2.16E-005	0.0000639	0.00014715	0.000166	23	0		1.28E-005	0.000064	0.000146	0.000166	0%
Calcium (Total)	0.05	4	0		15.5	16.6	17.65	17.8	23	0		15.9	17.3	18.58	17.8	-4%
Chromium (Total)	0.0005	4	0	2	0.00025	0.000608	0.0009825	0.00099	23	0	9	0.00011	0.000574	0.00133	0.00099	6%
Chromium VI (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025							0.00025	-
Cobalt (Total)	0.0001	4	0	3	5E-005	0.000103	0.0002285	0.00026	23	0	11	5E-005	0.000225	0.000645	0.00026	-
Copper (Total)	0.0005	4	0	3	0.00025	0.00044	0.000896	0.00101	22	1	14	0.00025	0.000612	0.0019295	0.00101	-
Iron (Total)	0.01	4	0		0.38	0.541	0.82445	0.878	23	0		0.384	0.822	2.02	0.878	-34%
Lead (Total)	5E-005	4	0		7.6E-005	0.000339	0.0006958	0.000766	23	0	4	2.5E-005	0.000422	0.0013261	0.000766	-20%
Lithium (Total)	0.001	4	0	4	0.0005	0.0005	0.0005	0.0005	23	0	22	0.0005	0.000543	0.0005	0.0005	-
Magnesium (Total)	0.1	4	0		4.15	4.31	4.4855	4.52	23	0		4.12	4.47	4.81	4.52	-4%
Manganese (Total)	0.0001	4	0		0.258	0.303	0.3288	0.33	23	0		0.332	0.448	0.5591	0.33	-32%
Mercury (Total)	5E-006	4	0	4	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	4	0		0.00139	0.00144	0.001515	0.00153	23	0		0.00111	0.00142	0.001574	0.00153	1%
Nickel (Total)	0.0005	4	0	2	0.00025	0.000633	0.0011235	0.00117	23	0	11	0.00025	0.000691	0.001425	0.00117	-8%
Phosphorus (Metal) Total	0.05	4	0		0.185	0.196	0.2102	0.212	23	0		0.144	0.23	0.2503	0.212	-15%
Potassium (Total)	0.1	4	0		0.625	0.688	0.79465	0.817	22	1		0.6	0.708	0.8955	0.817	-3%
Selenium (Total)	5E-005	4	0	4	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	22	2.5E-005	0.0000293	2.5E-005	2.5E-005	-
Silicon (Total)	0.1	4	0		8.87	9.6	10.228	10.3	22	1		8.55	9.83	11.28	10.3	-2%
Silver (Total)	1E-005	4	0	4	5E-006	0.000005	5E-006	5E-006	23	0	19	5E-006	0.00000704	1.38E-005	5E-006	-
Sodium (Total)	0.05	4	0		4.61	4.86	5.301	5.4	23	0		4.23	4.83	5.24	5.4	1%
Strontium (Total)	0.0002	4	0		0.0938	0.1	0.106785	0.108	23	0		0.0893	0.1	0.1079	0.108	0%
Sulfur (Total)	0.5	4	0	4	0.25	0.25	0.25	0.25	23	0	22	0.25	0.38	0.25	0.25	-
Thallium (Total)	1E-005	4	0	4	5E-006	0.000005	5E-006	5E-006	23	0	19	5E-006	0.00000652	1.2E-005	5E-006	-
Tin (Total)	0.0001	4	0	4	5E-005	0.00005	5E-005	5E-005	23	0	21	5E-005	0.00006	0.000149	5E-005	-
Titanium (Total)	0.0003 to 0.0027	4	0	1	0.00135	0.00807	0.022864	0.0265	23	0	1	0.0003	0.0166	0.0566	0.0265	-51%
Uranium (Total)	1E-005	4	0		0.000304	0.000307	0.000309	0.000309	22	1		0.000111	0.000227	0.0003154	0.000309	35%
Vanadium (Total)	0.0005	4	0	3	0.00025	0.000455	0.000947	0.00107	23	0	13	0.00025	0.000902	0.003337	0.00107	-
Zinc (Total)	0.003	4	0		0.0105	0.0271	0.06158	0.0698	22	1	1	0.0015	0.0247	0.046205	0.0698	10%
Zirconium (Total)	0.0002	4	0	3	0.0001	0.00018	0.000372	0.00042	23	0	16	0.0001	0.000237	0.000666	0.00042	-
Organics																
Carbon Organic (Dissolved)	0.5	4	0	4	0.25	0.25	0.25	0.25	23	0	10	0.25	0.586	1.198	0.25	-
Carbon Organic (Total)	0.5	4	0	4	0.25	0.43	0.673	0.7	23	0	9	0.25	0.636	1.275	0.7	-32%

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 2 MW12-02S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 3 MW12-03D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Sample Result
In Situ Parameters									
Conductivity (In Situ) µS/cm	...	5	0		88.5	94.6	105.12	107	89
Oxygen Dissolved (In Situ %) %	...	5	0		19.2	21.8	26.8	28.1	22.5
Oxygen Dissolved (In Situ)	...	5	0		2.21	2.73	3.546	3.72	
pH (In Situ) pH	...	4	1		6.69	6.82	6.908	6.92	6.67
Redox Potential (In Situ) mV	...	5	0		26.1	164	259.3	266	253
Salinity (In Situ) ppt	...	4	0		0.07	0.07	0.07	0.07	
Specific Conductivity (In Situ) µS/cm	...	5	0		141	148	149.8	150	142
Temperature (In Situ) °C	...	5	0		3.8	6.26	11.3	12.4	5.5
Total Dissolved Solids (In Situ)	...	4	0		91	95.6	97.41	97.5	
Turbidity (In Situ) NTU	...	5	0		0.23	1.5	2.988	3.08	6.92
Physical Tests									
Alkalinity (Total as CaCO3)	1	5	0		68.9	70.3	72.34	72.8	65
Alkalinity/ Bicarbonate as CaCO3	1	5	0		68.9	70.3	72.34	72.8	65
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	5	0		61.6	63.4	65.98	66.5	65.7
Hardness as CaCO3 (Total)	0.6	5	0		61.8	63.8	66.64	67.2	66.5
pH pH	0.1	5	0		7.67	7.84	7.964	7.98	7.15
Specific Conductivity µS/cm	2	5	0		150	151	152.6	153	142
Total Dissolved Solids	13	5	0		81	98.2	112.2	114	88
Total Suspended Solids	3	5	0	4	1.5	2.14	4.06	4.7	9.3
Turbidity NTU	0.1	5	0		0.22	0.686	1.302	1.36	2.08
Dissolved Anions									
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	5	0		0.052	0.0578	0.0608	0.061	0.055
Sulphate (Dissolved)	0.3	5	0		6.77	7.35	7.608	7.62	7.36
Nutrients									
Ammonia (Dissolved)	0.005	4	0	3	0.0025	0.00363	0.006325	0.007	0.0135
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	5	0		0.126	0.13	0.1356	0.137	0.126
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.126	0.13	0.1356	0.137	0.126
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	5	0		0.109	0.126	0.1368	0.138	0.133
Nitrogen (Total)	0.03	5	0		0.11	0.124	0.138	0.14	0.121
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	4	0	4	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	4	0	4	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	5	0		0.0215	0.0229	0.02476	0.0251	0.0254
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0221	0.0248	0.0262	0.0263	0.0258
Phosphorus (Nutrient) Total	0.002	5	0		0.0252	0.0263	0.02704	0.0271	0.0329
Cyanide									
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	0.25
Dissolved Metals									
Aluminum (Dissolved)	0.001	5	0	2	0.0005	0.00184	0.0037	0.004	0.0005
Antimony (Dissolved)	0.0001	5	0		0.0002	0.00021	0.000228	0.00023	0.00021
Arsenic (Dissolved)	0.0001	5	0		0.00038	0.000398	0.000408	0.00041	0.0004
Barium (Dissolved)	0.0001	5	0		0.00461	0.00482	0.005168	0.00524	0.00446
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	0.00001
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	0.000025
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	5	0		1.21E-005	0.00002	2.604E-005	2.73E-005	0.0000201
Calcium (Dissolved)	0.05	5	0		18.7	19.4	20.2	20.4	19.8
Chromium (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	0.00005
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	0.000025
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	5	0		3.51	3.65	3.782	3.79	3.94
Manganese (Dissolved)	0.0001	5	0		0.00044	0.000636	0.000968	0.00104	0.00051
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	0.0000025
Molybdenum (Dissolved)	5E-005	5	0		0.000274	0.000301	0.0003198	0.000321	0.00036
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	5	0	5	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	5	0		0.68	0.728	0.7666	0.77	0.725
Selenium (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	0.000025
Silicon (Dissolved)	0.05	5	0		9.5	9.88	10.18	10.2	10
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	0.000005
Sodium (Dissolved)	0.05	5	0		4.12	4.38	4.516	4.52	4.76
Strontium (Dissolved)	0.0002	5	0		0.164	0.169	0.1752	0.176	0.166
Sulfur (Dissolved)	0.5	5	0		2.23	2.35	2.484	2.5	2.5
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	0.000005
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	0.00005
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	5	0		0.000121	0.000136	0.0001452	0.000146	0.000129
Vanadium (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	0.00025
Zinc (Dissolved)	0.001	5	0		0.0014	0.00226	0.00374	0.0042	0.0055
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals									
Aluminum (Total)	0.003	5	0		0.0196	0.0411	0.07642	0.0798	0.128
Antimony (Total)	0.0001	5	0		0.0002	0.00022	0.000238	0.00024	0.00024
Arsenic (Total)	0.0001	5	0		0.00042	0.000444	0.000482	0.00049	0.00049
Barium (Total)	0.0001	5	0		0.00476	0.00512	0.005476	0.00552	0.00592
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	0.00001
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	0.000025
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	5	0		1.22E-005	0.0000228	2.8E-005	2.82E-005	0.0000324
Calcium (Total)	0.05	5	0		18.8	19.5	20.42	20.6	20.6
Chromium (Total)	0.0005	5	0	4	0.00025	0.000492	0.001218	0.00146	0.00094
Chromium VI (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	0.00005
Copper (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	5	0		0.015	0.0344	0.0602	0.065	0.237
Lead (Total)	5E-005	5	0	3	2.5E-005	0.0000508	9.64E-005	0.000101	0.00013
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Total)	0.1	5	0		3.54	3.68	3.812	3.84	3.66
Manganese (Total)	0.0001	5	0		0.00114	0.00233	0.00364	0.00389	0.00547
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	0.0000025
Molybdenum (Total)	5E-005	5	0		0.000297	0.000337	0.0003916	0.000406	0.000408
Nickel (Total)	0.0005	5	0	4	0.00025	0.0004	0.00085	0.001	0.00063
Phosphorus (Metal) Total	0.05	5	0	4	0.025	0.03	0.045	0.05	0.065
Potassium (Total)	0.1	5	0		0.717	0.733	0.7644	0.772	0.772
Selenium (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	0.000025
Silicon (Total)	0.1	5	0		10	10.2	10.46	10.5	10.4
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	0.000005
Sodium (Total)	0.05	5	0		4.26	4.47	4.608	4.61	4.4
Strontium (Total)	0.0002	5	0		0.166	0.17	0.1752	0.176	0.175
Sulfur (Total)	0.5	5	0		2.33	2.51	2.746	2.8	2.4
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	0.000005
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	0.00005
Titanium (Total)	0.0003	5	0		0.00038	0.00103	0.00162	0.00163	0.00625
Uranium (Total)	1E-005	5	0		0.000136	0.000145	0.0001566	0.000157	0.000149
Vanadium (Total)	0.0005	5	0	3	0.00025	0.000368	0.00056	0.00057	0.00079
Zinc (Total)	0.003	5	0	4	0.0015	0.00218	0.00422	0.0049	0.0128
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	0.0001
Organics									
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	0.54
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	0.56

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 3 MW12-03D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 4 MW12-05D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	3	0		153	168	185.5	188	18	1		136	171	205.45	225	-2%
Oxygen Dissolved (In Situ %) %	...	3	0		1	1.83	2.29	2.3	16	0		0.2	10.6	31.875	40.5	-
Oxygen Dissolved (In Situ)	...	3	0		0.12	0.227	0.288	0.29	16	0		0.02	1.28	4.035	5.04	-
pH (In Situ) pH	...	2	1		7.8	7.86	7.9045	7.91	18	1		7.39	7.8	8.036	8.07	1%
Redox Potential (In Situ) mV	...	3	0		-51	-28.9	-11.17	-9.5	6	0		67.8	175	294.4	311	-
Salinity (In Situ) ppt	...	2	0		0.12	0.125	0.1295	0.13	16	1		0.1	0.124	0.1325	0.14	-
Specific Conductivity (In Situ) µS/cm	...	3	0		243	257	270.3	272	18	1		220	262	282.2	289	-2%
Temperature (In Situ) °C	...	3	0		4.1	6.9	8.7	8.8	19	0		1.6	7.01	13.31	13.4	-
Total Dissolved Solids (In Situ)	...	2	0		158	168	176.05	177	16	1		143	171	184	187	-2%
Turbidity (In Situ) NTU	...	3	0		3.75	6.89	8.98	9.11	19	0		1.72	12.3	40.38	44.7	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	3	0		132	136	141.3	142	19	0		129	140	149.1	150	-3%
Alkalinity/ Bicarbonate as CaCO3	1	3	0		128	135	141.3	142	19	0		129	140	148.1	149	-4%
Alkalinity/ Carbonate as CaCO3	1	3	0	2	0.5	1.8	4.01	4.4	18	1	16	0.5	0.789	2.89	3.4	128%
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	19	0	19	0.5	0.5	0.5	0.5	-
Color TCU	5	3	0	2	2.5	4.67	8.35	9	19	0	13	2.5	3.56	6.92	7.1	0%
Hardness as CaCO3 (Dissolved)	0.6	3	0		87.1	97.7	106.2	107	19	0		96.6	104	112	112	-6%
Hardness as CaCO3 (Total)	0.6	3	0		98.9	103	106.5	107	10	0		101	108	116.1	117	-5%
pH pH	0.1	3	0		8.26	8.28	8.315	8.32	19	0		7.94	8.18	8.344	8.38	1%
Specific Conductivity µS/cm	2	3	0		256	262	271.4	273	19	0		245	263	280	289	0%
Total Dissolved Solids	2	2	0		156	171	184.5	186	19	0		138	164	177	186	4%
Total Suspended Solids	3	3	0	1	1.5	7.13	12.31	12.9	19	0	3	1.5	11	29.12	30.2	-35%
Turbidity NTU	0.1	3	0		2.97	5.73	8.43	8.76	19	0		1.23	9.81	28.35	37.8	-42%
Dissolved Anions																
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	19	0	19	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	19	0	19	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	3	0		0.111	0.114	0.1192	0.12	19	0		0.112	0.122	0.1311	0.132	-7%
Sulphate (Dissolved)	0.3	3	0		4.7	5.59	6.95	7.18	19	0		4.44	6.59	7.722	8.73	-15%
Nutrients																
Ammonia (Dissolved)	0.005	3	0		0.0692	0.0738	0.07819	0.0787	9	0		0.0549	0.073	0.10928	0.128	1%
Ammonia (Total)	0.005	3	0		0.0642	0.0683	0.07102	0.0712	19	0		0.0519	0.0681	0.08562	0.093	0%
Nitrate (as N)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	19	0	6	0.0025	0.0195	0.06948	0.099	-
Nitrate+Nitrite (Dissolved)	0.0051	3	0	3	0.00255	0.00255	0.00255	0.00255	7	0	3	0.00255	0.0113	0.02707	0.0295	-
Nitrite (as N)	0.001	3	0	2	0.0005	0.0008	0.00131	0.0014	19	0	13	0.0005	0.00105	0.00278	0.0044	-24%
Nitrogen (Dissolved)	0.03	3	0		0.097	0.106	0.1126	0.113	19	0		0.098	0.142	0.1928	0.236	-25%
Nitrogen (Total)	0.03	3	0		0.092	0.141	0.1932	0.2	19	0		0.086	0.14	0.1913	0.194	1%
Nitrogen Kjeldahl (Total)	0.05	3	0		0.092	0.141	0.1932	0.2	19	0	1	0.086	0.12	0.1665	0.171	0%
Nitrogen Organic (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	18	0	10	0.025	0.0474	0.1076	0.145	-
Nitrogen Organic (Total)	0.05	3	0	1	0.025	0.0733	0.1211	0.127	19	0	9	0.025	0.0488	0.0975	0.102	0%
Orthophosphate (Dissolved)	0.001 to 0.02	3	0		0.047	0.0505	0.05308	0.0533	19	0		0.0322	0.0449	0.05367	0.0543	**12%**
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0697	0.0761	0.08003	0.0802	19	0		0.0528	0.064	0.07488	0.0765	**19%**
Phosphorus (Nutrient) Total	0.002 to 0.02	3	0		0.0809	0.101	0.12778	0.132	19	0		0.0627	0.0784	0.09625	0.103	**29%**
Cyanide																
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	19	0	19	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005 to 0.01	3	0	3	0.0025	0.00333	0.00475	0.005	19	0	19	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005 to 0.01	3	0	3	0.0025	0.00333	0.00475	0.005	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.002 to 0.005	0	0		-	-	-	-	10	0	10	0.001	0.00235	0.0025	0.0025	-
Cyanide (WAD)	0.005 to 0.01	3	0	3	0.0025	0.00333	0.00475	0.005	19	0	19	0.001	0.00242	0.0025	0.0025	-
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	19	0	18	0.14	0.244	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	3	0		0.002	0.00393	0.00602	0.0063	18	1		0.0015	0.0231	0.100065	0.152	-83%
Antimony (Dissolved)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	19	0	16	5E-005	0.0000658	0.000145	0.00019	-
Arsenic (Dissolved)	0.0001	3	0		0.00348	0.00363	0.00371	0.00371	19	0		0.003	0.00349	0.004093	0.00439	4%
Barium (Dissolved)	0.0001	3	0		0.133	0.147	0.1573	0.158	19	0		0.135	0.157	0.1717	0.178	-6%
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	0.00001	1E-005	1E-005	19	0	19	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	19	0	19	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	19	0	19	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	3	0	1	2.5E-006	0.00000643	9.36E-006	9.6E-006	19	0	3	2.5E-006	0.0000265	7.428E-005	7.68E-005	-76%
Calcium (Dissolved)	0.05	3	0		22.2	25.2	27.83	28.1	19	0		24.9	27.3	29.54	29.9	-8%
Chromium (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	19	0	14	5E-005	0.000152	0.00025	0.00025	0%
Cobalt (Dissolved)	0.0001	3	0		0.00011	0.000143	0.000184	0.00019	19	0		0.0001	0.000186	0.000263	0.00029	0%
Copper (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	19	0	13	0.0001	0.000272	0.000921	0.00102	-
Iron (Dissolved)	0.01	3	0		0.188	0.219	0.2388	0.24	19	0		0.031	0.19	0.323	0.323	**15%**
Lead (Dissolved)	5E-005	3	0	2	2.5E-005	0.000043	7.36E-005	7.9E-005	19	0	14	2.5E-005	0.0000686	0.0002568	0.000264	-37%
Lithium (Dissolved)	0.001	3	0		0.012	0.013	0.01454	0.0148	19	0		0.0119	0.0142	0.01522	0.0172	-8%
Magnesium (Dissolved)	0.1	3	0		7.7	8.47	9.018	9.06	19	0		7.82	8.82	9.278	9.44	-4%
Manganese (Dissolved)	0.0001	3	0		0.0834	0.0931	0.10598	0.108	19	0		0.0826	0.11	0.1382	0.14	-15%
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	0.0000025	2.5E-006	2.5E-006	19	0	19	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	3	0		0.00578	0.00655	0.007506	0.00765	19	0		0.0054	0.00683	0.007403	0.0086	-4%
Nickel (Dissolved)	0.0005	3	0	2	0.00025	0.000357	0.000538	0.00057	19	0	14	0.00025	0.000375	0.000735	0.00114	-5%
Phosphorus (Metal) Dissolved	0.05	3	0		0.068	0.073	0.0775	0.078	19	0	3	0.025	0.0581	0.076	0.076	26%
Potassium (Dissolved)	0.1	3	0		0.69	0.795	0.8831	0.892	19	0		0.776	0.862	0.9282	0.93	-8%
Selenium (Dissolved)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	19	0	18	2.5E-005	0.0000264	2.76E-005	5.1E-005	-
Silicon (Dissolved)	0.05	3	0		6.54	6.83	7.18	7.23	19	0		6.27	6.69	7.416	7.56	2%
Silver (Dissolved)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	19	0	19	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	3	0		13.4	14.7	16.1	16.3	19	0		14.8	16.2	17.64	18	-9%
Strontium (Dissolved)	0.0002	3	0		0.816	0.903	0.9972	1.01	19	0		0.837	0.931	1.001	1.01	-3%
Sulfur (Dissolved)	0.5	3	0		1.38	1.81	2.172	2.21	19	0		1.53	2.1	2.555	3.32	-14%
Thallium (Dissolved)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	19	0	19	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	19	0	19	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	3	0	3	0.00015	0.00015	0.00015	0.00015	19	0	12	0.00015	0.000941	0.004248	0.00558	-
Uranium (Dissolved)	1E-005	3	0		7.1E-005	0.000083	9.46E-005	9.6E-005	19	0		5.2E-005	0.000123	0.0001992	0.000237	-33%
Vanadium (Dissolved)	0.0005	3	0	2	0.00025	0.000343	0.000502	0.00053	19	0	14	0.00025	0.000382	0.000895	0.00103	-10%
Zinc (Dissolved)	...	0	3		-	-	-	-	0	19		-	-	-	-	-
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	19	0	18	0.0001	0.000132	0.000155	0.0002	-
Total Metals																
Aluminum (Total)	0.003	3	0		0.0869	0.186	0.2551	0.26	19	0		0.0538	0.309	1.082	1.1	0%
Antimony (Total)	0.0001	3	0	2	5E-005	0.0000767	0.000122	0.00013	19	0	9	5E-005	0.000121	0.00025	0.00025	-37%
Arsenic (Total)	0.0001	3	0		0.00359	0.00406	0.00457	0.00464	19	0		0.00332	0.00378	0.004355	0.00458	7%
Barium (Total)	0.0001	3	0		0.151	0.158	0.1691	0.171	19	0		0.143	0.163	0.1846	0.19	-3%
Beryllium (Total)	2E-005	3	0	2	1E-005	0.0000143	2.17E-005	2.3E-005	19	0	13	1E-005	0.0000233	7.26E-005	8.7E-005	-39%
Bismuth (Total)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	19	0	19	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	19	0	18	0.005	0.00526	0.0055	0.01	-
Cadmium (Total)	5E-006	3	0		3.34E-005	0.000191	0.0003651	0.000389	19	0		1.47E-005	0.000136	0.0002494	0.00028	40%
Calcium (Total)	0.05	3	0		26	27	28.13	28.3	19	0		25.9	27.9	30.89	31.7	-3%
Chromium (Total)	0.0005	3	0	1	0.00025	0.000937	0.001752	0.00187	19	0	2	0.00024	0.000793	0.001613	0.00344	18%
Cobalt (Total)	0.0001	3	0		0.00017	0.000253	0.000371	0.00039	19	0		0.00014	0.000349	0.00066	0.00075	-28%
Copper (Total)	0.0005	3	0	1	0.00025	0.00126	0.002082	0.00216	19	0	3	0.00025	0.00171	0.00581	0.0059	0%
Iron (Total)	0.01	3	0		0.328	0.55	0.8067	0.843	19	0		0.147	0.539	1.16	1.25	0%
Lead (Total)	5E-005	3	0		0.000193	0.000653	0.0012645	0.00136	19	0		0.000137	0.000526	0.001485	0.00162	24%
Lithium (Total)	0.001	3	0		0.0123	0.014	0.01618	0.0165	19	0		0.0131	0.0148	0.01666	0.0172	-5%
Magnesium (Total)	0.1	3	0		8.26	8.58	8.899	8.94	19	0		8.16	9.06	9.84	9.84	-5%
Manganese (Total)	0.0001	3	0		0.0951	0.105	0.11888	0.121	19	0		0.0784	0.121	0.1614	0.165	-13%
Mercury (Total)	5E-006	3	0	3	2.5E-006	0.0000025	2.5E-006	2.5E-006	19	0	19	2.5E-006	0.00000303	3.5E-006	1.25E-005	-
Molybdenum (Total)	5E-005	3	0		0.00614	0.00663	0.00739	0.00752	19	0		0.00586	0.00715	0.008153	0.00935	-7%
Nickel (Total)	0.0005	3	0	1	0.00025	0.00089	0.001594	0.00169	19	0	3	0.00025	0.000924	0.001525	0.00211	-4%
Phosphorus (Metal) Total	0.05	3	0		0.08	0.116	0.1445	0.147	19	0		0.071	0.0903	0.1108	0.118	28%
Potassium (Total)	0.1	3	0		0.848	0.876	0.8948	0.896	19	0		0.794	0.946	1.221	1.23	-7%
Selenium (Total)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	19	0	17	2.5E-005	0.0000294	5.42E-005	8.3E-005	-
Silicon (Total)	0.1	3	0		7.22	7.4	7.498	7.5	19	0		6.46	7.49	9	9	-1%
Silver (Total)	1E-005	3	0	1	5E-006	0.0000123	1.92E-005	2E-005	19	0	8	5E-006	0.0000161	3.77E-005	4.4E-005	-24%
Sodium (Total)	0.05	3	0		14.2	15.3	16.77	17	19	0		15	16.9	19.53	21.6	-9%
Strontium (Total)	0.0002	3	0		0.907	0.945	0.9905	0.997	19	0		0.908	0.981	1.082	1.1	-4%
Sulfur (Total)	0.5	3	0		1.74	2.01	2.438	2.51	19	0		1.71	2.3	2.981	3.35	-13%
Thallium (Total)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	19	0	14	5E-006	0.00000847	2.26E-005	2.8E-005	-
Tin (Total)	0.0001	3	0	2	5E-005	0.0000867	0.000149	0.00016	19	0	15	5E-005	0.0000689	0.000153	0.00018	26%
Titanium (Total)	0.0003	3	0		0.00271	0.00713	0.010989	0.0114	19	0		0.00172	0.01	0.03025	0.0307	-29%
Uranium (Total)	1E-005	3	0		0.000102	0.000121	0.0001396	0.000142	19	0		9.7E-005	0.000206	0.0004809	0.000552	-41%
Vanadium (Total)	0.0005	3	0		0.00064	0.000923	0.001077	0.00108	19	0	1	0.00025	0.00111	0.002616	0.00267	-17%
Zinc (Total)	...	0	3		-	-	-	-	0	19		-	-	-	-	-
Zirconium (Total)	0.0002	3	0		0.00021	0.00023	0.00024	0.00024	19	0	13	0.0001	0.00023	0.000496	0.00064	0%
Organics																0%
Carbon Organic (Dissolved)	0.5	3	0		1.69	2.06	2.274	2.28	18	0		1.02	1.77	2.2325	2.53	16%
Carbon Organic (Total)	0.5	3	0		2.47	2.64	2.93	2.98	19	0		1.55	2.13	3.178	3.43	24%

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 4 MW12-05D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS) FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 5 MW12-05S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	2	0		162	166	169.6	170	18	4		141	176	196.45	199	-6%
Oxygen Dissolved (In Situ %) %	...	2	0		9.2	27.1	43.21	45	19	1		0.1	9.72	31.98	75	-
Oxygen Dissolved (In Situ)	...	2	0		1.17	3.17	4.97	5.17	19	1		0.01	1.2	3.652	9.79	-
pH (In Situ) pH	...	1	1		7.79	7.79	7.79	7.79	21	1		7.47	7.79	7.99	8.08	0%
Redox Potential (In Situ) mV	...	2	0		-69.3	-48.9	-30.54	-28.5	9	0		-226.9	-150	-49	-38.2	-
Salinity (In Situ) ppt	...	1	0		0.12	0.12	0.12	0.12	18	3		0.08	0.131	0.15	0.15	-
Specific Conductivity (In Situ) µS/cm	...	2	0		256	266	275	276	18	4		232	280	307.15	308	-5%
Temperature (In Situ) °C	...	2	0		4.8	5.2	5.56	5.6	22	0		3.2	5.5	8.545	9	-
Total Dissolved Solids (In Situ)	...	1	0		167	167	167	167	18	3		104	178	200	200	-6%
Turbidity (In Situ) NTU	...	2	0		1.1	1.2	1.29	1.3	22	0		0.31	3.23	8.0765	19.8	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	2	0		143	147	149.65	150	22	0		140	155	165.95	174	-5%
Alkalinity/ Bicarbonate as CaCO3	1	2	0		140	145	149.5	150	22	0		140	155	165.95	174	-6%
Alkalinity/ Carbonate as CaCO3	1	2	0	1	0.5	1.65	2.685	2.8	21	1	19	0.5	0.671	1.4	3.2	146%
Alkalinity/ Hydroxide as CaCO3	1	2	0	2	0.5	0.5	0.5	0.5	22	0	22	0.5	0.5	0.5	0.5	-
Color TCU	5	2	0	2	2.5	2.5	2.5	2.5	22	0	22	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	2	0		112	114	115.8	116	22	0		109	123	141.45	146	-7%
Hardness as CaCO3 (Total)	0.6	2	0		114	116	117.8	118	10	0		113	120	131.1	132	-3%
pH pH	0.1	2	0		8.29	8.3	8.2995	8.3	22	0		7.71	8.12	8.3	8.42	2%
Specific Conductivity µS/cm	2	2	0		269	272	273.75	274	22	0		258	276	293.8	310	-1%
Total Dissolved Solids	2	1	0		152	152	152	152	22	0		144	165	182.9	184	-8%
Total Suspended Solids	3	2	0	1	1.5	2.45	3.305	3.4	22	0	3	1.5	7.82	16.745	23.9	-69%
Turbidity NTU	0.1	2	0		5.03	9.97	14.4065	14.9	22	0		1.1	17.5	31.595	43.3	-43%
Dissolved Anions																
Bromide (Dissolved)	0.05	2	0	2	0.025	0.025	0.025	0.025	22	0	22	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	2	0	2	0.25	0.25	0.25	0.25	22	0	21	0.15	0.245	0.25	0.25	-
Fluoride (Dissolved)	0.02	2	0		0.178	0.179	0.1799	0.18	22	0		0.171	0.181	0.1936	0.199	-1%
Sulphate (Dissolved)	0.3	2	0		0.92	0.97	1.015	1.02	22	0	2	0.15	0.89	1.6255	1.83	9%
Nutrients																
Ammonia (Dissolved)	0.005	2	0		0.243	0.249	0.25345	0.254	9	0		0.214	0.231	0.2416	0.244	**8%**
Ammonia (Total)	0.005	2	0		0.244	0.246	0.2478	0.248	22	0		0.178	0.228	0.2846	0.301	**8%**
Nitrate (as N)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	22	0	19	0.0025	0.00291	0.005385	0.0061	-
Nitrate+Nitrite (Dissolved)	0.0051	2	0	2	0.00255	0.00255	0.00255	0.00255	7	0	5	0.00255	0.00364	0.00637	0.0064	-
Nitrite (as N)	0.001	2	0	2	0.0005	0.0005	0.0005	0.0005	22	0	20	0.0005	0.000555	0.000975	0.0012	-
Nitrogen (Dissolved)	0.03	2	0		0.274	0.278	0.2816	0.282	22	0		0.216	0.262	0.30515	0.368	**6%**
Nitrogen (Total)	0.03	2	0		0.3	0.301	0.3019	0.302	22	0		0.226	0.295	0.36555	0.441	2%
Nitrogen Kjeldahl (Total)	0.05	2	0		0.3	0.301	0.3019	0.302	22	0		0.226	0.295	0.36555	0.441	0%
Nitrogen Organic (Dissolved)	0.05	2	0	2	0.025	0.025	0.025	0.025	21	0	19	0.025	0.0304	0.066	0.074	-
Nitrogen Organic (Total)	0.05	2	0		0.052	0.055	0.0577	0.058	22	0	10	0.025	0.0618	0.13415	0.14	0%
Orthophosphate (Dissolved)	0.001	2	0		0.0013	0.00275	0.004055	0.0042	22	0	11	0.0005	0.00122	0.003425	0.004	125%
Phosphorus (Nutrient) Dissolved	0.002	2	0		0.0773	0.0874	0.09649	0.0975	22	0	1	0.001	0.0894	0.11495	0.119	-2%
Phosphorus (Nutrient) Total	0.002 to 0.02	2	0		0.0997	0.104	0.108535	0.109	22	0		0.0855	0.12	0.1495	0.162	-13%
Cyanide																
Cyanate	0.2	2	0	2	0.1	0.1	0.1	0.1	22	0	20	0.1	0.117	0.233	0.33	-
Cyanide (Free)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	22	0	22	0.0025	0.00284	0.0025	0.01	-
Cyanide (SAD)	0.005 to 0.02	2	0	2	0.0025	0.00625	0.009625	0.01	9	0	9	0.0025	0.00333	0.007	0.01	-
Cyanide (Total)	0.004 to 0.005	0	0		-	-	-	-	13	0	13	0.002	0.00246	0.0025	0.0025	-
Cyanide (WAD)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	22	0	22	0.001	0.00277	0.0025	0.01	-
Thiocyante (SCN)	0.5	2	0	2	0.25	0.25	0.25	0.25	22	0	21	0.13	0.245	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	2	0		0.0022	0.00275	0.003245	0.0033	22	0	1	0.0005	0.00394	0.00626	0.029	-30%
Antimony (Dissolved)	0.0001	2	0	2	5E-005	0.00005	5E-005	5E-005	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Arsenic (Dissolved)	0.0001	2	0		0.0047	0.00475	0.0047855	0.00479	22	0		0.00332	0.00631	0.0079205	0.0082	-25%
Barium (Dissolved)	0.0001	2	0		0.105	0.11	0.1145	0.115	22	0		0.106	0.122	0.12995	0.138	-10%
Beryllium (Dissolved)	2E-005	2	0	2	1E-005	0.00001	1E-005	1E-005	22	0	22	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	2	0	2	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	2	0	2	0.005	0.005	0.005	0.005	22	0	22	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	2	0	2	2.5E-006	0.0000025	2.5E-006	2.5E-006	22	0	17	2.5E-006	0.00000677	1.248E-005	5.34E-005	-
Calcium (Dissolved)	0.05	2	0		30	30	30	30	22	0		29.7	32.9	38.815	40.3	-9%
Chromium (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	22	0	21	5E-005	0.000121	0.00025	0.00025	0%
Cobalt (Dissolved)	0.0001	2	0		0.00013	0.00014	0.000149	0.00015	22	0		0.00018	0.000387	0.0007655	0.00081	0%
Copper (Dissolved)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	22	0	21	0.0001	0.000108	0.0001	0.00028	-
Iron (Dissolved)	0.01	2	0		1.23	1.44	1.6195	1.64	22	0		0.393	2.4	3.8245	4.13	-40%
Lead (Dissolved)	5E-005	2	0	2	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	20	2.5E-005	0.0000535	0.0001428	0.000529	-
Lithium (Dissolved)	0.001	2	0		0.0035	0.0035	0.0035	0.0035	22	0		0.0026	0.00325	0.003695	0.0038	8%
Magnesium (Dissolved)	0.1	2	0		8.97	9.43	9.8345	9.88	22	0		8.46	9.91	10.78	11	-5%
Manganese (Dissolved)	0.0001	2	0		0.903	0.935	0.9638	0.967	22	0		0.972	1.34	2.006	2.13	-30%
Mercury (Dissolved)	5E-006	2	0	2	2.5E-006	0.0000025	2.5E-006	2.5E-006	22	0	22	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	2	0		0.0159	0.016	0.01609	0.0161	22	0		0.0148	0.0156	0.016785	0.0169	3%
Nickel (Dissolved)	0.0005	2	0	1	0.00025	0.000415	0.0005635	0.00058	22	0	13	0.00025	0.000429	0.0007765	0.00083	-3%
Phosphorus (Metal) Dissolved	0.05	2	0		0.072	0.0845	0.09575	0.097	22	0	2	0.025	0.102	0.1423	0.146	-17%
Potassium (Dissolved)	0.1	2	0		1.22	1.27	1.3055	1.31	22	0		1.19	1.35	1.468	1.48	-6%
Selenium (Dissolved)	5E-005	2	0	2	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	21	2.5E-005	0.0000262	2.5E-005	5.1E-005	-
Silicon (Dissolved)	0.05	2	0		6.38	6.52	6.6365	6.65	22	0		5.85	6.28	6.8435	6.95	4%
Silver (Dissolved)	1E-005	2	0	2	5E-006	0.000005	5E-006	5E-006	22	0	21	5E-006	0.00000623	5E-006	3.2E-005	-
Sodium (Dissolved)	0.05	2	0		10.7	10.9	11.08	11.1	22	0		10.6	11.3	12.085	12.3	-4%
Strontium (Dissolved)	0.0002	2	0		0.512	0.517	0.52055	0.521	22	0		0.491	0.538	0.57855	0.587	-4%
Sulfur (Dissolved)	0.5	2	0	1	0.25	0.415	0.5635	0.58	22	0	17	0.25	0.345	0.819	0.9	20%
Thallium (Dissolved)	1E-005	2	0	2	5E-006	0.000005	5E-006	5E-006	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	2	0	2	5E-005	0.00005	5E-005	5E-005	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	2	0	2	0.00015	0.00015	0.00015	0.00015	22	0	22	0.00015	0.00017	0.00015	0.0006	-
Uranium (Dissolved)	1E-005	2	0		0.000435	0.000468	0.00049865	0.000502	21	1		0.00015	0.000264	0.000459	0.000537	**77%**
Vanadium (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	22	0	22	0.00025	0.00025	0.00025	0.00025	-
Zinc (Dissolved)	0.001	2	0	1	0.0005	0.001	0.00145	0.0015	17	5	11	0.0005	0.00114	0.00312	0.0032	-12%
Zirconium (Dissolved)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	22	0	22	0.0001	0.00013	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	2	0		0.0169	0.0308	0.043215	0.0446	22	0		0.0129	0.0381	0.084585	0.203	0%
Antimony (Total)	0.0001	2	0	2	5E-005	0.00005	5E-005	5E-005	22	0	18	5E-005	0.0000786	0.000148	0.00047	-
Arsenic (Total)	0.0001	2	0		0.00482	0.00482	0.0048295	0.00483	22	0		0.00452	0.00655	0.0082745	0.00863	-26%
Barium (Total)	0.0001	2	0		0.11	0.114	0.1176	0.118	22	0		0.104	0.123	0.13295	0.133	-7%
Beryllium (Total)	2E-005	2	0	2	1E-005	0.00001	1E-005	1E-005	22	0	22	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	2	0	2	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	2	0	2	0.005	0.005	0.005	0.005	22	0	22	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	2	0		2E-005	0.0000715	0.00011785	0.000123	22	0		1.12E-005	0.0000944	0.0002789	0.000333	-24%
Calcium (Total)	0.05	2	0		30.6	30.8	30.98	31	22	0		30	33.4	37.9	40.1	-8%
Chromium (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	22	0	10	5E-005	0.000244	0.0006605	0.0007	-
Cobalt (Total)	0.0001	2	0		0.00015	0.00018	0.000207	0.00021	22	0		0.0002	0.000435	0.0007495	0.00078	-59%
Copper (Total)	0.0005	2	0	1	0.00025	0.00052	0.000763	0.00079	22	0	17	0.00025	0.000393	0.000769	0.00159	0%
Iron (Total)	0.01	2	0		1.61	1.67	1.7145	1.72	22	0		1.59	2.73	3.9675	4.49	0%
Lead (Total)	5E-005	2	0	1	2.5E-005	0.000133	0.0002302	0.000241	21	1	3	2.5E-005	0.000149	0.000355	0.000898	-11%
Lithium (Total)	0.001	2	0		0.0033	0.00345	0.003585	0.0036	22	0		0.0026	0.0034	0.0038	0.0043	1%
Magnesium (Total)	0.1	2	0		9.02	9.42	9.78	9.82	22	0		9.08	10	10.7	11.3	-6%
Manganese (Total)	0.0001	2	0		0.952	0.958	0.9634	0.964	22	0		0.945	1.37	1.993	2.2	-30%
Mercury (Total)	5E-006	2	0	2	2.5E-006	0.0000025	2.5E-006	2.5E-006	22	0	22	2.5E-006	0.00000295	2.5E-006	1.25E-005	-
Molybdenum (Total)	5E-005	2	0		0.0157	0.0158	0.01589	0.0159	22	0		0.0155	0.0162	0.016995	0.0172	-2%
Nickel (Total)	0.0005	2	0		0.00062	0.00211	0.0034415	0.00359	22	0	1	0.00025	0.000789	0.001328	0.00179	167%
Phosphorus (Metal) Total	0.05	2	0		0.112	0.116	0.1196	0.12	22	0		0.092	0.138	0.18115	0.186	-16%
Potassium (Total)	0.1	2	0		1.35	1.38	1.3975	1.4	22	0		1.23	1.36	1.555	1.59	1%
Selenium (Total)	5E-005	2	0	2	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Silicon (Total)	0.1	2	0		6.67	6.7	6.7175	6.72	22	0		6.25	6.52	6.97	7	3%
Silver (Total)	1E-005	2	0	2	5E-006	0.000005	5E-006	5E-006	22	0	20	5E-006	0.00000636	1.45E-005	2.5E-005	-
Sodium (Total)	0.05	2	0		10.9	11.2	11.375	11.4	22	0		10.9	11.4	12.09	12.4	-2%
Strontium (Total)	0.0002	2	0		0.529	0.534	0.53755	0.538	22	0		0.523	0.561	0.59785	0.607	-5%
Sulfur (Total)	0.5	2	0	2	0.25	0.25	0.25	0.25	22	0	18	0.25	0.325	0.75	0.77	-
Thallium (Total)	1E-005	2	0	2	5E-006	0.000005	5E-006	5E-006	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	2	0	2	5E-005	0.00005	5E-005	5E-005	22	0	21	5E-005	0.0000532	5E-005	0.00012	-
Titanium (Total)	0.0003	2	0		0.00073	0.00138	0.001965	0.00203	22	0	1	0.0003	0.00158	0.0037735	0.00867	-13%
Uranium (Total)	1E-005	2	0		0.000418	0.000435	0.00044935	0.000451	21	1		0.000148	0.000269	0.000461	0.000531	62%
Vanadium (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	22	0	21	0.00025	0.000266	0.00025	0.0006	-
Zinc (Total)	0.003	2	0		0.0207	0.0217	0.0226	0.0227	17	5		0.0037	0.0165	0.03148	0.0542	-
Zirconium (Total)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	22	0	22	0.0001	0.000134	0.00015	0.0002	-
Organics																
Carbon Organic (Dissolved)	0.5	2	0		1.08	1.12	1.1465	1.15	18	3		0.88	1.16	1.5165	1.61	-3%
Carbon Organic (Total)	0.5	2	0		0.97	1.12	1.255	1.27	19	3		0.91	1.32	1.64	1.64	-15%

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 5 MW12-05S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL (EXCLUDES TOTAL METALS).

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 6 MW12-07D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		132	143	152.2	153	18	3		131	142	149.75	154	1%
Oxygen Dissolved (In Situ %) %	...	5	0		1.9	3.68	6.1	6.4	19	0		1.3	9.23	46.97	70.1	-
Oxygen Dissolved (In Situ)	...	5	0		0.21	0.464	0.792	0.83	19	0		0.16	1.15	5.932	8.92	-
pH (In Situ) pH	...	4	1		7.84	7.98	8.0725	8.08	21	0		7.64	7.94	8.14	8.17	1%
Redox Potential (In Situ) mV	...	5	0		2.1	90.1	169.205	178	10	0		12.9	226	329.6	336	-
Salinity (In Situ) ppt	...	4	0		0.1	0.1	0.1	0.1	16	4		0.09	0.103	0.11	0.11	-
Specific Conductivity (In Situ) µS/cm	...	5	0		210	221	241.8	247	18	3		207	219	229.75	234	1%
Temperature (In Situ) °C	...	5	0		4.1	6.6	9.7	9.9	21	0		2.3	6.4	8.1	8.5	-
Total Dissolved Solids (In Situ)	...	4	0		0.000143	104	141.95	143	16	4		127	141	147.5	149	-26%
Turbidity (In Situ) NTU	...	5	0		0.23	0.5	0.666	0.67	20	0		0.01	1.15	3.3155	3.61	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		110	111	112	112	21	0		99.7	109	113	114	2%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		106	109	111	111	21	0		99.7	109	113	114	0%
Alkalinity/ Carbonate as CaCO3	1	5	0	3	0.5	2.06	4.88	5.2	20	1	20	0.5	0.5	0.5	0.5	312%
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	21	0	21	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	21	0	21	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		86.8	89.4	93.48	94.1	21	0		85.8	92	98.9	102	-3%
Hardness as CaCO3 (Total)	0.6	5	0		86.6	89	92.62	93.6	9	0		86.3	90.4	94.74	95.3	-2%
pH pH	0.1	5	0		8.07	8.25	8.348	8.35	21	0		8.04	8.19	8.29	8.34	1%
Specific Conductivity µS/cm	2	5	0		212	218	225.6	227	20	0		204	220	229.25	234	-1%
Total Dissolved Solids	13 to 2	5	0		108	129	145.6	149	21	0		120	136	147	151	-5%
Total Suspended Solids	3	5	0	4	1.5	2.2	4.3	5	21	0	17	1.5	2.53	7.3	9.2	-
Turbidity NTU	0.1	5	0		0.15	0.27	0.44	0.47	21	0	1	0.05	0.647	1.22	3.73	-
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	21	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.11	0.118	0.126	0.127	21	0		0.116	0.128	0.135	0.14	-8%
Sulphate (Dissolved)	0.3	5	0		8.91	9.73	10.3	10.3	21	0		9.94	10.7	11.3	11.5	-9%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	3	0.0025	0.00684	0.0168	0.0191	8	0	6	0.0025	0.00436	0.010085	0.0104	57%
Ammonia (Total)	0.005	5	0	4	0.0025	0.00508	0.01282	0.0154	21	0	18	0.0025	0.00296	0.0058	0.0061	-
Nitrate (as N)	0.005	5	0	4	0.0025	0.00318	0.00522	0.0059	21	0	14	0.0025	0.00561	0.0142	0.0348	-
Nitrate+Nitrite (Dissolved)	0.0051	5	0	4	0.00255	0.00322	0.00523	0.0059	8	0	4	0.00255	0.00481	0.008095	0.0082	-
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	5	0	5	0.015	0.015	0.015	0.015	21	0	17	0.015	0.019	0.032	0.051	-
Nitrogen (Total)	0.03	5	0	4	0.015	0.0184	0.0286	0.032	21	0	17	0.015	0.021	0.05	0.061	-
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	20	0.025	0.0267	0.025	0.061	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	20	0.025	0.0263	0.025	0.052	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	19	0.025	0.0278	0.05	0.059	-
Orthophosphate (Dissolved)	0.01	5	0		0.0538	0.06	0.06526	0.066	21	0	1	0.0005	0.0604	0.0682	0.0734	-1%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.062	0.0644	0.06678	0.0672	21	0		0.052	0.0669	0.0719	0.13	-4%
Phosphorus (Nutrient) Total	0.002	5	0		0.0625	0.0656	0.0682	0.0683	21	0		0.0519	0.0666	0.0712	0.0744	-2%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	20	0	20	0.1	0.105	0.105	0.2	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	20	0	20	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	20	0.15	0.245	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0022	0.00708	0.02026	0.0245	21	0		0.0023	0.00351	0.0045	0.0079	**102%**
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	20	5E-005	0.0000552	5E-005	0.00016	-
Arsenic (Dissolved)	0.0001	5	0		0.00106	0.00114	0.001216	0.00122	21	0		0.00098	0.00115	0.00129	0.00144	-1%
Barium (Dissolved)	0.0001	5	0		0.0215	0.0225	0.0235	0.0237	21	0		0.0227	0.0256	0.0281	0.0282	-12%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	1	2.5E-006	0.00000944	1.314E-005	1.35E-005	21	0	3	2.5E-006	0.0000312	0.00011	0.000203	-70%
Calcium (Dissolved)	0.05	5	0		25.4	26	26.88	27	21	0		24.9	26.9	29.2	30.6	-3%
Chromium (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	19	5E-005	0.000128	0.00025	0.00025	0%
Chromium VI (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	20	5E-005	0.0000552	5E-005	0.00016	
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.0001	0.0001	0.0001	-
Iron (Dissolved)	0.01	5	0	4	0.005	0.0096	0.0234	0.028	21	0	21	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		5.63	5.96	6.404	6.48	21	0		5.58	6.02	6.34	6.39	-1%
Manganese (Dissolved)	0.0001	5	0		0.0732	0.0775	0.08306	0.0834	21	0		0.0347	0.0866	0.115	0.117	-11%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00375	0.00387	0.00398	0.00398	21	0		0.00362	0.00395	0.00421	0.00427	-2%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	21	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0		0.056	0.0642	0.0694	0.07	21	0		0.052	0.0648	0.089	0.091	-1%
Potassium (Dissolved)	0.1	5	0		0.911	0.946	1.0098	1.02	21	0		0.865	0.973	1.05	1.07	-3%
Selenium (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	20	2.5E-005	0.0000275	2.5E-005	7.8E-005	-
Silicon (Dissolved)	0.05	5	0		6.32	6.63	6.852	6.87	21	0		5.93	6.26	6.62	6.63	6%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		10.4	11.3	12.1	12.2	21	0		10.2	11.2	11.8	11.9	1%
Strontium (Dissolved)	0.0002	5	0		0.215	0.222	0.228	0.229	21	0		0.205	0.222	0.24	0.244	0%
Sulfur (Dissolved)	0.5	5	0		3.25	3.46	3.66	3.7	21	0		3.13	3.55	3.8	3.86	-3%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	20	5E-006	0.0000059	5E-006	2.4E-005	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	4	0.00015	0.00023	0.00047	0.00055	21	0	20	0.00015	0.000158	0.00015	0.00031	-
Uranium (Dissolved)	1E-005	5	0		0.00124	0.00135	0.001396	0.0014	21	0		0.00128	0.00139	0.0015	0.00165	-3%
Vanadium (Dissolved)	0.0005	5	0	3	0.00025	0.00042	0.000768	0.00083	20	1	16	0.00025	0.000411	0.001249	0.00142	2%
Zinc (Dissolved)	0.001	5	0	3	0.0005	0.00082	0.00142	0.0015	20	1	16	0.0005	0.00078	0.00135	0.0042	0%
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0075	0.016	0.02532	0.0264	21	0		0.0058	0.0255	0.0602	0.0621	-37%
Antimony (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	18	5E-005	0.0000652	0.00013	0.00022	-
Arsenic (Total)	0.0001	5	0		0.00115	0.00118	0.001214	0.00122	21	0		0.00106	0.00122	0.0016	0.0018	-3%
Barium (Total)	0.0001	5	0		0.0222	0.0236	0.02504	0.0253	21	0		0.0228	0.0266	0.0302	0.0312	-11%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0		9.7E-006	0.0000263	5.596E-005	6.41E-005	21	0		1.38E-005	0.0000723	0.000205	0.000286	-64%
Calcium (Total)	0.05	5	0		24.6	25.6	26.66	26.8	21	0		24.9	26.6	29	30.9	-4%
Chromium (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	11	5E-005	0.000262	0.00054	0.00055	-
Chromium VI (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025								-
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	13	5E-005	0.0000948	0.00018	0.00038	-
Copper (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	19	0.00025	0.000276	0.0005	0.00054	-
Iron (Total)	0.01	5	0	1	0.005	0.0198	0.035	0.037	21	0	4	0.005	0.0248	0.053	0.058	-20%
Lead (Total)	5E-005	5	0	4	2.5E-005	0.0000306	4.74E-005	5.3E-005	21	0	10	2.5E-005	0.0000634	0.000122	0.000237	-
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		5.71	6.07	6.44	6.48	21	0		5.38	6.01	6.53	6.58	1%
Manganese (Total)	0.0001	5	0		0.0777	0.0937	0.12292	0.132	21	0		0.0466	0.129	0.268	0.406	-27%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00369	0.00395	0.004104	0.00413	21	0		0.00347	0.00397	0.00435	0.00462	-1%
Nickel (Total)	0.0005	5	0	4	0.00025	0.0003	0.00045	0.0005	21	0	15	0.00025	0.000353	0.00063	0.00074	-
Phosphorus (Metal) Total	0.05	5	0		0.066	0.0786	0.0884	0.09	21	0		0.05	0.08	0.106	0.113	-2%
Potassium (Total)	0.1	5	0		0.875	0.927	0.9808	0.993	21	0		0.893	0.962	1.03	1.07	-4%
Selenium (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	20	2.5E-005	0.0000284	2.5E-005	9.6E-005	-
Silicon (Total)	0.1	5	0		6.36	6.6	6.81	6.84	21	0		5.92	6.34	6.9	7.04	4%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	19	5E-006	0.000006	1.3E-005	1.8E-005	-
Sodium (Total)	0.05	5	0		10.8	11.2	11.58	11.6	21	0		10.2	11.4	12.1	12.3	-2%
Strontium (Total)	0.0002	5	0		0.221	0.225	0.2284	0.229	21	0		0.207	0.222	0.239	0.241	1%
Sulfur (Total)	0.5	5	0		3.2	3.55	3.988	4.06	21	0		3.26	3.65	3.94	4.21	-3%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	19	5E-006	0.00000629	1E-005	2.7E-005	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Total)	0.0003	5	0	1	0.00015	0.000616	0.001194	0.0013	21	0	4	0.00015	0.001	0.0029	0.00391	-38%
Uranium (Total)	1E-005	5	0		0.0013	0.00141	0.001514	0.00152	21	0		0.00127	0.00142	0.00151	0.00167	-1%
Vanadium (Total)	0.0005	5	0	1	0.00025	0.000574	0.000748	0.00076	20	1	11	0.00025	0.000541	0.001473	0.00153	6%
Zinc (Total)	0.003	5	0	4	0.0015	0.00212	0.00398	0.0046	20	1	15	0.0015	0.00202	0.00371	0.0039	-
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	-
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	18	0.25	0.295	0.56	0.61	-
Carbon Organic (Total)	0.5	5	0	4	0.25	0.304	0.466	0.52	21	0	19	0.25	0.297	0.59	0.9	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 6 MW12-07D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL (EXCLUDES TOTAL METALS).

REV	DATE	DESCRIPTION	PREPD	RVWD
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 7 MW12-07S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		89.9	96.5	106.44	109	17	4		88.4	98.1	104.2	105	-2%
Oxygen Dissolved (In Situ %) %	...	5	0		70.1	79.2	96.82	102	16	0		57.6	79.1	89.225	89.9	-
Oxygen Dissolved (In Situ)	...	5	0		9.33	10.3	12.64	13.3	16	0		7.37	9.83	11.275	11.5	-
pH (In Situ) pH	...	4	1		8.06	8.16	8.3045	8.33	21	0		7.68	8.09	8.34	8.37	1%
Redox Potential (In Situ) mV	...	5	0		18.7	148	265.035	278	10	0		112	269	341.6	346	-
Salinity (In Situ) ppt	...	4	0		0.07	0.07	0.07	0.07	18	3		0.05	0.0733	0.0815	0.09	-
Specific Conductivity (In Situ) µS/cm	...	5	0		146	156	173	177	17	4		149	158	166	166	-1%
Temperature (In Situ) °C	...	5	0		3.8	4.94	6.2	6.5	21	0		3.5	5.16	6.3	8	-
Total Dissolved Solids (In Situ)	...	4	0		0.000101	73.1	100.995	102	18	3		70.2	99.6	108	108	-27%
Turbidity (In Situ) NTU	...	5	0		0.05	0.094	0.126	0.13	21	0		0.01	0.58	1.68	2.43	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		80.1	81.3	82.6	82.8	21	0		74.5	80.5	84.4	84.9	1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		80.1	81.3	82.6	82.8	20	0		74.5	80.3	84.425	84.9	1%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	20	0	20	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	20	0	20	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	21	0	21	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		72.2	74.2	77.42	78.1	21	0		69.9	74.8	80.1	80.6	-1%
Hardness as CaCO3 (Total)	0.6	5	0		70.7	72.9	74.32	74.5	9	0		68.5	72.8	79.2	82	0%
pH pH	0.1	5	0		8.07	8.13	8.16	8.16	21	0		7.92	8.12	8.2	8.22	0%
Specific Conductivity µS/cm	2	5	0		152	156	159.6	160	20	0		151	159	166.05	167	-2%
Total Dissolved Solids	13	4	0		82	93	99.4	100	21	0		75	103	112	113	-10%
Total Suspended Solids	3	5	0	5	1.5	1.5	1.5	1.5	21	0	19	1.5	1.76	4.1	4.3	-
Turbidity NTU	0.1	5	0	4	0.05	0.086	0.194	0.23	21	0	8	0.05	0.215	0.72	0.99	-
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	21	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.068	0.072	0.0768	0.078	21	0		0.065	0.0728	0.079	0.079	-1%
Sulphate (Dissolved)	0.3	5	0		2.38	2.81	3.05	3.06	21	0		2.75	3.41	3.62	3.84	-18%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	8	0	7	0.0025	0.00343	0.00731	0.0099	-
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	19	0.0025	0.00289	0.0057	0.0075	-
Nitrate (as N)	0.005	5	0		0.0483	0.0488	0.0491	0.0491	21	0		0.0283	0.0553	0.0619	0.0623	-12%
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0483	0.0488	0.0491	0.0491	8	0		0.0294	0.0519	0.06064	0.0619	-6%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	19	0.0005	0.000833	0.0011	0.0069	-
Nitrogen (Dissolved)	0.03	5	0		0.042	0.0514	0.0608	0.062	21	0		0.055	0.0712	0.086	0.102	-28%
Nitrogen (Total)	0.03	5	0		0.033	0.0482	0.0548	0.055	21	0		0.046	0.0698	0.092	0.093	-31%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	19	0.025	0.0314	0.092	0.093	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	20	0.025	0.0262	0.025	0.05	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.0252	0.025	0.03	-
Orthophosphate (Dissolved)	0.001	5	0		0.0175	0.0184	0.01968	0.0197	21	0		0.0154	0.0198	0.022	0.022	-7%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0194	0.0206	0.02184	0.0221	20	0		0.015	0.0208	0.023595	0.033	-1%
Phosphorus (Nutrient) Total	0.002	5	0		0.0201	0.0211	0.02244	0.0227	21	0		0.0164	0.0205	0.0227	0.0236	3%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	20	0	20	0.1	0.125	0.215	0.5	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	20	0	20	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	19	0.14	0.264	0.25	0.65	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0015	0.00182	0.00224	0.0023	20	1	2	0.0005	0.00148	0.00221	0.0024	23%
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Arsenic (Dissolved)	0.0001	5	0		0.00219	0.00221	0.002238	0.00224	21	0		0.00199	0.00215	0.00236	0.0024	3%
Barium (Dissolved)	0.0001	5	0		0.00713	0.00755	0.00808	0.00822	21	0		0.00729	0.00795	0.00912	0.00938	-5%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	11	2.5E-006	0.00000913	2.91E-005	3.98E-005	-
Calcium (Dissolved)	0.05	5	0		23.9	24.6	25.58	25.8	21	0		22.6	24.7	26.6	27.2	0%
Chromium (Dissolved)	0.0005	5	0		0.00055	0.000604	0.000644	0.00065	21	0		0.00046	0.00069	0.001	0.00131	0%
Chromium VI (Dissolved)	0.0005	2	0		0.00057	0.00061	0.000646	0.00065	0	0		-	-	-	-	0%
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	19	0.0001	0.000113	0.00023	0.00025	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		2.74	3.07	3.31	3.32	21	0		2.97	3.18	3.37	3.51	-3%
Manganese (Dissolved)	0.0001	5	0	3	5E-005	0.000118	0.000226	0.00023	21	0	3	5E-005	0.00019	0.00032	0.00044	-38%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	20	2.5E-006	0.00000272	2.5E-006	7.1E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00066	0.000701	0.000728	0.000732	21	0		0.000628	0.000719	0.000814	0.00104	-3%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	21	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Potassium (Dissolved)	0.1	5	0		0.643	0.7	0.7244	0.726	21	0		0.66	0.694	0.765	0.77	1%
Selenium (Dissolved)	5E-005	5	0		7.8E-005	0.000105	0.0001218	0.000123	21	0		8.2E-005	0.000108	0.000124	0.00013	-3%
Silicon (Dissolved)	0.05	5	0		6.99	7.23	7.542	7.61	21	0		6.78	7.16	7.58	7.61	1%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		3.04	3.3	3.512	3.52	21	0		3.06	3.31	3.59	3.6	0%
Strontium (Dissolved)	0.0002	5	0		0.0872	0.0893	0.09246	0.0932	21	0		0.0832	0.09	0.0976	0.1	-1%
Sulfur (Dissolved)	0.5	5	0		0.77	1.04	1.218	1.23	21	0		0.72	1.09	1.28	1.33	-5%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	21	0	21	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.000202	0.000212	0.000223	0.000225	21	0		0.000192	0.000216	0.000238	0.000244	-2%
Vanadium (Dissolved)	0.0005	5	0		0.00151	0.00159	0.001652	0.00166	21	0		0.00145	0.00158	0.00172	0.00176	1%
Zinc (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	20	1	17	0.0005	0.000665	0.00171	0.0019	-
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0031	0.00502	0.0085	0.0095	19	1	3	0.0015	0.00968	0.02153	0.0398	-48%
Antimony (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	20	0	16	5E-005	0.0000675	0.000142	0.00018	-
Arsenic (Total)	0.0001	5	0		0.0022	0.00222	0.002236	0.00224	20	0		0.00206	0.00221	0.002352	0.00239	0%
Barium (Total)	0.0001	5	0		0.00707	0.00743	0.007724	0.00775	20	0		0.00725	0.00812	0.008821	0.00922	-8%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	20	0	20	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	20	0	20	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	20	0	20	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	20	0	9	2.5E-006	0.0000172	7.044E-005	8.26E-005	-
Calcium (Total)	0.05	5	0		23.3	24.1	24.4	24.4	20	0		22.4	24.5	26.945	27.8	-2%
Chromium (Total)	0.0005	5	0		0.00065	0.000786	0.000876	0.00088	20	0	1	0.00035	0.000765	0.000943	0.001	3%
Chromium III (Total)	0.0005	2	0	1	0.00025	0.000535	0.0007915	0.00082	0	0		-	-	-	-	0%
Chromium VI (Total)	0.0005	4	0	1	0.00025	0.000558	0.0007885	0.00082	0	0		-	-	-	-	0%
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	20	0	20	5E-005	0.00005	5E-005	5E-005	-
Copper (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	20	0	19	0.00025	0.000274	0.000274	0.00073	-
Iron (Total)	0.01	5	0	4	0.005	0.006	0.009	0.01	19	1	10	0.005	0.0107	0.0203	0.041	-
Lead (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	20	0	17	2.5E-005	0.0000332	7.44E-005	0.000101	-
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	20	0	20	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		2.95	3.1	3.352	3.42	20	0		2.8	3.14	3.3685	3.53	-1%
Manganese (Total)	0.0001	5	0		0.00011	0.00026	0.000496	0.00054	20	0	2	5E-005	0.000804	0.00218	0.00237	-68%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	20	0	20	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.000698	0.000731	0.0007546	0.000756	20	0		0.000654	0.000733	0.00079695	0.000891	0%
Nickel (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	20	0	20	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Total	0.05	5	0	4	0.025	0.0302	0.0458	0.051	20	0	19	0.025	0.0263	0.0263	0.051	-
Potassium (Total)	0.1	5	0		0.63	0.655	0.6812	0.682	20	0		0.638	0.692	0.76	0.76	-5%
Selenium (Total)	5E-005	5	0		0.0001	0.000122	0.0001452	0.000149	20	0		6.9E-005	0.000108	0.00013575	0.00015	13%
Silicon (Total)	0.1	5	0		6.94	7.21	7.422	7.44	20	0		6.85	7.23	7.772	7.81	0%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	20	0	20	5E-006	0.000005	5E-006	5E-006	-
Sodium (Total)	0.05	5	0		3.18	3.29	3.48	3.52	20	0		3.1	3.36	3.564	3.64	-2%
Strontium (Total)	0.0002	5	0		0.0849	0.0877	0.08934	0.0895	20	0		0.0821	0.0904	0.09639	0.1	-3%
Sulfur (Total)	0.5	5	0		0.56	0.928	1.22	1.24	20	0		0.82	1.2	1.401	1.42	-23%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	20	0	20	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	20	0	19	5E-005	0.000055	5.5E-005	0.00015	-
Titanium (Total)	0.0003	5	0	4	0.00015	0.000298	0.000742	0.00089	20	0	13	0.00015	0.000418	0.0015765	0.00246	-
Uranium (Total)	1E-005	5	0		0.000203	0.000216	0.0002308	0.000232	20	0		0.000209	0.000224	0.00023895	0.000257	-4%
Vanadium (Total)	0.0005	5	0		0.0016	0.00171	0.001824	0.00183	20	0		0.00152	0.00173	0.001926	0.00204	0%
Zinc (Total)	0.003	5	0	5	0.0015	0.0015	0.0015	0.0015	19	1	19	0.0015	0.0015	0.0015	0.0015	-
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	20	0	19	0.0001	0.000134	0.0001535	0.00022	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	2	0.25	0.52	0.792	0.81	21	0	5	0.25	0.597	0.86	0.86	-13%
Carbon Organic (Total)	0.5	5	0	2	0.25	0.504	0.75	0.77	21	0	6	0.25	0.57	0.88	1.26	0%

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 7 MW12-07S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL (EXCLUDES TOTAL METALS).

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 8 MW12-08D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		83.4	91.3	100.6	101	21	2		81.5	94.4	105	106	-3%
Oxygen Dissolved (In Situ %) %	...	5	0		43.1	55	66.32	69	20	1		8.7	59	87.475	96.5	-
Oxygen Dissolved (In Situ)	...	5	0		5.28	6.79	8.61	8.95	20	1		1.5	6.76	10.44	11.2	-
pH (In Situ) pH	...	4	1		7.95	8.01	8.081	8.09	23	0		7.48	7.85	8.077	8.29	2%
Redox Potential (In Situ) mV	...	5	0		109	180	242.95	250	8	0		40.8	215	320.6	329	-
Salinity (In Situ) ppt	...	3	0		0.06	0.06	0.06	0.06	19	0		0.06	0.0674	0.07	0.07	-
Specific Conductivity (In Situ) µS/cm	...	5	0		133	140	152.8	156	21	2		134	140	145	155	0%
Temperature (In Situ) °C	...	5	0		4.1	7.16	11.4	12.2	23	0		4.3	7.87	11.45	11.8	-
Total Dissolved Solids (In Situ)	...	3	0		85.8	87.5	90	90.4	19	0		79.3	90.7	94.88	101	-4%
Turbidity (In Situ) NTU	...	5	0		0.91	3.04	5	5	22	0		0.13	2.95	6.11	11.7	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		70.2	71	72.16	72.4	23	0		66.6	69.4	72.17	72.4	2%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		70.2	71	72.16	72.4	23	0		66.6	69.4	72.17	72.4	2%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	23	0	23	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		60.1	61.5	63.14	63.3	23	0		59.5	63.2	67.07	68	-3%
Hardness as CaCO3 (Total)	0.6	5	0		59.8	62.8	64.2	64.2	11	0		58.5	64.3	69	70.8	-2%
pH pH	0.1	5	0		7.97	8.07	8.124	8.13	23	0		7.82	8.02	8.119	8.12	1%
Specific Conductivity µS/cm	2	5	0		138	141	144.6	145	23	0		133	140	143.9	144	1%
Total Dissolved Solids	13	4	0		74	94.5	126.1	133	22	0		82	93.3	100.95	108	1%
Total Suspended Solids	3	5	0	2	1.5	5.2	12	13.6	23	0	8	1.5	7.57	32.06	41.4	-31%
Turbidity NTU	0.1	5	0		0.18	1.7	3.672	4.05	23	0		0.18	1.8	4.068	5.48	-6%
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	23	0	23	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	23	0	23	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.057	0.0588	0.0614	0.062	23	0		0.054	0.0592	0.064	0.065	-1%
Sulphate (Dissolved)	0.3	5	0		3.19	3.56	3.844	3.87	23	0		3.44	3.85	4.079	4.13	-8%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	4	0.0025	0.00312	0.00498	0.0056	8	1	7	0.0025	0.00349	0.007635	0.0104	-
Ammonia (Total)	0.005	5	0	4	0.0025	0.00454	0.01066	0.0127	22	1	17	0.0025	0.00436	0.011895	0.0199	-
Nitrate (as N)	0.005	5	0		0.0759	0.0772	0.07826	0.0784	22	1		0.0573	0.0776	0.08468	0.0943	-1%
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0759	0.0772	0.07826	0.0784	9	0		0.067	0.0767	0.0819	0.0821	1%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	22	1	22	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	5	0		0.066	0.0738	0.0822	0.083	21	1		0.059	0.0887	0.109	0.11	-17%
Nitrogen (Total)	0.03	5	0		0.07	0.0784	0.0874	0.088	22	1		0.069	0.09	0.109	0.12	-13%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	22	1	20	0.025	0.0314	0.0839	0.103	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	1	21	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	22	0	20	0.025	0.0325	0.05445	0.16	-
Orthophosphate (Dissolved)	0.01	5	0		0.0996	0.105	0.1108	0.112	23	0		0.0019	0.104	0.1149	0.116	1%
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	5	0		0.105	0.112	0.1164	0.117	23	0		0.0964	0.112	0.1238	0.126	0%
Phosphorus (Nutrient) Total	0.002 to 0.02	5	0		0.116	0.12	0.1228	0.123	23	0		0.101	0.122	0.1381	0.191	-2%
Total Inorganic Nitrogen	0.025								1	0		0.067	0.067	0.067	0.067	0%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	22	1	22	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	10	0	10	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	13	0	13	0.0025	0.0025	0.0025	0.0025	0%
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	23	0	22	0.18	0.247	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0012	0.00156	0.002	0.002	23	0	2	0.0005	0.00303	0.00846	0.0133	-49%
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	23	0	16	5E-005	0.0000683	0.00011	0.00013	-
Arsenic (Dissolved)	0.0001	5	0		0.00096	0.000994	0.001018	0.00102	23	0		0.00087	0.00101	0.001059	0.00118	-2%
Barium (Dissolved)	0.0001	5	0		0.0175	0.0185	0.01984	0.0199	23	0		0.0173	0.0187	0.02007	0.0202	-1%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	23	0	23	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	6	2.5E-006	0.0000181	4.978E-005	8.72E-005	-
Calcium (Dissolved)	0.05	5	0		17.7	18.3	18.84	18.9	23	0		17.1	18.8	19.85	20.7	0%
Chromium (Dissolved)	0.0005	5	0		0.00107	0.00114	0.001184	0.00119	23	0		0.001	0.00116	0.001267	0.00132	0%
Chromium VI (Dissolved)	0.0005	2	0		0.00085	0.00101	0.0011445	0.00116	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	23	0	19	0.0001	0.000138	0.000319	0.00052	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	23	0	21	0.005	0.00578	0.0095	0.018	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	22	2.5E-005	0.0000266	2.5E-005	6.2E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		3.48	3.84	4.098	4.1	23	0		3.67	3.95	4.241	4.26	-3%
Manganese (Dissolved)	0.0001	5	0		0.00057	0.00252	0.004738	0.00486	23	0		0.00017	0.0032	0.005521	0.011	-21%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00173	0.00178	0.001816	0.00182	23	0		0.00163	0.00178	0.001899	0.00191	0%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0		0.106	0.115	0.1212	0.122	23	0		0.08	0.107	0.1217	0.122	7%
Potassium (Dissolved)	0.1	5	0		0.512	0.533	0.5568	0.557	23	0		0.46	0.537	0.5709	0.577	-1%
Selenium (Dissolved)	5E-005	5	0		0.000142	0.000159	0.0001756	0.000176	23	0		0.000105	0.00016	0.0001862	0.000214	-1%
Silicon (Dissolved)	0.05	5	0		8.19	8.5	8.862	8.88	23	0		7.9	8.28	8.704	8.87	3%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		3.84	4.02	4.152	4.17	23	0		3.83	4.05	4.263	4.28	-1%
Strontium (Dissolved)	0.0002	5	0		0.132	0.137	0.1456	0.148	23	0		0.13	0.138	0.1469	0.15	-1%
Sulfur (Dissolved)	0.5	5	0		0.99	1.13	1.258	1.27	23	0		0.73	1.19	1.398	1.41	-5%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	23	0	23	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.000412	0.00044	0.0004636	0.000465	23	0		0.0004	0.000437	0.0004759	0.00049	0%
Vanadium (Dissolved)	0.0005	5	0	4	0.00025	0.000324	0.000546	0.00062	23	0	21	0.00025	0.000276	0.000484	0.00058	-
Zinc (Dissolved)	0.001	5	0	4	0.0005	0.0006	0.0009	0.001	23	0	12	0.0005	0.00125	0.00219	0.0063	-
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.00013	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0172	0.0899	0.201	0.225	23	0		0.0054	0.0988	0.3141	0.428	-9%
Antimony (Total)	0.0001	5	0		0.00011	0.00012	0.000136	0.00014	23	0		0.0001	0.000129	0.00016	0.00022	-7%
Arsenic (Total)	0.0001	5	0		0.00101	0.00111	0.00117	0.00118	23	0		0.00101	0.0011	0.001199	0.00133	1%
Barium (Total)	0.0001	5	0		0.0179	0.0198	0.0225	0.0232	23	0		0.0182	0.0198	0.02209	0.0226	0%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	23	0	23	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0		7.6E-006	0.0000142	2.53E-005	2.8E-005	23	0	1	2.5E-006	0.0000348	0.00010554	0.000131	-59%
Calcium (Total)	0.05	5	0		17.3	18.4	19.04	19.1	23	0		17.1	19	20.1	21.3	0%
Chromium (Total)	0.0005	5	0		0.00134	0.00172	0.002066	0.00209	23	0		0.00134	0.00169	0.002196	0.00301	0%
Chromium III (Total)	0.0005 to 0.00053	2	0	1	0.00025	0.00078	0.001257	0.00131	0	0		-	-	-	-	-
Chromium VI (Total)	0.0005	4	0		0.00078	0.00101	0.0012805	0.00133	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	5	0	4	5E-005	0.000072	0.000138	0.00016	23	0	18	5E-005	0.0000809	0.000232	0.00029	-
Copper (Total)	0.0005	5	0	4	0.00025	0.000338	0.000602	0.00069	23	0	17	0.00025	0.000402	0.000961	0.00119	-
Iron (Total)	0.01	5	0		0.018	0.111	0.2472	0.277	23	0	1	0.005	0.122	0.4078	0.439	-9%
Lead (Total)	5E-005	5	0	1	2.5E-005	0.000119	0.0002482	0.000277	23	0	3	2.5E-005	0.00014	0.0003931	0.000492	-15%
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		3.82	4.05	4.262	4.3	23	0		3.73	4.03	4.307	4.55	0%
Manganese (Total)	0.0001	5	0		0.00102	0.00585	0.012048	0.013	23	0		0.00068	0.00662	0.01531	0.0203	-12%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.0018	0.00188	0.00195	0.00196	23	0		0.00176	0.0019	0.002049	0.00231	-1%
Nickel (Total)	0.0005	5	0	4	0.00025	0.00036	0.00069	0.0008	23	0	17	0.00025	0.000423	0.001022	0.00141	-
Phosphorus (Metal) Total	0.05	5	0		0.119	0.14	0.1538	0.154	23	0		0.107	0.135	0.1682	0.177	4%
Potassium (Total)	0.1	5	0		0.525	0.554	0.5834	0.586	23	0		0.52	0.559	0.6344	0.651	-1%
Selenium (Total)	5E-005	5	0		0.000154	0.000173	0.0001868	0.000188	23	0		0.000137	0.000162	0.0001904	0.000194	7%
Silicon (Total)	0.1	5	0		8.37	8.76	9.154	9.17	23	0		8.12	8.5	8.775	8.94	3%
Silver (Total)	1E-005	5	0	4	5E-006	0.0000066	1.14E-005	1.3E-005	23	0	19	5E-006	0.00000804	2.15E-005	3.7E-005	-
Sodium (Total)	0.05	5	0		3.99	4.06	4.118	4.12	23	0		3.91	4.15	4.339	4.46	-2%
Strontium (Total)	0.0002	5	0		0.137	0.14	0.1418	0.142	23	0		0.126	0.143	0.1518	0.158	-2%
Sulfur (Total)	0.5	5	0		1.09	1.23	1.452	1.51	23	0		0.87	1.3	1.486	1.5	-5%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	23	0	19	5E-005	0.0000957	0.000254	0.00069	-
Titanium (Total)	0.0003	5	0		0.00085	0.00428	0.010362	0.0118	23	0	2	0.00015	0.00421	0.01269	0.0192	0%
Uranium (Total)	1E-005	5	0		0.000443	0.00047	0.0005072	0.000512	23	0		0.000425	0.000471	0.0005145	0.00052	0%
Vanadium (Total)	0.0005	5	0		0.00058	0.000794	0.001006	0.00103	23	0		0.0005	0.000731	0.001204	0.00146	0%
Zinc (Total)	0.003	5	0	4	0.0015	0.0024	0.0051	0.006	23	0	14	0.0015	0.00312	0.00759	0.0096	-
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.00013	0.00015	0.00015	-
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	23	0	21	0.25	0.278	0.502	0.62	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	23	0	22	0.25	0.262	0.25	0.52	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 8 MW12-08D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREPD	RVWD
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 9 MW12-08S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Used	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		77.1	86.3	94.02	95.3	16	1		79.3	87	96.6	102	-1%
Oxygen Dissolved (In Situ %) %	...	5	0		45.7	53.5	59.32	59.6	15	0		38.3	57.2	88.49	92.9	-
Oxygen Dissolved (In Situ)	...	5	0		5.59	6.82	8.026	8.3	15	0		4.86	7.12	10.84	12.1	-
pH (In Situ) pH	...	4	1		8	8.04	8.0925	8.1	17	0		7.34	7.83	8.116	8.18	3%
Redox Potential (In Situ) mV	...	5	0		67.5	160	243.725	253	4	0		198	269	318.95	326	-
Salinity (In Situ) ppt	...	4	0		0.06	0.06	0.06	0.06	15	1		0.06	0.062	0.07	0.07	-
Specific Conductivity (In Situ) µS/cm	...	5	0		128	137	150.6	154	16	1		130	135	137.25	138	1%
Temperature (In Situ) °C	...	5	0		2.4	5.78	8.7	8.8	17	0		3.2	6.06	8.74	11.3	-
Total Dissolved Solids (In Situ)	...	4	0		83.3	86.2	88.785	88.8	14	1		79.3	86.7	90.545	91	-1%
Turbidity (In Situ) NTU	...	5	0		0.03	0.5	0.81	0.86	16	0		0.15	1.61	7.317	9.41	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		69.5	70.4	71.18	71.2	17	0		65.7	68	69.98	70.3	4%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		69.5	70.4	71.18	71.2	17	0		65.7	68	69.98	70.3	4%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	17	0	17	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	17	0	17	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	17	0	17	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		58.9	60.4	62.08	62.3	17	0		57.7	61	63.92	64.4	-1%
Hardness as CaCO3 (Total)	0.6	5	0		58.7	61.8	62.92	63	11	0		55.3	61.6	66.75	68.4	0%
pH pH	0.1	5	0		7.97	8.06	8.114	8.12	17	0		7.77	8.02	8.122	8.13	0%
Specific Conductivity µS/cm	2	5	0		136	139	141	141	17	0		131	137	140.2	141	1%
Total Dissolved Solids	13	4	0		68	72.5	75.7	76	16	0		81	90.1	98.5	100	-20%
Total Suspended Solids	3	5	0	5	1.5	1.5	1.5	1.5	17	0	13	1.5	3.72	12.98	26.5	-
Turbidity NTU	0.1	5	0	1	0.05	0.31	0.476	0.48	17	0	6	0.05	0.491	2.374	2.67	0%
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	17	0	17	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	17	0	17	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.069	0.0746	0.078	0.078	17	0		0.068	0.0751	0.079	0.079	-1%
Sulphate (Dissolved)	0.3	5	0		2.95	3.29	3.534	3.56	17	0		3.05	3.38	3.598	3.63	0%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	4	0.0025	0.0031	0.0049	0.0055	8	1	8	0.0025	0.0025	0.0025	0.0025	-
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	16	1	15	0.0025	0.00266	0.00315	0.0051	-
Nitrate (as N)	0.005	5	0		0.0705	0.0744	0.07986	0.0813	16	1		0.0527	0.0689	0.0756	0.0765	**8%**
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0705	0.0744	0.07986	0.0813	9	0		0.0618	0.0707	0.07518	0.0753	5%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	16	1	16	0.0005	0.000531	0.000625	0.001	-
Nitrogen (Dissolved)	0.03	5	0		0.062	0.0722	0.0794	0.08	15	1		0.068	0.0841	0.1051	0.11	-14%
Nitrogen (Total)	0.03	5	0		0.054	0.0664	0.0756	0.076	16	1		0.066	0.0851	0.118	0.154	0%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	16	1	14	0.025	0.0328	0.082	0.097	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	15	1	15	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	16	0	13	0.025	0.0393	0.099	0.144	-
Orthophosphate (Dissolved)	0.001 to 0.01	5	0		0.038	0.0459	0.04916	0.0494	17	0		0.0038	0.0469	0.05348	0.0538	-2%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0441	0.0498	0.05288	0.0534	17	0		0.0477	0.0523	0.05744	0.0632	-5%
Phosphorus (Nutrient) Total	0.002	5	0		0.0472	0.0509	0.05332	0.0536	17	0		0.0489	0.0547	0.06942	0.0811	0%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	17	0	16	0.1	0.108	0.128	0.24	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	17	0	17	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	10	0	10	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	7	0	7	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	17	0	17	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	17	0	16	0.12	0.242	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0011	0.00144	0.00178	0.0018	16	1	1	0.0005	0.00143	0.00225	0.0024	1%
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	17	0	15	5E-005	0.0000582	0.000108	0.00014	-
Arsenic (Dissolved)	0.0001	5	0		0.00124	0.00125	0.001276	0.00128	17	0		0.0012	0.00129	0.001366	0.00139	-3%
Barium (Dissolved)	0.0001	5	0		0.00428	0.00455	0.004822	0.00485	17	0		0.0041	0.00477	0.005878	0.00687	-5%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	17	0	17	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	17	0	17	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	17	0	17	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	17	0	7	2.5E-006	0.0000104	3.18E-005	6.3E-005	-
Calcium (Dissolved)	0.05	5	0		17.9	18.7	19.62	19.8	17	0		17.5	18.8	19.82	19.9	0%
Chromium (Dissolved)	0.0005	5	0		0.0013	0.00135	0.001398	0.0014	17	0		0.0013	0.00142	0.001542	0.00155	0%
Chromium VI (Dissolved)	0.0005	2	0		0.00098	0.00118	0.00136	0.00138	0	0		-	-	-	-	
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	17	0	17	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	4	0.0001	0.000154	0.000316	0.00037	17	0	13	0.0001	0.000149	0.000338	0.00045	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	16	1	16	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	17	0	16	2.5E-005	0.0000302	4.28E-005	0.000114	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	17	0	17	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		3.12	3.34	3.496	3.51	17	0		2.97	3.39	3.58	3.62	-1%
Manganese (Dissolved)	0.0001	5	0	1	5E-005	0.000214	0.00034	0.00037	16	1	3	5E-005	0.000205	0.00047	0.0008	4%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	17	0	17	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.0017	0.00178	0.001828	0.00183	17	0		0.00165	0.00183	0.002004	0.00226	-3%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	17	0	17	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0	3	0.025	0.037	0.0562	0.057	17	0	9	0.025	0.042	0.0714	0.073	-12%
Potassium (Dissolved)	0.1	5	0		0.683	0.715	0.7472	0.749	17	0		0.666	0.723	0.7644	0.766	-1%
Selenium (Dissolved)	5E-005	5	0		0.000141	0.000156	0.000169	0.00017	17	0		9.8E-005	0.000145	0.000186	0.000194	8%
Silicon (Dissolved)	0.05	5	0		7.09	7.44	7.852	7.9	17	0		6.69	7.3	7.68	7.72	2%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	17	0	17	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		3.64	3.83	4.044	4.09	17	0		3.54	3.84	4.06	4.1	0%
Strontium (Dissolved)	0.0002	5	0		0.115	0.118	0.1216	0.122	17	0		0.112	0.119	0.124	0.124	-1%
Sulfur (Dissolved)	0.5	5	0		0.84	1.07	1.208	1.23	17	0		0.62	0.986	1.164	1.18	9%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	17	0	17	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	17	0	17	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	17	0	16	0.00015	0.000269	0.000556	0.00218	-
Uranium (Dissolved)	1E-005	5	0		0.000394	0.00042	0.0004386	0.000441	17	0		0.000374	0.000418	0.0004392	0.000452	0%
Vanadium (Dissolved)	0.0005	5	0		0.00208	0.00217	0.002278	0.0023	17	0		0.00203	0.00216	0.002256	0.00228	0%
Zinc (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	16	1	12	0.0005	0.0009	0.00255	0.0036	-
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	17	0	17	0.0001	0.000124	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0033	0.0103	0.02036	0.0218	15	2		0.0032	0.0125	0.03713	0.0589	-18%
Antimony (Total)	0.0001	5	0	4	5E-005	0.000062	9.8E-005	0.00011	17	0	13	5E-005	0.0000865	0.000256	0.00032	-
Arsenic (Total)	0.0001	5	0		0.00131	0.00135	0.001384	0.00139	17	0		0.00121	0.00131	0.001422	0.00143	3%
Barium (Total)	0.0001	5	0		0.00428	0.00476	0.005148	0.00519	17	0		0.0042	0.0053	0.007764	0.0111	-10%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	17	0	17	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	17	0	17	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	17	0	17	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0	4	2.5E-006	0.00000332	5.78E-006	6.6E-006	17	0	8	2.5E-006	0.0000164	6.052E-005	0.000117	-
Calcium (Total)	0.05	5	0		17.9	19.1	19.76	19.8	17	0		16.8	19	20.54	21.5	1%
Chromium (Total)	0.0005	5	0		0.00145	0.00157	0.001732	0.00176	17	0		0.00142	0.00169	0.002228	0.00234	0%
Chromium III (Total)	0.0005 to 0.00052	2	0	2	0.00025	0.000255	0.0002595	0.00026	0	0		-	-	-	-	-
Chromium VI (Total)	0.0005	4	0		0.00114	0.00125	0.0013055	0.00131	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	17	0	15	5E-005	0.0000671	0.000144	0.00028	-
Copper (Total)	0.0005	5	0	4	0.00025	0.00102	0.003322	0.00409	17	0	15	0.00025	0.000358	0.001116	0.00126	-
Iron (Total)	0.01	5	0	2	0.005	0.0144	0.032	0.036	15	2	10	0.005	0.0115	0.032	0.06	25%
Lead (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	17	0	13	2.5E-005	0.0000679	0.0002684	0.000366	-
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	17	0	17	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		3.27	3.41	3.556	3.56	17	0		3.21	3.39	3.662	3.79	1%
Manganese (Total)	0.0001	5	0		0.00014	0.0005	0.00084	0.00085	15	2		0.00018	0.000553	0.001258	0.00221	-10%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	17	0	17	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00179	0.00189	0.002	0.00201	17	0		0.0018	0.00193	0.002134	0.00231	-2%
Nickel (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	17	0	15	0.00025	0.00036	0.001	0.001	-
Phosphorus (Metal) Total	0.05	5	0		0.05	0.0648	0.0724	0.073	17	0		0.054	0.0759	0.1044	0.114	-15%
Potassium (Total)	0.1	5	0		0.691	0.723	0.7502	0.754	17	0		0.65	0.721	0.7684	0.778	0%
Selenium (Total)	5E-005	5	0		0.000135	0.00015	0.0001622	0.000164	17	0		0.000127	0.000167	0.0001888	0.000224	-10%
Silicon (Total)	0.1	5	0		7.27	7.51	7.81	7.87	17	0		6.92	7.38	7.738	7.89	2%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	17	0	15	5E-006	0.00000588	1.16E-005	1.4E-005	-
Sodium (Total)	0.05	5	0		3.73	3.82	3.9	3.91	17	0		3.54	3.93	4.294	4.43	-3%
Strontium (Total)	0.0002	5	0		0.117	0.12	0.1236	0.124	17	0		0.107	0.12	0.1274	0.129	0%
Sulfur (Total)	0.5	5	0		0.92	1.03	1.224	1.27	17	0		0.7	1.11	1.38	1.54	-7%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	17	0	17	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	17	0	14	5E-005	0.0000618	0.000114	0.00013	-
Titanium (Total)	0.0003 to 0.0006	5	0	4	0.00015	0.00025	0.00046	0.0005	17	0	7	0.00015	0.0021	0.009384	0.0188	-
Uranium (Total)	1E-005	5	0		0.000433	0.000451	0.000476	0.000481	17	0		0.000388	0.000432	0.0004602	0.000461	4%
Vanadium (Total)	0.0005	5	0		0.00228	0.00241	0.002506	0.00251	17	0		0.00215	0.00235	0.002628	0.00294	0%
Zinc (Total)	0.003	5	0	4	0.0015	0.0027	0.0063	0.0075	16	1	13	0.0015	0.00221	0.00525	0.0072	-
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	17	0	17	0.0001	0.000124	0.00015	0.00015	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	17	0	15	0.25	0.303	0.67	0.75	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	17	0	15	0.25	0.334	0.9	1.06	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 9 MW12-08S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 10 MW12-09D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		94.1	103	112.2	114	20	2		85.3	104	116.15	119	-1%
Oxygen Dissolved (In Situ %) %	...	5	0		19.1	23.5	31.44	33.5	20	0		2	24.4	44.2	46.1	-
Oxygen Dissolved (In Situ)	...	5	0		2.34	2.94	4.156	4.44	20	0		0.28	3.15	5.2925	5.34	-
pH (In Situ) pH	...	4	1		8.26	8.31	8.3825	8.39	22	0		7.73	8.08	8.3095	8.39	3%
Redox Potential (In Situ) mV	...	5	0		62.3	167	260.565	271	10	0		29	246	347.6	352	-
Salinity (In Situ) ppt	...	4	0		0.07	0.07	0.07	0.07	20	2		0.06	0.077	0.08	0.08	-
Specific Conductivity (In Situ) µS/c	...	5	0		152	162	176.6	181	20	2		133	159	166	166	2%
Temperature (In Situ) °C	...	5	0		3.6	5.98	8.34	8.6	22	0		3.5	6.8	9.995	11	-
Total Dissolved Solids (In Situ)	...	4	0		98.7	102	103.85	104	20	2		87.1	104	107.1	109	-2%
Turbidity (In Situ) NTU	...	5	0		0.03	0.816	1.82	2.01	22	0		0.03	0.716	1.8435	1.91	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		77.8	79.8	80.6	80.6	22	0		74.4	79.3	82.58	84.1	1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		77.8	79.8	80.6	80.6	22	0		74.4	79.3	82.58	84.1	1%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	22	0	22	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	22	0	22	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	22	0	22	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		70.4	71.3	72.22	72.3	22	0		58.3	72.7	76.485	78	-2%
Hardness as CaCO3 (Total)	0.6	5	0		69.6	72.1	74.56	74.6	10	0		66.8	75.3	81.045	81.9	-4%
pH pH	0.1	5	0		7.98	8.13	8.194	8.2	22	0		7.87	8.11	8.2085	8.25	0%
Specific Conductivity µS/cm	2	5	0		153	159	164.4	165	22	0		154	161	167	167	-1%
Total Dissolved Solids	13	4	0		88	96.3	101.55	102	21	0		90	102	119	134	-6%
Total Suspended Solids	3	5	0	4	1.5	2.48	5.42	6.4	22	0	13	1.5	3.49	9.46	12.1	-
Turbidity NTU	0.1	5	0		0.23	0.408	0.736	0.82	22	0	4	0.05	0.409	0.7945	2.03	0%
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	22	0	22	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	22	0	22	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.078	0.0848	0.0924	0.094	22	0		0.074	0.0856	0.09475	0.095	-1%
Sulphate (Dissolved)	0.3	5	0		5.22	5.46	5.628	5.64	22	0		5.22	5.7	6.1145	6.17	-4%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	8	0	8	0.0025	0.0025	0.0025	0.0025	-
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	22	0	19	0.0025	0.00408	0.006095	0.0302	-
Nitrate (as N)	0.005	5	0		0.0528	0.0543	0.05568	0.056	22	0		0.0343	0.0505	0.055895	0.0576	**8%**
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0528	0.0543	0.05568	0.056	9	0		0.036	0.0511	0.05688	0.0576	**6%**
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	22	0	22	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	5	0		0.043	0.0528	0.0594	0.06	21	0		0.033	0.0607	0.08	0.082	-13%
Nitrogen (Total)	0.03	5	0		0.036	0.0494	0.0602	0.061	22	0		0.034	0.0597	0.07765	0.08	-17%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	22	0	21	0.025	0.0271	0.025	0.071	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	22	0	22	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Orthophosphate (Dissolved)	0.001	5	0		0.0387	0.0414	0.04378	0.0441	22	0		0.0339	0.0424	0.04465	0.0452	-2%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0376	0.0425	0.04514	0.0454	22	0		0.0325	0.0415	0.046195	0.0472	2%
Phosphorus (Nutrient) Total	0.002	5	0		0.0427	0.0446	0.04724	0.0478	22	0		0.0388	0.0444	0.04939	0.0497	0%
Total Inorganic Nitrogen	0.025								1	0		0.042	0.042	0.042	0.042	0%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	22	0	22	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	22	0	22	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	10	0	10	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	22	0	22	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5 to 5	5	0	5	0.25	0.8	2.1	2.5	22	0	21	0.13	0.245	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0023	0.00346	0.00658	0.0076	22	0		0.002	0.00305	0.00419	0.0103	13%
Antimony (Dissolved)	0.0001	5	0	4	5E-005	0.00006	9E-005	0.0001	22	0	15	5E-005	0.0000677	0.00011	0.00012	-
Arsenic (Dissolved)	0.0001	5	0		0.00322	0.00329	0.0034	0.00342	22	0		0.00315	0.00332	0.003546	0.00358	-1%
Barium (Dissolved)	0.0001	5	0		0.00842	0.00883	0.009324	0.00934	22	0		0.00768	0.00917	0.009859	0.0102	-4%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	22	0	22	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	22	0	22	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	1	2.5E-006	0.00000678	9.7E-006	9.8E-006	22	0	1	5E-006	0.000013	2.027E-005	3.27E-005	-48%
Calcium (Dissolved)	0.05	5	0		21.1	21.2	21.38	21.4	22	0		17.3	21.7	23.185	24.2	0%
Chromium (Dissolved)	0.0005	5	0		0.0014	0.00149	0.001536	0.00154	22	0		0.00124	0.00143	0.0015695	0.00159	0%
Chromium VI (Dissolved)	0.0005	2	0		0.00138	0.00141	0.0014275	0.00143								-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	22	0	22	0.0001	0.0001	0.0001	0.0001	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	22	0	22	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	22	0	22	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		4.29	4.47	4.578	4.58	22	0		3.66	4.49	4.7395	4.9	0%
Manganese (Dissolved)	0.0001	5	0		0.00012	0.000234	0.000334	0.00035	22	0		0.00011	0.00023	0.0004665	0.00057	2%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	22	0	22	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00248	0.00254	0.002624	0.00264	22	0		0.00239	0.00257	0.002755	0.00287	-1%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	22	0	22	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0	5	0.025	0.025	0.025	0.025	22	0	19	0.025	0.0294	0.05875	0.059	-
Potassium (Dissolved)	0.1	5	0		0.69	0.707	0.7344	0.739	22	0		0.538	0.71	0.77285	0.78	0%
Selenium (Dissolved)	5E-005	5	0		0.000464	0.000518	0.0005516	0.000554	22	0		0.000424	0.000489	0.0005637	0.000585	**6%**
Silicon (Dissolved)	0.05	5	0		6.3	6.68	7.004	7.01	22	0		6.22	6.52	6.8695	6.94	2%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		4.07	4.29	4.488	4.53	22	0		3.69	4.37	4.695	4.74	-2%
Strontium (Dissolved)	0.0002	5	0		0.147	0.155	0.1648	0.166	22	0		0.13	0.157	0.1659	0.174	-1%
Sulfur (Dissolved)	0.5	5	0		1.46	1.73	1.852	1.86	22	0		1.43	1.89	2.1965	2.32	-8%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	22	0	22	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.00037	0.000396	0.000428	0.000435	22	0		0.000375	0.000415	0.000437	0.000447	-5%
Vanadium (Dissolved)	0.0005	5	0		0.00318	0.00324	0.003316	0.00333	22	0		0.00276	0.00319	0.0034395	0.00345	0%
Zinc (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	1	17	0.0005	0.000652	0.0013	0.0014	-
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	22	0	22	0.0001	0.00013	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0085	0.0188	0.03154	0.0334	22	0		0.0056	0.032	0.090065	0.0949	-41%
Antimony (Total)	0.0001	5	0	2	5E-005	0.000088	0.000118	0.00012	22	0	3	5E-005	0.00011	0.000159	0.00017	-20%
Arsenic (Total)	0.0001	5	0		0.00334	0.00346	0.003604	0.00363	22	0		0.00322	0.00338	0.0035295	0.00357	2%
Barium (Total)	0.0001	5	0		0.00841	0.00933	0.01005	0.0101	22	0		0.0086	0.00988	0.01079	0.0111	-6%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	22	0	22	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	22	0	22	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	22	0	22	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0		7.4E-006	0.0000167	2.322E-005	2.38E-005	22	0	1	2.5E-006	0.0000232	4.366E-005	4.76E-005	-28%
Calcium (Total)	0.05	5	0		20.3	21.2	22.1	22.1	22	0		19.8	22.3	24.555	24.9	-5%
Chromium (Total)	0.0005	5	0		0.00152	0.00176	0.002142	0.00222	22	0		0.00141	0.0017	0.001979	0.00213	0%
Chromium VI (Total)	0.0005	2	0		0.00153	0.00163	0.0017105	0.00172								0%
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Copper (Total)	0.0005	5	0	4	0.00025	0.0276	0.10965	0.137	22	0	22	0.00025	0.00025	0.00025	0.00025	-
Iron (Total)	0.01	5	0	2	0.005	0.0226	0.044	0.045	22	0	2	0.005	0.0303	0.08215	0.09	-25%
Lead (Total)	5E-005	5	0	3	2.5E-005	0.000714	0.002763	0.00344	22	0	15	2.5E-005	0.0000478	0.0001069	0.000182	1394%
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	22	0	21	0.0005	0.000527	0.0005	0.0011	-
Magnesium (Total)	0.1	5	0		4.47	4.65	4.798	4.82	22	0		4.22	4.58	4.876	4.91	2%
Manganese (Total)	0.0001	5	0		0.00079	0.00283	0.005154	0.00544	22	0		0.00059	0.00253	0.00449	0.00497	12%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	22	0	22	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00251	0.00262	0.002772	0.00278	22	0		0.00248	0.00268	0.002819	0.00284	-2%
Nickel (Total)	0.0005	5	0	3	0.00025	0.000712	0.001924	0.00227	22	0	21	0.00025	0.000262	0.00025	0.00052	172%
Phosphorus (Metal) Total	0.05	5	0		0.056	0.0692	0.087	0.09	22	0	7	0.025	0.0544	0.0857	0.086	27%
Potassium (Total)	0.1	5	0		0.68	0.716	0.762	0.768	22	0		0.685	0.737	0.78	0.782	-3%
Selenium (Total)	5E-005	5	0		0.0005	0.000533	0.0005718	0.000577	22	0		0.000422	0.000477	0.0005219	0.000531	12%
Silicon (Total)	0.1	5	0		6.5	6.81	7.044	7.07	22	0		6.34	6.69	7.0075	7.03	2%
Silver (Total)	1E-005	5	0	4	5E-006	0.0000076	1.54E-005	1.8E-005	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Sodium (Total)	0.05	5	0		4.3	4.39	4.496	4.51	22	0		4.1	4.44	4.787	4.84	-1%
Strontium (Total)	0.0002	5	0		0.147	0.156	0.1608	0.161	22	0		0.136	0.161	0.1709	0.178	-3%
Sulfur (Total)	0.5	5	0		1.75	1.87	1.918	1.92	22	0		1.51	1.95	2.1095	2.14	-4%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	22	0	22	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	4	5E-005	0.000134	0.000386	0.00047	22	0	22	5E-005	0.00005	5E-005	5E-005	-
Titanium (Total)	0.0003	5	0	2	0.00015	0.00112	0.002238	0.00235	22	0	4	0.00015	0.00126	0.003862	0.00414	-11%
Uranium (Total)	1E-005	5	0		0.0004	0.000428	0.0004598	0.000465	22	0		0.000383	0.00043	0.0004598	0.000478	0%
Vanadium (Total)	0.0005	5	0		0.00317	0.00339	0.003574	0.00361	22	0		0.00317	0.00345	0.0036495	0.0039	0%
Zinc (Total)	0.003	5	0	3	0.0015	0.0172	0.063	0.0778	21	1	20	0.0015	0.0016	0.0015	0.0036	975%
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	22	0	22	0.0001	0.00013	0.00015	0.00015	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	22	0	22	0.25	0.25	0.25	0.25	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	22	0	21	0.25	0.267	0.25	0.63	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 10 MW12-09D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 11 MW12-12D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		91.5	96.1	104.44	106	18	3		76.7	95.4	107	107	1%
Oxygen Dissolved (In Situ %) %	...	5	0		12.9	24.8	47.74	52.4	18	0		10.4	18.3	35.025	38	-
Oxygen Dissolved (In Situ)	...	5	0		1.51	3.18	6.218	6.82	18	0		1.32	2.22	4.361	4.48	-
pH (In Situ) pH	...	4	1		7.68	7.84	8.054	8.09	21	0		7.4	7.78	7.99	8.02	1%
Redox Potential (In Situ) mV	...	5	0		25.7	134	231.185	242	9	0		95.4	247	308.6	310	-
Salinity (In Situ) ppt	...	4	0		0.07	0.07	0.07	0.07	19	1		0.06	0.0741	0.0827	0.107	-
Specific Conductivity (In Situ) µS/cm	...	5	0		146	154	169.6	174	18	3		126	151	163.45	166	2%
Temperature (In Situ) °C	...	5	0		4.2	5.63	6.99	7.2	21	0		4.2	5.79	8.4	9	-
Total Dissolved Solids (In Situ)	...	4	0		94.8	98	99.34	99.4	18	1		82.5	98.2	107.3	109	0%
Turbidity (In Situ) NTU	...	5	0		4.56	8.22	15.1	16.5	20	0		3.49	8.16	14.115	14.4	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		75.9	76.5	77.02	77.1	21	0		71.5	75.5	78	80.1	1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		75.9	76.5	77.02	77.1	21	0		71.5	75.5	78	80.1	1%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	21	0	21	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	21	0	21	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	21	0	20	2.5	2.77	2.5	8.1	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		58.7	62	64.5	64.8	21	0		59.4	62.6	66.9	67.7	-1%
Hardness as CaCO3 (Total)	0.6	5	0		58.8	61.9	64.86	65.4	9	0		58.5	63.7	66.36	66.6	-3%
pH pH	0.1	5	0		7.99	8.09	8.15	8.16	21	0		7.97	8.05	8.16	8.19	0%
Specific Conductivity µS/cm	2	5	0		151	155	157.8	158	21	0		148	155	164	167	0%
Total Dissolved Solids	13	4	0		99	104	110.8	112	21	0		90	107	115	115	-3%
Total Suspended Solids	3	5	0		5.7	19.1	40.36	42.8	21	0		3	15	23.2	29.6	**27%**
Turbidity NTU	0.1	5	0		2.32	4.8	8.49	9.25	21	0		1.15	5.3	8.53	10.1	-
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	21	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.078	0.0828	0.0886	0.09	21	0		0.074	0.0857	0.091	0.093	-3%
Sulphate (Dissolved)	0.3	5	0		4.01	4.83	5.888	6.04	21	0		4.14	5.83	8.14	8.61	-17%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	8	0	8	0.0025	0.0025	0.0025	0.0025	-
Ammonia (Total)	0.005	5	0	4	0.0025	0.00332	0.00578	0.0066	21	0	19	0.0025	0.00352	0.0058	0.0206	-
Nitrate (as N)	0.005	5	0		0.131	0.169	0.214	0.219	21	0		0.0565	0.123	0.166	0.17	**37%**
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.131	0.169	0.214	0.219	6	0		0.106	0.133	0.166	0.17	27%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	18	0.0005	0.000633	0.0016	0.0016	-
Nitrogen (Dissolved)	0.03	5	0		0.111	0.162	0.2008	0.202	21	0		0.099	0.137	0.199	0.206	**18%**
Nitrogen (Total)	0.03	5	0		0.169	0.233	0.3594	0.394	21	0		0.112	0.17	0.21	0.211	**37%**
Nitrogen Kjeldahl (Total)	0.05	5	0	3	0.025	0.0704	0.1754	0.2	21	0	11	0.025	0.0478	0.087	0.089	0%
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	19	0.025	0.0284	0.061	0.061	-
Nitrogen Organic (Total)	0.05 to 0.052	5	0	3	0.025	0.0704	0.1754	0.2	21	0	12	0.025	0.0457	0.083	0.088	0%
Orthophosphate (Dissolved)	0.01	5	0		0.0471	0.0524	0.05546	0.0558	21	0		0.0484	0.0566	0.0624	0.0675	-7%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0519	0.0553	0.05998	0.0612	21	0		0.0429	0.059	0.065	0.0671	-6%
Phosphorus (Nutrient) Total	0.002 to 0.02	5	0		0.0619	0.0753	0.09814	0.103	21	0		0.0458	0.0709	0.0861	0.0954	6%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	21	0	20	0.1	0.108	0.1	0.27	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5 to 5	5	0	5	0.25	0.75	2.1	2.5	21	0	20	0.12	0.244	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0024	0.00672	0.01832	0.0219	21	0		0.0013	0.00774	0.019	0.0556	-13%
Antimony (Dissolved)	0.0001	5	0	3	5E-005	0.000074	0.000116	0.00012	21	0	8	5E-005	0.0001	0.00017	0.00018	-26%
Arsenic (Dissolved)	0.0001	5	0		0.00129	0.0014	0.001468	0.00147	21	0		0.00141	0.0015	0.00165	0.00177	-7%
Barium (Dissolved)	0.0001	5	0		0.0173	0.0184	0.0192	0.0193	21	0		0.0174	0.0216	0.0265	0.0281	-15%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0		3.14E-005	0.0000437	6.062E-005	6.35E-005	21	0		3.32E-005	0.0000692	0.000116	0.000151	-37%
Calcium (Dissolved)	0.05	5	0		15.8	17.4	18.24	18.3	21	0		16.9	17.8	19.1	19.6	-2%
Chromium (Dissolved)	0.0005	5	0		0.00093	0.00102	0.00112	0.00114	21	0		0.00073	0.000979	0.00116	0.00117	0%
Chromium VI (Dissolved)	0.0005	2	0		0.00132	0.00165	0.0019375	0.00197	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	
Copper (Dissolved)	0.0002	5	0	2	0.0001	0.000218	0.000386	0.00042	21	0	16	0.0001	0.000133	0.00024	0.00031	-
Iron (Dissolved)	0.01	5	0	4	0.005	0.0082	0.0178	0.021	21	0	17	0.005	0.00852	0.016	0.054	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	20	2.5E-005	0.000028	2.5E-005	8.8E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		4.32	4.49	4.674	4.68	21	0		4.06	4.43	4.64	4.88	1%
Manganese (Dissolved)	0.0001	5	0		0.00348	0.00506	0.007044	0.0074	21	0		0.00313	0.00682	0.00976	0.0163	-26%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.000616	0.000707	0.000752	0.000753	21	0		0.00064	0.000776	0.000904	0.000933	-9%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	16	0.00025	0.000345	0.0007	0.00074	-
Phosphorus (Metal) Dissolved	0.05	5	0	1	0.025	0.0516	0.0648	0.066	21	0	3	0.025	0.055	0.069	0.07	-6%
Potassium (Dissolved)	0.1	5	0		0.875	0.899	0.936	0.94	21	0		0.789	0.906	1.03	1.09	-1%
Selenium (Dissolved)	5E-005	5	0		0.00035	0.000374	0.0004074	0.000415	21	0		0.000327	0.00044	0.000523	0.000534	-15%
Silicon (Dissolved)	0.05	5	0		10.5	10.9	11.2	11.2	21	0		9.37	10.5	11	11.5	4%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		7.69	8.06	8.52	8.59	21	0		7.25	8.3	9.17	9.61	-3%
Strontium (Dissolved)	0.0002	5	0		0.124	0.134	0.1406	0.141	21	0		0.123	0.136	0.144	0.146	-1%
Sulfur (Dissolved)	0.5	5	0		1.44	1.81	2.252	2.31	21	0		1.34	2	2.8	3.11	-10%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	4	0.00015	0.000232	0.000478	0.00056	21	0	18	0.00015	0.000254	0.00048	0.00177	-
Uranium (Dissolved)	1E-005	5	0		0.000353	0.000391	0.0004278	0.000432	21	0		0.000347	0.000454	0.000599	0.000601	-14%
Vanadium (Dissolved)	0.0005	5	0		0.00222	0.00232	0.002428	0.00244	21	0		0.00196	0.00225	0.00242	0.00255	3%
Zinc (Dissolved)	0.001	5	0		0.0056	0.00742	0.00868	0.0087	20	1		0.0014	0.00383	0.008685	0.016	0%
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.178	0.278	0.4722	0.505	21	0		0.0354	0.275	0.481	0.545	1%
Antimony (Total)	0.0001	5	0		0.00011	0.000202	0.000382	0.00043	21	0		0.0001	0.000207	0.00031	0.00041	-2%
Arsenic (Total)	0.0001	5	0		0.00145	0.00157	0.001724	0.00174	21	0		0.00145	0.00168	0.00194	0.00217	-7%
Barium (Total)	0.0001	5	0		0.0184	0.0212	0.02374	0.0238	21	0		0.0187	0.0245	0.0312	0.0313	-13%
Beryllium (Total)	2E-005	5	0	4	1E-005	0.0000134	2.36E-005	2.7E-005	21	0	15	1E-005	0.0000149	3E-005	3.1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	20	0.005	0.00533	0.005	0.012	-
Cadmium (Total)	5E-006	5	0		0.000123	0.000153	0.0001942	0.000199	21	0		8.4E-005	0.00024	0.000391	0.000503	-36%
Calcium (Total)	0.05	5	0		16.8	17.4	18.34	18.6	21	0		16.2	18	19.2	19.2	-3%
Chromium (Total)	0.0005	5	0		0.00158	0.00213	0.002894	0.00296	21	0		0.00109	0.00212	0.00317	0.00333	0%
Chromium III (Total)	0.0005	1	0		0.00059	0.00059	0.00059	0.00059	0	0		-	-	-	-	-
Chromium VI (Total)	0.0005	2	0		0.00094	0.00107	0.0011775	0.00119	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	5	0	3	5E-005	0.000136	0.00028	0.00029	21	0	5	5E-005	0.000146	0.00025	0.00029	-7%
Copper (Total)	0.0005	5	0		0.0006	0.00123	0.00224	0.00237	21	0	3	0.00025	0.000984	0.00198	0.00217	25%
Iron (Total)	0.01	5	0		0.149	0.279	0.502	0.531	21	0		0.026	0.251	0.448	0.521	11%
Lead (Total)	5E-005	5	0		0.000175	0.000471	0.0010372	0.00116	21	0		6.6E-005	0.000372	0.00081	0.000955	27%
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		4.08	4.47	4.752	4.79	21	0		4.16	4.53	4.96	5.04	-1%
Manganese (Total)	0.0001	5	0		0.00666	0.0133	0.02116	0.0212	21	0		0.0053	0.0146	0.0228	0.0252	-9%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.000694	0.000771	0.0008782	0.000903	21	0		0.000665	0.000831	0.001	0.00103	-7%
Nickel (Total)	0.0005	5	0		0.00055	0.00114	0.001906	0.00196	21	0	2	0.00025	0.000982	0.00162	0.0019	16%
Phosphorus (Metal) Total	0.05	5	0		0.053	0.0892	0.1246	0.13	21	0	1	0.025	0.0872	0.134	0.142	2%
Potassium (Total)	0.1	5	0		0.892	0.91	0.9258	0.926	21	0		0.73	0.957	1.14	1.18	-5%
Selenium (Total)	5E-005	5	0		0.000365	0.000394	0.0004442	0.000459	21	0		0.000368	0.000437	0.000503	0.000511	-10%
Silicon (Total)	0.1	5	0		10.8	11.1	11.28	11.3	21	0		10.4	11.1	11.7	11.8	0%
Silver (Total)	1E-005	5	0	2	5E-006	0.0000142	3.14E-005	3.6E-005	21	0	5	5E-006	0.0000255	6.5E-005	6.8E-005	-44%
Sodium (Total)	0.05	5	0		7.07	7.76	8.344	8.4	21	0		7.45	8.34	9.67	9.92	-7%
Strontium (Total)	0.0002	5	0		0.127	0.137	0.1438	0.145	21	0		0.124	0.141	0.154	0.158	-3%
Sulfur (Total)	0.5	5	0		1.02	1.62	2.166	2.18	21	0		1.22	1.94	2.83	3.03	-16%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	3	5E-005	0.000118	0.000244	0.00026	21	0	9	5E-005	0.000111	0.0002	0.00026	6%
Titanium (Total)	0.0003 to 0.0081	5	0	2	0.00345	0.0104	0.02036	0.0216	21	0	1	0.00096	0.0114	0.0232	0.0252	-9%
Uranium (Total)	1E-005	5	0		0.000358	0.000421	0.0004666	0.000468	21	0		0.000386	0.000485	0.000647	0.000704	-13%
Vanadium (Total)	0.0005	5	0		0.00257	0.00287	0.00337	0.00346	21	0		0.00234	0.00296	0.00354	0.00356	0%
Zinc (Total)	0.003	5	0		0.0114	0.0181	0.02778	0.029	20	1	2	0.0015	0.011	0.02904	0.0298	65%
Zirconium (Total)	0.0002	5	0	3	0.0001	0.00016	0.000274	0.00029	21	0	19	0.0001	0.00014	0.00021	0.00022	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	20	0	17	0.25	0.317	0.6665	0.79	-
Carbon Organic (Total)	0.5	5	0	2	0.25	0.498	0.812	0.86	21	0	11	0.25	0.515	1.36	1.37	

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 11 MW12-12D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL (EXCLUDES TOTAL METALS).

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 12 MW12-12S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		73.9	80.7	90.28	92.4	20	1		64	84.5	104.2	108	-4%
Oxygen Dissolved (In Situ %) %	...	5	0		27	30	32.92	33.5	19	0		17.2	29.4	42.61	42.7	-
Oxygen Dissolved (In Situ)	...	5	0		3.28	3.66	3.888	3.91	19	0		2.24	3.45	4.453	5.11	-
pH (In Situ) pH	...	4	1		7.44	7.56	7.6465	7.66	20	0		6.68	7.38	7.665	7.76	2%
Redox Potential (In Situ) mV	...	5	0		6.1	105	273.74	308	9	0		106	255	304.2	307	-
Salinity (In Situ) ppt	...	4	0		0.05	0.0575	0.06	0.06	19	1		0.05	0.0634	0.08559	0.09	-
Specific Conductivity (In Situ) µS/cm	...	5	0		116	124	137	140	20	1		101	129	143.15	184	-4%
Temperature (In Situ) °C	...	5	0		3.8	7.02	8.95	9.1	21	0		3.6	7	11.5	11.5	-
Total Dissolved Solids (In Situ)	...	4	0		75.4	78.5	81.535	81.7	19	1		60	83	94.43	119	-5%
Turbidity (In Situ) NTU	...	5	0		0.31	0.754	1.402	1.5	21	0		0.15	1.72	5.15	5.73	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		62.4	64.9	67.2	67.7	21	0		60.3	65.3	69.6	71.4	-1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		62.4	64.9	67.2	67.7	21	0		60.3	65.3	69.6	71.4	-1%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	21	0	21	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	21	0	21	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	21	0	21	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		52	53.2	54.54	54.7	21	0		49.8	55	60.7	61.6	-3%
Hardness as CaCO3 (Total)	0.6	5	0		51.4	52.6	53.58	53.8	9	0		52.4	55.8	59.14	59.5	-6%
pH pH	0.1	5	0		7.88	7.99	8.098	8.12	21	0		7.78	7.94	8.06	8.14	1%
Specific Conductivity µS/cm	2	5	0		122	125	130.4	132	21	0		122	130	145	148	-4%
Total Dissolved Solids	13	4	0		77	82.3	87.4	88	21	0		76	87.5	101	104	-6%
Total Suspended Solids	3	5	0	4	1.5	2.6	5.9	7	21	0	14	1.5	3.07	6.8	14.2	-
Turbidity NTU	0.1	5	0		0.3	0.386	0.446	0.45	21	0		0.22	0.99	1.95	6.12	-
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	21	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.09	0.0952	0.1024	0.104	21	0		0.083	0.092	0.099	0.101	3%
Sulphate (Dissolved)	0.3	5	0		1.51	1.79	1.95	1.96	21	0		1.86	3.39	8.38	8.47	-47%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	8	0	8	0.0025	0.0025	0.0025	0.0025	-
Ammonia (Total)	0.005	5	0	4	0.0025	0.00326	0.00554	0.0063	21	0	20	0.0025	0.00316	0.0025	0.0164	-
Nitrate (as N)	0.005	5	0		0.0264	0.0274	0.02842	0.0286	21	0		0.0082	0.0262	0.0343	0.041	5%
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0264	0.0274	0.02842	0.0286	6	0		0.0174	0.0262	0.02965	0.0298	5%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	5	0	4	0.015	0.0184	0.0286	0.032	21	0	10	0.015	0.0303	0.055	0.063	-
Nitrogen (Total)	0.03	5	0	2	0.015	0.0284	0.0398	0.04	21	0	10	0.015	0.0325	0.068	0.075	-13%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	21	0	21	0.025	0.025	0.025	0.025	-
Orthophosphate (Dissolved)	0.01	5	0		0.0499	0.0523	0.05504	0.0555	21	0		0.0467	0.0528	0.0572	0.0573	-1%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0516	0.0557	0.06088	0.0621	21	0		0.047	0.0538	0.0587	0.0596	4%
Phosphorus (Nutrient) Total	0.002	5	0		0.0548	0.0569	0.06022	0.0611	21	0		0.0445	0.0563	0.0669	0.0695	1%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	20	0	20	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	12	0	12	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	21	0	21	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5 to 5	5	0	5	0.25	0.75	2.1	2.5	21	0	20	0.12	0.244	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0012	0.00342	0.00708	0.0079	21	0	1	0.0005	0.00298	0.0077	0.0092	**15%**
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	19	5E-005	0.0000552	0.0001	0.00011	-
Arsenic (Dissolved)	0.0001	5	0		0.00124	0.0013	0.001346	0.00135	21	0		0.00109	0.00131	0.0014	0.00148	-1%
Barium (Dissolved)	0.0001	5	0		0.0054	0.00571	0.00588	0.00589	21	0		0.0054	0.00627	0.0072	0.00794	-9%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0		6.5E-006	0.00000876	1.11E-005	1.14E-005	21	0		6E-006	0.0000146	2.63E-005	3.08E-005	-40%
Calcium (Dissolved)	0.05	5	0		14.4	14.9	15.32	15.4	21	0		14.2	15.7	17.7	18.1	-5%
Chromium (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	7	0.00014	0.000265	0.00034	0.00049	0%
Chromium VI (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	20	0.0001	0.00012	0.0001	0.00053	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	21	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		3.65	3.9	4.064	4.08	21	0		3.14	3.86	4.16	4.29	1%
Manganese (Dissolved)	0.0001	5	0		0.00019	0.000406	0.000958	0.00113	21	0	1	5E-005	0.000455	0.00149	0.00162	-11%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.000964	0.00107	0.001134	0.00114	21	0		0.000678	0.00105	0.00132	0.00136	2%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	20	0.00025	0.000295	0.00025	0.00119	-
Phosphorus (Metal) Dissolved	0.05	5	0	2	0.025	0.0446	0.0602	0.061	21	0	5	0.025	0.049	0.066	0.066	-9%
Potassium (Dissolved)	0.1	5	0		0.706	0.737	0.7706	0.777	21	0		0.59	0.749	0.88	0.89	-2%
Selenium (Dissolved)	5E-005	5	0		0.000212	0.000276	0.0003118	0.000315	19	2		0.000163	0.000272	0.0003678	0.000384	1%
Silicon (Dissolved)	0.05	5	0		8.88	9.05	9.246	9.26	21	0		7.78	8.81	9.27	9.58	3%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		4.5	4.85	5.016	5.02	21	0		3.9	5.01	5.96	7.55	-3%
Strontium (Dissolved)	0.0002	5	0		0.0744	0.0805	0.08592	0.0866	21	0		0.0716	0.0811	0.0869	0.0893	-1%
Sulfur (Dissolved)	0.5	5	0	1	0.25	0.628	0.862	0.89	21	0	3	0.25	0.988	2.16	2.97	-36%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	21	0	21	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.000124	0.000136	0.000147	0.000149	21	0		0.000125	0.000148	0.000161	0.000167	-8%
Vanadium (Dissolved)	0.0005	5	0		0.00076	0.000804	0.000852	0.00086	21	0		0.0007	0.000825	0.00093	0.0012	-3%
Zinc (Dissolved)	0.001	5	0	3	0.0005	0.00076	0.00124	0.0013	20	1	14	0.0005	0.000845	0.001915	0.0022	0%
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0134	0.0316	0.06022	0.068	20	1		0.011	0.0389	0.055265	0.142	-19%
Antimony (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	13	5E-005	0.0000781	0.00014	0.00015	-
Arsenic (Total)	0.0001	5	0		0.0013	0.00137	0.001422	0.00143	21	0		0.00126	0.00141	0.00157	0.00161	-3%
Barium (Total)	0.0001	5	0		0.00573	0.00612	0.006544	0.00659	21	0		0.00604	0.0069	0.00828	0.0101	-11%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	21	0	21	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	21	0	21	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	21	0	20	0.005	0.00552	0.005	0.016	-
Cadmium (Total)	5E-006	5	0		1.12E-005	0.0000151	2.034E-005	2.17E-005	21	0		1.13E-005	0.000034	6.47E-005	0.000105	-56%
Calcium (Total)	0.05	5	0		14.4	14.6	14.92	15	21	0		14.8	16.1	17.7	17.9	-9%
Chromium (Total)	0.0005	5	0	2	0.00025	0.000494	0.000864	0.00095	21	0	4	0.00021	0.000451	0.00064	0.00068	10%
Chromium III (Total)	0.0005	1	0		0.0005	0.0005	0.0005	0.0005	0	0		-	-	-	-	0%
Chromium VI (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	19	5E-005	0.000079	0.00035	0.00036	-
Copper (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	21	0	20	0.00025	0.000279	0.00025	0.00085	-
Iron (Total)	0.01	5	0		0.011	0.033	0.0686	0.078	20	1	1	0.005	0.038	0.0538	0.164	-13%
Lead (Total)	5E-005	5	0	4	2.5E-005	0.0000332	5.78E-005	6.6E-005	21	0	14	2.5E-005	0.0000512	0.000173	0.000264	-
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	21	0	21	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		3.7	3.9	4.042	4.06	21	0		3.62	4	4.29	4.33	-3%
Manganese (Total)	0.0001	5	0		0.00111	0.00298	0.005586	0.0062	21	0		0.00097	0.00782	0.0375	0.0387	-62%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	21	0	21	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00104	0.0012	0.001566	0.00168	21	0		0.000663	0.00109	0.00139	0.00141	10%
Nickel (Total)	0.0005	5	0	4	0.00025	0.000314	0.000506	0.00057	21	0	19	0.00025	0.000325	0.00077	0.0013	-
Phosphorus (Metal) Total	0.05	5	0		0.059	0.0794	0.1058	0.112	21	0	1	0.025	0.0703	0.096	0.106	13%
Potassium (Total)	0.1	5	0		0.707	0.719	0.7264	0.727	21	0		0.68	0.786	0.927	0.94	-9%
Selenium (Total)	5E-005	5	0		0.00021	0.000282	0.0003244	0.000327	21	0		0.000191	0.000292	0.000398	0.000409	-3%
Silicon (Total)	0.1	5	0		8.7	8.99	9.276	9.33	21	0		8.43	9.03	9.41	9.48	0%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	19	5E-006	0.00000629	1.2E-005	2.5E-005	-
Sodium (Total)	0.05	5	0		4.35	4.73	5.026	5.05	21	0		4.44	5.23	6.98	7.39	-10%
Strontium (Total)	0.0002	5	0		0.079	0.0814	0.08512	0.0856	21	0		0.0745	0.0842	0.0909	0.0915	-3%
Sulfur (Total)	0.5	5	0	2	0.25	0.526	0.79	0.82	21	0	2	0.25	1.08	3.02	3.06	-51%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	21	0	21	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	21	0	21	5E-005	0.00005	5E-005	5E-005	-
Titanium (Total)	0.0003 to 0.0006	5	0	1	0.0003	0.00121	0.002356	0.00263	21	0		0.00041	0.00216	0.00557	0.0131	-44%
Uranium (Total)	1E-005	5	0		0.000136	0.000146	0.000155	0.000155	21	0		0.000136	0.000157	0.000188	0.000193	-7%
Vanadium (Total)	0.0005	5	0		0.00085	0.0009	0.00095	0.00096	21	0		0.00077	0.00109	0.00159	0.00171	0%
Zinc (Total)	0.003	5	0	5	0.0015	0.0015	0.0015	0.0015	20	1	15	0.0015	0.0022	0.00374	0.0083	-
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	21	0	21	0.0001	0.000129	0.00015	0.00015	0%
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	20	0	20	0.25	0.25	0.25	0.25	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	21	0	18	0.25	0.3	0.55	0.72	

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 12 MW12-12S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% FOR PARAMETERS WITH A MEAN CONCENTRATION DURING CONSTRUCTION >5 MDL (EXCLUDES TOTAL METALS).

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 13 MW12-13S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
TABLE TITLE 2

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Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	3	0		35.6	46	54.63	55.5	20	3		25	39.7	50.17	51.5	16%
Oxygen Dissolved (In Situ %) %	...	3	0		40.2	52.8	61.17	61.7	19	0		43.1	61.5	79.23	93.9	-
Oxygen Dissolved (In Situ)	...	3	0		4.81	6.48	7.59	7.66	19	0		3.18	7.41	10.36	12.7	-
pH (In Situ) pH	...	2	1		6.3	6.37	6.42	6.43	22	1		6.36	6.67	7.12	7.16	-4%
Redox Potential (In Situ) mV	...	3	0		298	-73.9	298	298	9	0		83	275	376	382	-
Salinity (In Situ) ppt	...	2	0		0.03	0.035	0.0395	0.04	21	2		0.02	0.031	0.04	0.04	-
Specific Conductivity (In Situ) µS/cm	...	3	0		55.5	71.9	85.14	86.4	20	3		38.2	62.7	77.095	78.9	15%
Temperature (In Situ) °C	...	3	0		5.8	6.43	6.95	7	23	0		2.6	5.62	6.99	8	-
Total Dissolved Solids (In Situ)	...	2	0		36.4	45.7	54.07	55	21	2		23	41.7	51.4	51.4	10%
Turbidity (In Situ) NTU	...	3	0		0.08	0.483	1.121	1.23	23	0		0.05	0.445	1.114	1.33	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	3	0		29	35.9	43.32	44.3	23	0		24.6	33.1	38.68	39.6	**8%**
Alkalinity/ Bicarbonate as CaCO3	1	3	0		29	35.9	43.32	44.3	23	0		24.6	33.1	38.68	39.6	**8%**
Alkalinity/ Carbonate as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	23	0	23	0.5	0.5	0.5	0.5	-
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	23	0	23	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	3	0		23	30	36.39	37.1	23	0		22.5	29.8	34.58	35.9	1%
Hardness as CaCO3 (Total)	0.6	3	0		24	30.8	37.07	37.8	11	0		22.6	29.4	35.25	35.3	5%
pH pH	0.1	3	0		7.48	7.59	7.665	7.67	23	0		6.96	7.39	7.729	7.73	3%
Specific Conductivity µS/cm	2	3	0		58.2	73.7	87.33	88.8	23	0		48.3	68.8	80.61	82.6	**7%**
Total Dissolved Solids	13	2	0		46	50	53.6	54	23	0		37	50.7	62.8	66	-1%
Total Suspended Solids	3	3	0	3	1.5	1.5	1.5	1.5	23	0	23	1.5	1.5	1.5	1.5	-
Turbidity NTU	0.1	3	0		0.18	0.393	0.66	0.7	23	0	4	0.05	0.192	0.34	0.37	-
Dissolved Anions																
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	23	0	23	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	23	0	22	0.14	0.245	0.25	0.25	-
Fluoride (Dissolved)	0.02	3	0		0.021	0.0223	0.023	0.023	23	0	9	0.01	0.0171	0.0257	0.026	30%
Sulphate (Dissolved)	0.3	3	0		1.67	2.63	3.263	3.3	23	0		1.13	2.33	3.281	3.46	13%
Nutrients																
Ammonia (Dissolved)	0.005	3	0	2	0.0025	0.0035	0.0052	0.0055	10	0	9	0.0025	0.00284	0.00437	0.0059	23%
Ammonia (Total)	0.005	3	0	2	0.0025	0.00443	0.00772	0.0083	23	0	23	0.0025	0.0025	0.0025	0.0025	77%
Nitrate (as N)	0.005	3	0		0.0329	0.101	0.1391	0.14	23	0	1	0.0025	0.0443	0.08264	0.116	128%
Nitrate+Nitrite (Dissolved)	0.0051	3	0		0.0329	0.101	0.1391	0.14	7	0		0.0131	0.0462	0.07008	0.0738	119%
Nitrite (as N)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	3	0		0.034	0.108	0.1491	0.15	23	0	1	0.015	0.075	0.1289	0.136	44%
Nitrogen (Total)	0.03	3	0		0.043	0.115	0.1629	0.166	23	0	1	0.015	0.0731	0.1213	0.133	57%
Nitrogen Kjeldahl (Total)	0.05	3	0	2	0.025	0.0353	0.0529	0.056	23	0	16	0.025	0.0353	0.0598	0.086	0%
Nitrogen Organic (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	22	0	16	0.025	0.0345	0.0629	0.066	-
Nitrogen Organic (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	23	0	17	0.025	0.0355	0.0791	0.083	-
Orthophosphate (Dissolved)	0.001	3	0	2	0.0005	0.000867	0.00149	0.0016	23	0	2	0.0005	0.00331	0.00487	0.0049	-74%
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0036	0.0037	0.00379	0.0038	23	0	1	0.001	0.00374	0.00505	0.0062	-1%
Phosphorus (Nutrient) Total	0.002	3	0		0.0034	0.0045	0.00573	0.0059	23	0		0.0025	0.00415	0.00588	0.006	8%
Cyanide																
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	23	0	23	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (Total)	0.005	0	0		-	-	-	-	14	0	14	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	23	0	23	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	23	0	21	0.14	0.259	0.25	0.57	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	3	0		0.0014	0.00257	0.00431	0.0046	23	0	1	0.0005	0.0036	0.00837	0.0098	-29%
Antimony (Dissolved)	0.0001	3	0	2	5E-005	0.0000733	0.000113	0.00012	23	0	3	5E-005	0.000105	0.00013	0.00015	-30%
Arsenic (Dissolved)	0.0001	3	0		0.0007	0.000777	0.000891	0.00091	23	0		0.00066	0.00079	0.00089	0.00097	-2%
Barium (Dissolved)	0.0001	3	0		0.00183	0.00273	0.003308	0.00334	23	0		0.00172	0.00258	0.0035	0.00364	**6%**
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	0.00001	1E-005	1E-005	23	0	23	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	3	0	2	2.5E-006	0.0000086	1.897E-005	2.08E-005	23	0	10	2.5E-006	0.0000136	4.498E-005	5.2E-005	-37%
Calcium (Dissolved)	0.05	3	0		6.97	9.04	10.895	11.1	23	0		6.82	8.98	10.49	10.9	1%
Chromium (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	23	0	19	5E-005	0.000126	0.00025	0.00025	0%
Chromium VI (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	
Copper (Dissolved)	0.0002	3	0	1	0.0001	0.00025	0.000385	0.0004	23	0	14	0.0001	0.000193	0.000396	0.00045	-
Iron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	22	2.5E-005	0.0000291	2.5E-005	0.00012	-
Lithium (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	3	0		1.36	1.82	2.242	2.29	23	0		1.32	1.79	2.116	2.22	2%
Manganese (Dissolved)	0.0001	3	0		0.00041	0.000437	0.000458	0.00046	23	0	3	5E-005	0.00037	0.000944	0.00115	18%
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	3	0		0.000818	0.00121	0.001522	0.00155	23	0		0.00106	0.00137	0.001626	0.00166	-12%
Nickel (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	23	0	23	0.025	0.025	0.025	0.025	-
Potassium (Dissolved)	0.1	3	0		0.204	0.268	0.3201	0.325	23	0		0.18	0.27	0.3299	0.35	-1%
Selenium (Dissolved)	5E-005	3	0	2	2.5E-005	0.0000413	6.91E-005	7.4E-005	23	0	19	2.5E-005	0.000031	6.2E-005	6.4E-005	33%
Silicon (Dissolved)	0.05	3	0		5.02	5.45	5.99	6.07	23	0		4.49	5.17	5.598	5.63	5%
Silver (Dissolved)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	3	0		1.95	2.25	2.544	2.58	23	0		1.84	2.25	2.557	2.58	0%
Strontium (Dissolved)	0.0002	3	0		0.0457	0.0581	0.07215	0.0741	23	0		0.0418	0.056	0.06485	0.0665	4%
Sulfur (Dissolved)	0.5	3	0	1	0.25	0.613	0.879	0.9	23	0	5	0.25	0.66	1.017	1.22	-7%
Thallium (Dissolved)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	3	0	3	0.00015	0.00015	0.00015	0.00015	23	0	22	0.00015	0.00016	0.00015	0.00037	-
Uranium (Dissolved)	1E-005	3	0		0.000364	0.000418	0.0004761	0.000484	23	0		0.000277	0.000443	0.0005479	0.000565	-6%
Vanadium (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Zinc (Dissolved)	0.001	3	0	1	0.0005	0.00227	0.00335	0.0034	21	2	9	0.0005	0.0016	0.0044	0.0081	0%
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.00013	0.00015	0.00015	-
Total Metals																
Aluminum (Total)	0.003	3	0		0.01	0.0207	0.03089	0.0321	22	1	1	0.0064	0.015	0.031115	0.0315	38%
Antimony (Total)	0.0001	3	0		0.00011	0.000113	0.000119	0.00012	23	0		0.0001	0.000124	0.000149	0.00015	-9%
Arsenic (Total)	0.0001	3	0		0.00074	0.000793	0.000876	0.00089	23	0		0.00067	0.000826	0.00094	0.00099	-4%
Barium (Total)	0.0001	3	0		0.00201	0.00296	0.00364	0.00369	23	0		0.00165	0.00266	0.003728	0.00378	11%
Beryllium (Total)	2E-005	3	0	3	1E-005	0.00001	1E-005	1E-005	23	0	23	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	3	0	3	2.5E-005	0.000025	2.5E-005	2.5E-005	23	0	23	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	23	0	23	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	3	0	1	2.5E-006	0.0000144	3.007E-005	3.25E-005	23	0	7	2.5E-006	0.0000163	4.1E-005	8.23E-005	-12%
Calcium (Total)	0.05	3	0		7.25	9.31	11.189	11.4	23	0		6.85	9.1	10.8	10.9	2%
Chromium (Total)	0.0005	3	0	2	0.00025	0.00036	0.000547	0.00058	23	0	11	5E-005	0.000198	0.000359	0.00041	82%
Chromium VI (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Cobalt (Total)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	23	0	23	5E-005	0.00005	5E-005	5E-005	-
Copper (Total)	0.0005	3	0	2	0.00025	0.000377	0.000592	0.00063	23	0	22	0.00025	0.00027	0.00025	0.00071	40%
Iron (Total)	0.01	3	0		0.01	0.0187	0.0318	0.034	23	0	9	0.005	0.0123	0.0315	0.038	52%
Lead (Total)	5E-005	3	0	2	2.5E-005	0.0000367	5.65E-005	6E-005	23	0	22	2.5E-005	0.0000269	2.5E-005	6.9E-005	36%
Lithium (Total)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	23	0	23	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	3	0		1.43	1.83	2.23	2.28	23	0		1.32	1.78	2.133	2.18	3%
Manganese (Total)	0.0001	3	0		0.00055	0.00147	0.002897	0.00314	22	1		0.00019	0.000777	0.0018395	0.00191	89%
Mercury (Total)	5E-006	3	0	3	2.5E-006	0.0000025	2.5E-006	2.5E-006	23	0	23	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	3	0		0.000926	0.00126	0.001486	0.0015	23	0		0.00119	0.00142	0.00165	0.00166	-11%
Nickel (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	23	0	23	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Total	0.05	3	0	3	0.025	0.025	0.025	0.025	23	0	23	0.025	0.025	0.025	0.025	-
Potassium (Total)	0.1	3	0		0.22	0.281	0.3287	0.333	23	0		0.198	0.276	0.3471	0.35	2%
Selenium (Total)	5E-005	3	0	1	2.5E-005	0.0000527	7.65E-005	7.9E-005	23	0	19	2.5E-005	0.0000306	5.85E-005	6.5E-005	72%
Silicon (Total)	0.1	3	0		5.26	5.6	6.059	6.13	23	0		4.56	5.23	5.675	5.78	7%
Silver (Total)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Sodium (Total)	0.05	3	0		1.96	2.29	2.595	2.63	23	0		1.81	2.24	2.536	2.63	2%
Strontium (Total)	0.0002	3	0		0.0455	0.0578	0.06831	0.0694	23	0		0.0425	0.0568	0.06691	0.0709	2%
Sulfur (Total)	0.5	3	0	1	0.25	0.663	0.942	0.96	23	0	5	0.25	0.726	1.165	1.21	-9%
Thallium (Total)	1E-005	3	0	3	5E-006	0.000005	5E-006	5E-006	23	0	23	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	3	0	3	5E-005	0.00005	5E-005	5E-005	23	0	21	5E-005	0.000057	0.000104	0.00015	-
Titanium (Total)	0.0003	3	0	2	0.00015	0.000467	0.001005	0.0011	23	0	14	0.00015	0.000293	0.000699	0.00082	59%
Uranium (Total)	1E-005	3	0		0.000404	0.00045	0.0005211	0.000533	23	0		0.000352	0.000479	0.000578	0.000585	-6%
Vanadium (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	23	0	22	0.00025	0.000267	0.00025	0.00065	-
Zinc (Total)	0.003	3	0	1	0.0015	0.0035	0.00458	0.0046	22	1	17	0.0015	0.00245	0.006225	0.0108	0%
Zirconium (Total)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	23	0	23	0.0001	0.00013	0.00015	0.00015	-
Organics																
Carbon Organic (Dissolved)	0.5	3	0	1	0.25	0.843	1.492	1.58	22	0		0.57	1.29	2.6835	3.44	-35%
Carbon Organic (Total)	0.5	3	0		0.54	0.917	1.501	1.6	23	0		0.53	1.33	2.798	3.4	-31%

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

-29%

APPENDIX H-2 TABLE 14 GT20-04

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		58.3	63	68.66	69.6	7	0		60	65.7	71.22	71.7	-4%
Oxygen Dissolved (In Situ %) %	...	5	0		36.5	40.3	47.38	48.9	4	0		37.5	50.8	68.595	71.7	-
Oxygen Dissolved (In Situ)	...	5	0		0.00522	4.12	6.076	6.4	4	0		4.13	6.38	8.9415	9.36	-
pH (In Situ) pH	...	4	1		8.3	8.47	8.6755	8.71	7	0		7.53	8.04	8.364	8.37	5%
Redox Potential (In Situ) mV	...	5	0		20	129	258.95	278	4	0		243	266	307.4	317	-
Salinity (In Situ) ppt	...	4	0		0.04	0.0475	0.05	0.05	7	0		0.05	0.05	0.05	0.05	-
Specific Conductivity (In Situ) µS/cm	...	5	0		95.8	103	112.8	115	7	0		98.9	105	108.4	109	-2%
Temperature (In Situ) °C	...	5	0		4	4.76	5.4	5.4	7	0		3.6	5.3	6.95	7.1	-
Total Dissolved Solids (In Situ)	...	4	0		62.4	65.4	67.19	67.4	7	0		64.5	68.2	70.44	70.8	-4%
Turbidity (In Situ) NTU	...	5	0		0.1	1.84	3.574	3.6	7	0		0.12	0.811	1.681	1.9	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		48.9	50.5	51.62	51.8	7	0		48.3	50.5	52.31	52.4	0%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		48.9	50.5	51.62	51.8	7	0		48.3	50.5	52.31	52.4	0%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	7	0	7	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	7	0	7	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	5	2.5	2.5	2.5	2.5	7	0	7	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		39.4	41.3	42.64	42.9	7	0		39.5	41	42.17	42.2	1%
Hardness as CaCO3 (Total)	0.6	5	0		38.3	40.6	41.38	41.4	7	0		40.2	41.5	42.66	42.9	-2%
pH pH	0.1	5	0		7.85	7.93	7.984	7.99	7	0		7.68	7.82	7.934	7.94	1%
Specific Conductivity µS/cm	2	5	0		101	103	104.6	105	7	0		100	106	111	111	-3%
Total Dissolved Solids	13	3	0		58	66.7	73.4	74	7	0		64	69.3	73.96	74.8	-4%
Total Suspended Solids	3	5	0	5	1.5	1.5	1.5	1.5	7	0	7	1.5	1.5	1.5	1.5	-
Turbidity NTU	0.1	5	0	1	0.05	1.15	2.768	2.81	7	0		0.15	0.51	1.247	1.58	0%
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	7	0	7	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	7	0	7	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.056	0.0602	0.0652	0.066	7	0		0.056	0.0683	0.0778	0.079	-12%
Sulphate (Dissolved)	0.3	5	0		2.43	2.76	2.99	2.99	7	0		3.02	4.12	5.157	5.19	-33%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	7	0	5	0.0025	0.00484	0.01146	0.0126	-
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	7	0	7	0.0025	0.0025	0.0025	0.0025	-
Nitrate (as N)	0.005	5	0		0.0633	0.0706	0.0738	0.074	7	0		0.0681	0.0741	0.07808	0.0785	-5%
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.0633	0.0706	0.0738	0.074	7	0		0.0681	0.0741	0.07808	0.0785	-5%
Nitrite (as N)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	7	0	7	0.0005	0.0005	0.0005	0.0005	-
Nitrogen (Dissolved)	0.03	5	0		0.06	0.066	0.0748	0.077	7	0		0.063	0.0774	0.0885	0.09	-15%
Nitrogen (Total)	0.03	5	0		0.058	0.0742	0.0932	0.094	7	0		0.065	0.0787	0.0914	0.095	-6%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	7	0	7	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	7	0	7	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	7	0	7	0.025	0.025	0.025	0.025	-
Orthophosphate (Dissolved)	0.01	5	0		0.0526	0.0567	0.05838	0.0584	7	0		0.0537	0.0576	0.06067	0.061	-2%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.055	0.0607	0.06374	0.0641	7	0		0.0602	0.0614	0.0629	0.0632	-1%
Phosphorus (Nutrient) Total	0.002	5	0		0.06	0.0639	0.06788	0.0687	7	0		0.0622	0.0644	0.0667	0.067	-1%
Cyanide																
Cyanate	0.2	5	0	5	0.1	0.1	0.1	0.1	7	0	7	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	7	0	7	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	7	0	7	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	7	0	7	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	7	0	7	0.25	0.25	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0		0.0029	0.00388	0.00514	0.0052	7	0		0.0031	0.00353	0.00433	0.0046	10%
Antimony (Dissolved)	0.0001	5	0		0.00011	0.000112	0.000118	0.00012	7	0		0.00011	0.000114	0.00012	0.00012	-2%
Arsenic (Dissolved)	0.0001	5	0		0.00374	0.00382	0.003956	0.00399	7	0		0.00343	0.0037	0.003908	0.00395	3%
Barium (Dissolved)	0.0001	5	0		0.00493	0.00532	0.006076	0.00628	7	0		0.00479	0.00551	0.006215	0.00638	-3%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	7	0	7	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	7	0	7	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	7	0	7	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	4	2.5E-006	0.00000346	6.34E-006	7.3E-006	7	0	4	2.5E-006	0.0000045	7.89E-006	8.4E-006	-
Calcium (Dissolved)	0.05	5	0		12.7	13.4	13.9	14	7	0		12.8	13.4	13.87	13.9	0%
Chromium (Dissolved)	0.0005	5	0		0.00123	0.00136	0.001432	0.00144	7	0		0.00128	0.00133	0.00136	0.00136	2%
Chromium VI (Dissolved)	0.0005	1	0		0.0014	0.0014	0.0014	0.0014	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	7	0	7	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	7	0	7	0.0001	0.0001	0.0001	0.0001	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	7	0	7	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	7	0	7	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	7	0	7	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Dissolved)	0.1	5	0		1.86	1.9	1.93	1.93	7	0		1.79	1.85	1.901	1.91	3%
Manganese (Dissolved)	0.0001	5	0		0.00032	0.000478	0.000692	0.00074	7	0		0.00081	0.00224	0.005733	0.0066	-79%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	7	0	7	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00326	0.00332	0.00345	0.00348	7	0		0.00346	0.00369	0.00399	0.00402	-10%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	7	0	7	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0	1	0.025	0.0544	0.0704	0.073	7	0	2	0.025	0.0477	0.0601	0.061	0%
Potassium (Dissolved)	0.1	5	0		0.49	0.515	0.5374	0.542	7	0		0.51	0.549	0.5977	0.607	-6%
Selenium (Dissolved)	5E-005	5	0		0.000134	0.00017	0.0001844	0.000186	7	0		0.000161	0.000194	0.0002061	0.000207	-12%
Silicon (Dissolved)	0.05	5	0		7.12	7.27	7.47	7.51	7	0		6.65	6.89	7.234	7.3	**6%**
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	7	0	7	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		4.54	4.79	4.968	4.98	7	0		4.86	5.2	5.716	5.77	-8%
Strontium (Dissolved)	0.0002	5	0		0.079	0.0826	0.08726	0.0883	7	0		0.0777	0.082	0.08563	0.0865	1%
Sulfur (Dissolved)	0.5	5	0		0.82	0.914	1.102	1.15	7	0		1.15	1.39	1.638	1.65	-34%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	7	0	7	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	7	0	7	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	7	0	7	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.000126	0.000136	0.0001436	0.000144	7	0		0.00011	0.000147	0.0001653	0.000168	-7%
Vanadium (Dissolved)	0.0005	5	0		0.00252	0.00257	0.002598	0.0026	7	0		0.00239	0.00251	0.002709	0.00276	2%
Zinc (Dissolved)	0.001	4	1	2	0.0005	0.00105	0.00167	0.0017	0	7		-	-	-	-	0%
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	7	0	7	0.0001	0.0001	0.0001	0.0001	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0087	0.0419	0.1017	0.11	7	0		0.0186	0.0423	0.0838	0.0943	-1%
Antimony (Total)	0.0001	5	0		0.00011	0.000148	0.000212	0.00023	7	0		0.00012	0.000127	0.000147	0.00015	17%
Arsenic (Total)	0.0001	5	0		0.0038	0.00394	0.004046	0.00405	7	0		0.00359	0.00379	0.004006	0.00403	4%
Barium (Total)	0.0001	5	0		0.00468	0.00554	0.006896	0.0071	7	0		0.00538	0.00611	0.007261	0.00748	-9%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	7	0	7	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	7	0	7	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	7	0	7	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0	3	2.5E-006	0.00000704	1.856E-005	2.17E-005	7	0	2	2.5E-006	0.00000683	1.248E-005	1.32E-005	3%
Calcium (Total)	0.05	5	0		12.4	13.2	13.56	13.6	7	0		13	13.5	14.01	14.1	-2%
Chromium (Total)	0.0005	5	0		0.00149	0.00169	0.002052	0.00214	7	0		0.00143	0.00157	0.001817	0.00188	8%
Chromium VI (Total)	0.0005	2	0		0.00112	0.00127	0.0013955	0.00141	0	0		-	-	-	-	0%
Cobalt (Total)	0.0001	5	0	3	5E-005	0.000076	0.000124	0.00013	7	0	7	5E-005	0.00005	5E-005	5E-005	52%
Copper (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	7	0	7	0.00025	0.00025	0.00025	0.00025	-
Iron (Total)	0.01	5	0	1	0.005	0.0544	0.127	0.134	7	0		0.017	0.0516	0.1008	0.102	5%
Lead (Total)	5E-005	5	0	3	2.5E-005	0.000099	0.0002466	0.000271	7	0	6	2.5E-005	0.000032	5.93E-005	7.4E-005	209%
Lithium (Total)	0.001	5	0	5	0.0005	0.0005	0.0005	0.0005	7	0	7	0.0005	0.0005	0.0005	0.0005	-
Magnesium (Total)	0.1	5	0		1.74	1.85	1.932	1.94	7	0		1.83	1.87	1.922	1.94	-1%
Manganese (Total)	0.0001	5	0		0.00043	0.00529	0.0132	0.014	7	0		0.00189	0.0049	0.008196	0.00822	8%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	7	0	7	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00335	0.00344	0.003522	0.00353	7	0		0.00357	0.00376	0.004015	0.00409	-9%
Nickel (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	7	0	7	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Total	0.05	5	0		0.082	0.093	0.1118	0.115	7	0		0.069	0.0789	0.0881	0.089	18%
Potassium (Total)	0.1	5	0		0.472	0.506	0.5422	0.544	7	0		0.517	0.557	0.6122	0.623	-9%
Selenium (Total)	5E-005	5	0		0.00021	0.000216	0.0002278	0.000231	7	0		0.000176	0.000203	0.0002313	0.000234	6%
Silicon (Total)	0.1	5	0		6.91	7.29	7.614	7.66	7	0		6.76	7.13	7.432	7.48	2%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	7	0	7	5E-006	0.000005	5E-006	5E-006	-
Sodium (Total)	0.05	5	0		4.55	4.71	4.916	4.97	7	0		4.94	5.34	5.83	5.89	-12%
Strontium (Total)	0.0002	5	0		0.077	0.0818	0.08608	0.0863	7	0		0.0806	0.0848	0.08794	0.088	-4%
Sulfur (Total)	0.5	5	0		0.8	0.93	1.094	1.12	7	0		0.95	1.42	1.735	1.84	-35%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	7	0	7	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	3	5E-005	0.00011	0.00023	0.00025	7	0	6	5E-005	0.0000586	9.2E-005	0.00011	88%
Titanium (Total)	0.0003	5	0	2	0.00015	0.00174	0.004964	0.00559	7	0		0.00069	0.002	0.004344	0.00498	-13%
Uranium (Total)	1E-005	5	0		0.000139	0.000146	0.0001504	0.000151	7	0		0.000144	0.000155	0.0001727	0.000176	-6%
Vanadium (Total)	0.0005	5	0		0.00254	0.00272	0.00293	0.00296	7	0		0.00247	0.0027	0.002971	0.00304	1%
Zinc (Total)	0.003	4	1	2	0.0015	0.0138	0.0295	0.031	0	7		-	-	-	-	0%
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	7	0	7	0.0001	0.0001	0.0001	0.0001	-
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	7	0	7	0.25	0.25	0.25	0.25	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	7	0	7	0.25	0.25	0.25	0.25	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 14 GT20-04

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 15 GT21-03S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)							Baseline (2016-2022)							% Mean Difference[3]
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	Samples Included	Samples Excluded	Samples Below MDL	Minimum	Mean	95th Percentile	Maximum	
In Situ Parameters																
Conductivity (In Situ) µS/cm	...	5	0		123	131	139.6	141	6	3		122	128	131	131	2%
Oxygen Dissolved (In Situ %) %	...	5	0		29.1	35.4	42.84	44.4	7	0		29.9	36.1	43.29	44.7	-
Oxygen Dissolved (In Situ)	...	5	0		3.94	4.57	5.57	5.75	6	0		4.01	4.69	5.54	5.7	-
pH (In Situ) pH	...	4	1		7.72	7.8	7.88	7.89	9	0		7.24	7.61	8.25	8.61	2%
Redox Potential (In Situ) mV	...	5	0		26.9	70.2	140.78	153	6	0		141	196	260.8	266	-
Salinity (In Situ) ppt	...	4	0		0.09	0.0975	0.1	0.1	7	1		0.1	0.1	0.1	0.1	-
Specific Conductivity (In Situ) µS/cm	...	5	0		199	215	233.6	238	6	3		204	209	211.75	212	3%
Temperature (In Situ) °C	...	5	0		2.9	4.36	6.16	6.4	9	0		3	4.76	5.8	6	-
Total Dissolved Solids (In Situ)	...	4	0		137	139	140.55	141	7	1		136	137	139.1	140	1%
Turbidity (In Situ) NTU	...	5	0		0.08	1.08	3.476	4.21	7	0		0.14	1.44	4.764	6.15	-
Physical Tests																
Alkalinity (Total as CaCO3)	1	5	0		107	109	112.6	113	9	0		103	108	112	112	1%
Alkalinity/ Bicarbonate as CaCO3	1	5	0		107	109	112.6	113	9	0		103	108	112	112	1%
Alkalinity/ Carbonate as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	9	0	9	0.5	0.5	0.5	0.5	-
Alkalinity/ Hydroxide as CaCO3	1	5	0	5	0.5	0.5	0.5	0.5	9	0	9	0.5	0.5	0.5	0.5	-
Color TCU	5	5	0	4	2.5	3	4.5	5	9	0	9	2.5	2.5	2.5	2.5	-
Hardness as CaCO3 (Dissolved)	0.6	5	0		94.8	95.7	97.68	98.3	9	0		94	97	101.6	104	-1%
Hardness as CaCO3 (Total)	0.6	5	0		93.7	99.8	109.2	111	8	0		96	98.6	103.3	104	1%
pH pH	0.1	5	0		8.02	8.18	8.28	8.28	9	0		7.83	8.08	8.216	8.22	1%
Specific Conductivity µS/cm	2	5	0		201	211	220.4	222	9	0		204	212	217.2	218	0%
Total Dissolved Solids	13 to 2	5	0		108	131	154.2	158	9	0		126	136	153.4	155	-4%
Total Suspended Solids	3	5	0	3	1.5	2.26	3.64	3.8	9	0	5	1.5	2.94	6.28	7	-23%
Turbidity NTU	0.1	5	0		0.12	0.468	0.99	1.11	9	0	2	0.05	0.44	1.56	2.22	6%
Dissolved Anions																
Bromide (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	9	0	9	0.025	0.025	0.025	0.025	-
Chloride (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	9	0	9	0.25	0.25	0.25	0.25	-
Fluoride (Dissolved)	0.02	5	0		0.066	0.0694	0.0728	0.073	9	0		0.063	0.0721	0.0776	0.078	-4%
Sulphate (Dissolved)	0.3	5	0		7.32	7.66	8.006	8.05	9	0		7.26	7.82	8.156	8.18	-2%
Nutrients																
Ammonia (Dissolved)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	7	0.0025	0.0123	0.0476	0.0508	-
Ammonia (Total)	0.005	5	0	5	0.0025	0.0025	0.0025	0.0025	9	0	7	0.0025	0.00611	0.01978	0.0239	-
Nitrate (as N)	0.005	5	0		0.062	0.0658	0.06874	0.0692	9	0		0.048	0.0722	0.07838	0.0789	-9%
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.062	0.0661	0.06874	0.0692	9	0		0.048	0.0725	0.07838	0.0789	-9%
Nitrite (as N)	0.001	5	0	4	0.0005	0.00068	0.00122	0.0014	9	0	8	0.0005	0.000744	0.00182	0.0027	-
Nitrogen (Dissolved)	0.03	5	0		0.059	0.0722	0.0778	0.078	9	0		0.066	0.088	0.125	0.131	-18%
Nitrogen (Total)	0.03	5	0		0.051	0.0662	0.0768	0.078	9	0		0.076	0.0851	0.097	0.097	-22%
Nitrogen Kjeldahl (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	9	0	9	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Dissolved)	0.05	5	0	5	0.025	0.025	0.025	0.025	9	0	9	0.025	0.025	0.025	0.025	-
Nitrogen Organic (Total)	0.05	5	0	5	0.025	0.025	0.025	0.025	9	0	9	0.025	0.025	0.025	0.025	-
Orthophosphate (Dissolved)	0.001	5	0		0.0136	0.015	0.0165	0.0166	9	0		0.0149	0.016	0.01672	0.0168	-6%
Phosphorus (Nutrient) Dissolved	0.002	5	0		0.0157	0.0165	0.0177	0.0179	9	0		0.015	0.0159	0.01696	0.017	4%
Phosphorus (Nutrient) Total	0.002	5	0		0.0167	0.0188	0.02116	0.0214	9	0		0.0152	0.0174	0.02082	0.0225	**8%**
Cyanide																
Cyanate	0.2 to 0.4	5	0	5	0.1	0.12	0.18	0.2	9	0	9	0.1	0.1	0.1	0.1	-
Cyanide (Free)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (SAD)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Cyanide (WAD)	0.005 to 0.01	5	0	5	0.0025	0.003	0.0045	0.005	9	0	9	0.0025	0.0025	0.0025	0.0025	-
Thiocyante (SCN)	0.5	5	0	5	0.25	0.25	0.25	0.25	9	0	9	0.25	0.25	0.25	0.25	-
Dissolved Metals																
Aluminum (Dissolved)	0.001	5	0	1	0.0005	0.00176	0.00354	0.0039	9	0		0.0012	0.0017	0.0023	0.0025	4%
Antimony (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	9	0	9	5E-005	0.00005	5E-005	5E-005	-
Arsenic (Dissolved)	0.0001	5	0		0.00101	0.00108	0.001118	0.00112	9	0		0.00094	0.00102	0.001104	0.00112	**6%**
Barium (Dissolved)	0.0001	5	0		0.0101	0.0108	0.0116	0.0117	9	0		0.0104	0.0115	0.01256	0.0128	-6%
Beryllium (Dissolved)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	9	0	9	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	9	0	9	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	9	0	9	0.005	0.005	0.005	0.005	-
Cadmium (Dissolved)	5E-006	5	0	4	2.5E-006	0.00000514	1.306E-005	1.57E-005	9	0	5	2.5E-006	0.00000542	9.94E-006	1.07E-005	-
Calcium (Dissolved)	0.05	5	0		28.5	29	29.84	30.1	9	0		28	29.2	30.94	31.7	-1%
Chromium (Dissolved)	0.0005	5	0		0.00068	0.00071	0.000734	0.00074	9	0		0.00074	0.000874	0.00108	0.00112	-19%
Chromium VI (Dissolved)	0.0005	2	0	1	0.00025	0.000525	0.0007725	0.0008	0	0		-	-	-	-	-
Cobalt (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	9	0	9	5E-005	0.00005	5E-005	5E-005	-
Copper (Dissolved)	0.0002	5	0	4	0.0001	0.000146	0.000284	0.00033	9	0	9	0.0001	0.0001	0.0001	0.0001	-
Iron (Dissolved)	0.01	5	0	5	0.005	0.005	0.005	0.005	9	0	9	0.005	0.005	0.005	0.005	-
Lead (Dissolved)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	9	0	9	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Lithium (Dissolved)	0.001	5	0	4	0.0005	0.0006	0.0009	0.001	9	0	8	0.0005	0.000567	0.00086	0.0011	-
Magnesium (Dissolved)	0.1	5	0		5.57	5.68	5.824	5.84	9	0		5.67	5.84	6.114	6.15	-3%
Manganese (Dissolved)	0.0001	5	0		0.00023	0.000708	0.001446	0.00157	9	0		0.00015	0.00136	0.00328	0.00372	-48%
Mercury (Dissolved)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	9	0	9	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Dissolved)	5E-005	5	0		0.00221	0.00229	0.00232	0.00232	9	0		0.00222	0.00237	0.002552	0.0026	-3%
Nickel (Dissolved)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	9	0	9	0.00025	0.00025	0.00025	0.00025	-
Phosphorus (Metal) Dissolved	0.05	5	0	5	0.025	0.025	0.025	0.025	9	0	9	0.025	0.025	0.025	0.025	-
Potassium (Dissolved)	0.1	5	0		0.744	0.796	0.8694	0.876	9	0		0.752	0.79	0.817	0.819	1%
Selenium (Dissolved)	5E-005	5	0		0.000234	0.00026	0.0002786	0.000279	9	0		0.000201	0.000261	0.0003096	0.000328	0%
Silicon (Dissolved)	0.05	5	0		6.48	6.79	7	7.01	9	0		6.31	6.68	6.94	7	2%
Silver (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	9	0	9	5E-006	0.000005	5E-006	5E-006	-
Sodium (Dissolved)	0.05	5	0		5.04	5.24	5.528	5.6	9	0		5.09	5.45	5.778	5.79	-4%
Strontium (Dissolved)	0.0002	5	0		0.179	0.188	0.192	0.192	9	0		0.179	0.192	0.2004	0.202	-2%
Sulfur (Dissolved)	0.5	5	0		2.52	2.68	2.748	2.75	9	0		2.34	2.56	2.708	2.72	5%
Thallium (Dissolved)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	9	0	9	5E-006	0.000005	5E-006	5E-006	-
Tin (Dissolved)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	9	0	9	5E-005	0.00005	5E-005	5E-005	-
Titanium (Dissolved)	0.0003	5	0	5	0.00015	0.00015	0.00015	0.00015	9	0	9	0.00015	0.00015	0.00015	0.00015	-
Uranium (Dissolved)	1E-005	5	0		0.000754	0.00079	0.0008492	0.00086	9	0		0.00073	0.000763	0.0007856	0.000786	4%
Vanadium (Dissolved)	0.0005	5	0		0.0007	0.00074	0.000792	0.0008	9	0		0.00069	0.000716	0.000752	0.00076	3%
Zinc (Dissolved)	0.001	3	2	2	0.0005	0.0014	0.00293	0.0032	0	9		-	-	-	-	0%
Zirconium (Dissolved)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	9	0	9	0.0001	0.0001	0.0001	0.0001	-
Total Metals																
Aluminum (Total)	0.003	5	0		0.0095	0.0296	0.06302	0.072	8	0	2	0.0015	0.0414	0.16299	0.236	-29%
Antimony (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	8	0	8	5E-005	0.00005	5E-005	5E-005	-
Arsenic (Total)	0.0001	5	0		0.00104	0.00111	0.001206	0.00123	8	0		0.00098	0.00106	0.0011595	0.00117	5%
Barium (Total)	0.0001	5	0		0.0109	0.0115	0.0131	0.0136	8	0		0.0102	0.012	0.01448	0.0156	-4%
Beryllium (Total)	2E-005	5	0	5	1E-005	0.00001	1E-005	1E-005	8	0	8	1E-005	0.00001	1E-005	1E-005	-
Bismuth (Total)	5E-005	5	0	5	2.5E-005	0.000025	2.5E-005	2.5E-005	8	0	8	2.5E-005	0.000025	2.5E-005	2.5E-005	-
Boron (Total)	0.01	5	0	5	0.005	0.005	0.005	0.005	8	0	8	0.005	0.005	0.005	0.005	-
Cadmium (Total)	5E-006	5	0	2	2.5E-006	0.0000055	8.5E-006	8.8E-006	8	0	3	2.5E-006	0.0000073	1.631E-005	1.89E-005	-25%
Calcium (Total)	0.05	5	0		28.4	30.1	32.98	33.5	8	0		29.1	29.8	31.185	31.5	1%
Chromium (Total)	0.0005	5	0		0.0008	0.00091	0.001014	0.00103	8	0		0.00079	0.00105	0.0014865	0.00163	-13%
Chromium III (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0	0		-	-	-	-	-
Chromium VI (Total)	0.0005	3	0		0.00072	0.000797	0.000927	0.00095	0	0		-	-	-	-	0%
Cobalt (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	8	0	7	5E-005	0.000065	0.000128	0.00017	-
Copper (Total)	0.0005	5	0	4	0.00025	0.000364	0.000706	0.00082	8	0	7	0.00025	0.000306	0.0005425	0.0007	-
Iron (Total)	0.01	5	0		0.014	0.0584	0.13	0.142	8	0	2	0.005	0.063	0.2477	0.359	-7%
Lead (Total)	5E-005	5	0	3	2.5E-005	0.0000454	8.2E-005	8.6E-005	8	0	6	2.5E-005	0.0000511	0.00015155	0.000203	-11%
Lithium (Total)	0.001	5	0	3	0.0005	0.0007	0.001	0.001	8	0	8	0.0005	0.0005	0.0005	0.0005	40%
Magnesium (Total)	0.1	5	0		5.54	5.96	6.516	6.61	8	0		5.52	5.86	6.204	6.26	2%
Manganese (Total)	0.0001	5	0		0.00088	0.00209	0.004264	0.00466	8	0		0.00016	0.00318	0.010853	0.0152	-34%
Mercury (Total)	5E-006	5	0	5	2.5E-006	0.0000025	2.5E-006	2.5E-006	8	0	8	2.5E-006	0.0000025	2.5E-006	2.5E-006	-
Molybdenum (Total)	5E-005	5	0		0.00231	0.0024	0.002526	0.00256	8	0		0.00226	0.00243	0.0025365	0.00254	-1%
Nickel (Total)	0.0005	5	0	5	0.00025	0.00025	0.00025	0.00025	8	0	7	0.00025	0.000289	0.0004515	0.00056	-
Phosphorus (Metal) Total	0.05	5	0	3	0.025	0.0398	0.0686	0.073	8	0	8	0.025	0.025	0.025	0.025	59%
Potassium (Total)	0.1	5	0		0.727	0.796	0.9132	0.944	8	0		0.766	0.799	0.82255	0.825	0%
Selenium (Total)	5E-005	5	0		0.000238	0.000285	0.0003158	0.000322	8	0		0.000239	0.000252	0.0002734	0.000279	13%
Silicon (Total)	0.1	5	0		6.28	6.91	7.712	7.89	8	0		6.65	6.9	7.2025	7.29	0%
Silver (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	8	0	8	5E-006	0.000005	5E-006	5E-006	-
Sodium (Total)	0.05	5	0		4.94	5.45	5.988	6.04	8	0		5.25	5.47	5.949	6.11	0%
Strontium (Total)	0.0002	5	0		0.18	0.193	0.2116	0.216	8	0		0.186	0.197	0.2066	0.208	-2%
Sulfur (Total)	0.5	5	0		2.23	2.63	3.062	3.15	8	0		2.43	2.67	2.806	2.82	-1%
Thallium (Total)	1E-005	5	0	5	5E-006	0.000005	5E-006	5E-006	8	0	8	5E-006	0.000005	5E-006	5E-006	-
Tin (Total)	0.0001	5	0	5	5E-005	0.00005	5E-005	5E-005	8	0	7	5E-005	0.0000613	0.0001085	0.00014	-
Titanium (Total)	0.0003	5	0		0.00035	0.00131	0.002522	0.00276	8	0	4	0.00015	0.00152	0.0059915	0.00848	-14%
Uranium (Total)	1E-005	5	0		0.000777	0.00082	0.0008812	0.000894	8	0		0.000772	0.000798	0.00081365	0.000814	3%
Vanadium (Total)	0.0005	5	0		0.00079	0.000908	0.00106	0.0011	8	0		0.00068	0.000878	0.001134	0.00126	3%
Zinc (Total)	0.003	4	1	2	0.0015	0.00845	0.02394	0.0276	0	8		-	-	-	-	0%
Zirconium (Total)	0.0002	5	0	5	0.0001	0.0001	0.0001	0.0001	8	0	8	0.0001	0.0001	0.0001	0.0001	-
Organics																
Carbon Organic (Dissolved)	0.5	5	0	5	0.25	0.25	0.25	0.25	9	0	9	0.25	0.25	0.25	0.25	-
Carbon Organic (Total)	0.5	5	0	5	0.25	0.25	0.25	0.25	9	0	9	0.25	0.25	0.25	0.25	-

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 15 GT21-03S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.
3. % MEAN DIFFERENCE CALCULATED AS THE DIFFERENCE BETWEEN MEAN CONCENTRATIONS (BASELINE - CONSTRUCTION), DIVIDED BY THE MEAN BASELINE CONCENTRATION.
4. % MEAN DIFFERENCE VALUES SHOWN IN **BOLD** INDICATE THE MEAN CONCENTRATION INCREASED MORE THAN 5% AND SHOWN IN **BOLD RED** ARE MORE THAN 10% (EXCLUDES TOTAL METALS)

REV	DATE	DESCRIPTION	PREP'D	RVWD
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 16 MW22-02D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	6	0		106	108.25	120	120	132	134
Oxygen Dissolved (In Situ %) %	...	6	0		35	35.5	38.05	39.3	46.2	48.5
Oxygen Dissolved (In Situ)	...	6	0		4.3	4.305	4.66	4.95	6.26	6.65
pH (In Situ) pH	...	5	1		7.63	7.638	7.76	7.75	7.874	7.9
Redox Potential (In Situ) mV	...	6	0		26.8	32.125	160.15	158	279.25	283
Salinity (In Situ) ppt	...	5	0		0.009	0.0252	0.09	0.0738	0.09	0.09
Specific Conductivity (In Situ) µS/cm	...	6	0		181	182.5	189	193	209.75	215
Temperature (In Situ) °C	...	6	0		2.1	2.325	4.3	5.3	9.225	9.4
Total Dissolved Solids (In Situ)	...	5	0		0.000119	24.0000952	121	97.8	125.2	126
Turbidity (In Situ) NTU	...	6	0		0.1	0.1125	0.79	1.09	2.585	2.82
Physical Tests										
Alkalinity (Total as CaCO3)	1	6	0		95.2	95.25	95.95	96.1	97.075	97.2
Alkalinity/ Bicarbonate as CaCO3	1	6	0		95.2	95.25	95.95	96.1	97.075	97.2
Alkalinity/ Carbonate as CaCO3	1	6	0	6	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	6	0	6	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	6	0	6	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	6	0		81.9	82.1	85.25	84.6	86.35	86.4
Hardness as CaCO3 (Total)	0.6	6	0		80.9	81.55	84.7	85.2	89.15	89.5
pH pH	0.1	6	0		7.92	7.9675	8.145	8.12	8.23	8.25
Specific Conductivity µS/cm	2	6	0		185	185.25	189.5	190	194.25	195
Total Dissolved Solids	13	6	0		102	103	110.5	112	120	120
Total Suspended Solids	3	6	0	5	1.5	1.5	1.5	1.8	2.85	3.3
Turbidity NTU	0.1	6	0		0.16	0.1825	0.4	0.565	1.245	1.4
Dissolved Anions										
Bromide (Dissolved)	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	6	0	6	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	6	0		0.062	0.0625	0.067	0.068	0.0765	0.079
Sulphate (Dissolved)	0.3	6	0		5.5	5.5825	6.025	5.95	6.23	6.29
Nutrients										
Ammonia (Dissolved)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Ammonia (Total)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	6	0		0.0604	0.061	0.07495	0.0737	0.085175	0.0858
Nitrate+Nitrite (Dissolved)	0.0051	6	0		0.0628	0.0635	0.0757	0.0748	0.085175	0.0858
Nitrite (as N)	0.001	6	0	4	0.0005	0.0005	0.0005	0.00145	0.004275	0.0052
Nitrogen (Dissolved)	0.03	6	0		0.067	0.06925	0.0845	0.0855	0.10625	0.112
Nitrogen (Total)	0.03	6	0		0.066	0.06975	0.0895	0.087	0.1	0.102
Nitrogen Kjeldahl (Total)	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	6	0		0.0076	0.0079	0.0095	0.00942	0.010725	0.0109
Phosphorus (Nutrient) Dissolved	0.002	6	0		0.0099	0.00995	0.01085	0.011	0.012525	0.0129
Phosphorus (Nutrient) Total	0.002	6	0		0.0111	0.011175	0.01255	0.0133	0.016725	0.0175
Cyanide										
Cyanate	0.2 to 0.4	6	0	6	0.1	0.1	0.1	0.117	0.175	0.2
Cyanide (Free)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	6	0	6	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	6	0		0.0016	0.0016	0.00215	0.00212	0.0026	0.0026
Antimony (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	6	0		0.00077	0.0007825	0.00085	0.00085	0.0009075	0.00091
Barium (Dissolved)	0.0001	6	0		0.0118	0.011875	0.01285	0.013	0.014225	0.0143
Beryllium (Dissolved)	2E-005	6	0	6	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	6	0	1	2.5E-006	3.225E-006	7.6E-006	0.000008	1.3075E-005	1.37E-005
Calcium (Dissolved)	0.05	6	0		24.3	24.45	25.55	25.5	26.25	26.3
Chromium (Dissolved)	0.0005	6	0		0.00066	0.0006725	0.000785	0.000783	0.000885	0.00089
Chromium VI (Dissolved)	0.0005	2	0		0.00082	0.00083	0.00092	0.00092	0.00101	0.00102
Cobalt (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	6	0	6	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	6	0		4.98	4.995	5.06	5.12	5.3525	5.42
Manganese (Dissolved)	0.0001	6	0		0.00136	0.001465	0.01476	0.0163	0.036075	0.0395
Mercury (Dissolved)	5E-006	6	0	6	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	6	0		0.00174	0.0017525	0.001975	0.00204	0.0025075	0.00265
Nickel (Dissolved)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	6	0		0.725	0.7315	0.786	0.787	0.8435	0.85
Selenium (Dissolved)	5E-005	6	0		0.000203	0.00020725	0.0002275	0.000238	0.0002835	0.000291
Silicon (Dissolved)	0.05	6	0		6.41	6.4125	6.735	6.73	7.05	7.05
Silver (Dissolved)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	6	0		4.68	4.69	4.81	4.92	5.31	5.38
Strontium (Dissolved)	0.0002	6	0		0.156	0.1565	0.166	0.166	0.17425	0.175
Sulfur (Dissolved)	0.5	6	0		1.81	1.8525	2.025	2.04	2.2825	2.36
Thallium (Dissolved)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	6	0	6	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	6	0		0.000615	0.000618	0.0006665	0.000666	0.00072125	0.000732
Vanadium (Dissolved)	0.0005	6	0		0.00058	0.0006	0.000715	0.000697	0.0007575	0.00076
Zinc (Dissolved)	0.001	6	0	2	0.0005	0.0005	0.001	0.00095	0.001425	0.0015
Zirconium (Dissolved)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	6	0		0.0125	0.013325	0.0314	0.0351	0.0638	0.0679
Antimony (Total)	0.0001	6	0	5	5E-005	5E-005	5E-005	0.00006	9.5E-005	0.00011
Arsenic (Total)	0.0001	6	0		0.00085	0.0008525	0.000925	0.00092	0.00099	0.001
Barium (Total)	0.0001	6	0		0.0123	0.01235	0.0135	0.0138	0.01545	0.0155
Beryllium (Total)	2E-005	6	0	6	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	6	0		7.8E-006	7.9E-006	8.3E-006	0.0000108	1.7925E-005	1.98E-005
Calcium (Total)	0.05	6	0		24.5	24.625	25.3	25.6	27.05	27.3
Chromium (Total)	0.0005	6	0		0.00091	0.0009125	0.00105	0.0011	0.0014375	0.00153
Chromium III (Total)	0.0005	1	0		0.00053	0.00053	0.00053	0.00053	0.00053	0.00053
Chromium VI (Total)	0.0005	3	0		0.00063	0.000637	0.0007	0.00137	0.002581	0.00279
Cobalt (Total)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	6	0		0.013	0.013	0.038	0.043	0.0815	0.085
Lead (Total)	5E-005	6	0	4	2.5E-005	2.5E-005	2.5E-005	0.0000347	5.55E-005	5.7E-005
Lithium (Total)	0.001	6	0	6	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Total)	0.1	6	0		4.8	4.8625	5.21	5.16	5.3975	5.44
Manganese (Total)	0.0001	6	0		0.00843	0.0088475	0.02615	0.0234	0.03895	0.043
Mercury (Total)	5E-006	6	0	6	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	6	0		0.0018	0.0018125	0.00194	0.00206	0.0026075	0.00281
Nickel (Total)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Total	0.05	6	0	5	0.025	0.025	0.025	0.0307	0.0505	0.059
Potassium (Total)	0.1	6	0		0.72	0.723	0.782	0.802	0.89825	0.9
Selenium (Total)	5E-005	6	0		0.000223	0.00022775	0.0002495	0.000252	0.00027625	0.00028
Silicon (Total)	0.1	6	0		6.34	6.4025	6.725	6.81	7.405	7.57
Silver (Total)	1E-005	6	0	5	5E-006	5E-006	5E-006	0.00000717	1.475E-005	1.8E-005
Sodium (Total)	0.05	6	0		4.71	4.7125	5.125	5.07	5.4225	5.48
Strontium (Total)	0.0002	6	0		0.161	0.1615	0.1635	0.166	0.17575	0.178
Sulfur (Total)	0.5	6	0		1.86	1.865	2.055	2.06	2.32	2.38
Thallium (Total)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	6	0		0.0005	0.00052	0.001275	0.00148	0.003035	0.00346
Uranium (Total)	1E-005	6	0		0.000644	0.00064625	0.000669	0.00067	0.00069275	0.000694
Vanadium (Total)	0.0005	6	0		0.00076	0.0007625	0.000825	0.000845	0.0009675	0.00099
Zinc (Total)	0.003	6	0	5	0.0015	0.0015	0.0015	0.00178	0.002775	0.0032
Zirconium (Total)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	6	0	6	0.25	0.25	0.25	0.25	0.25	0.25
Carbon Organic (Total)	0.5	6	0	5	0.25	0.25	0.25	0.292	0.4375	0.5

M:\1\01\00457\A0\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 16 MW22-02D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 17 MW22-03D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	6	0		111	111.25	118	123	143.25	147
Oxygen Dissolved (In Situ %) %	...	6	0		44.9	45.65	49	50.9	60.65	64.1
Oxygen Dissolved (In Situ)	...	6	0		0.00613	1.2970975	6.245	5.4	7.825	8.29
pH (In Situ) pH	...	5	1		7.5	7.51	7.72	7.85	8.55	8.75
Redox Potential (In Situ) mV	...	6	0		41.9	62.31	246	193	285.6	290
Salinity (In Situ) ppt	...	5	0		0.08	0.08	0.09	0.086	0.09	0.09
Specific Conductivity (In Situ) µS/cm	...	6	0		178	179.5	187	190	205.5	210
Temperature (In Situ) °C	...	6	0		4.2	4.25	4.95	6.6	11.275	12
Total Dissolved Solids (In Situ)	...	5	0		115	115.8	121	121	124.6	125
Turbidity (In Situ) NTU	...	6	0		0.01	0.03	0.38	0.525	1.1625	1.18
Physical Tests										
Alkalinity (Total as CaCO3)	1	6	0		93.4	93.5	94.5	95.1	97.625	97.9
Alkalinity/ Bicarbonate as CaCO3	1	6	0		93.4	93.5	94.5	95.1	97.625	97.9
Alkalinity/ Carbonate as CaCO3	1	6	0	6	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	6	0	6	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	6	0	6	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	6	0		83.7	84.15	85.85	86.4	89.65	90.5
Hardness as CaCO3 (Total)	0.6	6	0		80.6	81.325	85.5	86.1	91.65	92.4
pH pH	0.1	6	0		7.98	7.995	8.09	8.1	8.2175	8.24
Specific Conductivity µS/cm	2	6	0		182	182.75	188	188	192.5	193
Total Dissolved Solids	13	4	0		103	104.5	115.5	115	123.1	124
Total Suspended Solids	3	6	0	6	1.5	1.5	1.5	1.5	1.5	1.5
Turbidity NTU	0.1	6	0	3	0.05	0.05	0.095	0.165	0.43	0.51
Dissolved Anions										
Bromide (Dissolved)	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	6	0	6	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	6	0		0.068	0.068	0.0695	0.074	0.08625	0.088
Sulphate (Dissolved)	0.3	6	0		4.41	4.5	5.13	5.02	5.3625	5.37
Nutrients										
Ammonia (Dissolved)	0.005	6	0	5	0.0025	0.0025	0.0025	0.0031	0.0052	0.0061
Ammonia (Total)	0.005	6	0	5	0.0025	0.0025	0.0025	0.00342	0.006625	0.008
Nitrate (as N)	0.005	6	0	1	0.0025	0.019525	0.0848	0.076	0.10775	0.109
Nitrate+Nitrite (Dissolved)	0.0051	5	0		0.072	0.07238	0.0988	0.0921	0.1092	0.11
Nitrite (as N)	0.001	6	0	1	0.0005	0.000675	0.0018	0.0028	0.006975	0.0082
Nitrogen (Dissolved)	0.03	6	0		0.104	0.10475	0.1115	0.116	0.13575	0.14
Nitrogen (Total)	0.03	6	0		0.094	0.0975	0.1145	0.12	0.1485	0.154
Nitrogen Kjeldahl (Total)	0.05	6	0	4	0.025	0.025	0.025	0.051	0.1245	0.146
Nitrogen Organic (Dissolved)	0.05	6	0	4	0.025	0.025	0.025	0.0485	0.11775	0.14
Nitrogen Organic (Total)	0.05	6	0	4	0.025	0.025	0.025	0.0523	0.1305	0.154
Orthophosphate (Dissolved)	0.001	6	0		0.004	0.0043	0.00775	0.00707	0.009025	0.0092
Phosphorus (Nutrient) Dissolved	0.002	6	0		0.0095	0.009575	0.0108	0.0109	0.0126	0.0131
Phosphorus (Nutrient) Total	0.002	6	0		0.0101	0.010325	0.0111	0.0119	0.0149	0.0159
Cyanide										
Cyanate	0.2	6	0	6	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	6	0	6	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	6	0	6	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	6	0		0.0015	0.0016	0.002	0.00192	0.002075	0.0021
Antimony (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	6	0		0.00036	0.00037	0.000405	0.000402	0.000425	0.00043
Barium (Dissolved)	0.0001	6	0		0.0122	0.012375	0.01355	0.0154	0.022825	0.0256
Beryllium (Dissolved)	2E-005	6	0	6	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	6	0	1	2.5E-006	3.325E-006	6.35E-006	0.0000063	8.65E-006	8.9E-006
Calcium (Dissolved)	0.05	6	0		25.2	25.25	25.8	25.9	26.85	27
Chromium (Dissolved)	0.0005	6	0		0.00059	0.0006075	0.000715	0.00072	0.00086	0.0009
Chromium VI (Dissolved)	0.0005	3	0		0.0006	0.000608	0.00068	0.00068	0.000752	0.00076
Cobalt (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	6	0	5	0.0005	0.0005	0.0005	0.000767	0.0017	0.0021
Magnesium (Dissolved)	0.1	6	0		4.91	4.945	5.325	5.26	5.54	5.6
Manganese (Dissolved)	0.0001	6	0		0.0017	0.001775	0.00488	0.00656	0.014425	0.0159
Mercury (Dissolved)	5E-006	6	0	6	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	6	0		0.00146	0.0014875	0.001575	0.00159	0.00168	0.00169
Nickel (Dissolved)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	6	0	6	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	6	0		0.763	0.76675	0.836	1.04	1.77075	2.04
Selenium (Dissolved)	5E-005	5	1		0.000207	0.000207	0.000212	0.000216	0.000234	0.000239
Silicon (Dissolved)	0.05	6	0		6.73	6.7725	7.08	7.03	7.2225	7.26
Silver (Dissolved)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	6	0		4.45	4.5075	4.69	4.83	5.355	5.49
Strontium (Dissolved)	0.0002	6	0		0.154	0.15675	0.1715	0.175	0.20175	0.21
Sulfur (Dissolved)	0.5	6	0		1.6	1.6	1.66	1.7	1.8325	1.84
Thallium (Dissolved)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	6	0	6	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	6	0		0.000533	0.0005375	0.000581	0.000575	0.00060575	0.00061
Vanadium (Dissolved)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Zinc (Dissolved)	0.001	6	1	5	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zirconium (Dissolved)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	6	0		0.0041	0.004175	0.0047	0.00688	0.014	0.0163
Antimony (Total)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Total)	0.0001	6	0		0.00038	0.0003925	0.000445	0.000435	0.0004575	0.00046
Barium (Total)	0.0001	6	0		0.0126	0.012625	0.01465	0.0176	0.0302	0.0349
Beryllium (Total)	2E-005	6	0	6	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	6	0	6	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	6	0	1	2.5E-006	3.6E-006	7.7E-006	0.0000073	9.85E-006	1.02E-005
Calcium (Total)	0.05	6	0		23.8	24.05	25.7	25.9	27.675	27.7
Chromium (Total)	0.0005	6	0		0.00067	0.0006975	0.0008	0.000868	0.0012	0.00132
Chromium III (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Total)	0.0005	3	0		0.0006	0.000613	0.00073	0.000747	0.000892	0.00091
Cobalt (Total)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	6	0	5	0.005	0.005	0.005	0.00783	0.01775	0.022
Lead (Total)	5E-005	6	0	6	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Total)	0.001	6	0	5	0.0005	0.0005	0.0005	0.0009	0.0023	0.0029
Magnesium (Total)	0.1	6	0		4.98	5.0125	5.2	5.23	5.55	5.65
Manganese (Total)	0.0001	6	0		0.00203	0.0023125	0.005365	0.0071	0.014975	0.0166
Mercury (Total)	5E-006	6	0	6	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	6	0		0.00153	0.00154	0.001595	0.00163	0.0018025	0.00186
Nickel (Total)	0.0005	6	0	6	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Total	0.05	6	0	5	0.025	0.025	0.025	0.0298	0.04675	0.054
Potassium (Total)	0.1	6	0		0.757	0.75725	0.8375	1.14	2.2125	2.6
Selenium (Total)	5E-005	6	0		0.000202	0.0002085	0.0002305	0.000232	0.0002535	0.000256
Silicon (Total)	0.1	6	0		6.66	6.695	6.955	7.02	7.51	7.64
Silver (Total)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	6	0		4.36	4.43	4.715	4.89	5.77	6.09
Strontium (Total)	0.0002	6	0		0.156	0.15675	0.1735	0.181	0.228	0.244
Sulfur (Total)	0.5	6	0		1.64	1.65	1.78	1.79	1.985	2.04
Thallium (Total)	1E-005	6	0	6	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	6	0	6	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	6	0	5	0.00015	0.00015	0.00015	0.00028	0.000735	0.00093
Uranium (Total)	1E-005	6	0		0.000603	0.00060325	0.000629	0.00063	0.00066825	0.00068
Vanadium (Total)	0.0005	6	0	2	0.00025	0.00025	0.00053	0.00048	0.00067	0.00068
Zinc (Total)	0.003	6	1	5	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Zirconium (Total)	0.0002	6	0	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	6	0	3	0.25	0.25	0.42	0.635	1.5325	1.83
Carbon Organic (Total)	0.5	6	0	3	0.25	0.25	0.415	0.735	1.975	2.41

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 17 MW22-03D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 18 MW22-03S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	1	0		29.2	29.2	29.2	29.2	29.2	29.2
Oxygen Dissolved (In Situ %) %	...	1	0		67.3	67.3	67.3	67.3	67.3	67.3
Oxygen Dissolved (In Situ)	...	1	0		8.47	8.47	8.47	8.47	8.47	8.47
pH (In Situ) pH	...	1	0		6.82	6.82	6.82	6.82	6.82	6.82
Redox Potential (In Situ) mV	...	1	0		73.2	73.2	73.2	73.2	73.2	73.2
Salinity (In Situ) ppt	...	1	0		0.02	0.02	0.02	0.02	0.02	0.02
Specific Conductivity (In Situ) µS/cm	...	1	0		46.1	46.1	46.1	46.1	46.1	46.1
Temperature (In Situ) °C	...	1	0		5.9	5.9	5.9	5.9	5.9	5.9
Total Dissolved Solids (In Situ)	...	1	0		30	30	30	30	30	30
Turbidity (In Situ) NTU	...	1	0		2.03	2.03	2.03	2.03	2.03	2.03
Physical Tests										
Alkalinity (Total as CaCO3)	1	1	0		23.2	23.2	23.2	23.2	23.2	23.2
Alkalinity/ Bicarbonate as CaCO3	1	1	0		23.2	23.2	23.2	23.2	23.2	23.2
Alkalinity/ Carbonate as CaCO3	1	1	0	1	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	1	0	1	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	1	0	1	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	1	0		17	17	17	17	17	17
Hardness as CaCO3 (Total)	0.6	1	0		17.4	17.4	17.4	17.4	17.4	17.4
pH pH	0.1	1	0		7.61	7.61	7.61	7.61	7.61	7.61
Specific Conductivity µS/cm	2	1	0		44.6	44.6	44.6	44.6	44.6	44.6
Total Dissolved Solids	1	1	0		40	40	40	40	40	40
Total Suspended Solids	3	1	0	1	1.5	1.5	1.5	1.5	1.5	1.5
Turbidity NTU	0.1	1	0		1.52	1.52	1.52	1.52	1.52	1.52
Dissolved Anions										
Bromide (Dissolved)	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	1	0	1	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	1	0		0.031	0.031	0.031	0.031	0.031	0.031
Sulphate (Dissolved)	0.3	1	0		0.64	0.64	0.64	0.64	0.64	0.64
Nutrients										
Ammonia (Dissolved)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Ammonia (Total)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate+Nitrite (Dissolved)	0.0051	1	0	1	0.00255	0.00255	0.00255	0.00255	0.00255	0.00255
Nitrite (as N)	0.001	1	0	1	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	1	0	1	0.015	0.015	0.015	0.015	0.015	0.015
Nitrogen (Total)	0.03	1	0	1	0.015	0.015	0.015	0.015	0.015	0.015
Nitrogen Kjeldahl (Total)	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	1	0		0.0082	0.0082	0.0082	0.0082	0.0082	0.0082
Phosphorus (Nutrient) Dissolved	0.002	1	0		0.0101	0.0101	0.0101	0.0101	0.0101	0.0101
Phosphorus (Nutrient) Total	0.002	1	0		0.0116	0.0116	0.0116	0.0116	0.0116	0.0116
Cyanide										
Cyanate	0.2	1	0	1	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	1	0	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	1	0	1	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	1	0		0.0067	0.0067	0.0067	0.0067	0.0067	0.0067
Antimony (Dissolved)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	1	0		0.00021	0.00021	0.00021	0.00021	0.00021	0.00021
Barium (Dissolved)	0.0001	1	0		0.00531	0.00531	0.00531	0.00531	0.00531	0.00531
Beryllium (Dissolved)	2E-005	1	0	1	1E-005	1E-005	0.00001	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	1	0	1	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	1	0		1.57E-005	1.57E-005	0.0000157	0.0000157	1.57E-005	1.57E-005
Calcium (Dissolved)	0.05	1	0		5.31	5.31	5.31	5.31	5.31	5.31
Chromium (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	1	0	1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	1	0	1	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	1	0	1	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	1	0		0.899	0.899	0.899	0.899	0.899	0.899
Manganese (Dissolved)	0.0001	1	0		0.00473	0.00473	0.00473	0.00473	0.00473	0.00473
Mercury (Dissolved)	5E-006	1	0	1	2.5E-006	2.5E-006	0.0000025	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	1	0		0.000172	0.000172	0.000172	0.000172	0.000172	0.000172
Nickel (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	1	0		0.578	0.578	0.578	0.578	0.578	0.578
Selenium (Dissolved)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Silicon (Dissolved)	0.05	1	0		7.26	7.26	7.26	7.26	7.26	7.26
Silver (Dissolved)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	1	0		2.11	2.11	2.11	2.11	2.11	2.11
Strontium (Dissolved)	0.0002	1	0		0.0305	0.0305	0.0305	0.0305	0.0305	0.0305
Sulfur (Dissolved)	0.5	1	0	1	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Dissolved)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	1	0	1	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Vanadium (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Zinc (Dissolved)	0.001	1	0		0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Zirconium (Dissolved)	0.0002	1	0	1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	1	0		0.0703	0.0703	0.0703	0.0703	0.0703	0.0703
Antimony (Total)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Arsenic (Total)	0.0001	1	0		0.00026	0.00026	0.00026	0.00026	0.00026	0.00026
Barium (Total)	0.0001	1	0		0.00623	0.00623	0.00623	0.00623	0.00623	0.00623
Beryllium (Total)	2E-005	1	0	1	1E-005	1E-005	0.00001	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	1	0	1	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	1	0		1.15E-005	1.15E-005	0.0000115	0.0000115	1.15E-005	1.15E-005
Calcium (Total)	0.05	1	0		5.44	5.44	5.44	5.44	5.44	5.44
Chromium (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium III (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Total)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	1	0		0.068	0.068	0.068	0.068	0.068	0.068
Lead (Total)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Lithium (Total)	0.001	1	0	1	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Total)	0.1	1	0		0.941	0.941	0.941	0.941	0.941	0.941
Manganese (Total)	0.0001	1	0		0.0058	0.0058	0.0058	0.0058	0.0058	0.0058
Mercury (Total)	5E-006	1	0	1	2.5E-006	2.5E-006	0.0000025	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	1	0		0.000143	0.000143	0.000143	0.000143	0.000143	0.000143
Nickel (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Total	0.05	1	0	1	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Total)	0.1	1	0		0.579	0.579	0.579	0.579	0.579	0.579
Selenium (Total)	5E-005	1	0	1	2.5E-005	2.5E-005	0.000025	0.000025	2.5E-005	2.5E-005
Silicon (Total)	0.1	1	0		7.53	7.53	7.53	7.53	7.53	7.53
Silver (Total)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Sodium (Total)	0.05	1	0		2.24	2.24	2.24	2.24	2.24	2.24
Strontium (Total)	0.0002	1	0		0.0303	0.0303	0.0303	0.0303	0.0303	0.0303
Sulfur (Total)	0.5	1	0	1	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Total)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Tin (Total)	0.0001	1	0	1	5E-005	5E-005	0.00005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	1	0		0.00161	0.00161	0.00161	0.00161	0.00161	0.00161
Uranium (Total)	1E-005	1	0	1	5E-006	5E-006	0.000005	0.000005	5E-006	5E-006
Vanadium (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Zinc (Total)	0.003	1	0	1	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Zirconium (Total)	0.0002	1	0	1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	1	0		0.77	0.77	0.77	0.77	0.77	0.77
Carbon Organic (Total)	0.5	1	0		0.64	0.64	0.64	0.64	0.64	0.64

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 18 MW22-03S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 19 MW23-01

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		81.7	81.86	83.3	86.4	93.11	94.2
Oxygen Dissolved (In Situ %) %	...	3	0		35.4	36.16	43	44.5	53.89	55.1
Oxygen Dissolved (In Situ)	...	3	0		4.78	4.829	5.27	5.81	7.178	7.39
pH (In Situ) pH	...	3	0		7.93	7.932	7.95	7.97	8.022	8.03
Redox Potential (In Situ) mV	...	3	0		22.5	22.555	23.05	23.1	23.545	23.6
Salinity (In Situ) ppt	...	3	0		0.06	0.061	0.07	0.0667	0.07	0.07
Specific Conductivity (In Situ) µS/cm	...	3	0		142	142.2	144	144	144.9	145
Temperature (In Situ) °C	...	3	0		2.7	2.74	3.1	4.2	6.43	6.8
Total Dissolved Solids (In Situ)	...	3	0		92.3	92.37	93	93.1	93.99	94.1
Turbidity (In Situ) NTU	...	3	0		0.21	0.311	1.22	1.56	3.047	3.25
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		74.4	74.42	74.6	74.6	74.87	74.9
Alkalinity/ Bicarbonate as CaCO3	1	3	0		74.4	74.42	74.6	74.6	74.87	74.9
Alkalinity/ Carbonate as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	3	0		61.3	61.33	61.6	61.8	62.5	62.6
Hardness as CaCO3 (Total)	0.6	3	0		60.4	60.45	60.9	61.7	63.6	63.9
pH pH	0.1	3	0		8.09	8.091	8.1	8.11	8.145	8.15
Specific Conductivity µS/cm	2	3	0		143	143.3	146	145	146	146
Total Dissolved Solids	13	3	0		73	73.3	76	77.3	82.3	83
Total Suspended Solids	3	3	0	1	1.5	1.97	6.2	4.9	6.92	7
Turbidity NTU	0.1	3	0		0.33	0.449	1.52	1.19	1.691	1.71
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	3	0		0.063	0.0639	0.072	0.072	0.0801	0.081
Sulphate (Dissolved)	0.3	3	0		0.84	0.858	1.02	0.983	1.083	1.09
Nutrients										
Ammonia (Dissolved)	0.005	3	0	2	0.0025	0.0025	0.0025	0.00447	0.00781	0.0084
Ammonia (Total)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	3	0		0.117	0.1189	0.136	0.13	0.1369	0.137
Nitrate+Nitrite (Dissolved)	0.0051	3	0		0.117	0.1189	0.136	0.13	0.1369	0.137
Nitrite (as N)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	3	0		0.127	0.128	0.137	0.136	0.1433	0.144
Nitrogen (Total)	0.03	3	0		0.124	0.1257	0.141	0.14	0.1527	0.154
Nitrogen Kjeldahl (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.01	3	0		0.066	0.06653	0.0713	0.0732	0.08129	0.0824
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.074	0.0744	0.078	0.0787	0.08349	0.0841
Phosphorus (Nutrient) Total	0.002	3	0		0.0788	0.07883	0.0791	0.0812	0.08495	0.0856
Cyanide										
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.0014	0.0015	0.0024	0.0022	0.00276	0.0028
Antimony (Dissolved)	0.0001	3	0		0.00014	0.000141	0.00015	0.00015	0.000159	0.00016
Arsenic (Dissolved)	0.0001	3	0		0.00118	0.00118	0.00118	0.00118	0.001189	0.00119
Barium (Dissolved)	0.0001	3	0		0.00824	0.008329	0.00913	0.00898	0.009535	0.00958
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000041	6.82E-006	7.3E-006
Calcium (Dissolved)	0.05	3	0		18.2	18.22	18.4	18.4	18.58	18.6
Chromium (Dissolved)	0.0005	3	0		0.00066	0.000662	0.00068	0.000707	0.00077	0.00078
Chromium III (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	3	0		0.00063	0.00064	0.00073	0.000747	0.000865	0.00088
Cobalt (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	3	0		3.72	3.74	3.92	3.86	3.929	3.93
Manganese (Dissolved)	0.0001	3	0		0.00123	0.001424	0.00317	0.00308	0.004664	0.00483
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	3	0		0.00045	0.0004553	0.000503	0.000496	0.0005318	0.000535
Nickel (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	3	0		0.071	0.0726	0.087	0.0817	0.087	0.087
Potassium (Dissolved)	0.1	3	0		0.683	0.6892	0.745	0.746	0.8026	0.809
Selenium (Dissolved)	5E-005	3	0		9.4E-005	9.4E-005	9.4E-005	0.000102	0.0001156	0.000118
Silicon (Dissolved)	0.05	3	0		9.84	9.886	10.3	10.2	10.48	10.5
Silver (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	3	0		5.5	5.501	5.51	5.58	5.699	5.72
Strontium (Dissolved)	0.0002	3	0		0.121	0.1216	0.127	0.126	0.1297	0.13
Sulfur (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0	3	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	3	0		0.000392	0.0003968	0.00044	0.000438	0.0004769	0.000481
Vanadium (Dissolved)	0.0005	3	0		0.00132	0.001337	0.00149	0.00144	0.001499	0.0015
Zinc (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	3	0		0.0069	0.00875	0.0254	0.021	0.03008	0.0306
Antimony (Total)	0.0001	3	0		0.00015	0.000151	0.00016	0.000183	0.000232	0.00024
Arsenic (Total)	0.0001	3	0		0.00119	0.001198	0.00127	0.00125	0.001297	0.0013
Barium (Total)	0.0001	3	0		0.00832	0.008432	0.00944	0.00932	0.010124	0.0102
Beryllium (Total)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0	1	2.5E-006	2.8E-006	5.5E-006	0.0000072	1.279E-005	1.36E-005
Calcium (Total)	0.05	3	0		17.9	17.91	18	18.3	18.81	18.9
Chromium (Total)	0.0005	3	0		0.00074	0.000767	0.00101	0.000933	0.001046	0.00105
Chromium III (Total)	0.0005	2	0	1	0.00025	0.00029	0.00065	0.00065	0.00101	0.00105
Chromium VI (Total)	0.0005	3	0	1	0.00025	0.000278	0.00053	0.000487	0.000665	0.00068
Cobalt (Total)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	3	0	1	0.005	0.0071	0.026	0.0203	0.0296	0.03
Lead (Total)	5E-005	3	0	2	2.5E-005	2.5E-005	2.5E-005	0.0000407	6.73E-005	7.2E-005
Lithium (Total)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Total)	0.1	3	0		3.76	3.777	3.93	3.92	4.047	4.06
Manganese (Total)	0.0001	3	0		0.00149	0.001868	0.00527	0.00434	0.006161	0.00626
Mercury (Total)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	3	0		0.000463	0.0004696	0.000529	0.000508	0.0005326	0.000533
Nickel (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Total	0.05	3	0		0.092	0.0925	0.097	0.0983	0.1051	0.106
Potassium (Total)	0.1	3	0		0.658	0.6692	0.77	0.754	0.8285	0.835
Selenium (Total)	5E-005	3	0		8.2E-005	8.4E-005	0.000102	0.000109	0.000138	0.000142
Silicon (Total)	0.1	3	0		9.92	9.948	10.2	10.2	10.38	10.4
Silver (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	3	0		5.22	5.228	5.3	5.55	6.056	6.14
Strontium (Total)	0.0002	3	0		0.117	0.1179	0.126	0.124	0.1287	0.129
Sulfur (Total)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	3	0	1	5E-005	7.6E-005	0.00031	0.000337	0.000616	0.00065
Titanium (Total)	0.0003	3	0	1	0.00015	0.000228	0.00093	0.00074	0.001119	0.00114
Uranium (Total)	1E-005	3	0		0.000423	0.000427	0.000463	0.000464	0.0005008	0.000505
Vanadium (Total)	0.0005	3	0		0.00137	0.001385	0.00152	0.00155	0.001727	0.00175
Zinc (Total)	0.003	3	0	3	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Zirconium (Total)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Carbon Organic (Total)	0.5	3	0		0.54	0.593	1.07	1.44	2.555	2.72

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 19 MW23-01

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 20 MW23-02S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		46.5	46.52	46.7	48.4	51.38	51.9
Oxygen Dissolved (In Situ %) %	...	3	0		65.6	65.74	67	69.7	75.55	76.5
Oxygen Dissolved (In Situ)	...	3	0		8.48	8.548	9.16	9.1	9.61	9.66
pH (In Situ) pH	...	3	0		6.66	6.687	6.93	6.95	7.236	7.27
Redox Potential (In Situ) mV	...	3	0		35.5	35.5	-224	-224	35.5	35.5
Salinity (In Situ) ppt	...	3	0		0.03	0.03	0.03	0.0333	0.039	0.04
Specific Conductivity (In Situ) µS/cm	...	3	0		74.2	74.59	78.1	80.9	89.26	90.5
Temperature (In Situ) °C	...	3	0		2.5	2.64	3.9	3.97	5.34	5.5
Total Dissolved Solids (In Situ)	...	3	0		48	48.2	50	52.7	59	60
Turbidity (In Situ) NTU	...	3	0		5.5	6.56	16.1	15.4	23.75	24.6
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		37.9	38.21	41	41.6	45.5	46
Alkalinity/ Bicarbonate as CaCO3	1	3	0		37.9	38.21	41	41.6	45.5	46
Alkalinity/ Carbonate as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	3	0		28.4	28.7	31.4	33	38.42	39.2
Hardness as CaCO3 (Total)	0.6	3	0		32.4	32.61	34.5	35.9	40.08	40.7
pH pH	0.1	3	0		7.39	7.436	7.85	7.71	7.877	7.88
Specific Conductivity µS/cm	2	3	0		73.2	73.81	79.3	81.1	89.74	90.9
Total Dissolved Solids	13	3	0		71	71.3	74	77	84.8	86
Total Suspended Solids	3	3	0	2	1.5	1.5	1.5	2	2.85	3
Turbidity NTU	0.1	3	0		11.4	12.26	20	19.2	25.49	26.1
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0		0.58	0.596	0.74	0.693	0.758	0.76
Fluoride (Dissolved)	0.02	3	0		0.025	0.0254	0.029	0.028	0.0299	0.03
Sulphate (Dissolved)	0.3	3	0		0.47	0.477	0.54	0.527	0.567	0.57
Nutrients										
Ammonia (Dissolved)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Ammonia (Total)	0.005	3	0	2	0.0025	0.0025	0.0025	0.00547	0.01051	0.0114
Nitrate (as N)	0.005	3	0		0.0202	0.02174	0.0356	0.0354	0.04901	0.0505
Nitrate+Nitrite (Dissolved)	0.0051	3	0		0.0202	0.02174	0.0356	0.0354	0.04901	0.0505
Nitrite (as N)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	3	0		0.062	0.0634	0.076	0.0727	0.0796	0.08
Nitrogen (Total)	0.03	3	0		0.057	0.0601	0.088	0.0833	0.1033	0.105
Nitrogen Kjeldahl (Total)	0.05	3	0	1	0.025	0.0277	0.052	0.054	0.0817	0.085
Nitrogen Organic (Dissolved)	0.05	3	0	2	0.025	0.025	0.025	0.0367	0.0565	0.06
Nitrogen Organic (Total)	0.05	3	0	2	0.025	0.025	0.025	0.0517	0.097	0.105
Orthophosphate (Dissolved)	0.001	3	0		0.0127	0.01307	0.0164	0.0164	0.01964	0.02
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0178	0.0181	0.0208	0.023	0.02944	0.0304
Phosphorus (Nutrient) Total	0.002	3	0		0.0362	0.03635	0.0377	0.0393	0.04337	0.044
Cyanide										
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.428	0.4442	0.59	0.57	0.6818	0.692
Antimony (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	3	0		0.00048	0.000486	0.00054	0.000583	0.000711	0.00073
Barium (Dissolved)	0.0001	3	0		0.00805	0.008203	0.00958	0.00991	0.011848	0.0121
Beryllium (Dissolved)	2E-005	3	0	1	1E-005	1.15E-005	2.5E-005	0.0000203	2.59E-005	2.6E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0		6E-006	6.85E-006	1.45E-005	0.0000129	1.783E-005	1.82E-005
Calcium (Dissolved)	0.05	3	0		8.48	8.542	9.1	9.89	11.8	12.1
Chromium (Dissolved)	0.0005	3	0	1	0.00025	0.000277	0.00052	0.00047	0.000628	0.00064
Chromium III (Dissolved)	0.0005	1	0		0.00052	0.00052	0.00052	0.00052	0.00052	0.00052
Chromium VI (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	3	0	1	5E-005	5.8E-005	0.00013	0.00011	0.000148	0.00015
Copper (Dissolved)	0.0002	3	0		0.00037	0.000401	0.00068	0.000597	0.000734	0.00074
Iron (Dissolved)	0.01	3	0		0.22	0.2346	0.366	0.326	0.3903	0.393
Lead (Dissolved)	5E-005	3	0		0.000124	0.0001382	0.000266	0.000225	0.000284	0.000286
Lithium (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	3	0		1.38	1.46	2.18	2.01	2.45	2.48
Manganese (Dissolved)	0.0001	3	0		0.00464	0.005466	0.0129	0.0105	0.01389	0.014
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	3	0		0.000105	0.0001072	0.000127	0.000122	0.0001333	0.000134
Nickel (Dissolved)	0.0005	3	0	1	0.00025	0.000277	0.00052	0.00047	0.000628	0.00064
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	3	0		0.518	0.5215	0.553	0.582	0.6619	0.674
Selenium (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Silicon (Dissolved)	0.05	3	0		8.26	8.279	8.45	8.45	8.612	8.63
Silver (Dissolved)	1E-005	3	0	1	5E-006	6E-006	1.5E-005	0.0000143	2.22E-005	2.3E-005
Sodium (Dissolved)	0.05	3	0		2.44	2.454	2.58	2.56	2.652	2.66
Strontium (Dissolved)	0.0002	3	0		0.033	0.03323	0.0353	0.0368	0.04142	0.0421
Sulfur (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0		0.00843	0.008867	0.0128	0.0122	0.01505	0.0153
Uranium (Dissolved)	1E-005	3	0		4.4E-005	4.4E-005	4.4E-005	0.0000613	9.08E-005	9.6E-005
Vanadium (Dissolved)	0.0005	3	0		0.00072	0.000738	0.0009	0.000943	0.001179	0.00121
Zinc (Dissolved)	0.001	3	0		0.0018	0.00192	0.003	0.00273	0.00336	0.0034
Zirconium (Dissolved)	0.0002	3	0		0.00023	0.000259	0.00052	0.000503	0.000736	0.00076
Total Metals										
Aluminum (Total)	0.003	3	0		0.958	0.9982	1.36	1.41	1.855	1.91
Antimony (Total)	0.0001	3	0		0.00011	0.000111	0.00012	0.000127	0.000147	0.00015
Arsenic (Total)	0.0001	3	0		0.00096	0.001002	0.00138	0.00128	0.001488	0.0015
Barium (Total)	0.0001	3	0		0.0133	0.01372	0.0175	0.0167	0.01921	0.0194
Beryllium (Total)	2E-005	3	0		3.6E-005	3.78E-005	5.4E-005	0.0000517	6.39E-005	6.5E-005
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0		1.27E-005	1.351E-005	2.08E-005	0.0000192	2.368E-005	2.4E-005
Calcium (Total)	0.05	3	0		9.58	9.662	10.4	10.9	12.38	12.6
Chromium (Total)	0.0005	3	0		0.00109	0.001107	0.00126	0.00173	0.002682	0.00284
Chromium III (Total)	0.0005	2	0		0.00109	0.0011775	0.001965	0.00197	0.0027525	0.00284
Chromium VI (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Total)	0.0001	3	0		0.00021	0.000225	0.00036	0.000337	0.000432	0.00044
Copper (Total)	0.0005	3	0		0.00106	0.001126	0.00172	0.00165	0.002134	0.00218
Iron (Total)	0.01	3	0		0.717	0.7603	1.15	1.08	1.357	1.38
Lead (Total)	5E-005	3	0		0.000477	0.0005095	0.000802	0.000745	0.0009397	0.000955
Lithium (Total)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Total)	0.1	3	0		1.56	1.629	2.25	2.12	2.529	2.56
Manganese (Total)	0.0001	3	0		0.0156	0.01693	0.0289	0.026	0.03313	0.0336
Mercury (Total)	5E-006	3	0	1	2.5E-006	2.77E-006	5.2E-006	0.0000043	5.2E-006	5.2E-006
Molybdenum (Total)	5E-005	3	0		0.000162	0.0001628	0.00017	0.000204	0.0002699	0.000281
Nickel (Total)	0.0005	3	0		0.00076	0.000793	0.00109	0.00135	0.002089	0.0022
Phosphorus (Metal) Total	0.05	3	0	2	0.025	0.025	0.025	0.034	0.0493	0.052
Potassium (Total)	0.1	3	0		0.654	0.6673	0.787	0.773	0.8698	0.879
Selenium (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Silicon (Total)	0.1	3	0		9.08	9.122	9.5	9.69	10.4	10.5
Silver (Total)	1E-005	3	0		2.7E-005	2.8E-005	3.7E-005	0.000036	4.33E-005	4.4E-005
Sodium (Total)	0.05	3	0		2.39	2.398	2.47	2.46	2.524	2.53
Strontium (Total)	0.0002	3	0		0.037	0.03716	0.0386	0.0403	0.04472	0.0454
Sulfur (Total)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Thallium (Total)	1E-005	3	0		1E-005	1.08E-005	1.8E-005	0.0000167	2.16E-005	2.2E-005
Tin (Total)	0.0001	3	0	2	5E-005	5E-005	5E-005	0.0000767	0.000122	0.00013
Titanium (Total)	0.0003	3	0		0.0199	0.02107	0.0316	0.0302	0.03844	0.0392
Uranium (Total)	1E-005	3	0		8E-005	8.13E-005	9.3E-005	0.000105	0.0001362	0.000141
Vanadium (Total)	0.0005	3	0		0.00154	0.0016	0.00214	0.00208	0.002509	0.00255
Zinc (Total)	0.003	3	0		0.0043	0.00455	0.0068	0.00643	0.00806	0.0082
Zirconium (Total)	0.0002	3	0		0.00069	0.000691	0.0007	0.000787	0.000943	0.00097
Organics										
Carbon Organic (Dissolved)	0.5	3	0		0.59	0.612	0.81	0.85	1.116	1.15
Carbon Organic (Total)	0.5	3	0		0.68	0.723	1.11	0.99	1.173	1.18

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 20 MW23-02S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREPD	RVWD
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 21 MW23-03D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	2	0		121	122.15	132.5	133	142.85	144
Oxygen Dissolved (In Situ %) %	...	2	0		19.2	19.57	22.9	22.9	26.23	26.6
Oxygen Dissolved (In Situ)	...	2	0		2.57	2.6135	3.005	3.01	3.3965	3.44
pH (In Situ) pH	...	2	0		8.39	8.414	8.63	8.63	8.846	8.87
Redox Potential (In Situ) mV	...	2	0		-48.3	-48.22	-47.5	-47.5	-46.78	-46.7
Salinity (In Situ) ppt	...	2	0		0.09	0.0905	0.095	0.095	0.0995	0.1
Specific Conductivity (In Situ) µS/cm	...	2	0		207	208.7	224	224	239.3	241
Temperature (In Situ) °C	...	2	0		3.2	3.245	3.65	3.65	4.055	4.1
Total Dissolved Solids (In Situ)	...	2	0		125	125.45	129.5	130	133.55	134
Turbidity (In Situ) NTU	...	2	0		3.68	3.7095	3.975	3.97	4.2405	4.27
Physical Tests										
Alkalinity (Total as CaCO3)	1	2	0		114	114.4	118	118	121.6	122
Alkalinity/ Bicarbonate as CaCO3	1	2	0		109	109.55	114.5	115	119.45	120
Alkalinity/ Carbonate as CaCO3	1	2	0		2	2.12	3.2	3.2	4.28	4.4
Alkalinity/ Hydroxide as CaCO3	1	2	0	2	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	2	0	2	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	2	0		77.8	78.695	86.75	86.8	94.805	95.7
Hardness as CaCO3 (Total)	0.6	2	0		79.2	79.93	86.5	86.5	93.07	93.8
pH pH	0.1	2	0		8.36	8.3605	8.365	8.36	8.3695	8.37
Specific Conductivity µS/cm	2	2	0		206	207.7	223	223	238.3	240
Total Dissolved Solids	13 to 2	2	0		110	110.35	113.5	114	116.65	117
Total Suspended Solids	3	2	0	1	1.5	1.635	2.85	2.85	4.065	4.2
Turbidity NTU	0.1	2	0		1.99	2.1005	3.095	3.1	4.0895	4.2
Dissolved Anions										
Bromide (Dissolved)	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	2	0	2	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	2	0		0.09	0.09085	0.0985	0.0985	0.10615	0.107
Sulphate (Dissolved)	0.3	2	0		4.77	4.861	5.68	5.68	6.499	6.59
Nutrients										
Ammonia (Dissolved)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Ammonia (Total)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	2	0		0.0138	0.0138	0.0138	0.0138	0.0138	0.0138
Nitrate+Nitrite (Dissolved)	0.0051	2	0		0.0157	0.01575	0.0162	0.0162	0.01665	0.0167
Nitrite (as N)	0.001	2	0		0.0019	0.00195	0.0024	0.0024	0.00285	0.0029
Nitrogen (Dissolved)	0.03	2	0		0.046	0.04675	0.0535	0.0535	0.06025	0.061
Nitrogen (Total)	0.03	2	0		0.052	0.0529	0.061	0.061	0.0691	0.07
Nitrogen Kjeldahl (Total)	0.05	2	0	1	0.025	0.02645	0.0395	0.0395	0.05255	0.054
Nitrogen Organic (Dissolved)	0.05	2	0	1	0.025	0.0268	0.043	0.043	0.0592	0.061
Nitrogen Organic (Total)	0.05	2	0		0.052	0.0529	0.061	0.061	0.0691	0.07
Orthophosphate (Dissolved)	0.001	2	0		0.0247	0.024815	0.02585	0.0258	0.026885	0.027
Phosphorus (Nutrient) Dissolved	0.002	2	0		0.0289	0.02891	0.029	0.029	0.02909	0.0291
Phosphorus (Nutrient) Total	0.002	2	0		0.0323	0.03249	0.0342	0.0342	0.03591	0.0361
Cyanide										
Cyanate	0.2	2	0	2	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	2	0	2	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	2	0		0.0033	0.00348	0.0051	0.0051	0.00672	0.0069
Antimony (Dissolved)	0.0001	2	0		0.00081	0.000815	0.00086	0.00086	0.000905	0.00091
Arsenic (Dissolved)	0.0001	2	0		0.00184	0.001858	0.00202	0.00202	0.002182	0.0022
Barium (Dissolved)	0.0001	2	0		0.0132	0.013275	0.01395	0.014	0.014625	0.0147
Beryllium (Dissolved)	2E-005	2	0	2	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	2	0	2	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	2	0	1	2.5E-006	2.845E-006	5.95E-006	0.00000595	9.055E-006	9.4E-006
Calcium (Dissolved)	0.05	2	0		22.4	22.69	25.3	25.3	27.91	28.2
Chromium (Dissolved)	0.0005	2	0	1	0.00025	0.0002625	0.000375	0.000375	0.0004875	0.0005
Chromium VI (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	2	0	2	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	2	0	1	0.0001	0.000106	0.00016	0.00016	0.000214	0.00022
Iron (Dissolved)	0.01	2	0	2	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	2	0		0.0014	0.001405	0.00145	0.00145	0.001495	0.0015
Magnesium (Dissolved)	0.1	2	0		5.3	5.342	5.72	5.72	6.098	6.14
Manganese (Dissolved)	0.0001	2	0		0.00497	0.0054765	0.010035	0.01	0.0145935	0.0151
Mercury (Dissolved)	5E-006	2	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	2	0		0.0017	0.0017115	0.001815	0.00182	0.0019185	0.00193
Nickel (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	2	0		1.53	1.5665	1.895	1.9	2.2235	2.26
Selenium (Dissolved)	5E-005	2	0		0.000233	0.0002393	0.000296	0.000296	0.0003527	0.000359
Silicon (Dissolved)	0.05	2	0		8.16	8.171	8.27	8.27	8.369	8.38
Silver (Dissolved)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	2	0		11.9	11.985	12.75	12.8	13.515	13.6
Strontium (Dissolved)	0.0002	2	0		0.241	0.2425	0.256	0.256	0.2695	0.271
Sulfur (Dissolved)	0.5	2	0		1.76	1.81	2.26	2.26	2.71	2.76
Thallium (Dissolved)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	2	0	1	5E-005	5.25E-005	7.5E-005	0.000075	9.75E-005	0.0001
Titanium (Dissolved)	0.0003	2	0	2	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	2	0		0.00155	0.001551	0.00156	0.00156	0.001569	0.00157
Vanadium (Dissolved)	0.0005	2	0		0.00068	0.0006815	0.000695	0.000695	0.0007085	0.00071
Zinc (Dissolved)	0.001	2	0	1	0.0005	0.000545	0.00095	0.00095	0.001355	0.0014
Zirconium (Dissolved)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	2	0		0.0831	0.085045	0.10255	0.103	0.120055	0.122
Antimony (Total)	0.0001	2	0		0.00087	0.0008725	0.000895	0.000895	0.0009175	0.00092
Arsenic (Total)	0.0001	2	0		0.002	0.0020225	0.002225	0.00223	0.0024275	0.00245
Barium (Total)	0.0001	2	0		0.0142	0.01436	0.0158	0.0158	0.01724	0.0174
Beryllium (Total)	2E-005	2	0	2	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	2	0	2	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	2	0		8.2E-006	8.785E-006	1.405E-005	0.0000141	1.9315E-005	1.99E-005
Calcium (Total)	0.05	2	0		22.4	22.66	25	25	27.34	27.6
Chromium (Total)	0.0005	2	0		0.0008	0.000807	0.00087	0.00087	0.000933	0.00094
Chromium III (Total)	0.0005	1	0		0.00094	0.00094	0.00094	0.00094	0.00094	0.00094
Chromium VI (Total)	0.0005	2	0	1	0.00025	0.0002675	0.000425	0.000425	0.0005825	0.0006
Cobalt (Total)	0.0001	2	0	1	5E-005	5.25E-005	7.5E-005	0.000075	9.75E-005	0.0001
Copper (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	2	0		0.044	0.04665	0.0705	0.0705	0.09435	0.097
Lead (Total)	5E-005	2	0		7.5E-005	7.935E-005	0.0001185	0.000119	0.00015765	0.000162
Lithium (Total)	0.001	2	0		0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Magnesium (Total)	0.1	2	0		5.66	5.679	5.85	5.85	6.021	6.04
Manganese (Total)	0.0001	2	0		0.00723	0.0078785	0.013715	0.0137	0.0195515	0.0202
Mercury (Total)	5E-006	2	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	2	0		0.00182	0.0018245	0.001865	0.00187	0.0019055	0.00191
Nickel (Total)	0.0005	2	0	1	0.00025	0.0002645	0.000395	0.000395	0.0005255	0.00054
Phosphorus (Metal) Total	0.05	2	0	1	0.025	0.02665	0.0415	0.0415	0.05635	0.058
Potassium (Total)	0.1	2	0		1.58	1.611	1.89	1.89	2.169	2.2
Selenium (Total)	5E-005	2	0		0.000279	0.00028395	0.0003285	0.000329	0.00037305	0.000378
Silicon (Total)	0.1	2	0		8.25	8.265	8.4	8.4	8.535	8.55
Silver (Total)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	2	0		12.8	12.9	13.8	13.8	14.7	14.8
Strontium (Total)	0.0002	2	0		0.259	0.2595	0.264	0.264	0.2685	0.269
Sulfur (Total)	0.5	2	0		1.63	1.684	2.17	2.17	2.656	2.71
Thallium (Total)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	2	0		0.00013	0.0001445	0.000275	0.000275	0.0004055	0.00042
Titanium (Total)	0.0003	2	0		0.0014	0.0015205	0.002605	0.00261	0.0036895	0.00381
Uranium (Total)	1E-005	2	0		0.00166	0.0016605	0.001665	0.00167	0.0016695	0.00167
Vanadium (Total)	0.0005	2	0		0.00089	0.000892	0.00091	0.00091	0.000928	0.00093
Zinc (Total)	0.003	2	0	1	0.0015	0.001635	0.00285	0.00285	0.004065	0.0042
Zirconium (Total)	0.0002	2	0	1	0.0001	0.0001195	0.000295	0.000295	0.0004705	0.00049
Organics										
Carbon Organic (Dissolved)	0.5	2	0	1	0.25	0.263	0.38	0.38	0.497	0.51
Carbon Organic (Total)	0.5	2	0		0.89	0.907	1.06	1.06	1.213	1.23

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 21 MW23-03D

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 22 MW23-03S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		34.7	35.15	39.2	39.1	42.89	43.3
Oxygen Dissolved (In Situ %) %	...	3	0		5.9	6.01	7	10.2	16.63	17.7
Oxygen Dissolved (In Situ)	...	3	0		0.81	0.819	0.9	1.37	2.241	2.39
pH (In Situ) pH	...	3	0		6.17	6.183	6.3	6.28	6.363	6.37
Redox Potential (In Situ) mV	...	3	0		18.3	18.3	-74.4	-74.4	18.3	18.3
Salinity (In Situ) ppt	...	3	0		0.03	0.03	0.03	0.03	0.03	0.03
Specific Conductivity (In Situ) µS/cm	...	3	0		61.1	61.7	67.1	66.4	70.7	71.1
Temperature (In Situ) °C	...	3	0		2.3	2.41	3.4	3.43	4.48	4.6
Total Dissolved Solids (In Situ)	...	3	0		39.7	40.09	43.6	43.1	45.85	46.1
Turbidity (In Situ) NTU	...	3	0		1.8	2.419	7.99	6.28	8.935	9.04
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		26.5	26.73	28.8	28.6	30.42	30.6
Alkalinity/ Bicarbonate as CaCO3	1	3	0		26.5	26.73	28.8	28.6	30.42	30.6
Alkalinity/ Carbonate as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0		19.2	20.02	27.4	25.7	30.1	30.4
Hardness as CaCO3 (Dissolved)	0.6	3	0		24.3	24.5	26.3	26	27.2	27.3
Hardness as CaCO3 (Total)	0.6	3	0		24.3	24.53	26.6	26.2	27.59	27.7
pH pH	0.1	3	0		6.96	6.962	6.98	7.04	7.151	7.17
Specific Conductivity µS/cm	2	3	0		59	59.57	64.7	63.8	67.49	67.8
Total Dissolved Solids	13	3	0		61	61.7	68	66.3	69.8	70
Total Suspended Solids	3	3	0	1	1.5	1.73	3.8	4.07	6.59	6.9
Turbidity NTU	0.1	3	0		2.48	2.726	4.94	7.81	14.894	16
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0		0.94	0.94	0.94	0.967	1.012	1.02
Fluoride (Dissolved)	0.02	3	0		0.028	0.0281	0.029	0.031	0.0353	0.036
Sulphate (Dissolved)	0.3	3	0		2.39	2.415	2.64	2.72	3.072	3.12
Nutrients										
Ammonia (Dissolved)	0.005	3	0		0.0055	0.0057	0.0075	0.00723	0.00858	0.0087
Ammonia (Total)	0.005	3	0		0.0072	0.00721	0.0073	0.00743	0.00775	0.0078
Nitrate (as N)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate+Nitrite (Dissolved)	0.0051	3	0	3	0.00255	0.00255	0.00255	0.00255	0.00255	0.00255
Nitrite (as N)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	3	0		0.096	0.098	0.116	0.114	0.1277	0.129
Nitrogen (Total)	0.03	3	0		0.097	0.099	0.117	0.114	0.126	0.127
Nitrogen Kjeldahl (Total)	0.05	3	0		0.097	0.099	0.117	0.114	0.126	0.127
Nitrogen Organic (Dissolved)	0.05	3	0		0.096	0.098	0.116	0.114	0.1277	0.129
Nitrogen Organic (Total)	0.05	3	0		0.097	0.099	0.117	0.114	0.126	0.127
Orthophosphate (Dissolved)	0.001	3	0		0.0069	0.0073	0.0109	0.00997	0.01198	0.0121
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0194	0.0198	0.0234	0.0233	0.02664	0.027
Phosphorus (Nutrient) Total	0.002	3	0		0.0227	0.0228	0.0237	0.0285	0.03747	0.039
Cyanide										
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.119	0.1266	0.195	0.175	0.2103	0.212
Antimony (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	3	0		0.00175	0.001757	0.00182	0.00183	0.001901	0.00191
Barium (Dissolved)	0.0001	3	0		0.0109	0.01092	0.0111	0.0115	0.01236	0.0125
Beryllium (Dissolved)	2E-005	3	0		6.6E-005	6.61E-005	6.7E-005	0.000069	7.33E-005	7.4E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0		6.27E-005	6.281E-005	6.38E-005	0.0000704	8.261E-005	8.47E-005
Calcium (Dissolved)	0.05	3	0		7.23	7.327	8.2	7.97	8.443	8.47
Chromium (Dissolved)	0.0005	3	0	2	0.00025	0.00025	0.00025	0.00036	0.000547	0.00058
Chromium III (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	3	0		0.00146	0.00147	0.00156	0.00154	0.001587	0.00159
Copper (Dissolved)	0.0002	3	0		0.0005	0.000532	0.00082	0.000793	0.001036	0.00106
Iron (Dissolved)	0.01	3	0		0.841	0.847	0.901	0.924	1.0171	1.03
Lead (Dissolved)	5E-005	3	0		0.000129	0.0001383	0.000222	0.000194	0.000231	0.000232
Lithium (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Magnesium (Dissolved)	0.1	3	0		1.42	1.428	1.5	1.48	1.509	1.51
Manganese (Dissolved)	0.0001	3	0		0.382	0.3862	0.424	0.412	0.4285	0.429
Mercury (Dissolved)	5E-006	3	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000038	6.01E-006	6.4E-006
Molybdenum (Dissolved)	5E-005	3	0		0.000173	0.0001742	0.000185	0.000194	0.0002192	0.000223
Nickel (Dissolved)	0.0005	3	0		0.00122	0.001256	0.00158	0.00151	0.001715	0.00173
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	3	0		0.235	0.2372	0.257	0.259	0.2822	0.285
Selenium (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Silicon (Dissolved)	0.05	3	0		9.9	9.91	10	10	10.09	10.1
Silver (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	3	0		2.8	2.804	2.84	2.85	2.912	2.92
Strontium (Dissolved)	0.0002	3	0		0.0386	0.03882	0.0408	0.041	0.04323	0.0435
Sulfur (Dissolved)	0.5	3	0	1	0.25	0.314	0.89	0.683	0.908	0.91
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0		0.00176	0.001945	0.00361	0.00312	0.003943	0.00398
Uranium (Dissolved)	1E-005	3	0		0.000118	0.0001208	0.000146	0.000142	0.0001595	0.000161
Vanadium (Dissolved)	0.0005	3	0		0.00068	0.000694	0.00082	0.000803	0.000901	0.00091
Zinc (Dissolved)	0.001	3	0		0.0037	0.00372	0.0039	0.004	0.00435	0.0044
Zirconium (Dissolved)	0.0002	3	0		0.00064	0.00064	0.00064	0.000643	0.000649	0.00065
Total Metals										
Aluminum (Total)	0.003	3	0		0.24	0.2481	0.321	0.499	0.8754	0.937
Antimony (Total)	0.0001	3	0		0.00011	0.000111	0.00012	0.00012	0.000129	0.00013
Arsenic (Total)	0.0001	3	0		0.00199	0.001991	0.002	0.00217	0.002477	0.00253
Barium (Total)	0.0001	3	0		0.012	0.01201	0.0121	0.0139	0.01696	0.0175
Beryllium (Total)	2E-005	3	0		6.6E-005	6.68E-005	7.4E-005	0.0000807	9.92E-005	0.000102
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0		7.58E-005	7.688E-005	8.66E-005	0.0000871	9.776E-005	9.9E-005
Calcium (Total)	0.05	3	0		7.08	7.194	8.22	7.99	8.625	8.67
Chromium (Total)	0.0005	3	0		0.00066	0.000686	0.00092	0.000887	0.001064	0.00108
Chromium III (Total)	0.0005	2	0		0.00066	0.000681	0.00087	0.00087	0.001059	0.00108
Chromium VI (Total)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Total)	0.0001	3	0		0.00151	0.001514	0.00155	0.00161	0.001757	0.00178
Copper (Total)	0.0005	3	0		0.00102	0.001047	0.00129	0.00154	0.002208	0.00231
Iron (Total)	0.01	3	0		0.954	0.9571	0.985	1.19	1.5745	1.64
Lead (Total)	5E-005	3	0		0.000253	0.0002622	0.000345	0.000467	0.0007563	0.000802
Lithium (Total)	0.001	3	0	2	0.0005	0.0005	0.0005	0.0007	0.00104	0.0011
Magnesium (Total)	0.1	3	0		1.46	1.461	1.47	1.51	1.587	1.6
Manganese (Total)	0.0001	3	0		0.38	0.3819	0.399	0.407	0.4368	0.441
Mercury (Total)	5E-006	3	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000036	5.47E-006	5.8E-006
Molybdenum (Total)	5E-005	3	0		0.000227	0.0002271	0.000228	0.000253	0.0002964	0.000304
Nickel (Total)	0.0005	3	0		0.00178	0.001787	0.00185	0.00185	0.001904	0.00191
Phosphorus (Metal) Total	0.05	3	0	2	0.025	0.025	0.025	0.0333	0.0475	0.05
Potassium (Total)	0.1	3	0		0.267	0.2679	0.276	0.314	0.3858	0.398
Selenium (Total)	5E-005	3	0	2	2.5E-005	2.5E-005	2.5E-005	0.0000343	5.02E-005	5.3E-005
Silicon (Total)	0.1	3	0		9.68	9.71	9.98	10.5	11.618	11.8
Silver (Total)	1E-005	3	0	1	5E-006	5.8E-006	1.3E-005	0.000012	1.75E-005	1.8E-005
Sodium (Total)	0.05	3	0		2.65	2.66	2.75	2.75	2.831	2.84
Strontium (Total)	0.0002	3	0		0.041	0.04107	0.0417	0.0421	0.04341	0.0436
Sulfur (Total)	0.5	3	0		0.63	0.665	0.98	0.927	1.151	1.17
Thallium (Total)	1E-005	3	0	2	5E-006	5E-006	5E-006	0.00000867	1.49E-005	1.6E-005
Tin (Total)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	3	0		0.0056	0.005824	0.00784	0.0127	0.022924	0.0246
Uranium (Total)	1E-005	3	0		0.000167	0.0001682	0.000179	0.00018	0.0001925	0.000194
Vanadium (Total)	0.0005	3	0		0.00096	0.000965	0.00101	0.00133	0.001928	0.00203
Zinc (Total)	0.003	3	0		0.0046	0.00471	0.0057	0.00563	0.00651	0.0066
Zirconium (Total)	0.0002	3	0		0.00075	0.000756	0.00081	0.00087	0.001026	0.00105
Organics										
Carbon Organic (Dissolved)	0.5	3	0		5.7	5.76	6.3	6.83	8.271	8.49
Carbon Organic (Total)	0.5	3	0		5.84	5.917	6.61	7.23	8.968	9.23

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 22 MW23-03S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 23 MW23-04D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		95.7	96.33	102	104	111.9	113
Oxygen Dissolved (In Situ %) %	...	3	0		3.12	3.588	7.8	9.51	16.62	17.6
Oxygen Dissolved (In Situ)	...	3	0		0.95	1.087	2.32	9.09	21.832	24
pH (In Situ) pH	...	3	0		8.12	8.131	8.23	8.22	8.311	8.32
Redox Potential (In Situ) mV	...	3	0		23.9	23.9	-49	-49	23.9	23.9
Salinity (In Situ) ppt	...	2	0		0.08	0.08	0.08	0.08	0.08	0.08
Specific Conductivity (In Situ) µS/cm	...	3	0		169	169.1	170	171	172.7	173
Temperature (In Situ) °C	...	3	0		2.3	2.5	4.3	4.43	6.46	6.7
Total Dissolved Solids (In Situ)	...	2	0		110	110	110	110	110	110
Turbidity (In Situ) NTU	...	3	0		0.58	0.647	1.25	1.44	2.366	2.49
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		89.5	89.62	90.7	90.8	91.96	92.1
Alkalinity/ Bicarbonate as CaCO3	1	3	0		89.5	89.62	90.7	90.8	91.96	92.1
Alkalinity/ Carbonate as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	3	0		70.4	70.69	73.3	72.6	74.02	74.1
Hardness as CaCO3 (Total)	0.6	3	0		72.1	72.14	72.5	72.5	72.86	72.9
pH pH	0.1	3	0		8.19	8.19	8.19	8.21	8.253	8.26
Specific Conductivity µS/cm	2	3	0		168	168.3	171	171	172.8	173
Total Dissolved Solids	13	2	0		97	97.45	101.5	102	105.55	106
Total Suspended Solids	3	3	0	1	1.5	1.87	5.2	4.1	5.56	5.6
Turbidity NTU	0.1	3	0		0.33	0.381	0.84	0.9	1.461	1.53
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	3	0		0.038	0.038	0.038	0.0383	0.0389	0.039
Sulphate (Dissolved)	0.3	3	0		1.83	1.831	1.84	1.91	2.047	2.07
Nutrients										
Ammonia (Dissolved)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Ammonia (Total)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Nitrate (as N)	0.005	3	0		0.0308	0.03083	0.0311	0.0374	0.04838	0.0503
Nitrate+Nitrite (Dissolved)	0.0051	3	0		0.0311	0.03123	0.0324	0.0379	0.04851	0.0503
Nitrite (as N)	0.001	3	0	2	0.0005	0.0005	0.0005	0.000867	0.00149	0.0016
Nitrogen (Dissolved)	0.03	3	0	1	0.015	0.0172	0.037	0.0333	0.0469	0.048
Nitrogen (Total)	0.03	3	0		0.033	0.0335	0.038	0.044	0.0587	0.061
Nitrogen Kjeldahl (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	3	0		0.0262	0.02622	0.0264	0.0272	0.02883	0.0291
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0278	0.02791	0.0289	0.029	0.03007	0.0302
Phosphorus (Nutrient) Total	0.002	3	0		0.0292	0.02934	0.0306	0.0307	0.03204	0.0322
Cyanide										
Cyanate	0.2 to 0.4	3	0	3	0.1	0.1	0.1	0.133	0.19	0.2
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.001	0.00107	0.0017	0.00177	0.00251	0.0026
Antimony (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	3	0		0.00082	0.00082	0.00082	0.000823	0.000829	0.00083
Barium (Dissolved)	0.0001	3	0		0.0013	0.001315	0.00145	0.0015	0.001711	0.00174
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0	2	2.5E-006	2.5E-006	2.5E-006	0.00000377	5.92E-006	6.3E-006
Calcium (Dissolved)	0.05	3	0		20.9	20.97	21.6	21.4	21.6	21.6
Chromium (Dissolved)	0.0005	3	0		0.00091	0.000923	0.00104	0.00101	0.001067	0.00107
Chromium VI (Dissolved)	0.0005	2	0		0.00105	0.0010625	0.001175	0.00117	0.0012875	0.0013
Cobalt (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Iron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	3	0		0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Magnesium (Dissolved)	0.1	3	0		4.43	4.457	4.7	4.68	4.88	4.9
Manganese (Dissolved)	0.0001	3	0		0.00048	0.000544	0.00112	0.000983	0.001327	0.00135
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	3	0		0.000528	0.0005295	0.000543	0.000543	0.0005556	0.000557
Nickel (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	3	0		0.719	0.7193	0.722	0.733	0.7535	0.757
Selenium (Dissolved)	5E-005	3	0		0.000205	0.0002088	0.000243	0.000237	0.000261	0.000263
Silicon (Dissolved)	0.05	3	0		8.26	8.298	8.64	8.52	8.667	8.67
Silver (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	3	0		7.54	7.601	8.15	8.19	8.807	8.88
Strontium (Dissolved)	0.0002	3	0		0.232	0.2323	0.235	0.235	0.2368	0.237
Sulfur (Dissolved)	0.5	3	0	1	0.25	0.278	0.53	0.437	0.53	0.53
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0	3	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	3	0		0.000602	0.0006046	0.000628	0.000639	0.000682	0.000688
Vanadium (Dissolved)	0.0005	3	0		0.00116	0.001162	0.00118	0.00117	0.00118	0.00118
Zinc (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	3	0		0.0105	0.01273	0.0328	0.0313	0.04891	0.0507
Antimony (Total)	0.0001	3	0	2	5E-005	5E-005	5E-005	0.0000667	9.5E-005	0.0001
Arsenic (Total)	0.0001	3	0		0.00082	0.000821	0.00083	0.00084	0.000866	0.00087
Barium (Total)	0.0001	3	0		0.00173	0.001875	0.00318	0.00273	0.003261	0.00327
Beryllium (Total)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0	1	2.5E-006	3.08E-006	8.3E-006	0.0000068	9.47E-006	9.6E-006
Calcium (Total)	0.05	3	0		20.9	20.95	21.4	21.3	21.49	21.5
Chromium (Total)	0.0005	3	0		0.00125	0.001259	0.00134	0.00135	0.001457	0.00147
Chromium III (Total)	0.0005	1	0		0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Chromium VI (Total)	0.0005	3	0		0.00074	0.00077	0.00104	0.00102	0.001265	0.00129
Cobalt (Total)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Iron (Total)	0.01	3	0		0.013	0.0153	0.036	0.032	0.0459	0.047
Lead (Total)	5E-005	3	0	2	2.5E-005	2.5E-005	2.5E-005	0.0000353	5.29E-005	5.6E-005
Lithium (Total)	0.001	3	0		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Magnesium (Total)	0.1	3	0		4.54	4.542	4.56	4.71	4.983	5.03
Manganese (Total)	0.0001	3	0		0.00152	0.00184	0.00472	0.00495	0.008212	0.0086
Mercury (Total)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	3	0		0.000572	0.0005732	0.000584	0.000587	0.0006038	0.000606
Nickel (Total)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Total	0.05	3	0	2	0.025	0.025	0.025	0.0367	0.0565	0.06
Potassium (Total)	0.1	3	0		0.651	0.6554	0.695	0.687	0.7121	0.714
Selenium (Total)	5E-005	3	0		0.000246	0.000247	0.000256	0.000255	0.0002632	0.000264
Silicon (Total)	0.1	3	0		8.32	8.321	8.33	8.36	8.411	8.42
Silver (Total)	1E-005	3	0	2	5E-006	5E-006	5E-006	0.00000667	9.5E-006	1E-005
Sodium (Total)	0.05	3	0		7.4	7.452	7.92	7.91	8.352	8.4
Strontium (Total)	0.0002	3	0		0.227	0.2279	0.236	0.233	0.236	0.236
Sulfur (Total)	0.5	3	0	2	0.25	0.25	0.25	0.373	0.583	0.62
Thallium (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	3	0	1	5E-005	5.6E-005	0.00011	0.00011	0.000164	0.00017
Titanium (Total)	0.0003	3	0		0.0005	0.000546	0.00096	0.00128	0.002238	0.00238
Uranium (Total)	1E-005	3	0		0.000628	0.0006317	0.000665	0.000663	0.0006929	0.000696
Vanadium (Total)	0.0005	3	0		0.00128	0.00128	0.00128	0.00131	0.00137	0.00138
Zinc (Total)	0.003	3	0	2	0.0015	0.0015	0.0015	0.00227	0.00357	0.0038
Zirconium (Total)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Carbon Organic (Total)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 23 MW

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 24 MW23-04S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

Print Sep/26/24 14:38:51

Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		94	94.37	97.7	101	108.77	110
Oxygen Dissolved (In Situ %) %	...	3	0		20	20.64	26.4	26.2	31.62	32.2
Oxygen Dissolved (In Situ)	...	3	0		2.78	2.787	2.85	3.21	3.876	3.99
pH (In Situ) pH	...	3	0		8.37	8.374	8.41	8.86	9.67	9.81
Redox Potential (In Situ) mV	...	3	0		23.1	23.1	-61.8	-61.8	23.1	23.1
Salinity (In Situ) ppt	...	3	0		0.08	0.08	0.08	0.08	0.08	0.08
Specific Conductivity (In Situ) µS/cm	...	3	0		167	167.8	175	173	175.9	176
Temperature (In Situ) °C	...	3	0		0.6	0.71	1.7	4	8.9	9.7
Total Dissolved Solids (In Situ)	...	3	0		112	112.2	114	113	114	114
Turbidity (In Situ) NTU	...	3	0		3.45	3.891	7.86	9.6	16.536	17.5
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		76.8	77.57	84.5	82.4	85.85	86
Alkalinity/ Bicarbonate as CaCO3	1	3	0		75.6	76.33	82.9	81	84.34	84.5
Alkalinity/ Carbonate as CaCO3	1	3	0	1	0.5	0.57	1.2	1.57	2.82	3
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	3	0		51.8	53.34	67.2	62.9	69.45	69.7
Hardness as CaCO3 (Total)	0.6	3	0		54.8	56.23	69.1	65.3	71.71	72
pH pH	0.1	3	0		8.12	8.123	8.15	8.19	8.285	8.3
Specific Conductivity µS/cm	2	3	0		159	160.8	177	171	177.9	178
Total Dissolved Solids	13	3	0		82	84.9	111	102	112.8	113
Total Suspended Solids	3	3	0		3.2	3.5	6.2	6.77	10.43	10.9
Turbidity NTU	0.1	3	0		2.43	2.545	3.58	4.84	8.026	8.52
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	3	0		0.071	0.071	0.071	0.0717	0.0728	0.073
Sulphate (Dissolved)	0.3	3	0		6.03	6.069	6.42	7.02	8.382	8.6
Nutrients										
Ammonia (Dissolved)	0.005	3	0		0.0074	0.00752	0.0086	0.0084	0.00914	0.0092
Ammonia (Total)	0.005	3	0		0.0062	0.00639	0.0081	0.00757	0.00837	0.0084
Nitrate (as N)	0.005	3	0		0.0105	0.01089	0.0144	0.0161	0.02259	0.0235
Nitrate+Nitrite (Dissolved)	0.0051	3	0		0.0131	0.01323	0.0144	0.017	0.02259	0.0235
Nitrite (as N)	0.001	3	0	2	0.0005	0.0005	0.0005	0.0012	0.00239	0.0026
Nitrogen (Dissolved)	0.03	3	0		0.042	0.0461	0.083	0.0723	0.0911	0.092
Nitrogen (Total)	0.03	3	0		0.04	0.0445	0.085	0.0723	0.0913	0.092
Nitrogen Kjeldahl (Total)	0.05	3	0	1	0.025	0.0293	0.068	0.055	0.0716	0.072
Nitrogen Organic (Dissolved)	0.05	3	0	1	0.025	0.0276	0.051	0.0487	0.0681	0.07
Nitrogen Organic (Total)	0.05	3	0	1	0.025	0.0285	0.06	0.0567	0.0825	0.085
Orthophosphate (Dissolved)	0.001	3	0		0.0195	0.02075	0.032	0.0282	0.03308	0.0332
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0296	0.02999	0.0335	0.0346	0.04007	0.0408
Phosphorus (Nutrient) Total	0.002	3	0		0.0354	0.03638	0.0452	0.0428	0.04745	0.0477
Cyanide										
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.0026	0.00284	0.005	0.00867	0.01706	0.0184
Antimony (Dissolved)	0.0001	3	0	1	5E-005	5.8E-005	0.00013	0.00012	0.000175	0.00018
Arsenic (Dissolved)	0.0001	3	0		0.00128	0.001291	0.00139	0.00147	0.001696	0.00173
Barium (Dissolved)	0.0001	3	0		0.015	0.01525	0.0175	0.0275	0.04684	0.0501
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0	1	2.5E-006	3.43E-006	1.18E-005	0.0000108	1.738E-005	1.8E-005
Calcium (Dissolved)	0.05	3	0		14.9	15.3	18.9	17.8	19.53	19.6
Chromium (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	3	0	2	5E-005	5E-005	5E-005	0.0000733	0.000113	0.00012
Copper (Dissolved)	0.0002	3	0	1	0.0001	0.000137	0.00047	0.000483	0.000839	0.00088
Iron (Dissolved)	0.01	3	0	2	0.005	0.005	0.005	0.009	0.0158	0.017
Lead (Dissolved)	5E-005	3	0	2	2.5E-005	2.5E-005	2.5E-005	0.000039	6.28E-005	6.7E-005
Lithium (Dissolved)	0.001	3	0		0.0013	0.00131	0.0014	0.00227	0.00383	0.0041
Magnesium (Dissolved)	0.1	3	0		3.55	3.681	4.86	4.48	5.022	5.04
Manganese (Dissolved)	0.0001	3	0		0.00563	0.013487	0.0842	0.0693	0.11462	0.118
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	3	0		0.00121	0.001219	0.0013	0.00127	0.0013	0.0013
Nickel (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	3	0		1.3	1.36	1.9	4.03	8.2	8.9
Selenium (Dissolved)	5E-005	3	0		0.000198	0.0001983	0.000201	0.000205	0.0002154	0.000217
Silicon (Dissolved)	0.05	3	0		7.9	8.012	9.02	8.7	9.164	9.18
Silver (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	3	0		7.9	7.979	8.69	9.5	11.579	11.9
Strontium (Dissolved)	0.0002	3	0		0.133	0.1339	0.142	0.211	0.3355	0.357
Sulfur (Dissolved)	0.5	3	0		1.85	1.912	2.47	2.31	2.596	2.61
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0	2	0.00015	0.00015	0.00015	0.000303	0.000564	0.00061
Uranium (Dissolved)	1E-005	3	0		0.000702	0.0007259	0.000941	0.000934	0.0011381	0.00116
Vanadium (Dissolved)	0.0005	3	0	2	0.00025	0.00025	0.00025	0.00047	0.000844	0.00091
Zinc (Dissolved)	0.001	3	0	2	0.0005	0.0005	0.0005	0.00113	0.00221	0.0024
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	3	0		0.0652	0.067	0.0832	0.165	0.32152	0.348
Antimony (Total)	0.0001	3	0		0.00012	0.000121	0.00013	0.00015	0.000193	0.0002
Arsenic (Total)	0.0001	3	0		0.00149	0.001492	0.00151	0.00161	0.001798	0.00183
Barium (Total)	0.0001	3	0		0.0184	0.01842	0.0186	0.0315	0.05361	0.0575
Beryllium (Total)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0		6.6E-006	7.86E-006	1.92E-005	0.0000162	2.235E-005	2.27E-005
Calcium (Total)	0.05	3	0		15.6	15.99	19.5	18.4	20.13	20.2
Chromium (Total)	0.0005	3	0	1	0.00025	0.0003	0.00075	0.000647	0.000921	0.00094
Chromium VI (Total)	0.0005	2	0	1	0.00025	0.0002755	0.000505	0.000505	0.0007345	0.00076
Cobalt (Total)	0.0001	3	0	1	5E-005	6.4E-005	0.00019	0.00016	0.000235	0.00024
Copper (Total)	0.0005	3	0	1	0.00025	0.00029	0.00065	0.00056	0.000767	0.00078
Iron (Total)	0.01	3	0		0.081	0.0825	0.096	0.184	0.3462	0.374
Lead (Total)	5E-005	3	0		8.9E-005	9.65E-005	0.000164	0.000168	0.0002423	0.000251
Lithium (Total)	0.001	3	0		0.0013	0.00131	0.0014	0.00227	0.00383	0.0041
Magnesium (Total)	0.1	3	0		3.84	3.951	4.95	4.67	5.202	5.23
Manganese (Total)	0.0001	3	0		0.012	0.021	0.102	0.0827	0.1308	0.134
Mercury (Total)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	3	0		0.00124	0.001242	0.00126	0.00132	0.00144	0.00146
Nickel (Total)	0.0005	3	0	1	0.00025	0.000275	0.0005	0.000533	0.000815	0.00085
Phosphorus (Metal) Total	0.05	3	0		0.051	0.0511	0.052	0.0547	0.0601	0.061
Potassium (Total)	0.1	3	0		1.39	1.432	1.81	3.97	8.011	8.7
Selenium (Total)	5E-005	3	0		0.000169	0.0001721	0.0002	0.000203	0.0002351	0.000239
Silicon (Total)	0.1	3	0		8.76	8.829	9.45	9.22	9.459	9.46
Silver (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	3	0		8.42	8.456	8.78	9.93	12.218	12.6
Strontium (Total)	0.0002	3	0		0.146	0.146	0.146	0.217	0.3386	0.36
Sulfur (Total)	0.5	3	0		1.98	1.995	2.13	2.38	2.949	3.04
Thallium (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	3	0		0.00319	0.003317	0.00446	0.00918	0.018356	0.0199
Uranium (Total)	1E-005	3	0		0.000803	0.0008287	0.00106	0.000981	0.001078	0.00108
Vanadium (Total)	0.0005	3	0		0.00063	0.000691	0.00124	0.00105	0.001285	0.00129
Zinc (Total)	0.003	3	0	1	0.0015	0.00169	0.0034	0.0028	0.00349	0.0035
Zirconium (Total)	0.0002	3	0	2	0.0001	0.0001	0.0001	0.000163	0.000271	0.00029
Organics										
Carbon Organic (Dissolved)	0.5	3	0		0.71	0.739	1	0.94	1.099	1.11
Carbon Organic (Total)	0.5	3	0		0.68	0.687	0.75	0.897	1.209	1.26

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 24 MW23-04S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 25 MW23-05D

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	3	0		87.5	87.87	91.2	97.6	111.72	114
Oxygen Dissolved (In Situ %) %	...	3	0		50.3	51.68	64.1	60.1	65.81	66
Oxygen Dissolved (In Situ)	...	3	0		6.42	6.577	7.99	7.64	8.458	8.51
pH (In Situ) pH	...	3	0		8.16	8.266	9.22	9.08	9.796	9.86
Redox Potential (In Situ) mV	...	3	0		14.8	15.2	18.8	18.8	22.4	22.8
Salinity (In Situ) ppt	...	3	0		0.07	0.07	0.07	0.0733	0.079	0.08
Specific Conductivity (In Situ) µS/cm	...	3	0		147	147.1	148	156	171.4	174
Temperature (In Situ) °C	...	3	0		3.7	3.83	5	5.23	6.8	7
Total Dissolved Solids (In Situ)	...	3	0		96.1	96.18	96.9	102	111.39	113
Turbidity (In Situ) NTU	...	3	0		2.11	2.744	8.45	9.32	16.505	17.4
Physical Tests										
Alkalinity (Total as CaCO3)	1	3	0		63	64.28	75.8	81.9	103.88	107
Alkalinity/ Bicarbonate as CaCO3	1	3	0		63	64.28	75.8	80.3	99.38	102
Alkalinity/ Carbonate as CaCO3	1	3	0	2	0.5	0.5	0.5	2	4.55	5
Alkalinity/ Hydroxide as CaCO3	1	3	0	3	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	3	0	3	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	3	0		68.4	68.43	68.7	69.2	70.41	70.6
Hardness as CaCO3 (Total)	0.6	3	0		77.7	77.87	79.4	98	131.24	137
pH pH	0.1	3	0		8.11	8.121	8.22	8.39	8.769	8.83
Specific Conductivity µS/cm	2	3	0		130	130.6	136	140	151.3	153
Total Dissolved Solids	13	3	0		75	75.7	82	85.3	97.3	99
Total Suspended Solids	3	3	0		9.3	11.42	30.5	38.1	70.19	74.6
Turbidity NTU	0.1	3	0		3.83	4.42	9.73	11.7	20.233	21.4
Dissolved Anions										
Bromide (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Fluoride (Dissolved)	0.02	3	0		0.051	0.0512	0.053	0.0563	0.0638	0.065
Sulphate (Dissolved)	0.3	3	0		4.55	4.555	4.6	4.89	5.428	5.52
Nutrients										
Ammonia (Dissolved)	0.005	3	0	2	0.0025	0.0025	0.0025	0.00583	0.0115	0.0125
Ammonia (Total)	0.005	3	0	1	0.0025	0.00286	0.0061	0.0068	0.01123	0.0118
Nitrate (as N)	0.005	3	0		0.0738	0.07406	0.0764	0.0784	0.08414	0.085
Nitrate+Nitrite (Dissolved)	0.0051	2	0		0.078	0.07835	0.0815	0.0815	0.08465	0.085
Nitrite (as N)	0.001	3	0	2	0.0005	0.0005	0.0005	0.000867	0.00149	0.0016
Nitrogen (Dissolved)	0.03	3	0		0.08	0.0815	0.095	0.099	0.1193	0.122
Nitrogen (Total)	0.03	3	0		0.088	0.0901	0.109	0.108	0.1261	0.128
Nitrogen Kjeldahl (Total)	0.05	3	0	2	0.025	0.025	0.025	0.0333	0.0475	0.05
Nitrogen Organic (Dissolved)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Total)	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	3	0	1	0.0005	0.0008	0.0035	0.00753	0.01709	0.0186
Phosphorus (Nutrient) Dissolved	0.002	3	0		0.0167	0.01711	0.0208	0.0209	0.02467	0.0251
Phosphorus (Nutrient) Total	0.002	3	0		0.0224	0.02295	0.0279	0.027	0.03051	0.0308
Cyanide										
Cyanate	0.2	3	0	3	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	3	0	3	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	3	0	3	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	3	0		0.0011	0.00122	0.0023	0.00263	0.00428	0.0045
Antimony (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	3	0		0.00098	0.00098	0.00098	0.00101	0.001061	0.00107
Barium (Dissolved)	0.0001	3	0		0.00922	0.010088	0.0179	0.0207	0.03338	0.0351
Beryllium (Dissolved)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Calcium (Dissolved)	0.05	3	0		20.6	20.65	21.1	21.4	22.45	22.6
Chromium (Dissolved)	0.0005	3	0		0.00104	0.001061	0.00125	0.00122	0.001367	0.00138
Chromium III (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Dissolved)	0.0005	3	0		0.00098	0.000994	0.00112	0.00109	0.001165	0.00117
Cobalt (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Dissolved)	0.0002	3	0	2	0.0001	0.0001	0.0001	0.00017	0.000289	0.00031
Iron (Dissolved)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Lead (Dissolved)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	3	0	1	0.0005	0.00057	0.0012	0.0013	0.0021	0.0022
Magnesium (Dissolved)	0.1	3	0		3.44	3.484	3.88	3.81	4.096	4.12
Manganese (Dissolved)	0.0001	3	0		0.00091	0.000947	0.00128	0.00171	0.002783	0.00295
Mercury (Dissolved)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	3	0		0.00122	0.00123	0.00132	0.00137	0.001536	0.00156
Nickel (Dissolved)	0.0005	3	0	3	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Phosphorus (Metal) Dissolved	0.05	3	0	3	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	3	0		0.713	0.7657	1.24	1.81	3.265	3.49
Selenium (Dissolved)	5E-005	3	0		0.000177	0.0001814	0.000221	0.000213	0.000239	0.000241
Silicon (Dissolved)	0.05	3	0		6.68	6.695	6.83	6.79	6.857	6.86
Silver (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	3	0		4.17	4.225	4.72	5.89	8.365	8.77
Strontium (Dissolved)	0.0002	3	0		0.117	0.1182	0.129	0.153	0.2055	0.214
Sulfur (Dissolved)	0.5	3	0		1.37	1.371	1.38	1.63	2.064	2.14
Thallium (Dissolved)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	3	0	3	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015
Uranium (Dissolved)	1E-005	3	0		0.000318	0.0003238	0.000376	0.000384	0.0004507	0.000459
Vanadium (Dissolved)	0.0005	3	0		0.0006	0.000624	0.00084	0.000763	0.000849	0.00085
Zinc (Dissolved)	0.001	3	0	3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Zirconium (Dissolved)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	3	0		0.0329	0.03953	0.0992	0.0967	0.15212	0.158
Antimony (Total)	0.0001	3	0	2	5E-005	5E-005	5E-005	0.0000833	0.00014	0.00015
Arsenic (Total)	0.0001	3	0		0.00122	0.001228	0.0013	0.00135	0.001516	0.00154
Barium (Total)	0.0001	3	0		0.0149	0.01658	0.0317	0.0289	0.03935	0.0402
Beryllium (Total)	2E-005	3	0	3	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	3	0	3	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	3	0	3	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	3	0	1	2.5E-006	3.4E-006	1.15E-005	0.00000917	1.33E-005	1.35E-005
Calcium (Total)	0.05	3	0		24.2	24.34	25.6	25.8	27.31	27.5
Chromium (Total)	0.0005	3	0		0.00142	0.001458	0.0018	0.00178	0.002079	0.00211
Chromium III (Total)	0.0005	2	0	1	0.00025	0.000285	0.0006	0.0006	0.000915	0.00095
Chromium VI (Total)	0.0005	3	0		0.00108	0.001088	0.00116	0.00114	0.001169	0.00117
Cobalt (Total)	0.0001	3	0	3	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Copper (Total)	0.0005	3	0	1	0.00025	0.000286	0.00061	0.000603	0.000916	0.00095
Iron (Total)	0.01	3	0		0.022	0.0279	0.081	0.0723	0.1107	0.114
Lead (Total)	5E-005	3	0	1	2.5E-005	3.51E-005	0.000126	0.000101	0.0001503	0.000153
Lithium (Total)	0.001	3	0	1	0.0005	0.0006	0.0015	0.00143	0.00222	0.0023
Magnesium (Total)	0.1	3	0		3.76	3.804	4.2	8.19	15.36	16.6
Manganese (Total)	0.0001	3	0		0.0022	0.002773	0.00793	0.00644	0.009055	0.00918
Mercury (Total)	5E-006	3	0	3	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	3	0		0.00132	0.001344	0.00156	0.00149	0.001578	0.00158
Nickel (Total)	0.0005	3	0	1	0.00025	0.000291	0.00066	0.000533	0.000687	0.00069
Phosphorus (Metal) Total	0.05	3	0	1	0.025	0.0277	0.052	0.044	0.0547	0.055
Potassium (Total)	0.1	3	0		0.709	0.7801	1.42	1.77	3.004	3.18
Selenium (Total)	5E-005	3	0		0.00021	0.0002119	0.000229	0.000235	0.0002632	0.000267
Silicon (Total)	0.1	3	0		7.15	7.197	7.62	9.29	12.552	13.1
Silver (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	3	0		3.85	3.982	5.17	5.91	8.365	8.72
Strontium (Total)	0.0002	3	0		0.126	0.1293	0.159	0.166	0.2085	0.214
Sulfur (Total)	0.5	3	0		1.4	1.43	1.7	1.62	1.754	1.76
Thallium (Total)	1E-005	3	0	3	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	3	0		0.00015	0.000158	0.00023	0.00027	0.00041	0.00043
Titanium (Total)	0.0003	3	0		0.00072	0.000822	0.00174	0.00224	0.004008	0.00426
Uranium (Total)	1E-005	3	0		0.000459	0.0004659	0.000528	0.000812	0.0013578	0.00145
Vanadium (Total)	0.0005	3	0		0.00103	0.001031	0.00104	0.00115	0.001346	0.00138
Zinc (Total)	0.003	3	0	2	0.0015	0.0015	0.0015	0.00203	0.00294	0.0031
Zirconium (Total)	0.0002	3	0	3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	3	0	1	0.25	0.286	0.61	0.593	0.889	0.92
Carbon Organic (Total)	0.5	3	0	1	0.25	0.285	0.6	0.707	1.203	1.27

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 25 MW

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

APPENDIX H-2 TABLE 26 MW23-05S

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
GROUNDWATER QUALITY SUMMARY STATISTICS

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Parameter	MDL	Construction (Jan 2023-Mar 2024)								
		Samples Included	Samples Excluded	Samples Below MDL	Minimum	5th Percentile	Median	Mean	95th Percentile	Maximum
In Situ Parameters										
Conductivity (In Situ) µS/cm	...	2	0		130	130.05	130.5	131	130.95	131
Oxygen Dissolved (In Situ %) %	...	2	0		55.3	58.185	84.15	84.2	110.115	113
Oxygen Dissolved (In Situ)	...	2	0		6.54	6.903	10.17	10.2	13.437	13.8
pH (In Situ) pH	...	2	0		7	7.0185	7.185	7.19	7.3515	7.37
Salinity (In Situ) ppt	...	2	0		0.09	0.0905	0.095	0.095	0.0995	0.1
Specific Conductivity (In Situ) µS/cm	...	2	0		194	194.7	201	201	207.3	208
Temperature (In Situ) °C	...	2	0		5	5.125	6.25	6.25	7.375	7.5
Total Dissolved Solids (In Situ)	...	2	0		126	126.7	133	133	139.3	140
Turbidity (In Situ) NTU	...	2	0		2.95	3.064	4.09	4.09	5.116	5.23
Physical Tests										
Alkalinity (Total as CaCO3)	1	2	0		92.7	93.065	96.35	96.4	99.635	100
Alkalinity/ Bicarbonate as CaCO3	1	2	0		92.7	93.065	96.35	96.4	99.635	100
Alkalinity/ Carbonate as CaCO3	1	2	0	2	0.5	0.5	0.5	0.5	0.5	0.5
Alkalinity/ Hydroxide as CaCO3	1	2	0	2	0.5	0.5	0.5	0.5	0.5	0.5
Color TCU	5	2	0	2	2.5	2.5	2.5	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.6	2	0		71.3	71.93	77.6	77.6	83.27	83.9
Hardness as CaCO3 (Total)	0.6	2	0		78.3	78.74	82.7	82.7	86.66	87.1
pH pH	0.1	2	0		7.99	7.9935	8.025	8.03	8.0565	8.06
Specific Conductivity µS/cm	2	2	0		182	182.7	189	189	195.3	196
Total Dissolved Solids	13 to 2	2	0		111	112	121	121	130	131
Total Suspended Solids	3	2	0		3.6	3.73	4.9	4.9	6.07	6.2
Turbidity NTU	0.1	2	0		3.9	3.9025	3.925	3.93	3.9475	3.95
Dissolved Anions										
Bromide (Dissolved)	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Chloride (Dissolved)	0.5	2	0	1	0.25	0.2645	0.395	0.395	0.5255	0.54
Fluoride (Dissolved)	0.02	2	0		0.087	0.08775	0.0945	0.0945	0.10125	0.102
Sulphate (Dissolved)	0.3	2	0		2.14	2.2	2.74	2.74	3.28	3.34
Nutrients										
Ammonia (Dissolved)	0.005	2	0	1	0.0025	0.002845	0.00595	0.00595	0.009055	0.0094
Ammonia (Total)	0.005	2	0	1	0.0025	0.002695	0.00445	0.00445	0.006205	0.0064
Nitrate (as N)	0.005	2	0	1	0.0025	0.005215	0.02965	0.0297	0.054085	0.0568
Nitrate+Nitrite (Dissolved)	0.0051	2	0	1	0.00255	0.0052625	0.029675	0.0297	0.0540875	0.0568
Nitrite (as N)	0.001	2	0	2	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Nitrogen (Dissolved)	0.03	2	0		0.035	0.0393	0.078	0.078	0.1167	0.121
Nitrogen (Total)	0.03	2	0		0.043	0.045	0.063	0.063	0.081	0.083
Nitrogen Kjeldahl (Total)	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Nitrogen Organic (Dissolved)	0.05	2	0	1	0.025	0.0265	0.04	0.04	0.0535	0.055
Nitrogen Organic (Total)	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Orthophosphate (Dissolved)	0.001	2	0	1	0.0005	0.00065	0.002	0.002	0.00335	0.0035
Phosphorus (Nutrient) Dissolved	0.002	2	0		0.003	0.003265	0.00565	0.00565	0.008035	0.0083
Phosphorus (Nutrient) Total	0.002	2	0		0.0067	0.007115	0.01085	0.0109	0.014585	0.015
Cyanide										
Cyanate	0.2	2	0	2	0.1	0.1	0.1	0.1	0.1	0.1
Cyanide (Free)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (SAD)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Cyanide (WAD)	0.005	2	0	2	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Thiocyante (SCN)	0.5	2	0	2	0.25	0.25	0.25	0.25	0.25	0.25
Dissolved Metals										
Aluminum (Dissolved)	0.001	2	0		0.0172	0.017205	0.01725	0.0173	0.017295	0.0173
Antimony (Dissolved)	0.0001	2	0	2	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Dissolved)	0.0001	2	0		0.00013	0.0001365	0.000195	0.000195	0.0002535	0.00026
Barium (Dissolved)	0.0001	2	0		0.0208	0.02104	0.0232	0.0232	0.02536	0.0256
Beryllium (Dissolved)	2E-005	2	0	2	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Dissolved)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Dissolved)	0.01	2	0	2	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Dissolved)	5E-006	2	0		4.62E-005	4.807E-005	6.49E-005	0.0000649	8.173E-005	8.36E-005
Calcium (Dissolved)	0.05	2	0		22.9	23.085	24.75	24.8	26.415	26.6
Chromium (Dissolved)	0.0005	2	0	1	0.00025	0.0003005	0.000755	0.000755	0.0012095	0.00126
Chromium VI (Dissolved)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Cobalt (Dissolved)	0.0001	2	0	1	5E-005	6.6E-005	0.00021	0.00021	0.000354	0.00037
Copper (Dissolved)	0.0002	2	0		0.00023	0.0002345	0.000275	0.000275	0.0003155	0.00032
Iron (Dissolved)	0.01	2	0		0.02	0.02005	0.0205	0.0205	0.02095	0.021
Lead (Dissolved)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Lithium (Dissolved)	0.001	2	0	1	0.0005	0.000535	0.00085	0.00085	0.001165	0.0012
Magnesium (Dissolved)	0.1	2	0		3.42	3.461	3.83	3.83	4.199	4.24
Manganese (Dissolved)	0.0001	2	0		0.156	0.16775	0.2735	0.274	0.37925	0.391
Mercury (Dissolved)	5E-006	2	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Dissolved)	5E-005	2	0		0.0016	0.001606	0.00166	0.00166	0.001714	0.00172
Nickel (Dissolved)	0.0005	2	0		0.00076	0.000816	0.00132	0.00132	0.001824	0.00188
Phosphorus (Metal) Dissolved	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Dissolved)	0.1	2	0		1.2	1.2115	1.315	1.32	1.4185	1.43
Selenium (Dissolved)	5E-005	2	0		6.4E-005	6.46E-005	7E-005	0.00007	7.54E-005	7.6E-005
Silicon (Dissolved)	0.05	2	0		8.04	8.062	8.26	8.26	8.458	8.48
Silver (Dissolved)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Dissolved)	0.05	2	0		5.36	5.435	6.11	6.11	6.785	6.86
Strontium (Dissolved)	0.0002	2	0		0.13	0.13195	0.1495	0.15	0.16705	0.169
Sulfur (Dissolved)	0.5	2	0		0.71	0.713	0.74	0.74	0.767	0.77
Thallium (Dissolved)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Dissolved)	0.0001	2	0	2	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Dissolved)	0.0003	2	0		0.00037	0.000371	0.00038	0.00038	0.000389	0.00039
Uranium (Dissolved)	1E-005	2	0		0.000289	0.00028905	0.0002895	0.00029	0.00028995	0.00029
Vanadium (Dissolved)	0.0005	2	0	2	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Zinc (Dissolved)	0.001	2	0		0.002	0.002055	0.00255	0.00255	0.003045	0.0031
Zirconium (Dissolved)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Total Metals										
Aluminum (Total)	0.003	2	0		0.105	0.10595	0.1145	0.114	0.12305	0.124
Antimony (Total)	0.0001	2	0	2	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Arsenic (Total)	0.0001	2	0		0.00019	0.0002	0.00029	0.00029	0.00038	0.00039
Barium (Total)	0.0001	2	0		0.0243	0.02438	0.0251	0.0251	0.02582	0.0259
Beryllium (Total)	2E-005	2	0	2	1E-005	1E-005	1E-005	0.00001	1E-005	1E-005
Bismuth (Total)	5E-005	2	0	2	2.5E-005	2.5E-005	2.5E-005	0.000025	2.5E-005	2.5E-005
Boron (Total)	0.01	2	0	2	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium (Total)	5E-006	2	0		5.81E-005	5.913E-005	6.84E-005	0.0000684	7.767E-005	7.87E-005
Calcium (Total)	0.05	2	0		25.2	25.345	26.65	26.7	27.955	28.1
Chromium (Total)	0.0005	2	0	1	0.00025	0.000273	0.00048	0.00048	0.000687	0.00071
Chromium III (Total)	0.0005	1	0	1	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Chromium VI (Total)	0.0005	2	0	1	0.00025	0.000313	0.00088	0.00088	0.001447	0.00151
Cobalt (Total)	0.0001	2	0		0.00015	0.000162	0.00027	0.00027	0.000378	0.00039
Copper (Total)	0.0005	2	0	1	0.00025	0.000265	0.0004	0.0004	0.000535	0.00055
Iron (Total)	0.01	2	0		0.13	0.1328	0.158	0.158	0.1832	0.186
Lead (Total)	5E-005	2	0		9.4E-005	9.605E-005	0.0001145	0.000114	0.00013295	0.000135
Lithium (Total)	0.001	2	0	1	0.0005	0.000535	0.00085	0.00085	0.001165	0.0012
Magnesium (Total)	0.1	2	0		3.73	3.749	3.92	3.92	4.091	4.11
Manganese (Total)	0.0001	2	0		0.175	0.18675	0.2925	0.293	0.39825	0.41
Mercury (Total)	5E-006	2	0	2	2.5E-006	2.5E-006	2.5E-006	0.0000025	2.5E-006	2.5E-006
Molybdenum (Total)	5E-005	2	0		0.00151	0.0015225	0.001635	0.00164	0.0017475	0.00176
Nickel (Total)	0.0005	2	0		0.0011	0.001137	0.00147	0.00147	0.001803	0.00184
Phosphorus (Metal) Total	0.05	2	0	2	0.025	0.025	0.025	0.025	0.025	0.025
Potassium (Total)	0.1	2	0		1.28	1.288	1.36	1.36	1.432	1.44
Selenium (Total)	5E-005	2	0		6.2E-005	6.235E-005	6.55E-005	0.0000655	6.865E-005	6.9E-005
Silicon (Total)	0.1	2	0		8.1	8.11	8.2	8.2	8.29	8.3
Silver (Total)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Sodium (Total)	0.05	2	0		6.1	6.117	6.27	6.27	6.423	6.44
Strontium (Total)	0.0002	2	0		0.138	0.1394	0.152	0.152	0.1646	0.166
Sulfur (Total)	0.5	2	0		0.81	0.817	0.88	0.88	0.943	0.95
Thallium (Total)	1E-005	2	0	2	5E-006	5E-006	5E-006	0.000005	5E-006	5E-006
Tin (Total)	0.0001	2	0	2	5E-005	5E-005	5E-005	0.00005	5E-005	5E-005
Titanium (Total)	0.0003	2	0		0.00436	0.004419	0.00495	0.00495	0.005481	0.00554
Uranium (Total)	1E-005	2	0		0.000292	0.0002924	0.000296	0.000296	0.0002996	0.0003
Vanadium (Total)	0.0005	2	0	1	0.00025	0.0002655	0.000405	0.000405	0.0005445	0.00056
Zinc (Total)	0.003	2	0		0.0032	0.00323	0.0035	0.0035	0.00377	0.0038
Zirconium (Total)	0.0002	2	0	2	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Organics										
Carbon Organic (Dissolved)	0.5	2	0	1	0.25	0.2735	0.485	0.485	0.6965	0.72
Carbon Organic (Total)	0.5	2	0	1	0.25	0.263	0.38	0.38	0.497	0.51

M:\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-2 - Groundwater Summary Statistics\[App H-2 - Sample Summary Statistics_r0.xlsx]TABLE 26 MW23-05S

NOTES:

1. UNITS ARE IN mg/L UNLESS OTHERWISE STATED.
2. STATISTICS ARE CALCULATED USING HALF THE METHOD DETECTION LIMIT (MDL) WHERE PARAMETER CONCENTRATIONS ARE REPORTED AS LESS THAN THE MDL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEPT'24	ISSUED WITH TRANSMITTAL VA24-01910	MR	CAS

Appendix H-3 Summary of Water Quality Standards

Knight Piésold CONSULTING

TABLE H-3.1

BW GOLD LTD.
BLACKWATER MINE

2023 FOLLOW-UP PROGRAMS FOR CONDITION 3.15
SUMMARY OF WATER QUALITY STANDARDS

Print Sep-24-24 15:15:44

Analytes	Contaminated Sites Regulation (CSR) Aquatic Life (AL) [2]
Physical Tests	
Salinity (ppt)	15
Dissolved Anions	
Chloride (Dissolved)	1500
Fluoride (Dissolved)	2 @ H [3] <50 3 @ H ≥50
Sulphate (Dissolved)	1,280 @ H ≤30 2,180 @ H = 31-75 3,090 @ H = 76-180 4,290 @ H > 180
Sulphide (Dissolved)	0.02
Nutrients	
Ammonia (Total)	1.31 @ pH [4] ≥8.5 3.70 @ pH 8.0 - <8.5 11.3 @ pH 7.5 - <8.0 18.5 @ pH 7.0 - <7.5 18.4 @ pH <7.0
Nitrate (as N)	400
Nitrate+Nitrite (Dissolved)	400
Nitrite (as N)	0.2 @ Cl [5] <2 0.4 @ Cl = 2 - <4 0.6 @ Cl = 4 - <6 0.8 @ Cl = 6 - <8 1.0 @ Cl = 8 - <10 2.0 @ Cl ≥10
Cyanide	
Cyanide (WAD)	0.05
Dissolved Metals	
Antimony (Dissolved)	0.09
Arsenic (Dissolved)	0.05
Barium (Dissolved)	10
Beryllium (Dissolved)	0.0015
Boron (Dissolved)	12
Cadmium (Dissolved)	0.0005 @ H <30 0.0015 @ H = 30 - <90 0.0025 @ H = 90 - <150 0.0035 @ H = 150- <210 0.004 @ H ≥210
Chromium III (Dissolved)	0.09
Chromium VI (Dissolved)	0.01
Cobalt (Dissolved)	0.04
Copper (Dissolved)	0.02 @ H <50 0.03 @ H = 50 - <75 0.04 @ H = 75 - <100 0.05 @ H = 100 - <125 0.06 @ H = 125 - <150 0.07 @ H = 150 - <175 0.08 @ H = 175 - <200 0.09 @ H ≥200
Lead (Dissolved)	0.04 @ H <50 0.05 @ H = 50 - <100 0.06 @ H = 100 - <200 0.11 @ H = 200 - <300 0.16 @ H ≥300
Mercury (Dissolved)	0.00025
Molybdenum (Dissolved)	10
Nickel (Dissolved)	0.25 @ H <60 0.65 @ H = 60 - <120 1.10 @ H = 120 - <180 1.50 @ H ≥180
Selenium (Dissolved)	0.02
Silver (Dissolved)	0.0005 @ H ≤100 0.015 @ H >100
Thallium (Dissolved)	0.003
Titanium (Dissolved)	1
Uranium (Dissolved)	0.085
Zinc (Dissolved)	0.075 @ H <90 0.15 @ H = 90 - <100 0.90 @ H = 100 - <200 1.65 @ H = 200 - <300 2.40 @ H = 300 - <400

NOTES:

1. UNITS ARE mg/L UNLESS OTHERWISE STATED.
2. CONTAMINATED SITES REGULATION, GENERIC NUMERICAL WATER STANDARDS, SCHEDULE 3.2 COLUMN 3 AQUATIC LIFE (CSR-AL).
3. STANDARD IS DEPENDENT ON HARDNESS (AS $CaCO_3$).
4. STANDARD IS DEPENDENT ON pH.
5. STANDARD IS DEPENDENT ON CHLORIDE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL VA24-01910	MDR	JDZ

Appendix H-4 TSF C Seepage Source Term Comparison to Groundwater Sample Results

Knight Piésold CONSULTING

TABLE H-4.1

BW GOLD LTD.
BLACKWATER MINE

FOLLOW-UP PROGRAM CONDITION 3.15 - 2023 ANNUAL REPORT
TSF C GROUNDWATER SAMPLE RESULTS AND PREDICTED SEEPAGE SOURCE TERM CONCENTRATIONS FOR YEAR -1

Print Sep/26/24 23:28:43

POPC[3]	TSF C Year -1 Source Term[4]	MW12-08S					MW12-08D					MW12-09D					CSR AL Standard[5]
		7-Mar-23	8-Jun-23	13-Sep-23	27-Nov-23	3-Mar-24	7-Mar-23	8-Jun-23	12-Sep-23	27-Nov-23	3-Mar-24	8-Mar-23	5-Jun-23	13-Sep-23	28-Nov-23	3-Mar-24	
Sulphate (Dissolved)	139	3.24	2.95	3.27	3.43	3.56	3.74	3.19	3.68	3.34	3.87	5.38	5.22	5.48	5.58	5.64	3090
Ammonia (Dissolved)	0.78	0.0055	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
Nitrate (as N)	18.58	0.0813	0.0705	0.0725	0.0741	0.0734	0.0772	0.0759	0.0777	0.0768	0.0784	0.0544	0.0542	0.0528	0.056	0.0542	400
Nitrite (as N)	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.2
Aluminum (Dissolved)	0.0196	0.0018	0.0017	0.0012	0.0014	0.0011	0.0013	0.002	0.002	0.0013	0.0012	0.0025	0.0024	0.0025	0.0023	0.0076	-
Antimony (Dissolved)	0.0195	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.09
Arsenic (Dissolved)	0.0145	0.00125	0.00126	0.00128	0.00124	0.00124	0.001	0.00101	0.00098	0.00096	0.00102	0.00322	0.00327	0.00332	0.00323	0.00342	0.05
Beryllium (Dissolved)	0.00005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0015
Cadmium (Dissolved)	0.00007	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000067	0.0000098	0.0000056	0.0000093	<0.000005	0.0015
Chromium (Dissolved)	0.001	**0.0013**	**0.00133**	**0.0014**	**0.00139**	**0.00134**	**0.00116**	**0.00116**	**0.00107**	**0.00119**	**0.00111**	**0.0014**	**0.00147**	**0.00152**	**0.00154**	**0.00152**	0.01 [6]
Cobalt (Dissolved)	0.0476	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.04
Copper (Dissolved)	0.0005	0.00037	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.04
Iron (Dissolved)	0.359	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Lead (Dissolved)	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.05
Manganese (Dissolved)	0.153	0.00022	0.00022	0.00021	0.00037	<0.0001	0.00128	0.00057	0.00486	0.00166	0.00425	0.00012	0.00035	0.00016	0.00027	0.00027	-
Mercury (Dissolved)	0.00005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00025
Nickel (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.65
Silver (Dissolved)	0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0005
Zinc (Dissolved)	0.55	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.075

POPC[3]	TSF C Year -1 Source Term[4]	GT21-03S					GT20-04					MW22-03S	CSR AL Standard[5]
		14-Mar-23	16-Jun-23	20-Sep-23	13-Dec-23	6-Mar-24	10-Mar-23	15-Jun-23	18-Sep-23	6-Dec-23	1-Mar-24	19-Sep-23	
Sulphate (Dissolved)	139	7.44	8.05	7.83	7.32	7.68	2.95	2.46	2.43	2.99	2.99	0.64	3090
Ammonia (Dissolved)	0.78	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
Nitrate (as N)	18.58	0.0642	0.062	0.0669	0.0667	0.0692	0.0702	0.073	0.0633	0.0726	0.074	<0.005	400
Nitrite (as N)	0.2	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.2
Aluminum (Dissolved)	0.0196	0.0012	0.0039	0.0021	<0.001	0.0011	0.0029	0.0032	0.0032	0.0049	0.0052	0.0067	-
Antimony (Dissolved)	0.0195	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00011	0.00011	0.00012	0.00011	<0.0001	0.09
Arsenic (Dissolved)	0.0145	0.00101	0.00111	0.00107	0.00108	0.00112	0.00374	0.00399	0.00382	0.00374	0.00382	0.00021	0.05
Beryllium (Dissolved)	0.00005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0015
Cadmium (Dissolved)	0.00007	<0.000005	<0.000005	0.0000157	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000073	<0.000005	0.0000157	0.0015
Chromium (Dissolved)	0.0196	0.00071	0.00074	0.00071	0.00068	0.00071	0.00123	**0.00144**	**0.00132**	**0.0014**	**0.0014**	<0.0005	0.01 [6]
Cobalt (Dissolved)	0.0476	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.04
Copper (Dissolved)	0.0005	<0.0002	<0.0002	0.00033	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.04
Iron (Dissolved)	0.359	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Lead (Dissolved)	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.05
Manganese (Dissolved)	0.153	0.00095	0.00042	0.00157	0.00023	0.00037	0.00074	0.00038	0.00032	0.0005	0.00045	0.00473	-
Mercury (Dissolved)	0.00005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00025
Nickel (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.65
Silver (Dissolved)	0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0005
Zinc (Dissolved)	-	0.0032	-	<0.001	<0.001	-	<0.001	<0.001	0.0015	0.0017	0.0022	<0.01	0.075

TABLE H-4.1

BW GOLD LTD.
BLACKWATER MINE

FOLLOW-UP PROGRAM CONDITION 3.15 - 2023 ANNUAL REPORT
TSF C GROUNDWATER SAMPLE RESULTS AND PREDICTED SEEPAGE SOURCE TERM CONCENTRATIONS FOR YEAR -1

POPC[3]	TSF C Year -1 Source Term[4]	MW22-03D						MW22-02D						MW23-05D					CSR AL Standard[5]
		9-Jan-23	8-Mar-23	15-Jun-23	19-Sep-23	5-Dec-23	5-Mar-24	5-Jan-23	13-Mar-23	16-Jun-23	20-Sep-23	13-Dec-23	14-Mar-24	26-Sep-23	5-Dec-23	5-Mar-24	28-Sep-23	14-Dec-23	
Sulphate (Dissolved)	139	5.34	5.12	4.41	5.14	4.77	5.37	6.02	5.83	6.29	6.03	5.5	6.05	5.52	4.6	4.55	3.34	2.14	3090
Ammonia (Dissolved)	0.78	<0.005	<0.005	<0.005	<0.005	0.0061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0125	<0.005	<0.005	<0.005	0.0094	-
Nitrate (as N)	18.58	0.0706	0.0976	0.109	0.072	<0.005	0.104	0.0628	0.0604	0.0806	0.0693	0.0833	0.0858	0.0764	0.0738	0.085	<0.005	0.0568	400
Nitrite (as N)	0.2	0.0033	0.0012	0.0012	<0.001	0.0082	0.0024	<0.001	0.0052	<0.001	0.0015	<0.001	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	0.2
Aluminum (Dissolved)	0.0196	0.002	0.0021	0.0019	0.002	0.002	0.0015	0.0026	0.0026	0.0026	0.0016	0.0016	0.0017	0.0045	0.0011	0.0023	0.0172	0.0173	-
Antimony (Dissolved)	0.0195	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.09
Arsenic (Dissolved)	0.0145	0.00036	0.00041	0.00043	0.0004	0.00041	0.0004	0.00082	0.00077	0.00086	0.0009	0.00091	0.00084	0.00098	0.00098	0.00107	0.00013	0.00026	0.05
Beryllium (Dissolved)	0.00005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0015
Cadmium (Dissolved)	0.0195	0.0000064	0.0000089	0.0000058	0.0000079	0.0000063	<0.000005	0.0000112	0.0000076	0.0000137	0.0000076	<0.000005	0.0000054	<0.000005	<0.000005	<0.000005	**0.0000836**	0.0000462	0.0015
Chromium (Dissolved)	0.0145	0.00066	0.00059	0.0007	0.00074	0.0009	0.00073	0.00066	0.00071	0.00089	0.00079	0.00087	0.00078	**0.00138**	**0.00125**	**0.00104**	**0.00126**	<0.0005	0.01 [6]
Cobalt (Dissolved)	0.0476	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00037	<0.0001	0.04
Copper (Dissolved)	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00031	<0.0002	<0.0002	0.00032	0.00023	0.04
Iron (Dissolved)	0.00007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	0.02	-
Lead (Dissolved)	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.05
Manganese (Dissolved)	0.153	0.0159	0.01	0.00573	0.00403	0.002	0.0017	0.0395	0.0258	0.0211	0.00842	0.00178	0.00136	0.00295	0.00091	0.00128	0.391	0.156	-
Mercury (Dissolved)	0.00005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00025
Nickel (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00188	0.00076	0.65
Silver (Dissolved)	0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0005
Zinc (Dissolved)	<0.001	-	<0.001	<0.001	<0.001	<0.001	0.001	0.0012	0.0015	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0031	0.002	0.02	0.075

\\KPL\VA-Prj$\1\01\00457\40\A\Correspondence\Transmittals\VA24-01910 - Condition 3.15 Groundwater Components - Final\Appendix H - Water Quality Results\App H-4 - TSF C Seepage Source Term Comparison\[App H-4- TSF C Source Term and Sample results_r0.xlsx]App H-4.1 - TSF POPCs NEW

NOTES:
1. Units are mg/L unless otherwise stated
2. **Bold font i**ndicates reported sample concentration exceeds source term prediction.
3. POPC = Parameter of Potential Concern as outlined in the Aquatic Effects Monitoring Program Plan, version 2.0.
4. Seepage source term concentrations represent TSF C seepage concentrations for Year -1 from Appendix C-1.1 of Geochemistry Source Term Report (Lorax 2021).
5. CSR AL = Contaminated Sites Regulations (CSR) Aquatic Life (AL) Standards. BC Environmental Management Act, 2023. BC Reg. 375/96.
6. Based on the standard for hexavalent chromium, as there is no standard for total chromium.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26SEP'24	ISSUED WITH TRANSMITTAL VA24-01910	JDZ	CAS