technical report

Sherridon Orphaned Mine Reclamation Project
2020 Water Quality Monitoring Program Summary

DJRC | D.J. Ramsey Consulting

8 July 2021

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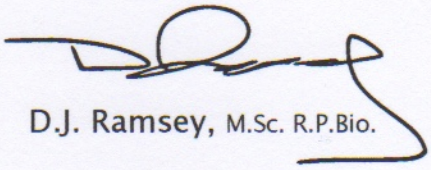

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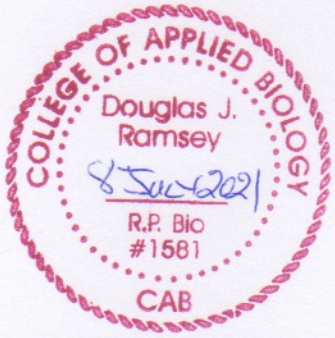

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Cover Photo Credit: Camp Lake North Basin viewed from the North Weir, 9 July 2020 (Photo by D. Ramsey)

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Executive Summary

Planning of the Sherridon Orphaned Mine Reclamation Project was initiated in 2006, leading to implementation (construction) of the plan beginning in 2009 and continuing to the present. The reclamation approach employed in the project is sub-aqueous disposal of the sulphide mine waste in the adjacent Camp Lake, which is a demonstrated best management practice for the long-term control of acid rock drainage (ARD) from sulphide-bearing mine waste materials. Sherlett Creek, the natural inflow to Camp Lake, was diverted around Camp Lake to enable placement of the mine waste. The bulk of the construction work has been completed, and Sherlett Creek flow through Camp Lake was restored in August 2018. Prior to 2019, lime treatment was used to manage water quality and, water levels in Camp Lake. Restoration of the creek flow through Camp Lake has since eliminated any need for lime treatment. The remaining project construction work involves removal of pockets of mine waste from the south shore of the East basin of Camp Lake and removal of the access road adjacent to the South basin of Camp Lake. This work is currently planned for completion in the 2021 construction season. This report describes and summarises the results of the 2020 water quality monitoring program for the project. Results are compared to applicable Manitoba water quality criteria, and effects of water discharges from Camp Lake to the Cold Lake arm of Kississing Lake are examined.

Manitoba manages water quality using the Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOG). These consist of Tier I Standards, Tier II Objectives, and Tier III Guidelines. Tier I Standards typically are applied to discharges and must be met – no Tier I standards are applicable to the Sherridon project. Tier II Objectives have been defined for a limited number of common pollutants and typically are applied to receiving waters rather than to discharges; representing the concentrations to be achieved after allowance for mixing. Tier II objectives are established for long-term (chronic) exposures and for short-term (acute) exposures. The acute exposure objectives typically are higher than the chronic exposure objectives. Tier II Objectives are targets that should be met most of the time, except during extraordinary climate conditions (e.g., severe drought) or when background concentrations exceed the objective. Tier III Guidelines cover a wide range of water quality parameters that are not otherwise included in the Tier II Objectives. The Tier III numerical guidelines provide a basis for evaluation of water quality, and a means to evaluate any need for site-specific criteria, but do not require strict compliance.

Elimination of lime treatment has made it possible to more fully understand the effect of the remaining mine waste adjacent to Camp Lake on water quality. Winter conditions isolate the lake from local watershed runoff and the concentrations of all metals reach their annual lows under winter ice cover. Iron, turbidity, TSS, and aluminum concentrations in all basins of the lake were the same as in Sherlett Creek under ice cover in both March 2020 and February 2021, as was previously the case in February 2019. Winter cadmium, copper, and zinc concentrations in the lake ranged from the same as in Sherlett Creek (South basin) to slightly higher (East

basin). Camp Lake discharge quality was comparable to inflowing Sherlett Creek water quality in February 2019, March 2020, and February 2021.

Alkalinity in Camp Lake continued to be highest under winter ice cover in 2020 and 2021, as previously noted in 2019 and, consistent with previous observations, was higher than in the inflowing Sherlett Creek, indicating net alkalinity generation occurs in the lake in the absence of watershed runoff. Camp Lake is beginning to function as a lake rather than just providing the essential water cover for the submerged mine waste. Net alkalinity generation also was noted in Cold Lake under winter ice cover.

The role of runoff events in affecting water quality in Camp Lake was first identified in 2018, with decreases in alkalinity and peaks in metal concentrations occurring in the lake following runoff events. This pattern continued in 2019 and in 2020. Mine waste remaining adjacent to Camp Lake is the primary contributor of acid rock drainage containing aluminum, cadmium, copper, and zinc to the lake. Most of the remnant mine waste is adjacent to the East basin, producing the higher peak concentrations that typically develop in the East basin than in the rest of the lake. Less waste is adjacent to the North and Central basins, principally located on the peninsula that separates these basins from the East basin, generally accounting for the lower metal concentrations.

The lowest metal concentrations typically occur in the South basin both because there is less adjacent waste, and the waste that does remain is from a different source. The East, Central, and North basins are bounded by waste predominantly in the form of mine tailings (rock that was ground and processed for metal recovery early in the mine life and sat buried deep in the tailings pile) that were only recently exposed to weathering in 2009-2012, whereas the South basin is affected by runoff from mineralized waste rock in the access road embankment that was placed early in mine development and could have been exposed to weathering for as long as 90 years.

The red-coloured turbidity that developed in the lake in both 2018 and 2019 was caused by high concentrations of particulate iron. The turbidity in 2018 (and prior) was related to the lime treatment completed in advance of spring melt, with the red coloured, iron containing, lime floc that resulted from the lime treatment periodically being suspended by strong northerly winds. The turbidity that developed in 2019 was similar to 2018 in that it comprised particulate iron, but the particles were much finer than in 2018 and remained suspended in the water column whether or not the wind was blowing. In both years, the particulate iron in the Camp Lake water settled out quickly on reaching Cold Lake, not moving beyond the 100 m diameter mixing zone.

Total iron concentrations in 2020 were almost as high as in 2019 and were higher than in 2018 but the red turbidity did not develop in 2020 because particulate iron concentrations remained low throughout the open water season. There was a substantial change in the partitioning of iron between the dissolved and suspended phases in 2020 although it isn't entirely clear from the 2020 monitoring results why this shift in partitioning has occurred. The circumneutral

(around pH 7) pH and oxidizing conditions in the lake favour the formation of particulate iron, but iron also can adsorb to dissolved organic matter, resulting in the occurrence of higher dissolved iron concentrations than would otherwise be expected based on water chemistry. Concentrations of organic matter will increase in Camp Lake as it begins to function as a lake, with microbial and algal populations becoming established and producing dissolved and particulate organic matter. Dissolved organic carbon has not been measured in Camp Lake to date but has been added to the laboratory analyses in 2021 to examine this explanation.

The combination of elevated dissolved iron concentrations in the Camp Lake discharge compared to concentrations in Cold Lake and the much higher discharge flows in 2020 resulted in the development of increased iron concentrations in Cold Lake outside the margins of the mixing zone during the spring and fall iron peaks; mid-summer iron concentrations were not affected by the discharge. This is the first time that total iron concentrations in Cold Lake outside the mixing zone have been affected by the Camp Lake discharge since the reclamation project began. This likely was a combined result of the much higher flows and predominance of dissolved iron in the discharge. In previous years, the mixing zone residence time was much longer at the lower flows, allowing more time for water in the discharge to mix with water in Cold Lake that enters the mixing zone and providing more time for settling of particulates. The predominance of the particulate iron fraction also resulted in sedimentation close to the point of discharge such that any iron entering Cold Lake settled out very close to the point of discharge.

The focus of the community on the red-coloured turbidity that developed in Camp Lake in the past couple of years is related, in part, to the appearance of red staining on their boats since the full-time Camp Lake discharge was resumed in 2018. Despite the elevated iron-stained turbidity that developed in Camp Lake in both 2018 and 2019, the discharge had no effect on iron concentrations in Cold Lake beyond the mixing zone in those years, yet the boat-staining was occurring, indicating the staining is not a result of elevated iron concentrations in the Camp Lake discharge.

The explanation for the red-staining of boats likely lies in Cold Lake itself, where there is abundant iron in the water column and in the sediments due to the historical, uncontrolled, mine-affected water discharges from Camp Lake. Background total iron concentrations in Cold Lake in the absence of the Camp Lake discharge ranged as high as 0.63 mg/L in the near-surface samples and 2.29 mg/L in the near-bottom samples, compared to 0.06 mg/L in parts of Kississing Lake unaffected by the historical Camp Lake discharges. Similarly Cold Lake sediments at stations CL3, CL4, and CL5 have iron contents in the range of 16% to 28%, compared to about 3.5% in comparable unaffected parts of Kississing Lake. The Camp Lake discharge passes through this iron-enriched part of Cold Lake in the general southward flow of water through Cold Lake and then west out into the main basin of Kississing Lake. Sherlett Creek is the single largest source of surface inflow to Cold Lake, delivering runoff from 66% of the Cold Lake watershed. Resumption of the discharge from Camp Lake would have changed the water flow pattern in Cold Lake, directing 2/3 of the total inflow to Cold Lake through the most iron-contaminated part of Cold Lake and past the community.

Concentrations of aluminum, cadmium, copper, and zinc in the Camp Lake discharge were somewhat higher in 2020 than in 2019 but were similar to concentrations in 2018 after Sherlett Creek flow-through was restored. Although concentrations in the discharge were no higher than in recent years, the discharge had a much greater effect on concentrations of these metals in the Cold Lake mixing zone. This was true, to varying degrees, for all 4 metals. All parameters were subject to the same higher flows, but the degree of attenuation within and beyond the mixing zone also was dependent on the dissolved/particulate partitioning. Cadmium and zinc partitioning did not substantially differ between 2019 and 2020, with both parameters predominantly occurring as dissolved in both years, and the discharge had a lesser effect on concentrations of these parameters in Cold Lake than was the case for either aluminum or copper. Partitioning of both aluminum and copper shifted from predominantly particulate in 2019 to predominantly dissolved in 2020, as also occurred in iron, so that both aluminum and copper in the discharge had a greater effect on concentrations in Cold Lake outside the mixing zone than did either cadmium or zinc, in which partitioning between the dissolved and particulate fractions did not change between the years.

The higher aluminum, cadmium, and zinc concentrations in Cold Lake in 2020, while not desirable, substantially fell within the historical range in the absence of a discharge from Camp Lake, and consequently are not considered adverse effects.

The elevated copper concentrations at stations CL2 and CL4 in Cold Lake outside the mixing zone were identified as potentially adverse primarily because they prevailed for the entire open water season. Although consistently above the Tier II acute effects objective, these concentrations were not acutely toxic, as indicated by the consistently non-acutely toxic discharge from Camp Lake. The term potentially is used here because it is not known how available the copper was and, given the prevailing high copper background condition in Cold Lake, the degree of adaptation and tolerance that aquatic biota in Cold Lake may have developed as a result of long-term exposure also is unknown.

The circumstances in which these increases occurred also were very unusual, given the very high flows that prevailed throughout the open water season. With mine waste removal well-progressed and scheduled for completion in 2021, concentrations of all four metals in Camp Lake are expected to decrease over the next 4 to 5 years and, most importantly, the large seasonal spikes in metal concentrations should largely be eliminated. The influence of Sherlett Creek inflows on water quality in Camp Lake, which already was evident in the cadmium and zinc concentrations after July, will continue to increase. While this will generally translate to lower concentrations of all metals in Camp Lake under most circumstances, there will continue to be rare instances of higher metal concentrations in Camp Lake due to higher concentrations in Sherlett Creek.

In addition to the already planned addition of total and dissolved organic carbon analyses to the analytical program, the following field measurements and laboratory analyses also are recommended:

- Real-time flow measurements on Sherlett Creek – while Camp Lake levels provide a general indication of flow conditions, real-time flows would allow for quantitative analysis and modelling of metal loading. This would require the installation of water level monitoring loggers upstream of the Sherlett Creek diversion and at the Camp Lake discharge weir and the collection of periodic instream flow measurements across Sherlett Creek at the level monitoring location to develop a stage/discharge curve that would allow calculation of flows from the level measurements.

- In the event that measurements of dissolved organic carbon indicate an explanation for the prevalence of dissolved iron in Camp Lake, further investigation into the nature of the organic matter (e.g., humic/fulvic acids or other constituents) is warranted, both to better understand its role in adsorption or binding of iron but also its role in potentially reducing metal toxicities.

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1.0 Introduction

Planning of the Sherridon Orphaned Mine Reclamation Project was initiated in 2006, leading to implementation (construction) of the plan beginning in 2009 and continuing to the present. This report describes and summarises the results of the 2020 water quality monitoring program for the project. Results are compared to applicable Manitoba water quality criteria, and effects of water discharges from Camp Lake to the Cold Lake arm of Kississing Lake are examined.

1.1 Camp Lake Water and Water Quality Management – 2020

The entire flow of Sherlett Creek was directed into Camp Lake on August 12, 2018, and a discharge from Camp Lake via the North weir to the Cold Lake arm of Kississing Lake was initiated on August 21, 2018. The full flow of Sherlett Creek to Camp Lake was maintained until October 19, 2018, when the creek flow was split, with (nominally) 85% of the flow continuing into and through Camp Lake and with 15% (nominally) of the flow directed to Portage Lake and lower Sherlett Creek via the diversion channel. The split flow configuration continues to date and will be maintained year-round going forward. The split flow has eliminated any requirement for lake treatment to date and is expected to eliminate any future need for batch lime treatment.

Until August 2018, an interim water and water quality management plan was used to establish and maintain the operating level of Camp Lake. This involved operating Camp Lake as a periodic batch discharge system. The lake would accumulate water due to direct precipitation and runoff from the local watershed in the absence of a discharge. Water quality in the lake degraded over the course of the open water season due primarily to remaining adjacent sources of acid rock drainage (ARD) in the local watershed. Water quality was managed using periodic (typically annual) batch treatment of Camp Lake with lime to neutralize and precipitate metals from the ARD-affected lake water, followed by the discharge of treated water over the North weir to the Cold Lake arm of Kississing Lake.

The restoration of Sherlett Creek flow to Camp Lake in August 2018 was made possible by the progress of the Sherridon Reclamation Project. Removal of ARD source materials from the local watershed, although not complete, had progressed to the point that the alkalinity delivered by Sherlett Creek was sufficient to neutralize the remaining sources of ARD in runoff to the lake, as has since been demonstrated (DJRC 2019 and 2020). The reclamation project remains to be completed, with removal of the remaining ARD sources from the local watershed.

1.2 Status of Sherridon Reclamation Works – 2020

Reclamation work progressed considerably in 2020, with one more season of work planned in 2021 to complete removal of remnant mine waste adjacent to Camp Lake. Reclamation work completed in 2018 and most recently in 2020 was focussed on remnant mine waste on the north shore of the East basin of Camp Lake and on the peninsula that separates the East basin from

the main North-South axis of Camp Lake (Figure 1). This remnant mine waste was initially identified in 2018, following an overflow from Fox Lake that uncovered waste from beneath peat soils the waste had flowed under when initially placed during mine operations. Subsequent surveys around the East basin and peninsula identified additional waste deposits requiring removal (Figure 1). Work in 2018 and 2020 focused on that removal, with approximately 15,000 m^3 removed in 2018 and approximately 35,000 m^3 removed in 2020.

Known sources of ARD remaining adjacent to Camp Lake going into the 2021 construction season, include (Figure 1):

- Mine waste used to construct the access road (runoff to Central and South basins);
- Remnant mine waste along the north and south shores of the East basin of Camp Lake (runoff primarily to the East basin with minor runoff to the Central basin);
- Total estimated mine waste quantity remaining to be removed in 2021- approximately 4000 m^3.

1.2.1 Reclamation Works Chronology

The complete reclamation work chronology is detailed below.

2009-2012 - The bulk of the 7 million tonnes of acid generating mine waste in the Sherridon tailings pile was relocated to the adjacent Camp Lake over the period 2009 to 2012. The lake was re-filled with water from Kississing Lake in 2013. However, remaining mine waste on the former Sherridon mill site (principally waste rock) and in the site-access causeway and the site access road, along with potential exchange of water with the Glory Hole (a direct opening to the underground mine workings), and the temporary Tailings Berm placed at the south end of Camp Lake at the start of the reclamation project, continued to contribute to water quality degradation in Camp Lake. Water treatment plant (WTP) sludge that had been deposited in the North basin earlier in the reclamation project was a further contributor to water quality degradation.

2016 - The summer 2016 construction program removed the WTP sludge from the North basin to Trap Lake, and the mill site and causeway waste materials were placed in Camp Lake, removing these ARD and metals sources from further degrading water quality Camp Lake going forward.

2017 - No reclamation work was done in 2017.

2018 - Work completed in 2018 included:

- Removal of mine waste adjacent to the access road in a former ore load-out area;
- Construction of the dam to isolate the Glory Hole adjacent to the South basin, where there was the potential for exchange of ARD influenced groundwater with the South basin;

- Earthworks reinforcement and overflow spillway construction at the outlet of Fox Lake, which periodically flows south into the East basin of Camp Lake, in order to maintain the water level of Fox Lake and prevent uncontrolled breaching of the temporary clay dyke that had been placed at the lake outlet in 2012;
- Identification and removal of mine waste on the discharge pathway between Fox and Camp Lake;
- Identification and partial removal of remnant mine waste along the north shore of the east basin of Camp Lake;
- Removal of the tailings berm (constructed of mine waste) across the inlet to Camp Lake from Sherlett Creek;
- Notching of the coffer dam at the inlet of Camp Lake to restore flows of Sherlett Creek into and through the lake beginning August 12; and,
- Installation of flow limitation plates on the inlets of the diversion channel culverts to split Sherlett Creek flow between Camp Lake (nominally 85% of flow) and Portage Lake/lower Sherlett Creek (nominally 15% of flow).

2019 – No reclamation work was done in 2019.

2020 – Work in 2020 focussed on removal of remnant mine waste along the north shore of the East basin of Camp Lake and around the peninsula separating the East basin from the North basin of Camp Lake (runoff to the East basin primarily, but also to the North and Central basins).

Figure 1. Mine waste removal work areas in 2018 and 2020 (black outline, gray shading) and planned work areas (orange shading) in 2021.

2.0 Water Quality Monitoring Program – 2020

2.1 Water Quality

The water quality monitoring program involved periodic sampling of the following locations, with the frequency and parameters listed in Table 1:

- Sherlett Creek, upstream of Camp Lake (SC-1);
- 8 stations on Camp Lake (NB-1, NB-2, CB-1, CB-2, SB-1, SB-2, EB-1, and EB-2; Figure 2);
- Camp Lake discharge, at the North Weir (Figure 3);
- 3 stations in the discharge mixing zone of Cold Lake (CL3, CL7, and CL8; Figures 3); and,
- 4 other stations on Cold Lake (CL2, CL4, CL5, and CL6; Figure 4).

The Camp Lake discharge at the North weir also was sampled for testing of acute toxicity (96-hour LC-50) to Rainbow Trout on 5 dates (June 2, July 6, August 12, September 7, and October 7).

All samples from Camp Lake, the Camp Lake discharge, and Sherlett Creek for laboratory analysis were collected as dip samples from approximately 0.25 m depth. The mixing zone and Cold Lake station samples included a near-surface dip sample collected from approximately 0.25 m and a near-bottom sample, collected from approximately 0.5 m above the lake bottom using a Wildco trace-metal grade beta bottle. Field measurements included Secchi disk visibility at each station on Camp Lake and Cold Lake; a surface pH measurement using a handheld pH meter at all locations, and measurements of water temperature, specific conductance, pH, dissolved oxygen, and turbidity using a YSI multi-parameter sonde. Sherlett Creek and the Camp Lake discharge were measured near-surface only. Camp Lake profiles included measurements at 0.25 m, and at 1.0 m intervals to 0.5 m above the lake bottom. Cold Lake profiles included measurements at 0.25 m, and at 1 m intervals to 0.5 m above the lake bottom.

Sherlett Creek essentially represents background water quality for the watershed and is the water source that will be the dominant influence on Camp Lake water quality following completion of project construction. Station SC-1 is located at the bridge crossing immediately upstream of the project area and is not influenced by any of the project activities.

The discharge mixing zone is the portion of the Cold Lake arm of Kississing Lake within a 100 m radius of the point where the Camp Lake discharge enters the lake, as required by the Manitoba Water Quality Standards Objectives and Guidelines (MWQSOGs, Manitoba Water Stewardship 2011). Stations CL7 and CL8 are located on the margin of the mixing zone, 100 m from the discharge (Figure 3). Station CL3 is located within the mixing zone, 75 m from the discharge.

Lab analyses for the Camp Lake discharge and for mixing zone samples were completed on a rush basis. All laboratory analyses were conducted by Bureau Veritas (formerly Maxxam) Laboratories, a CALA-accredited independent laboratory.

Table 1. Sherridon Reclamation Project: Water quality monitoring parameters and frequency, 2020.

Location	Frequency	Parameters
Camp Lake Discharge at North Weir	2020: March 3; approximately weekly from June 2 to Oct 15	Lab: pH, alkalinity, TSS[a], turbidity, total and dissolved metals Field: pH, temperature, dissolved oxygen, specific conductance, turbidity
Camp Lake (NB-1, NB-2, CB-1, CB-2, SB-1, SB-2, EB-1, and EB-2)	2020: March 3; approximately weekly from June 2 to Oct 7	Lab: pH, alkalinity, TSS, turbidity, total and dissolved metals from approximately 0.25 m below surface Field: pH, temperature, dissolved oxygen, specific conductance, and turbidity profiles with depth; Secchi disc visibility
Sherlett Creek (SC-1)	2020: March 4; approximately weekly from June 2 to Oct 15	Lab: pH, alkalinity, TSS, turbidity, total and dissolved metals from approximately 0.25 m below surface Field: pH, temperature, dissolved oxygen, specific conductance, turbidity
Discharge Mixing Zone (CL3, CL7, and CL8)	2020: March 4; approximately weekly from June 3 to Oct 7	Lab: pH, alkalinity, TSS, turbidity, total and dissolved metals from 0.0.25 m below surface and 0.5 m above lake bottom Field: pH, temperature, dissolved oxygen, specific conductance, and turbidity profiles with depth; Secchi disc visibility
Cold Lake (CL2, CL4, CL5, and CL6)	2020: Once on March 4-5; Monthly (twice in June) from June 2 to Oct 7	Lab: pH, alkalinity, TSS, turbidity, total and dissolved metals from 0.0.25 m below surface and 0.5 m above lake bottom Field: pH, temperature, dissolved oxygen, specific conductance, and turbidity profiles with depth; Secchi disc visibility

a. TSS reportable detection limit (RDL) lowered to 1 mg/L starting in May 2019 and continuing to present. Previous RDL was 4 mg/L

2.2 QA/QC

The field quality assurance/quality control (QA/QC) program for water quality monitoring was based on the field QA/QC requirements of the Metal and Diamond Mining Effluent Regulations (MDMER, Minister of Justice 2021). A field duplicate sample was collected on each sampling day. An equipment blank was taken from the water sampler on each day of use to check for equipment contamination before use. A trip blank was sent with each sample shipment to check for contamination of samples during shipment. Field water quality meters were standardised (i.e., checked against standards) each day and calibrated as needed based on the standardisation results.

Field duplicate sample, equipment blank, and trip blank values are included in the laboratory data tabulated in Appendix B.

2.3 Data Screening

Water quality monitoring data were screened against two sets of criteria:

- MDMER – Metal and Diamond Mining Effluent Regulations (Minister of Justice 2021; Table 2); and,
- MWQSOG – the Manitoba Water Quality Standards, Objectives, and Guidelines for the protection of aquatic life (Manitoba Water Stewardship 2011; Table 3).

The MDMER set out the minimum national standards that must be met by operating metal and diamond mines in Canada. The MDMER supersede the MMER (Metal Mining Effluent Regulations) and the effluent quality limits remain the same for existing facilities. Although they are not applicable to the Sherridon Project, the MDMER are considered in data screening to compare how the project is performing in comparison to this standard.

Table 2. Metal and Diamond Mining Effluent Regulations (MDMER) discharge quality limits (Minister of Justice 2021). Units are mg/L except as noted.

Parameter	Grab Sample	Monthly Mean
TSS	30.00	15.00
pH (pH units)	6.0 to 9.5	6.0 to 9.5
Arsenic, total	1.00	0.50
Copper, total	0.60	0.30
Lead, total	0.40	0.20
Nickel, total	1.00	0.50
Zinc, total	1.00	0.50
Radium 226	1.11 Bq/L	0.37 Bq/L
Rainbow trout 96 hr LC_{50}	Non-toxic	Non-toxic

The MWQSOG are the water quality criteria used by Manitoba Conservation and Climate to manage surface water quality. The MWQSOGs include criteria for protection of aquatic life, drinking water, use by livestock, agricultural irrigation, and primary recreation (i.e., swimming). The aquatic life criteria have been selected because they are the most stringent (i.e., are the lowest) and protect the most sensitive users of the receiving waters. The MWQSOG consist of three tiers:

- Tier I Standards, which must be met if applicable. These are compliance requirements set out in law/regulation (e.g., MDMER) or in a permit or license (e.g., a Manitoba Environment Act License). There are no Tier I standards applicable to the Sherridon project.

- Tier II Objectives – These have been defined for a limited number of common pollutants and typically are applied to receiving waters rather than to discharges; representing the concentrations to be achieved after allowance for mixing. Tier II objectives are established for long-term (chronic) exposures and for short-term (acute) exposures. The acute exposure objectives typically are higher than the chronic exposure objectives. Some Tier II Objectives for metals are calculated on the basis of the water hardness for a specific water body, with the objective increasing with water hardness. Hardness provides protection against the toxicity of some metals. Tier II Objectives are targets that should be met most of the time, except during extraordinary climate conditions (e.g., severe drought) or when background concentrations exceed the objective.

- Tier III Guidelines – These cover a wide range of water quality parameters that are not otherwise included in the Tier II Objectives and include both numerical and narrative guidelines. The Tier III numerical guidelines provide a basis for evaluation of water quality, and a means to evaluate any need for site-specific criteria, but do not require strict compliance. The Tier III narrative guidelines, which refer to general non-numeric water quality characteristics, should be met at all times.

Table 3. Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs; Manitoba Water Stewardship 2011) for protection of cool water aquatic life applicable to Cold Lake arm of Kississing Lake. Units are mg/L except as noted. Key parameters in bold face.

Parameter	TIER II Objective (acute)		TIER II Objective (chronic)		TIER III Guideline
	Dissolved	Total	Dissolved	Total	
TSS	--	25 mg/L increase[a]	--	5 mg/L increase[a]	--
pH (pH Unit)	--	--	--	--	6.5 to 9.0
Nitrite	--	--	--	--	0.06
Dissolved Oxygen	5.0	--	6.0	--	--
Ammonia[b]	3.976	--	9.939	--	--
Phosphorus	--	--	--	--	0.025 (total)
Aluminum (Al)	--	--	--	--	0.1 (total; pH ≥6.5) 0.005 (total; pH < 6.5)
Arsenic (As)	0.340	--	0.150	--	--
Cadmium (Cd)[c]	0.00121	0.00125	0.00017	0.00018	--
Chromium (Cr^{III})[c]	0.372	1.176	0.048	0.056	--
Copper (Cu)[c]	0.00823	0.00857	0.00574	0.00598	--
Iron (Fe)	--	--	--	--	0.3 (total)
Lead (Pb)[c]	0.0365	0.0421	0.00142	0.00164	--
Mercury (Hg)	--	--	--	--	0.000026 (total)
Molybdenum (Mo)	--	--	--	--	0.073 (total)
Nickel (Ni)[c]	0.301	0.302	0.0335	0.0336	--
Selenium (Se)	--	--	--	--	0.001 (total)
Silver (Ag)	--	--	--	--	0.0001 (total)
Thallium (Tl)	--	--	--	--	0.0008 (total)
Uranium (U)	--	--	--	--	0.015 (total)
Zinc (Zn)[c]	0.0754	0.0771	0.0760	0.0771	--

a. Increase over background concentration. In the case of Sherlett Creek, analysis of all available TSS data for the 2017-2020 period indicates the maximum observed concentration was 6.5 mg/L, for a Tier II chronic exposure objective of 11.5 mg/L (DJRC 2021). This objective also applies to Camp Lake and Cold Lake.
b. Calculated as per Manitoba Water Stewardship (2011) using pH 7.6 and 10 °C.
c. Calculated as per Manitoba Water Stewardship (2011) using mean total hardness of 59.4 mg/L as $CaCO_3$ as measured in Cold Lake on 11 May 2016.

Data screening primarily focused on what we have termed, since 2015, the "key parameters" for the project: pH, alkalinity, TSS, and the total fractions of the metals iron, aluminum, cadmium, copper, and zinc. The key parameters are those which have been found to be relevant to understanding the effects of water from Camp Lake on receiving water quality in Cold Lake. Some of the key parameters have historically occurred in Camp Lake in concentrations at or above the applicable MWQSOGs (pH, aluminum, cadmium, copper, iron, and zinc; Tetra Tech WEI (2016) and DJRC (2016)). Alkalinity was first introduced as a key parameter to track the performance of lime treatments and, through its consumption over the season, as a measure of continuing acid sources to the lake. With the lime treatment discontinued and Sherlett Creek inflow augmenting buffering capacity in Camp Lake, alkalinity is now monitored to assess the performance of the project in maintaining adequate alkalinity. TSS is a focus because of local concerns regarding the effect of any discharge from Camp Lake on the appearance of water in Cold Lake.

Turbidity, both field and lab measured, was added to the analyses in the 2017 program, and has been continued, to provide another means of detecting possible changes in appearance of the water and is considered here as a key parameter.

The Tier II objectives for six metals (cadmium, chromium, copper, lead, nickel, and zinc) are determined by water hardness, and the objectives increase with increasing water hardness based on the equations presented in Manitoba Water Stewardship (2011). The objectives for the six metals were initially calculated for Cold Lake based on the 11 May 2016 pre-discharge mean surface hardness value of 59.4 mg/L as $CaCO_3$ (DJRC 2016). In 2017, 102 near-surface hardness measurements were made at stations CL2, CL3, CL4, CL5, CL6, CL7, and CL8. The mean hardness over those measurements was 60.1 mg/L as $CaCO_3$, which is the same as the initial value for 11 May 2016 within the sampling/analytical precision of +/- 25%. Consequently, the Tier II objectives for cadmium, chromium, copper, lead, nickel, and zinc have been maintained as stated in DJRC (2016). Higher hardness concentrations typically occurred in the near-bottom samples than in the surface samples from Cold Lake stations CL2, CL4, CL5, and CL6 where thermal stratification developed during the open water season. The lower near-surface values have been used for Tier II objective calculation.

Figure 2. Camp Lake water quality monitoring station locations.

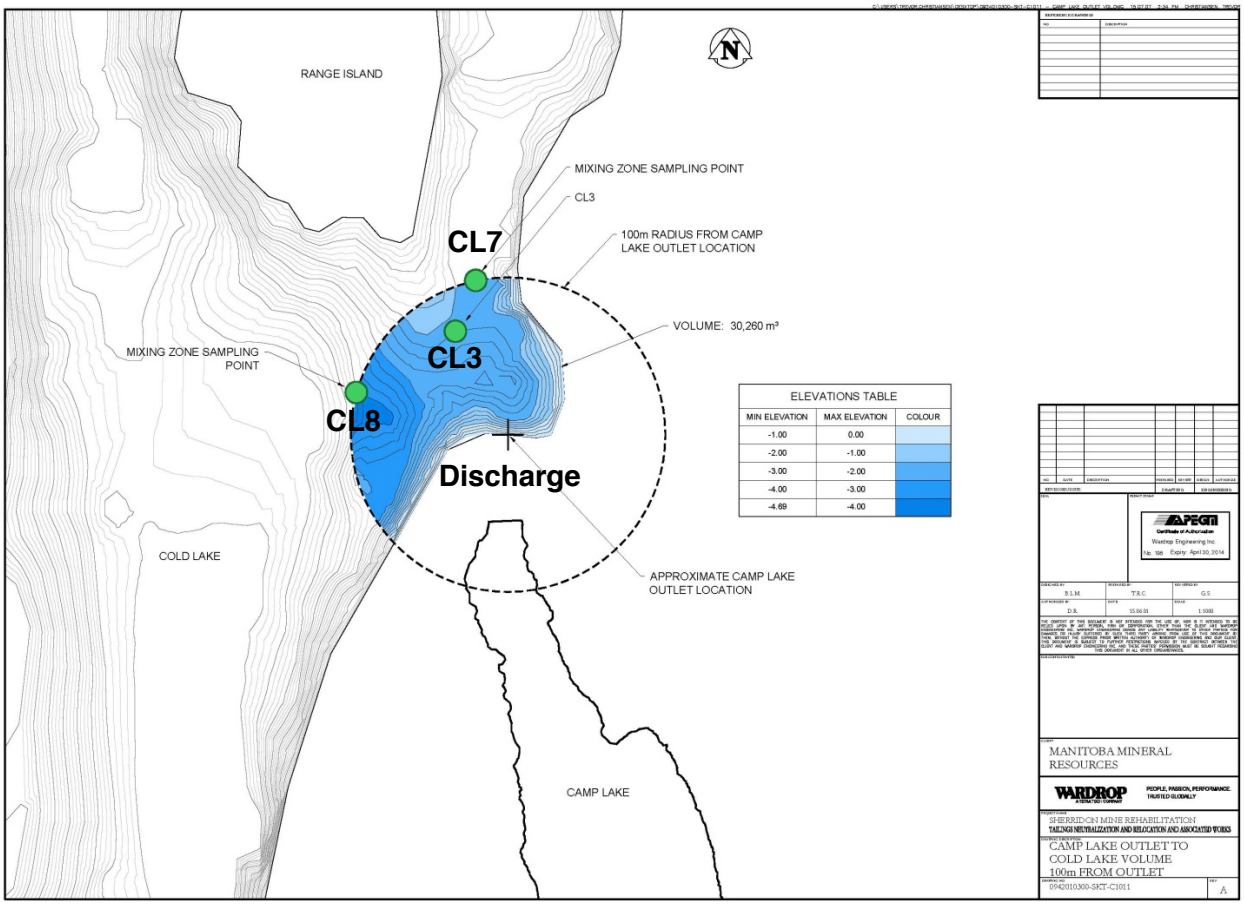

Figure 3. Camp Lake discharge mixing zone in Cold Lake and locations of sampling stations (Discharge, CL3, CL7, and CL8).

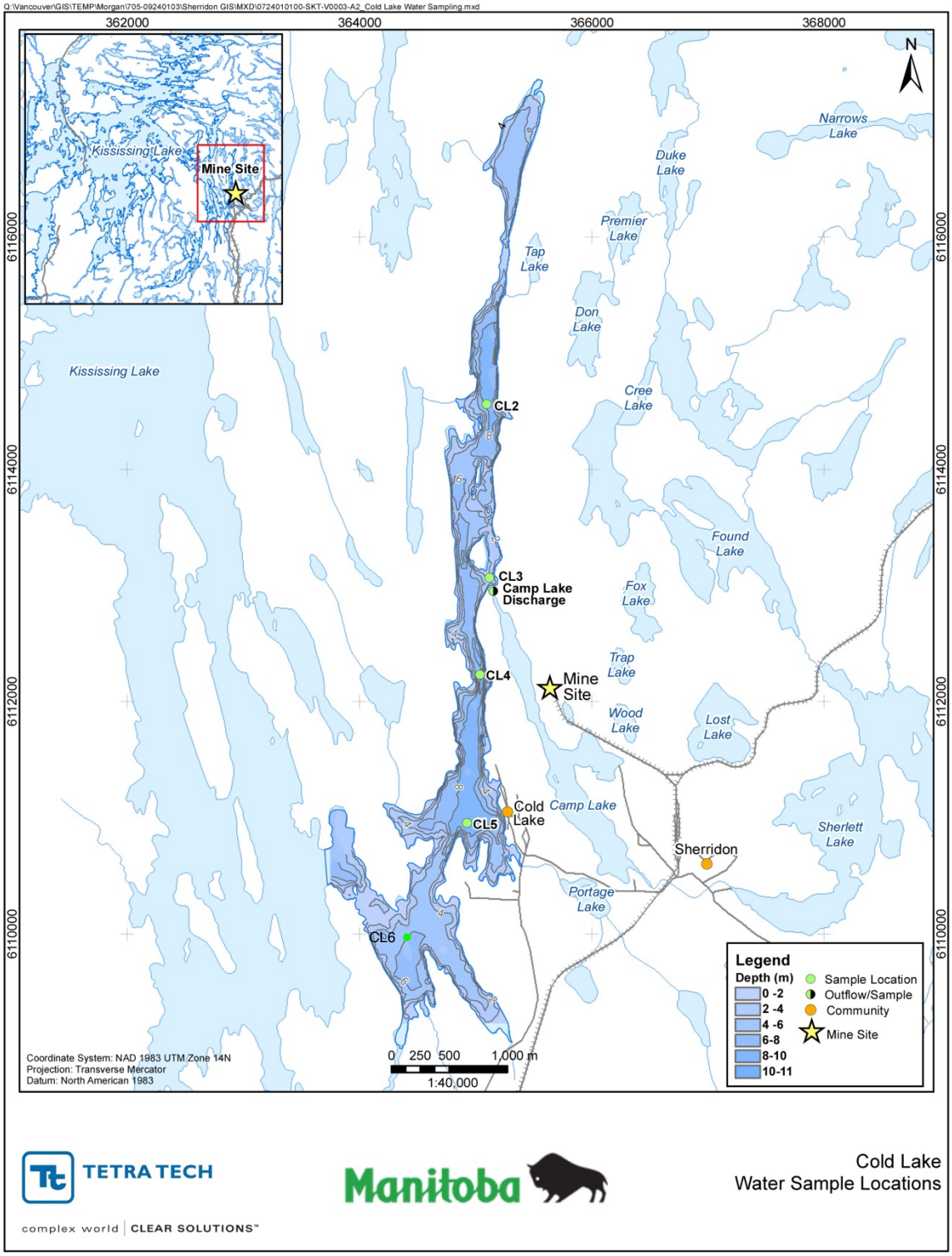

Figure 4. Water quality monitoring station locations in the Cold Lake arm of Kississing Lake.

3.0 Results and Discussion

The 2020 water quality monitoring program represents the second full year of Sherlett Creek flow through Camp Lake in the absence of a lime treatment. Unlike 2019, construction activity was resumed in the areas of remaining mine waste adjacent to the East basin, primarily, as well as in areas on the peninsula adjacent to the Central and North basins (Figure 1).

Analysis of the water quality monitoring results in 2018 and 2019 (DJRC 2019 and 2020) demonstrated the importance of precipitation events in understanding temporal changes in Camp Lake water quality, and consequently in Camp Lake discharge quality. No precipitation data are available for the fire weather station at Sherridon in 2020, but estimated values are available for the community based on regional climate models (Table 4). Winter 2019-20 precipitation was not unusual compared to the previous 9 years, but spring precipitation was the highest in a decade and was followed by summer precipitation that was third highest, resulting in total April through September precipitation that also was the highest in the decade. Comparing 2019 and 2020, precipitation was higher in all seasons of 2020, but particularly in spring and summer (Table 4).

Table 4. Estimated monthly precipitation (mm as water) at Sherridon, Manitoba, for the 2017, 2018, 2019, and 2020 water years[a]. From www.worldweatheronline.com

Month	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oct	61.5	66.4	159.7	29.8	59.9	66.3	228.5	82.8	52.8	51.5
Nov	29.6	35.4	41.3	89.9	31.3	61.1	36.8	56.0	32.6	31.7
Dec	34.2	38.5	25.6	28.3	9.8	39.3	26.2	20.3	27.5	33.0
Jan	51.6	45.3	49.3	53.1	34.2	23.5	25.0	71.0	40.1	52.0
Feb	39.7	20.7	19.7	12.1	23.1	33.4	20.1	14.8	19.1	19.5
Mar	40.2	83.1	23.5	37.5	63.7	74.2	126.0	58.3	19.2	54.9
Apr	85.3	90.2	69.9	67.1	62.2	42.7	97.2	33.6	54.7	98.3
May	98.2	38.5	42.1	69.2	51.8	73.1	122.8	45.5	61.2	79.7
Jun	68.7	147.1	150.0	152.8	74.8	179.1	202.3	145.1	127.9	251.5
Jul	163.0	76.3	86.2	74.2	172.9	125.7	29.7	265.7	109.3	208.0
Aug	118.4	106.6	24.4	22.9	87.7	49.7	23.7	43.2	64.1	64.2
Sep	23.0	34.0	37.6	54.8	122.6	127.7	108.8	78.6	69.9	65.0
Total	**813.4**	**782.0**	**729.3**	**691.6**	**793.9**	**895.9**	**1047**	**914.9**	**678.4**	**1009**
Winter[b]	256.8	289.4	319.1	250.7	221.9	297.8	462.6	303.2	191.3	242.6
Spring[c]	252.2	275.8	262.0	289.1	188.8	295.0	**422.3**	224.2	243.8	**429.5**
Summer[d]	304.4	216.8	148.2	151.9	**383.2**	303.1	162.2	**387.5**	243.3	**337.2**
Apr-Sep	556.6	492.7	410.2	441.0	572.0	598.1	584.5	611.7	487.1	**766.7**

a. A water year in the northern hemisphere starts on October 1 and runs to September 30 of the following year (e.g., the 2020 water year started on October 1, 2019). This approximates the period of precipitation contributing to surface runoff each year, accounting for accumulation of snowfall over winter and release to runoff in spring.
b. Winter – October through March
c. Spring – April through June
d. Summer – July through September

The key precipitation features relevant to Camp Lake water quality in 2020 include:

- April snowfall of almost 1 m (98.3 cm)
- Heavy rainfall events
    - May 1 (37.1 mm), 27 (15.6 mm), and 28 (10.2 mm)
    - June 8 (31.7 mm), 17 (31.3 mm), 18 (59.2 mm), 19 (20.5 mm), 25 (14.5 mm), 27 (24.2 mm), and 29 (17.3 mm)
    - July 1 (33.1 mm), 2 (16.1 mm), 8 (11.1 mm), 9 (11.7 mm), 11 (11.9 mm), 24 (61.5 mm), 25 (14.8 mm)
    - September 9 (19.6 mm)

The combined effects of the large late-season snowfall and very wet June and July resulted in a much larger spring runoff over a longer runoff period, which then merged with the very large early summer runoff period. Sherlett Creek and Camp Lake discharge flows are not routinely measured, but lake levels are proportionate to flows and levels are routinely documented. Lake levels were considerably higher in 2020 than in 2019, with the lowest lake levels in the 2020 open water season, in September 2020, as high as the peak lake level recorded during spring runoff in 2019 (Figure 5).

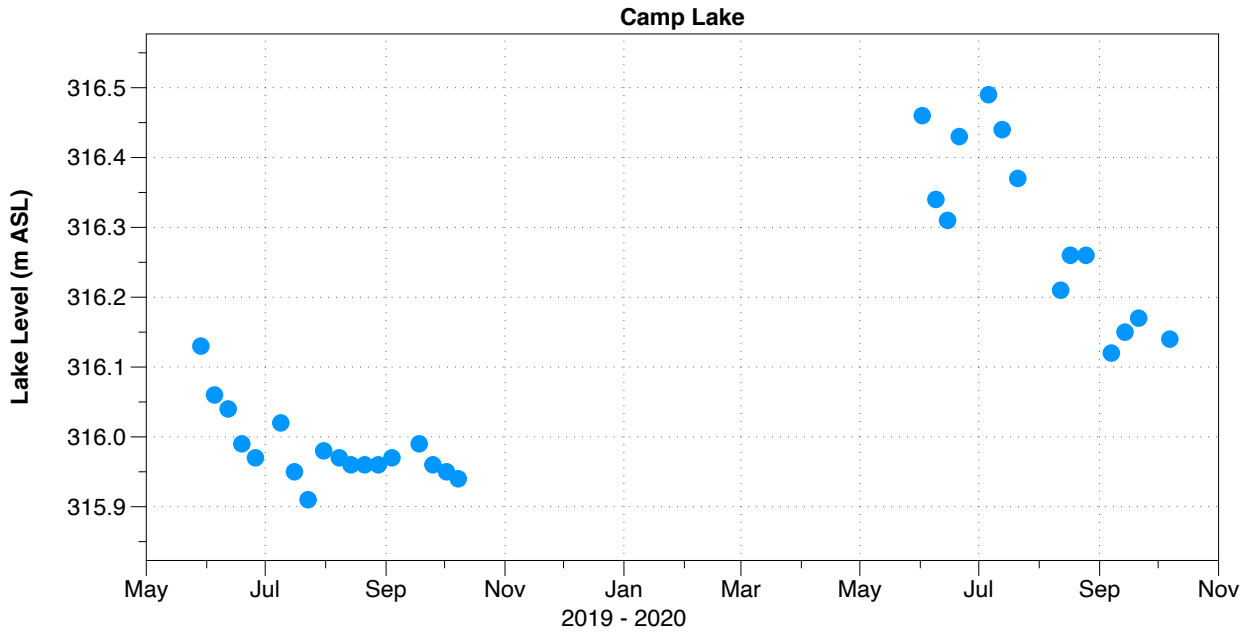

Figure 5. Camp Lake levels in the open water seasons of 2019 and 2020.

The larger runoff has clear implications for Camp Lake water quality in general, and particularly in the East basin of the lake, which is adjacent to the bulk of the remnant mine waste. Monitoring in both 2018 and 2019 connected peaks in parameter concentrations to spring runoff and to heavy rainfall events. With much higher precipitation in 2020 than in 2019, higher metal concentrations should also be expected. The greatest effect should be seen in the East basin, where the largest quantity, and least-weathered, adjacent mine waste remains, and the

smallest effect should be seen in the South basin, with intermediate effects in the Central and North basins. This effect of higher runoff should be amplified by construction activity involved in removing the adjacent mine waste.

The plan for placing tailings in Camp Lake allowed for the maximum tailings elevation to be approximately 314.5 m ASL (above sea level). The Camp Lake weir maintains a minimum lake level of 316.0 m ASL, providing for a minimum of 1.5 m water cover over the tailings. The tailings located in the South, Central, and North basins have settled to varying degrees since they were first placed. In the 2020 open water season, water cover in the South basin ranged from 3.0 to 5.2 m at SB-1 and SB-2; from 2.5 to 4.0 m at CB-1 and CB-2 in the Central basin; and 2.0 to 2.8 m at NB-2 (Appendix A). Tailings have not settled in the vicinity of NB-1 or in the East basin.

The 1.5 m water cover design applied to the project was based on 1.0 m representing the minimum water cover necessary to provide control of acid generation in flooded sulphide tailings, along with a 50% safety factor. The very dense and coarsely ground sulphide tailings were not expected to be resuspended by wind action with the 1.5 m water cover, although much less dense lime floc from previous lime treatments was found to be resuspended in the South basin by strong northerly wind events. Lime treatment has not been done since 2018 and is not expected to be necessary in the future. The now much deeper water cover along the main axis of the lake (i.e., along the alignment of the South, Central , and North basins) than originally designed, with the deepest water cover in the South basin, which is exposed to the longest wind fetch, provides a further safety factor above the original design specification.

In the following sections, Camp Lake water quality is compared with water quality in Sherlett Creek, immediately upstream of Camp Lake, as a benchmark for the progress of water quality recovery. The comparison between the Camp Lake water quality and Sherlett Creek water quality provides further understanding regarding the water quality expected to be discharged from Camp Lake following completion of the Sherridon Reclamation Project. Effects of the discharge from Camp Lake on water quality in Cold Lake also are examined.

The focus of the following summary is on the key water quality parameters of pH, alkalinity, TSS, and turbidity, and the metals total iron, aluminum, cadmium, copper, and zinc. All field data are tabulated in Appendix A. Laboratory analyses are tabulated in Appendix B.

3.1 pH and Alkalinity

The monitoring focus on field pH values started in 2018 was continued to the present for all locations. Water pH begins to change as soon as a sample is exposed to air, due to the exchange of gases that results from sample collection (e.g., CO_2 combines with water to form carbonic acid, and that reduces the pH of an air-exposed sample), such that a field pH measurement made within 15 minutes of sample collection is considered to be more representative of actual conditions and is the method of pH determination required by the MDMER. Laboratory pH values also are presented for all stations to allow comparison with previous years' data.

Camp Lake discharge field pH was consistently near neutral (neutral being pH 7.0) throughout 2020 and in winter 2021, and was above pH 6.5 at all times, closely tracking pH in Sherlett Creek (Figure 6a). Within this general trend of near neutral pH, field pH in both the Discharge and Sherlett Creek was lower in early June, and again in mid-August, than during the remainder of the open water season (Figure 6b). Both periods of lower pH occurred during or immediately following heavier runoff periods.

This was the first year that Camp Lake discharge pH did not substantially deviate from Sherlett Creek pH at any time in the open water season, and this also was true of Camp Lake along the main axis of flow from Sherlett Creek to the discharge. Field pH in the East basin was generally lower than elsewhere in Camp Lake throughout the open water season. The bulk of the mine waste remaining to be removed is adjacent to the East basin, as was most of the construction activity in 2020, with the related runoff of acid rock drainage explaining the lower pH in this basin. There were only two dates when field pH at any station on Camp Lake was below 6.5; August 25 (pH 6.27 at EB-2), and September 14, when pH was in the range of 6.08 to 6.22 at all stations in the South, Central, and East basins compared to 7.17 at NB-1, 7.23 at NB-2, 7.31 in the Discharge, and 7.25 in Sherlett Creek. The September 14 sampling date did not follow any significant precipitation events which could explain a short-term pH depression.

The lab pH values in both the Camp Lake and Sherlett Creek were consistent with the field values in that discharge pH closely tracked pH in Sherlett Creek and East basin pH was consistently lower than elsewhere in Camp Lake through the open water season.

Total alkalinity in Sherlett Creek and all stations in Camp Lake was highest under winter ice cover; at 25 to 38 mg $CaCO_3$/L in March 2020, and 34 to 40 mg $CaCO_3$/L in February 2021 (Figure 7). Alkalinity in Sherlett Creek remained constant throughout the open water season, in the range of 22 to 25 mg $CaCO_3$/L. Alkalinity fluctuations in Camp Lake indicate there were two periods of acidic runoff inflow to the lake during the open water season. The first alkalinity decline occurred from the late winter maximum in March to a spring minimum in late June, with this decline occurring coincident with spring runoff. The largest decrease occurred in the East basin and the smallest was in the South basin.

Acidic inflow to the lake diminished in late June and early July, with a corresponding increase in alkalinity in all parts of the lake reaching a peak after mid-July (Figure 7). At this peak, concentrations in the South basin were similar to that in Sherlett Creek while alkalinity in the East basin peaked at about half that in Sherlett Creek. A second period of acidic inflow occurred in late July and continued to the end of August. The corresponding decreases in alkalinity closely followed a heavy rainfall event on July 24-25, when over 76 mm of rain fell. Alkalinity in all parts of Camp Lake except the East basin gradually increased from the end of August through to the end of open water sampling in October. Project construction activity was primarily adjacent to the East basin, providing the most likely explanation for the continued suppression of alkalinity in the East basin near the late August minimum through to the end of the open water season. Alkalinity increased at all locations between the end of the 2020 open

water season in October, and winter sampling in February 2021. The increases were much larger in Camp Lake in general, and particularly in the East basin, than in Sherlett Creek.

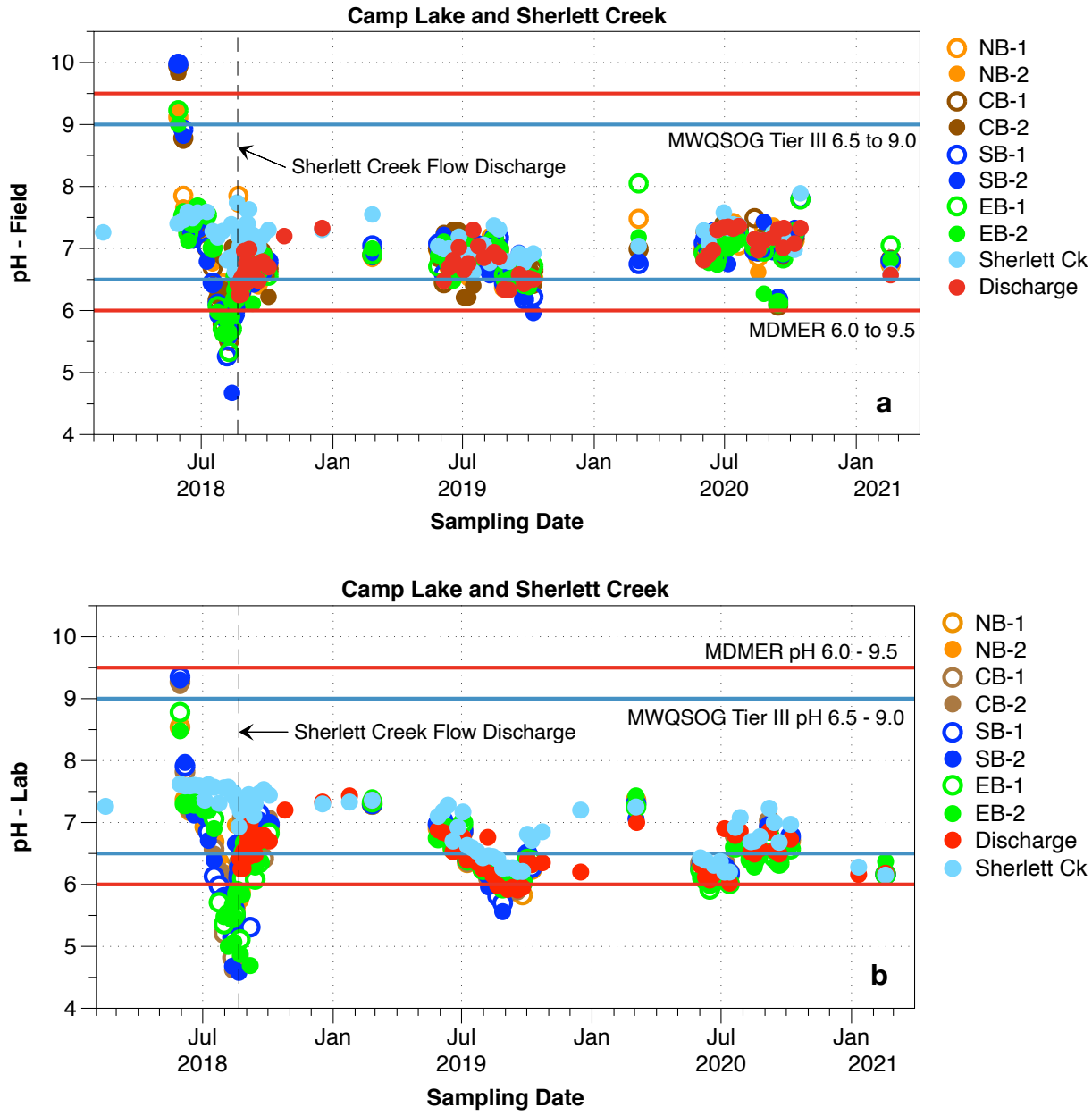

Figure 6. Field (a) and Lab (b) pH in Camp Lake, the Camp Lake discharge, and Sherlett Creek, 2018 to February 2021.

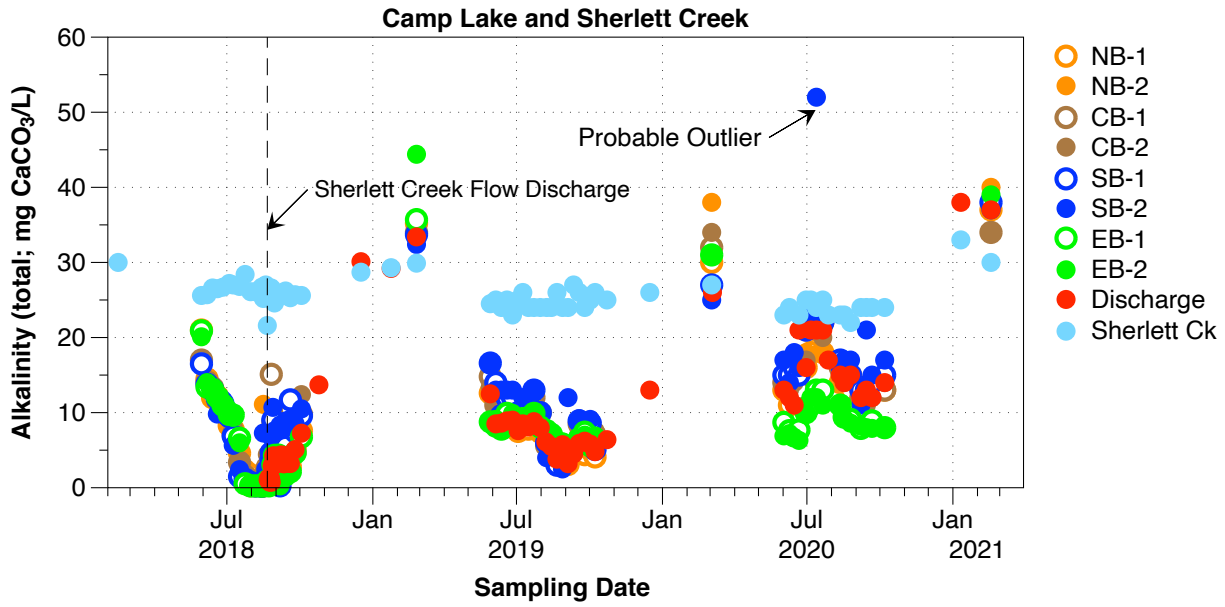

Figure 7. Total alkalinity in Camp Lake, the Camp Lake discharge, and Sherlett Creek, 2018 to February 2021.

The seasonal fluctuations of alkalinity in Camp Lake are a result of the runoff of ARD from the remaining mine waste adjacent to Camp Lake and are not an effect of the mine waste that has been placed in Camp Lake for the reclamation project. As noted in the 2019 monitoring program (DJRC 2020), alkalinity declines in response to major runoff periods, such as during spring runoff and following large rainfall events, indicating a source of acidity external to the lake is responsible for the alkalinity decreases. Alkalinity was much higher in Camp Lake under winter ice cover in winter 2018/2019, winter 2019/2020, and winter 2020/2021. Ice cover isolates the lake from local runoff sources and any adjacent ARD sources. Under ice cover, there is no net consumption of alkalinity in Camp Lake as Sherlett Creek flow passes through the lake, and most parts of Camp Lake appear to generate alkalinity in winter.

With Camp Lake discharge pH closely tracking the pH of Sherlett Creek in 2020, any effect of the Camp Lake discharge on pH in the Cold Lake mixing zone, or beyond, is the same as the effect of Sherlett Creek alone, in the absence of Camp Lake. Field pH at the mixing zone stations generally tracked discharge pH throughout 2020 (Figure 8a). This trend continued in the remainder of Cold Lake outside the mixing zone (Figure 9a). There were some departures from this trend at individual stations (e.g., pH at CL8 (sfc) was higher or lower than in the discharge on a number of occasions), but none of these can be attributed to the discharge.

Lab pH tended to be lower than field pH at all the stations in Cold Lake (Figures 9a and 9b), but this also was true in the discharge, Camp Lake and Sherlett Creek, related to sample handling and the length of time between collection and analysis, as noted above. Where available, field pH values are taken as being more representative of actual conditions. Although lower, the lab pH values nevertheless show the same trend of mixing zone pH tracking discharge pH through the open water period (Figures 8b and 9b). Given the trend was present at all locations, whether

influenced by Camp Lake or not, it is not related to the reclamation project or the discharge from Camp Lake

The lower alkalinity in the Camp Lake discharge than in the Cold Lake mixing zone in 2019 had no effect on alkalinity at any station in Cold Lake (Figures 10 and 11).

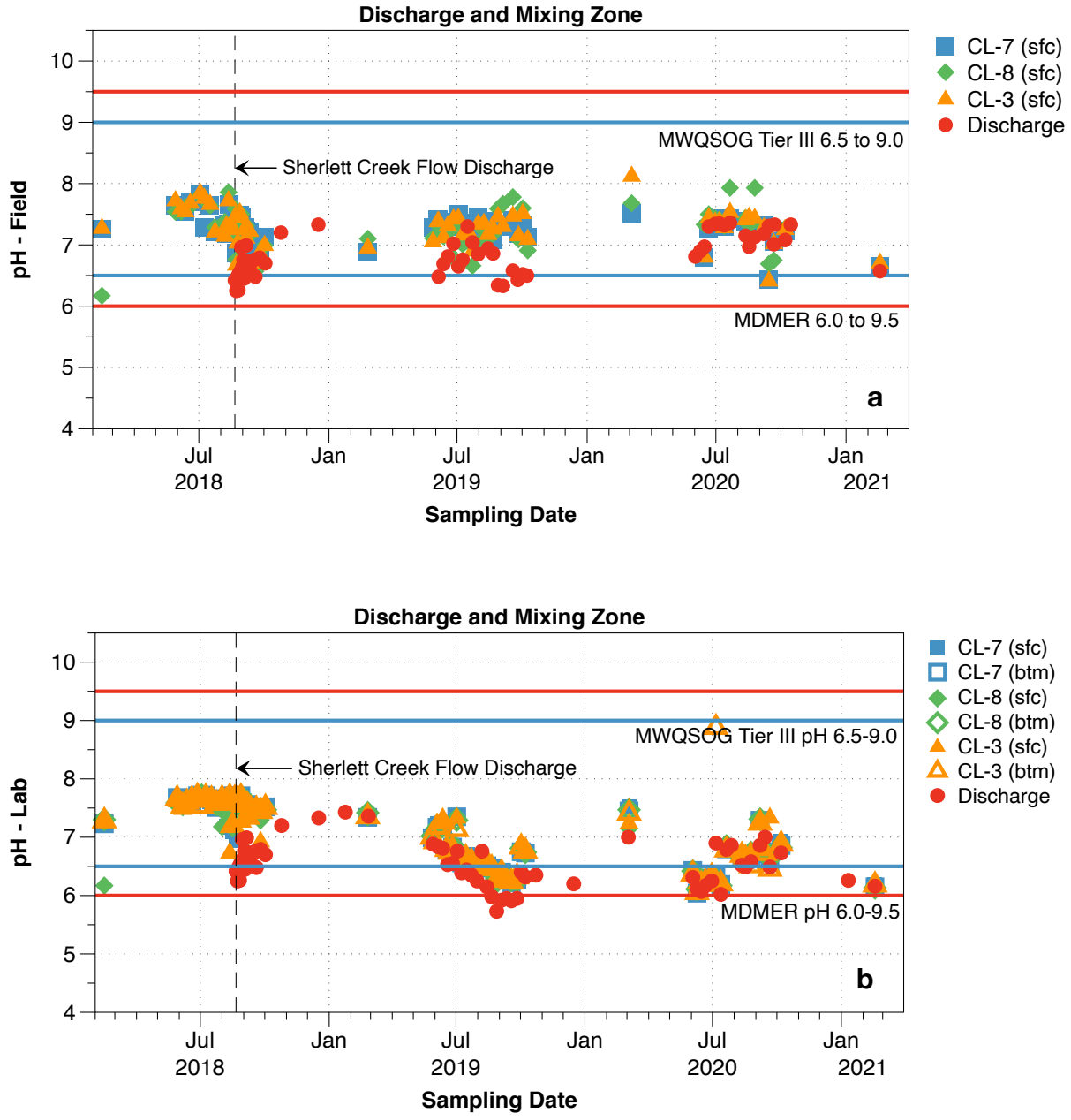

Figure 8. Field (a) and Lab (b) pH in the Camp Lake Discharge and Cold Lake Mixing Zone, 2018 to February 2021.

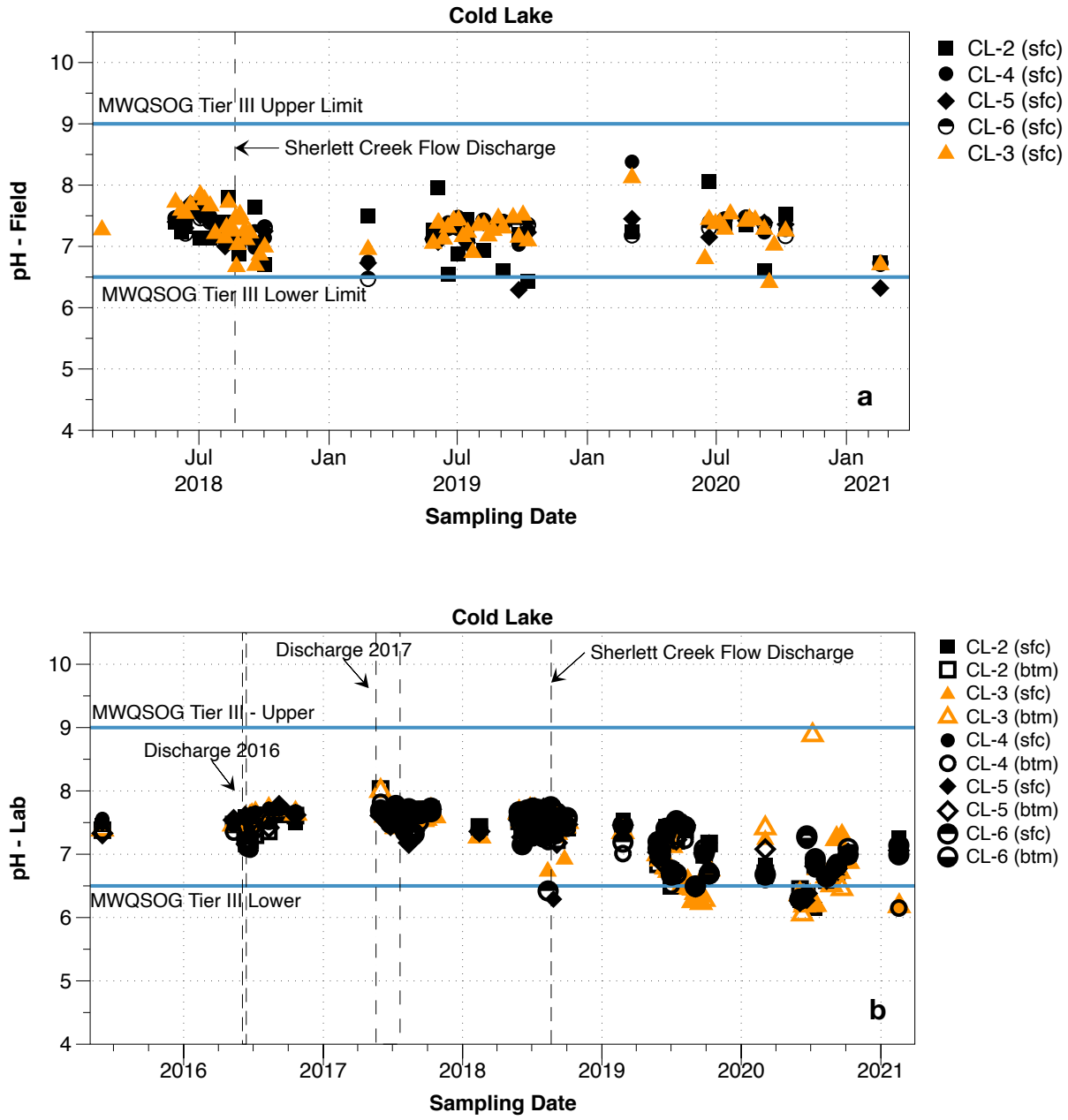

Figure 9. Field (a) and Lab (b) pH in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

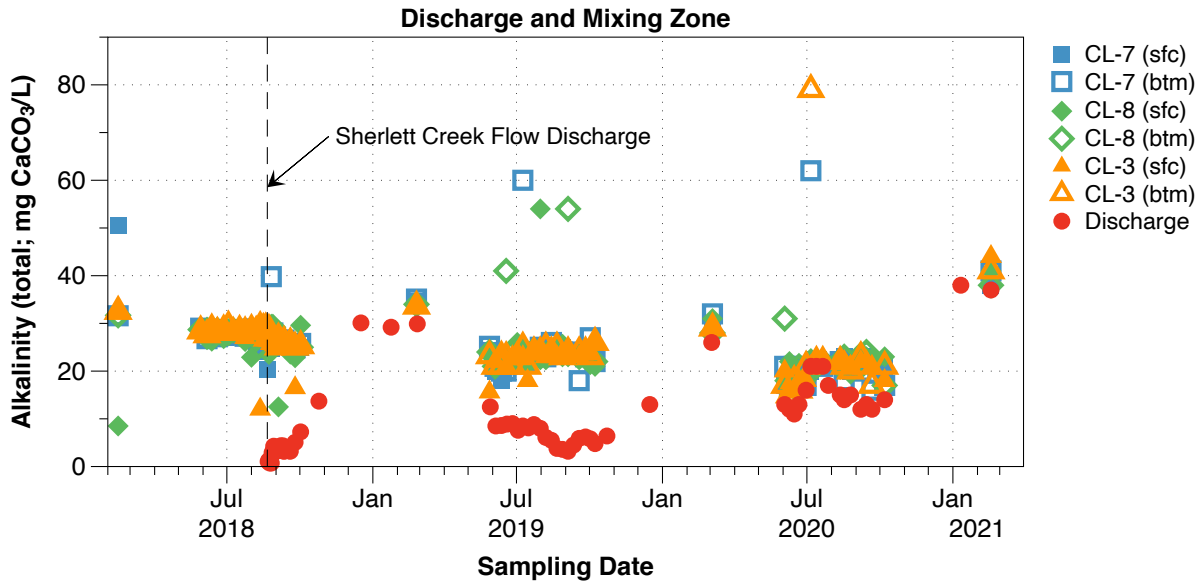

Figure 10. Total alkalinity in the Camp Lake Discharge and Cold Lake Mixing Zone, 2018 to February 2021.

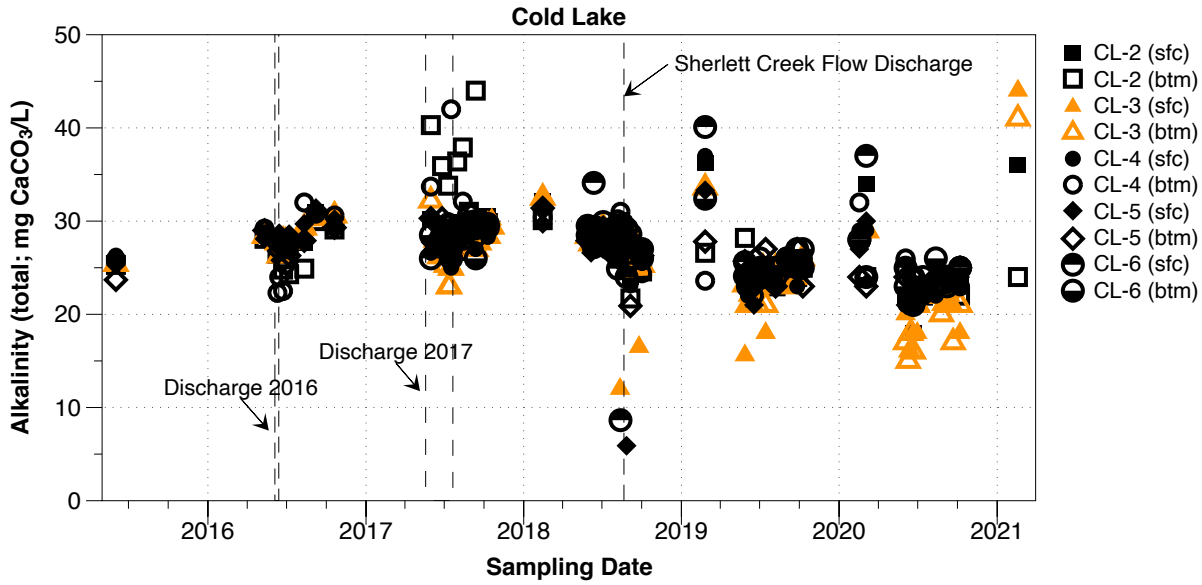

Figure 11. Total alkalinity in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

3.2 Water Appearance – TSS, Turbidity, and Iron

The Community has expressed considerable concern regarding the effect of any discharge from Camp Lake on the appearance of water in the Cold Lake arm of Kississing Lake, with specific concerns regarding the potential for red staining of boats. Three of the parameters measured – TSS (total suspended solids), Turbidity, and Iron - have the potential to affect the appearance of water, with iron being a source of red staining.

In the years before Sherlett Creek was directed back through Camp Lake, lime treatment was used to manage water quality and water level on the lake. The lime treatment created a floc that settled on the lake bottom during calm periods, with the floc being resuspended in parts of the lake during strong and sustained north wind events. This periodic floc suspension was most evident in the South and Central basins of Camp Lake because this part of the lake has the greatest exposure to north winds (i.e., has the longest fetch) (DJRC 2019). The floc suspension created a red-coloured turbidity in the South and Central basins, because of the iron associated with the floc. Floc suspension was temporary, with the relatively heavy floc settling out once again after the wind subsided. Turbidity in Camp Lake and the associated red colour also diminished as the lake became acidic over the course of the open water season. The acidic conditions dissolved the floc and converted any particulate iron to the dissolved phase, resulting in very clear, albeit brown stained, water that was considered more visually appealing although it was unsuitable for discharge due to the low pH and high concentrations of metals.

The reclamation works had progressed to the point in 2018 that Sherlett Creek flow could be restored through Camp Lake and maintain sufficient alkalinity such that lime treatment would no longer be required. Sherlett Creek was directed back through Camp Lake in August 2018 and no lime treatment has been needed since. The lake no longer becomes acidic, ending the need for lime treatment and eliminating the formation of lime floc. Conditions in the lake since August 2018 are very different from those during the years of lime treatment. Now that the lake no longer becomes acidic, the effects of remnant mine waste adjacent to Camp Lake have become evident, leading to the targeted removals started in 2018, continued in 2020, and now planned for completion in the 2020 construction season.

The remaining mine waste adjacent to Camp Lake represents a continuing source of dissolved and particulate iron, and therefore potentially of TSS and turbidity, to Camp Lake during the open water season. The potential for dissolved iron to convert to particulate iron is determined by water quality. In the absence of organic carbon, dissolved iron becomes particulate under the neutral pH conditions now present in Camp Lake. However, in the presence of organic carbon, dissolved iron can remain in the dissolved phase.

The 2020 monitoring data and further details are discussed in the following sections, by parameter.

3.2.1 TSS

TSS concentrations in Camp Lake followed a bimodal (two-peaked) pattern at all stations during the open water season, with the first peak occurring early in June and the second peak developing in early- to mid-August (Figure 12). A similar pattern was evident in Sherlett Creek, although concentrations were typically 2.5 mg/L lower than in the South, Central, and North basins of Camp Lake. TSS concentrations in the East basin were generally higher than elsewhere in the lake throughout the open water season. The second peak also was longer-lived in the East basin. TSS concentrations in the Camp Lake discharge were typically below 5 mg/L, with the exception of 5.2 mg/L on July 28.

Runoff from the adjacent mine waste provides a general explanation for the seasonal and spatial patterns in Camp Lake TSS. The first peak coincided with the spring runoff period, and the higher TSS in the East basin during this peak reflects the greater quantity of mine waste adjacent to this basin. The second peak developed following an extreme rainfall event in late July, when 76 mm of rain fell over two days (July 23 and 24). This second peak was short-lived in much of the lake, consistent with the relatively short period of the rainfall event, t extended to the end of the open water season in the East basin. The longer East basin peak likely reflected the active construction activity adjacent to the basin throughout this period. The lowest TSS concentrations occurred under ice cover at all locations in Camp Lake.

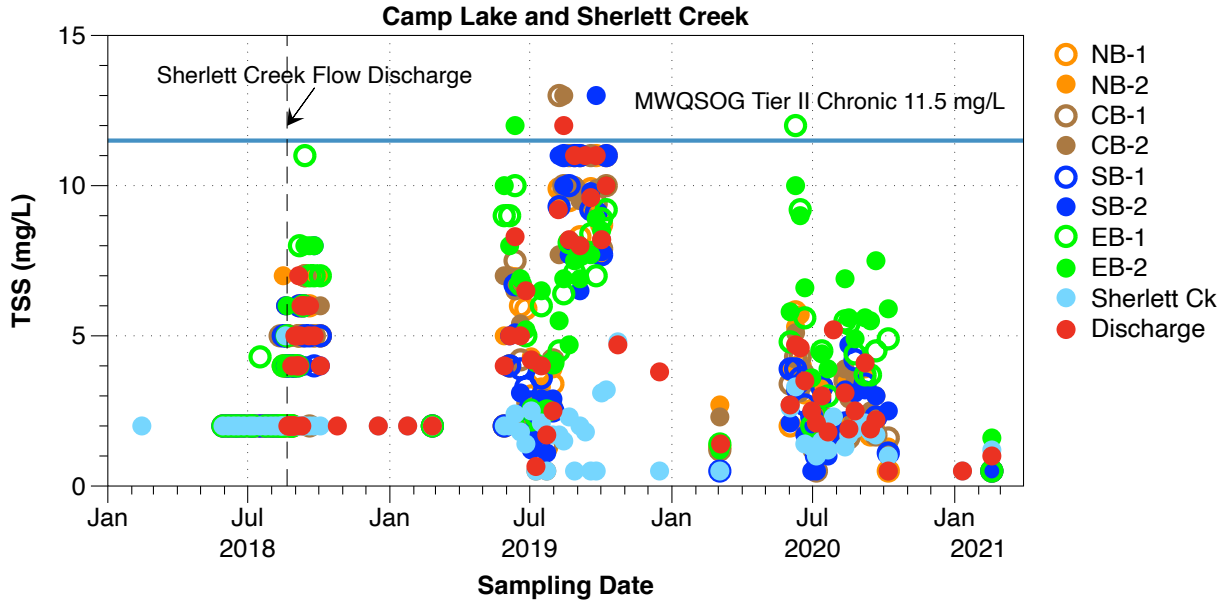

Figure 12. Total suspended solids concentrations in Camp Lake, the Camp Lake discharge, and Sherlett Creek, 2018 to February 2021. Note the detection limit was reduced from 4.0 mg/L in 2018 and earlier years to 1.0 mg/L in 2019 and later years. Values below the detection limit are plotted as equal to one-half the detection limit.

This is the third consecutive year in which elevated TSS concentrations have occurred in the East basin. The first occurrence of elevated East basin TSS was in late-August/September 2018 and was attributed to overburden and mine waste erosion related to Fox Lake overflows and the subsequent construction activities in the areas of the Fox Lake outlet control and removal of mine waste from the north shore of the East basin (DJRC 2019). Floc resuspension by wind action was ruled out as the cause, because of the poor exposure to wind action in the East basin. The elevated TSS concentrations that developed in the East basin in 2019 occurred in absence of both construction activity and lime treatment. The peaks in TSS observed in 2019 developed during major runoff events, with runoff from the remaining mine waste and disturbed overburden adjacent to the East basin representing the only possible source of the suspended solids. Construction activity adjacent to the East basin is again implicated as the source of the elevated TSS in 2020. Equally clear is that, given the similar seasonal patterns in TSS concentrations at all stations in Camp Lake, occurring across a range of wind exposures, it is apparent that wind resuspension is not a cause of the observed TSS concentrations.

TSS concentrations in the Cold Lake mixing zone followed a V-shaped seasonal pattern that was superficially similar to that in Camp Lake, although the concentrations involved were slightly lower, typically ranging from <1 mg/L to about 4.0 mg/L and never exceeding 6.0 mg/L (Figure 13). The initial TSS peak in the mixing zone likely was driven by the Camp Lake discharge, unlike in previous years, despite the lower TSS concentrations in the discharge in 2020. However, flows out of Camp Lake were considerably higher in 2020 than in previous years, due to the very wet spring conditions as noted in Section 3.0, so that the even slightly elevated TSS concentrations in the discharge would affect concentrations at the mixing zone stations. It is not known if a similar seasonal TSS pattern occurred at the mixing zone stations before 2019 because of the 4 mg/L analytical detection limit previously employed and most of the seasonal variation in 2020 occurred below this limit. TSS at the mixing zone stations remained well below the MWQSOG Tier II chronic exposure objective of 11.5 mg/L throughout 2020.

TSS concentrations in Cold Lake beyond the mixing zone followed a similar V-shaped seasonal pattern of variation to that observed in the mixing zone, with concentrations in the same range as the mixing zone. The same pattern was observed in 2019. Again, it is not known if a similar seasonal TSS pattern occurred in Cold Lake outside at the mixing zone before 2019 because of the 4 mg/L analytical detection limit previously employed and almost all of the seasonal variation in both 2019 and 2020 occurred below this limit. The Camp Lake discharge had no effect on TSS concentrations at any station in Cold Lake outside the mixing zone in 2020 (Figure 14).

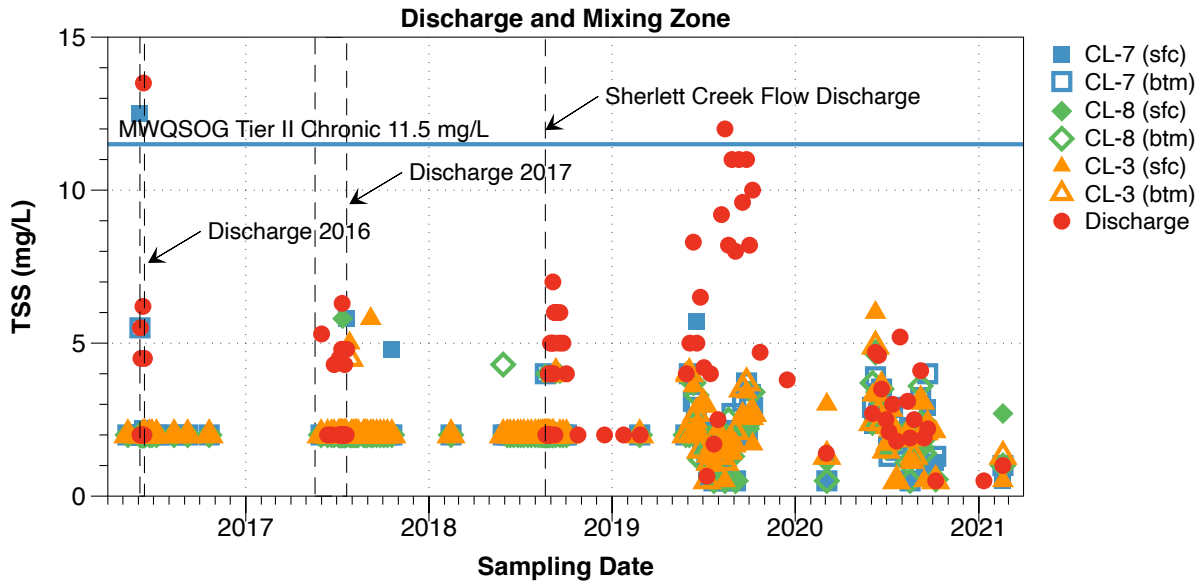

Figure 13. Total suspended solids concentrations in the Camp Lake Discharge and Cold Lake Mixing Zone, May 2016 to February 2021. Note the reduction in detection limit from 4.0 to 1.0 mg/L between 2018 and 2019.

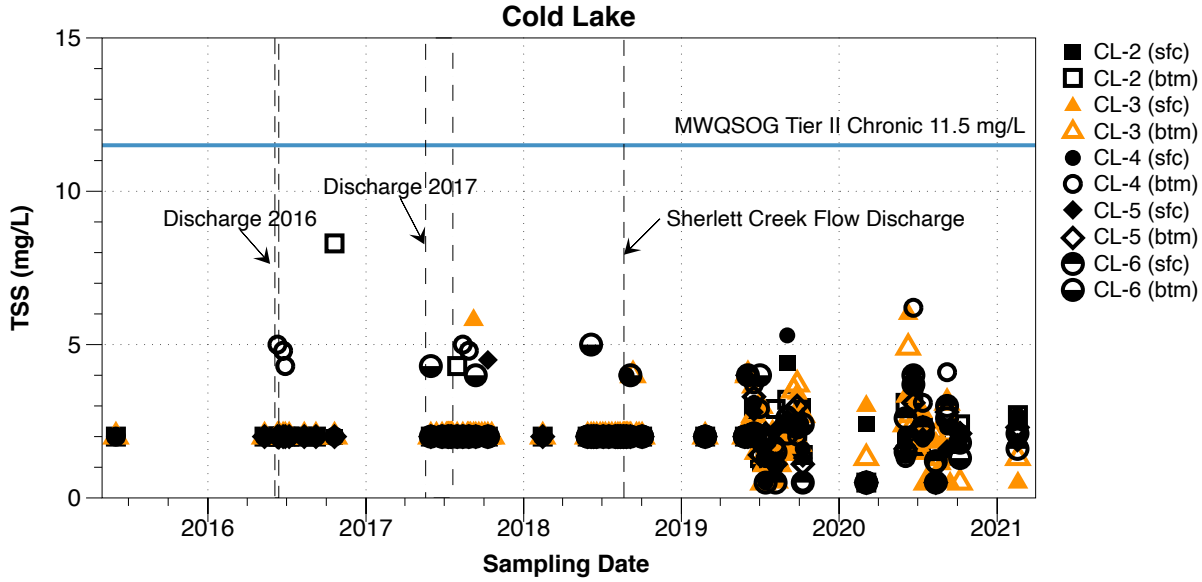

Figure 14. Total suspended solids concentrations in Cold Lake, May 2015 to February 2021. Note the reduction in detection limit from 4.0 to 1.0 mg/L between 2018 and 2019.

3.2.2 Turbidity

Turbidity is a measure of the optical properties of the water and increases with the amount of material in the water that can reflect or refract light – it is a measure of the "cloudiness" of the water. An increased quantity of material in the water, such as suspended sediment eroded from a shoreline or stirred up from a shallow lake bottom by the wind, will typically result in increased turbidity. Turbidity can also be affected if there is a change in the reflective properties of suspended material, such that a change in the suspended solids concentration will not always be related to a change in turbidity and there will also be circumstances in which turbidity will change in the absence of a change in the suspended solids concentration. Further, relatively small increases in the concentration of suspended material can cause a disproportionately larger increase in turbidity if that material is more reflective.

Turbidity in all parts of Camp Lake was very low under winter ice cover in March 2020 (<2 NTU through most of the lake, 2.5 to 3.0 NTU in the North basin and Discharge) and in February 2021 (<1 NTU at all locations except NB-1 (1.5 NTU)). In general, Camp Lake turbidity was much lower throughout the 2020 open water season than in either of the previous two years, never exceeding 16 NTU at any location and typically <10 NTU. In comparison, turbidity peaked at 80 NTU in 2019 and 32 NTU in 2018.

Seasonal variations in turbidity followed a V-shaped pattern through the open water season across the lake, with the highest values occurring in early June and October and lowest values in mid-summer (Figure 15). Turbidity was highest in the East basin and lowest in the South and Central basins.

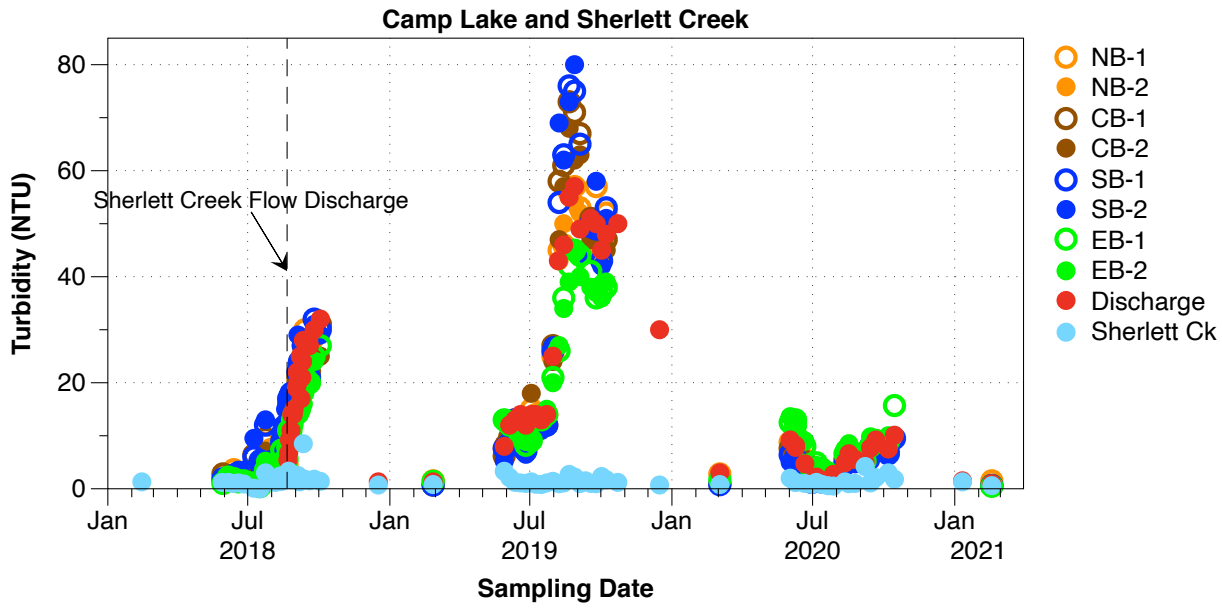

Figure 15. Turbidity (NTU) in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, 2018 to February 2021.

Concerns regarding effects of the Camp Lake discharge on the appearance of water in Cold Lake relate specifically to near-surface waters. The Camp Lake discharge had no effect on turbidity measured in the near-surface samples at any station in Cold Lake beyond the mixing zone (Figure 16). Near-surface turbidity was consistently below 5 NTU at CL2, CL4, CL5, and CL6. Within the mixing zone, turbidity was typically at or below 5 NTU with the exception of the June 2 and 9 samples at CL3, within the mixing zone, when turbidity was 5.3 to 6.2 NTU, and the June 2 sample at CL7, at the margin of the mixing zone, when turbidity was 5.9 NTU (Figure 16). The slightly higher values in the mixing zone in early June are attributable to the Camp Lake discharge, although these did not extend beyond the mixing zone.

The discharge also had no effect on near-bottom turbidity in the Cold Lake mixing zone (Figure 17). Near-bottom turbidity was, at times, considerably higher at thermally stratified stations during the summer period and particularly at station CL4. Near-bottom water chemistry is affected by thermal stratification and the development of anoxic conditions, and these chemical changes can also affect water turbidity. Near-bottom turbidity also can be affected by even minor disturbance of the lake bottom during sample collection. Thermal stratification and bottom disturbance account for the occasional higher near-bottom turbidities in Cold Lake, which have occurred in similar magnitude both in the presence and absence of a discharge from Camp Lake (Figure 17).

The 2020 turbidity monitoring results indicate the elevated turbidities in Camp Lake characteristic of the previous years have now substantially diminished, although they haven't been eliminated.

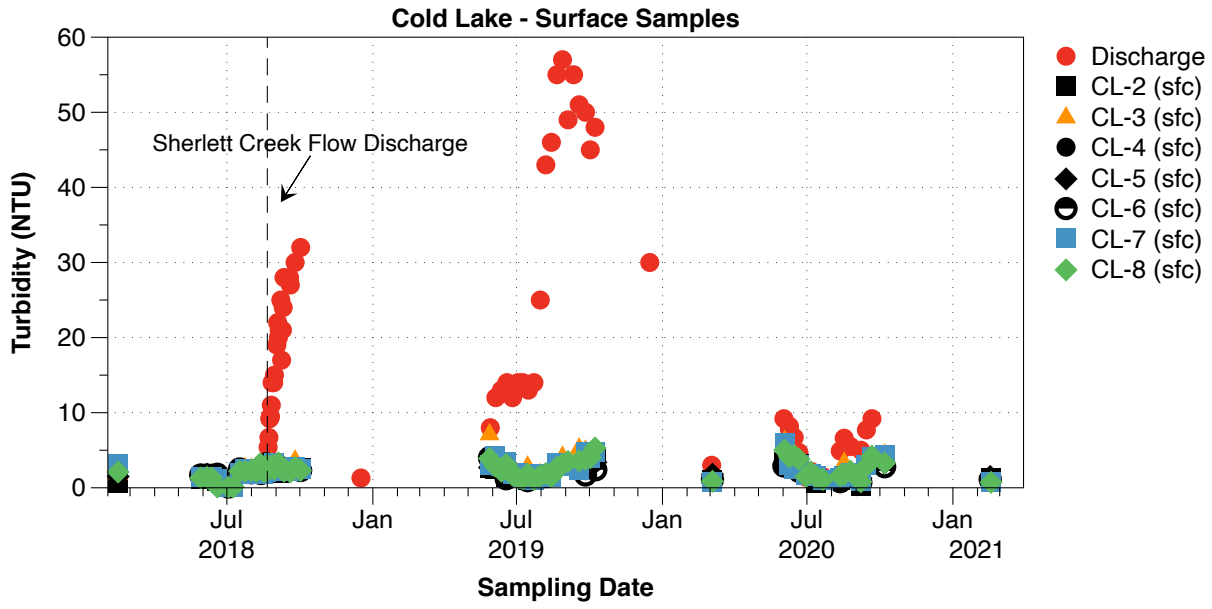

Figure 16. Turbidity (NTU) in the Camp Lake Discharge and in near-surface samples in the Cold Lake arm of Kississing Lake, 2018 to February 2021.

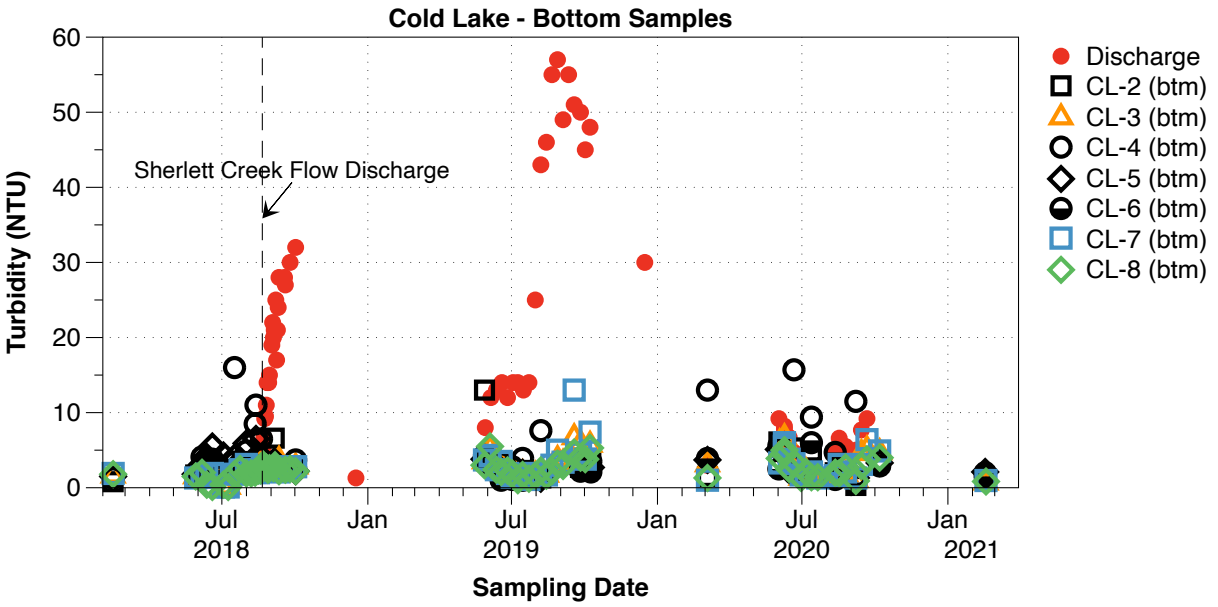

Figure 17. Turbidity (NTU) in the Camp Lake Discharge and in near-bottom samples in the Cold Lake arm of Kississing Lake, 2018 to February 2021.

3.2.3 Iron

Iron is a particular interest with respect to the appearance of water because it also is implicated in the red staining of boats. The staining was a regular occurrence through 2008, during the period of uncontrolled mine-influenced discharges through Camp Lake. The staining stopped from 2009 through 2017 and has since been regularly reported. The timing of the resumption of the boat staining coincided with the resumption of discharges from Camp Lake.

Total iron concentrations in Camp Lake varied considerably over the monitoring period, concentrations were low (0.21 to 0.38 mg/L) under ice cover during winter in both 2020 and 2021, with two distinct peaks in concentration occurring during the open water season (Figure 18). The first peak developed in late May/early June, shortly after ice-out. The specific timing of the increase is not known for all stations on Camp Lake because sampling is not possible around the time of ice-out, but all increases started before June 2 when concentrations were either at their peak (EB-1 and EB-2) or peaked in the following one (SB-2) to two weeks (all other stations). Maximum observed concentrations during the first peak ranged from 3.5 mg/L at SB-2, to 4.7 mg/L at NB-1 and 4.8 mg/L in the discharge. Concentrations at all locations then declined through July 13, bottoming out in the range of 0.51 to 0.70 mg/L in the South and Central basins, 0.81 to 0.85 mg/L in the North basin and discharge, and 1.2 mg/L in the East basin.

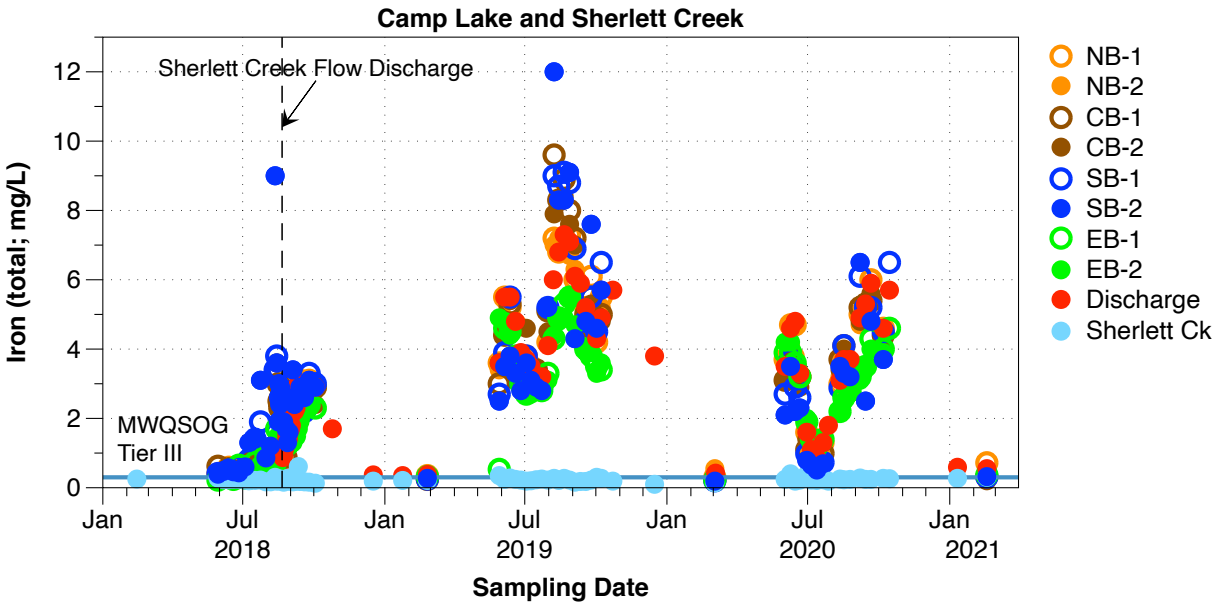

Figure 18. Total iron concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, 2018 to February 2021.

The second peak developed between July 21 and August 12 with concentrations peaking between September 7 (South basin) and 21 (North basin and discharge) and remaining near these peak values through to the end of sampling in October (Figure 18). The maximum concentrations during this second peak ranged from 4.0 mg/L (EB-2) to 6.5 mg/L (SB-1) and were 28% (North basin and discharge) to 86% (South basin) higher than during the first peak, with second peak values in the East basin similar to those in June. Open water sampling ended before any substantive decreases occurred at any location. The subsequent declines occurred at all stations under ice cover, reaching 0.59 mg/L in the discharge by January 11, 2021. By February 18, 2021, total iron concentrations in the discharge and at all stations in Camp Lake except NB-1 (0.72 mg/L) were in the range of 0.20 to 0.55 mg/L, representing as much as a 90 to 96% decrease from the second peak.

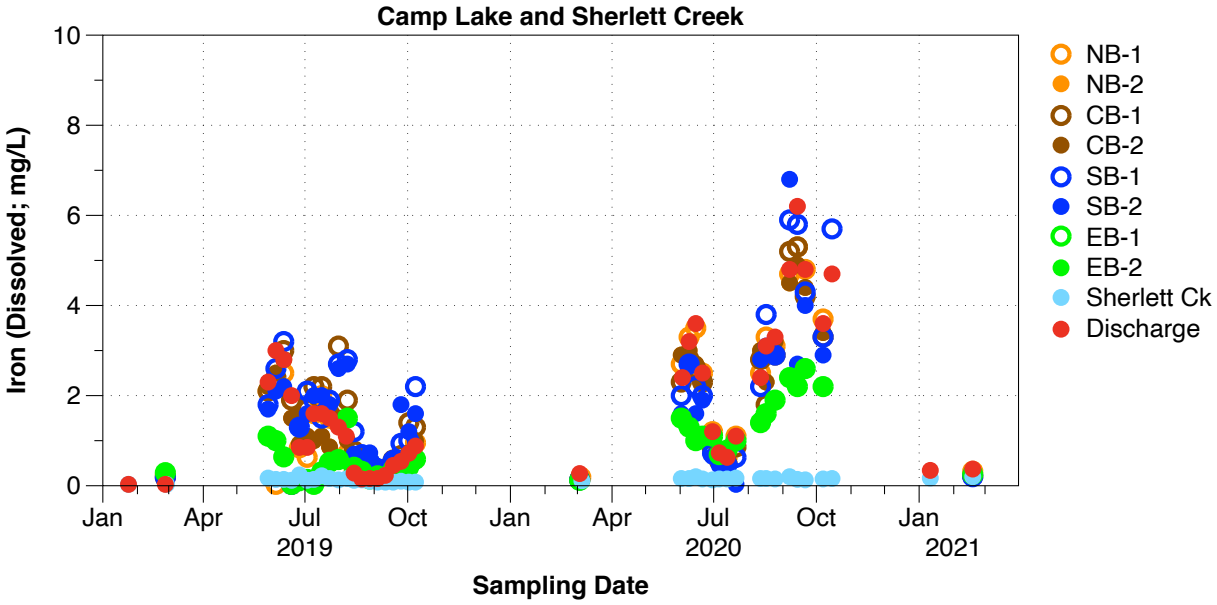

Figure 19. Dissolved iron concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, 2019 to February 2021.

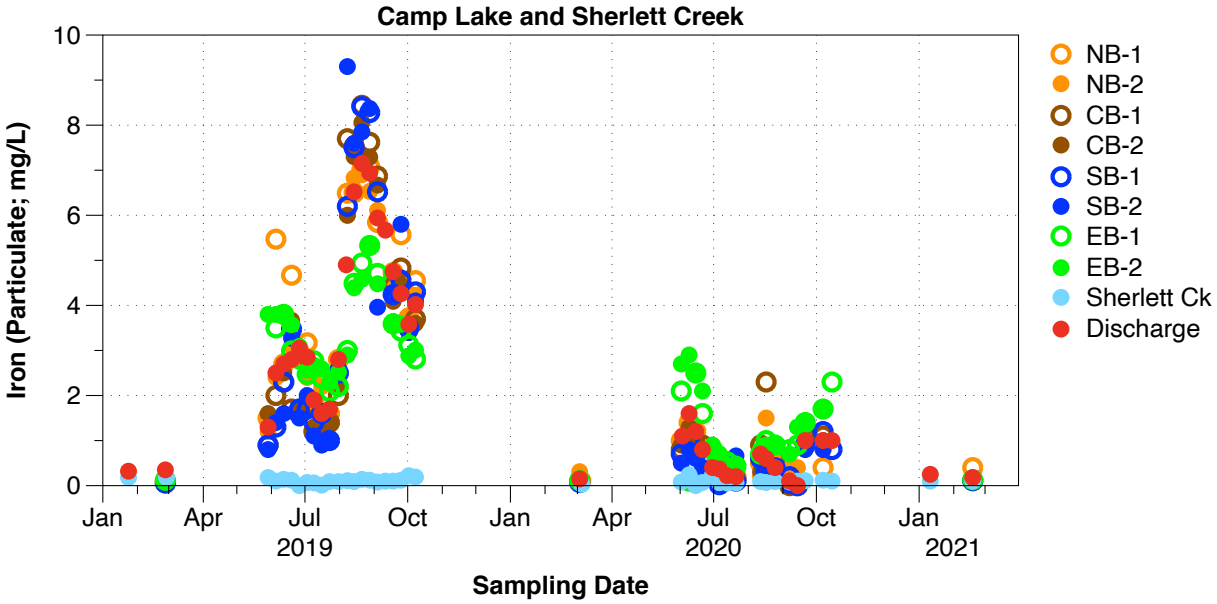

Figure 20. Particulate iron concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, 2019 to February 2021.

There was a material shift in iron partitioning between the dissolved and particulate phases in the 2020 open water season compared to previous years. Both total iron peaks in the East basin were the product of increased concentrations of both dissolved and particulate iron, whereas dissolved iron formed the bulk of both peaks in the remainder of Camp Lake (Figures 18, 19,

and 20). Particulate iron concentrations were considerably lower across Camp Lake in 2020 than in 2019, and particularly in the South, Central, and North basins. Dissolved iron concentrations in the East basin during the first peak in 2020 were similar to first peak concentrations in 2019 but were up to twice as high during the second peak in 2020 than at any time in 2019.

As a result of the partitioning shift across Camp Lake, the primary form of iron in the Camp Lake discharge was dissolved, which accounted for 83% of total iron on average over 2020 (Appendix Table B.1) compared to 23% in 2019 (Appendix Table B.1 in DJRC 2020). Dissolved iron was the predominant form in the North, Central, and South basins as well, representing 76 to 86% of total iron (Appendix Tables B.2 to B.7). Dissolved and particulate iron comprised approximately equal portions (50 to 61%) of total iron in the East basin, due primarily to lower dissolved iron concentrations (Appendix Tables B.8 and B.9).

Total iron concentrations were consistently low in Sherlett Creek over the 2020 monitoring period, with just two values (0.40 mg/L on June 9 and 0.37 mg/L on June 30) exceeding 0.3 mg/L. There was no corresponding shift in particulate/dissolved iron portioning in Sherlett Creek between 2019 (55% dissolved) and 2020 (61% dissolved) (Appendix Table B.10).

All evidence points to the elevated total iron concentrations in Camp Lake originating from an external source. Under ice cover, which isolates Camp Lake from local watershed runoff but maintains contact between the overlying water and tailings within the lake, total iron concentrations were similar to those in Sherlett Creek (Figure 18). Concentrations in the lake increase during major runoff events over the open water season, and then decline during the subsequent low rainfall/runoff periods and under ice cover. The remaining mine waste adjacent to Camp Lake represents the most likely source of the iron delivered to the lake during runoff events. The iron loading from the adjacent waste would primarily be delivered in the form of dissolved iron in acidic runoff, with particulate iron also carried into the lake during construction activities.

What isn't certain from the 2020 monitoring results is why the shift in iron partitioning has occurred. Total iron concentrations remain similar to previous years, indicating this is a real change in partitioning and is not due to a substantive change in loading of one fraction. The shift also can't be attributed to a change in inflowing water quality; dissolved iron represented similar proportions of the total in Sherlett Creek in both 2019 and 2020. The circumneutral pH and oxidizing conditions in the lake favour the formation of particulate iron, but iron also can adsorb to dissolved organic matter, resulting in the occurrence of higher dissolved iron concentrations than would otherwise be expected (e.g., Elder 1988). Dissolved organic carbon has not been measured in Camp Lake to date but should be added to the laboratory analyses in 2021.

In the event that dissolved organic matter (DOM) is found to explain the prevalence of dissolved iron in Camp Lake, it is likely that the DOM would be in the form of humic and/or fulvic acids, given the location of Camp Lake at the bottom of a large (>100 km^2) watershed. Humic and fulvic acids, in some cases with adsorbed iron, are the source of the brown water

streams and ponds that are common across northern Manitoba. The humic/fulvic acids are a product of the decomposition of terrestrial organic matter (e.g., from forested and wetland areas), representing the more decay-resistant remains of the organic matter that entered Sherlett Creek and flowed downstream.

Turbidity in Camp Lake, and in the Camp Lake discharge, was positively correlated with particulate iron concentrations, explaining 49% of the variation in turbidity in the discharge and 50% of the variation in turbidity across Camp Lake overall (Figures 19 and 20). The 2020 relationship was largely driven by the higher turbidity and particulate iron concentrations in the East basin than in the rest of the lake (Figure 19a). These relationships were much weaker in 2020 than in 2019, when particulate iron accounted for 83% of the variation in turbidity in the discharge and 80% of the variation in Camp Lake overall (DJRC 2020). The weaker relationships in 2020 largely reflect the very low particulate iron concentrations and turbidities in the South, Central, and North basins. Overall, the much lower particulate iron concentrations explain the lower turbidities observed in 2020.

TSS concentrations were positively correlated with particulate iron concentrations in 2018 and 2019 (DJRC 2019 and 2020) but not in 2020 (Figure 22). The absence of a relationship in 2020 likely is a result of the much lower TSS and particulate iron concentrations. Similarly, TSS was not positively correlated with Turbidity in 2020 – consistent with the finding in 2019 that turbidity is not a predictor of TSS at turbidities below 40 NTU (DJRC 2020).

In 2016, 2017, 2018, and 2019 (DJRC 2016, 2018, 2019, and 2020), iron discharged from Camp Lake into Cold Lake did not move much beyond the point of discharge (Figure 25), in most conditions not even reaching the monitoring stations within (CL3) or at the margins (CL7 and CL8) of the mixing zone. This was not the case in 2020. The combination of elevated dissolved iron concentrations in the Camp Lake discharge compared to previous years and the much higher discharge flows in 2020 resulted in considerably less attenuation of iron within the mixing zone and the development of increased iron concentrations in Cold Lake both within and outside the mixing zone. The predominance of dissolved iron in the discharge, likely complexed with dissolved organic matter, largely eliminated sedimentation from occurring such that dilution was the only mechanism by which concentrations could attenuate in Cold Lake. The high flows in 2020 further limited attenuation by reducing the potential for dilution.

This is the first time since the reclamation project began that total iron concentrations in Cold Lake outside the mixing zone have been affected by the Camp Lake discharge. Background total iron concentrations in Cold Lake in the absence of the Camp Lake discharge ranged as high as 0.63 mg/L in the near-surface samples and 2.29 mg/L in the near-bottom samples. Elevated (i.e., above background) total iron concentrations developed at CL2 (sfc), CL4 (sfc), and CL5 (sfc) in the spring (June 3-21) and fall (Sep 7 – Oct 7) iron peaks – mid-summer iron concentrations were not affected by the discharge and near-bottom concentrations were not affected at any station (Figure 26).

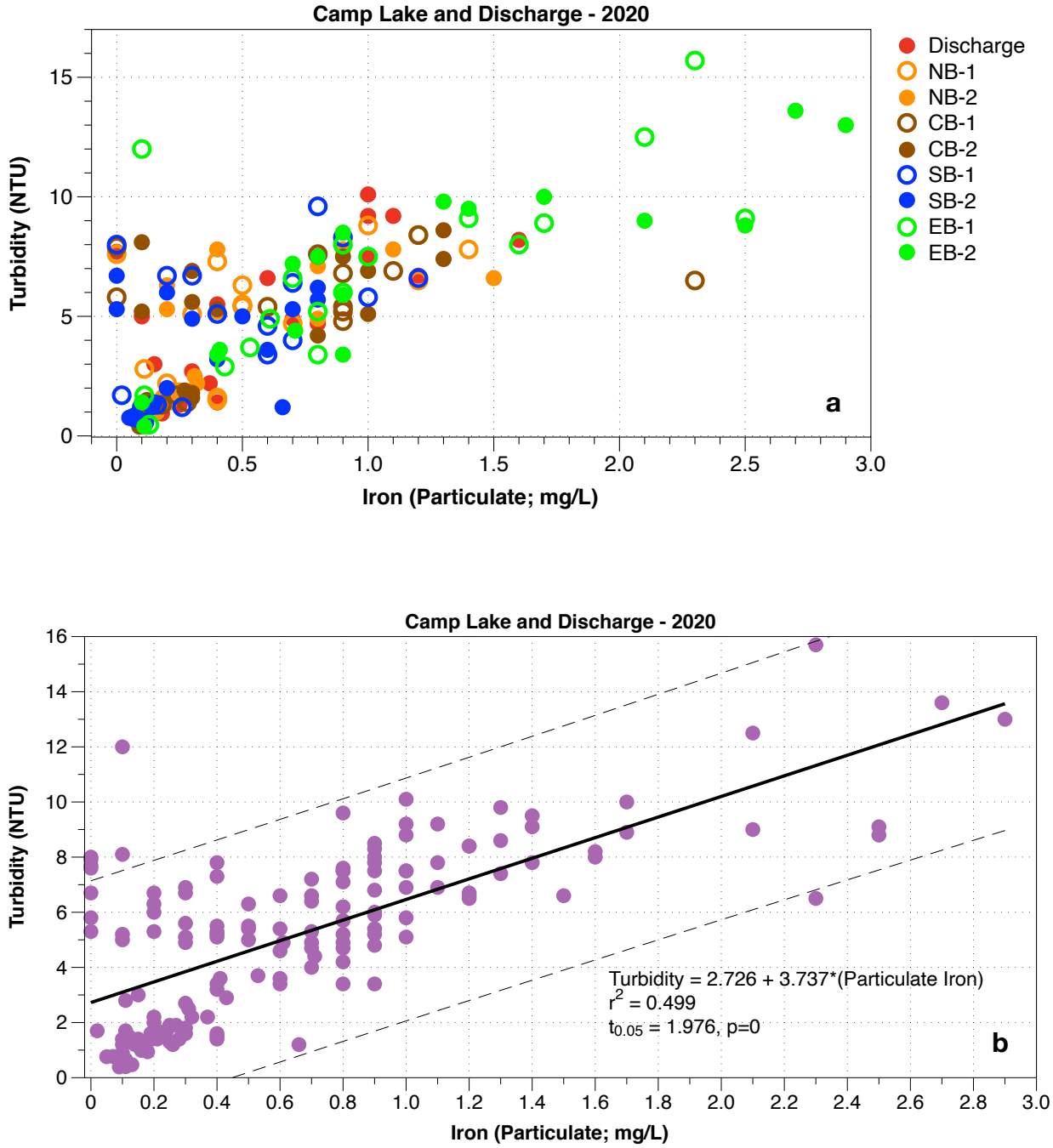

Figure 21. Relationship between particulate iron concentrations and turbidity in Camp Lake and the Camp Lake Discharge, 2020: (a) Relationship showing individual station data; and (b) Relationship showing pooled station data and linear regression.

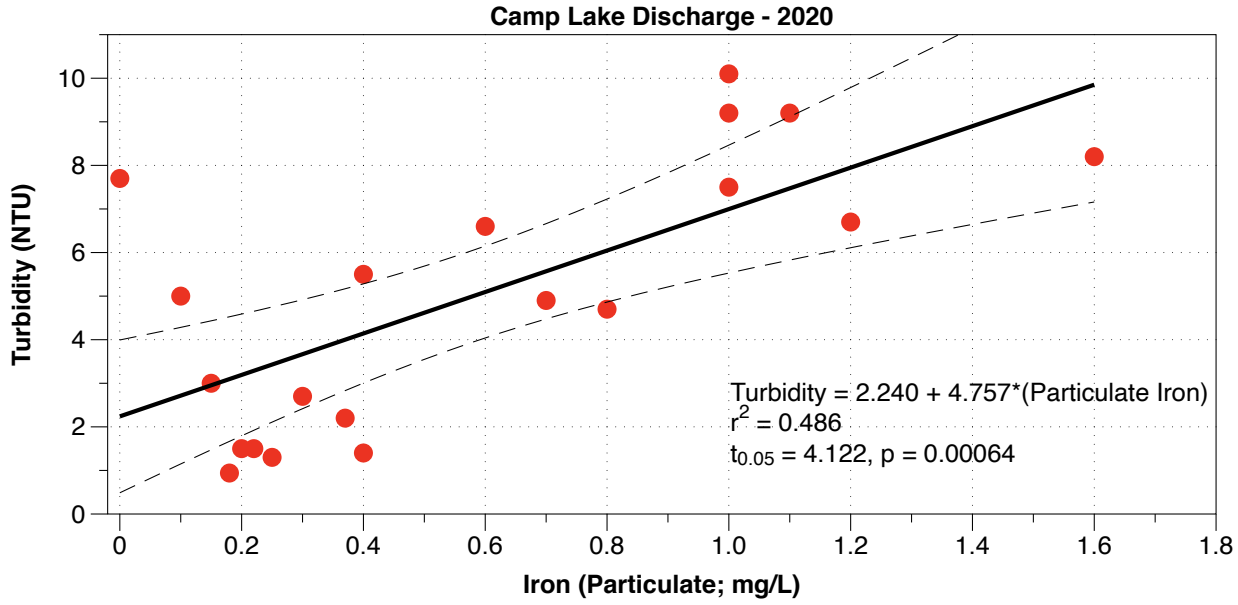

Figure 22. Relationship between Particulate Iron concentrations and Turbidity in the Camp Lake Discharge, 2020.

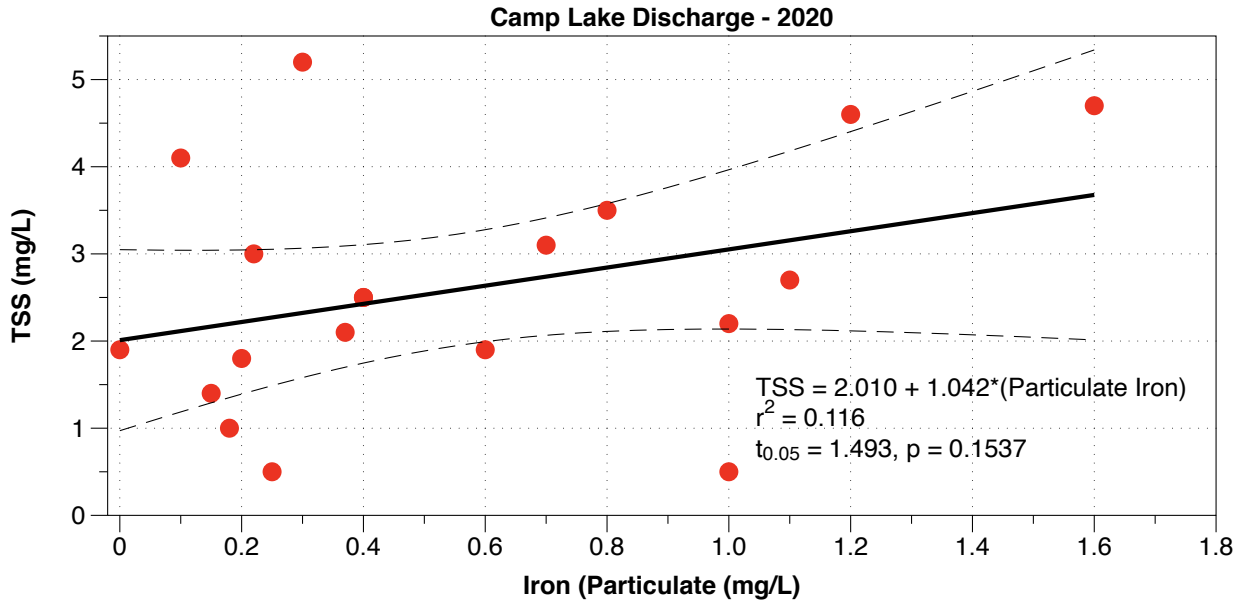

Figure 23. Relationship between Turbidity and Total Suspended Solids (TSS) in the Camp Lake Discharge, 2020.

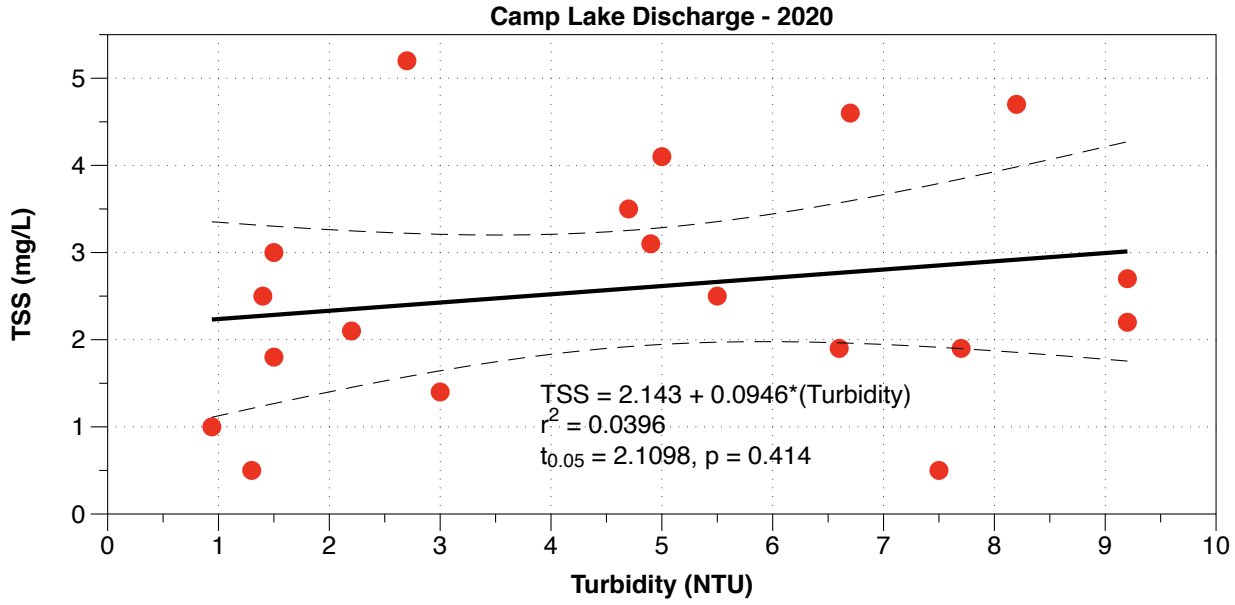

Figure 24. Relationship between Particulate Iron concentrations and Total Suspended Solids (TSS) in the Camp Lake Discharge, 2020.

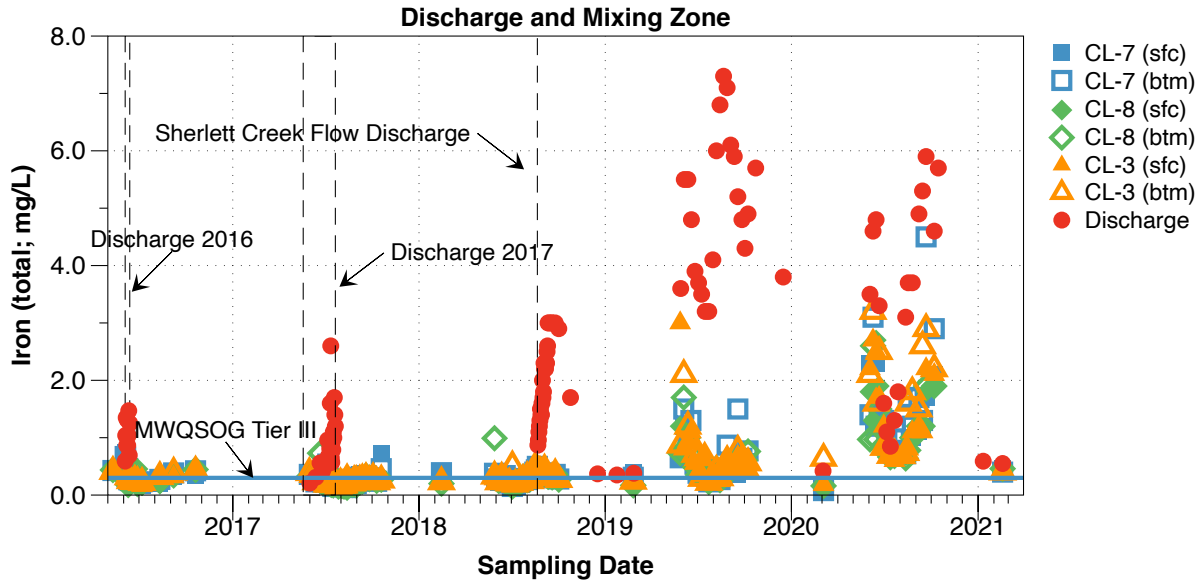

Figure 25. Total iron concentrations in the Camp Lake discharge and Cold Lake mixing zone, 2016 to February 2021.

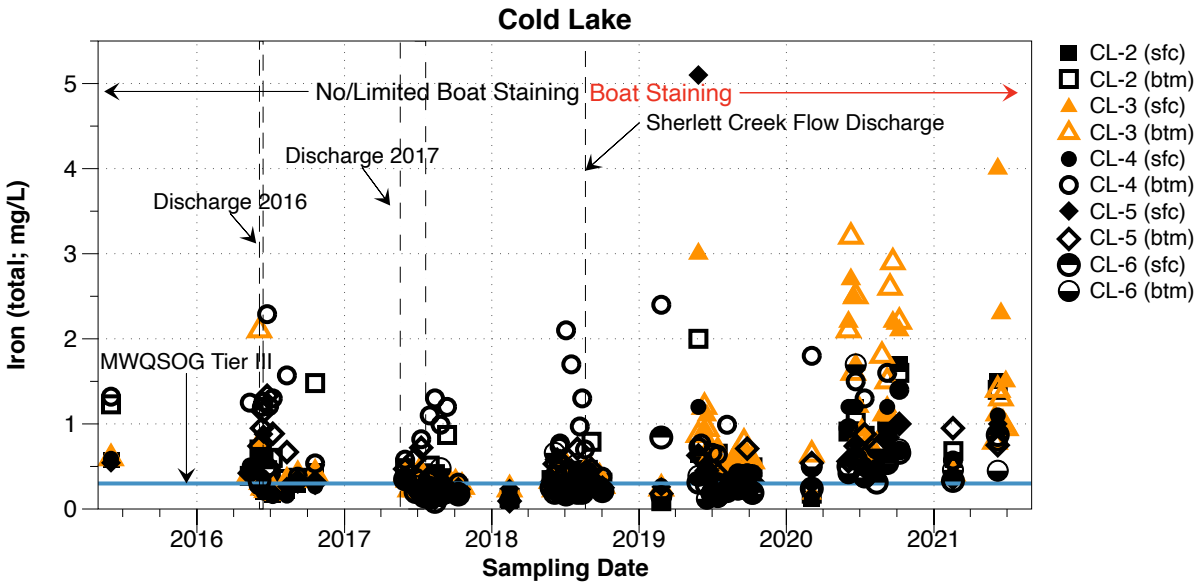

Figure 26. Total iron concentrations in the Cold Lake arm of Kississing Lake, 2015 to February 2021.

3.2.4 Silt Curtain Performance

Water turbidity in Camp Lake was not an issue of concern in Camp Lake in 2020 so there was no basis for evaluating the performance of the silt curtains.

3.3 Metals

Throughout the open water season, the combined effects of remnant mine waste adjacent to the lake, spring runoff, heavy rainfall events, and project construction activity were the primary factors affecting metal concentrations in Camp Lake and in the lake discharge. This is indicated by multiple sources of evidence, including water quality responses to spring runoff and to specific rainfall events as well as to isolation of the lake from these sources by freeze-up.

All the metals followed a two-peak pattern of variation in concentration in Camp Lake over the open water season. The first peak was developing when sampling started in early June, with concentrations first peaking in early to mid-June and then declining to a minimum around mid-July. Spring runoff and heavy June rains drove the development of this first peak.

The second peak developed between late July and mid-August, following a heavy rainfall event on July 24-25. There was an almost 3-week gap in sampling between the last sampling before the rainfall event, July 21, and the next sampling event after the rainfall event, August 12.

The influence of the Camp Lake discharge on water quality in Cold Lake was determined by a combination of discharge quality and flow. Flow on both Sherlett Creek and the discharge was

much higher in 2020, due primarily to high spring runoff and continuing wet conditions through spring to mid-summer, as discussed in Section 3.0. From the start of open water season sampling on June 3, until September 7, flows on Sherlett Creek and the Camp Lake discharge were higher than the peak flow in 2019. Consequently, the residence time of the mixing zone, and its attenuating capacity, was substantially reduced in comparison to previous years. It is not possible, with the existing information, to quantify how much higher flows were in 2020 due to the absence of real-time flow measurements. These would also allow a calculation of parameter loading (concentration x flow).

3.3.1 Aluminum

Total aluminum concentrations in Camp Lake followed the two peak pattern that characterised all the metals in 2020 (Figure 27). The first peak occurred shortly after ice out, during spring runoff. Maximum concentrations occurred around mid-June, then declined through to around July 21. The lowest peak values occurred in the South basin and the highest concentrations occurred in the East basin, with peak values about 5X higher than in the South basin and 9X to 10X higher than in Sherlett Creek. Along the primary, north-south axis of the lake, aluminum concentrations increased from the South basin, through the Central basin to the North basin. Maximum concentrations in the South basin during both seasonal peaks were about 2X the concentrations in Sherlett Creek. During the mid-summer minimum and under winter ice cover, the concentration in the South basin was about the same as in Sherlett Creek. In the North basin and the discharge, maximum aluminum concentrations were about 4X higher than in Sherlett Creek, about 2X higher at the mid-summer minimum, and the same as in Sherlett Creek under winter ice cover. Aluminum concentrations in the East basin under winter ice cover were the same as in Sherlett Creek, consistent with the other basins in Camp Lake.

Total aluminum concentrations at all stations in the lake and in the discharge were below the Tier III MWQSOG of 0.1 mg/L under ice cover in winter 2020 and then again in winter 2021 (Figure 27). During the open water season, concentrations in the East basin always exceeded the Tier III guideline, as did concentrations in the Discharge, North basin, and Central basin on all dates except at the summer minimum on July 21. Aluminum concentrations in the South basin fluctuated from just above to just below the Tier III guideline throughout the open water season.

Maximum aluminum concentrations in the South basin were similar in 2019 and 2020, concentrations in all other parts of the lake were higher in 2020 than in 2019. This was most evident in the East basin and is attributable to the wetter spring and early summer conditions and resulting increased metal loading in runoff from the adjacent mine waste - the largest quantity of remnant mine waste is adjacent to the East basin - as well as to the construction activity adjacent to the basin. Remnant mine waste and construction activity on the peninsula separating the East basin from the North and Central basins accounts for the higher concentrations in the North and Central basins than in the South basin. The South basin is least influenced by remaining adjacent mine waste, accounting for the lower concentrations there

than in the remainder of the lake. There also was no construction activity adjacent to the South basin in 2020.

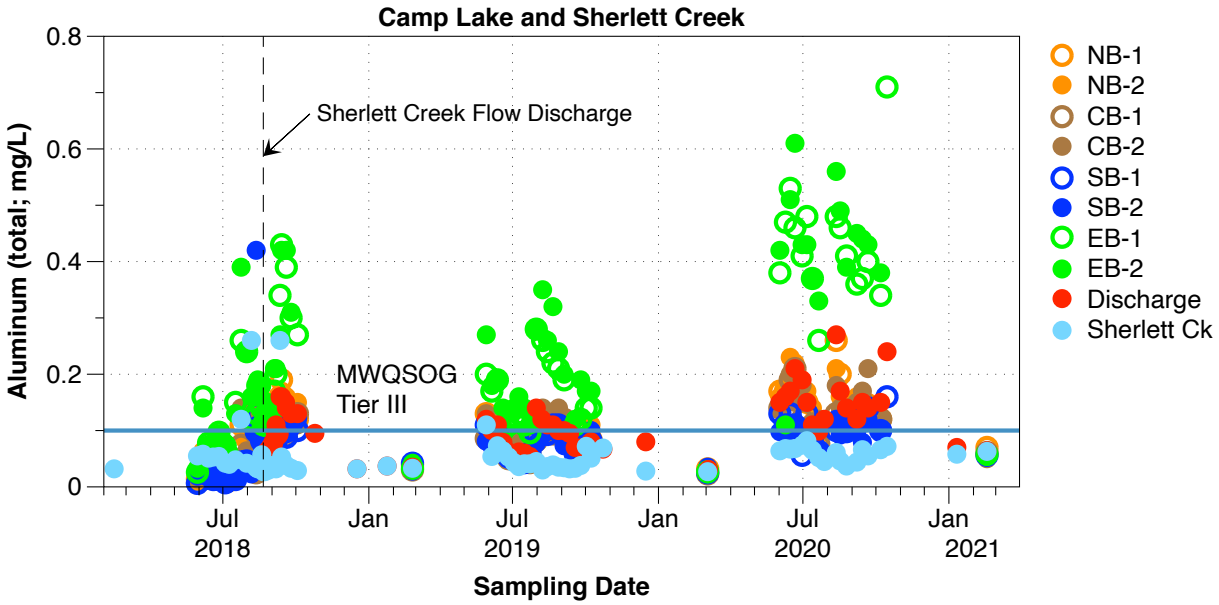

Figure 27. Total aluminum concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, February 2018 to February 2021.

The higher aluminum concentrations in the discharge and the much higher discharge flows that prevailed over the open water season in 2020 combined to affect concentrations in the Cold Lake mixing zone for the first time since discharges were initiated in 2016 (Figure 28). Total aluminum concentrations at all three mixing zone stations were approximately double the values for the corresponding date in 2019. Whereas values were consistently at or below the MWQSOG Tier III guideline value of 0.1 mg/L through the 2019 open water season, values in 2020 were above 0.1 mg/L on 7 of the 15 sampling dates during the open water season, and specifically during the first aluminum peak in June and then again in August/September.

In previous years, aluminum concentrations in the mixing zone were unresponsive to concentration variations in the discharge (DJRC 2020). Most of the concentration range observed in 2020 also occurred in previous years, with no effect (Figure 28). The much higher flows certainly contributed to the higher concentrations that developed in the mixing zone in 2020. The higher flows considerably reduced the residence time of the mixing zone, thereby reducing the time available for attenuation before the flow exited the mixing zone.

There also was a shift in the partitioning of aluminum between dissolved and particulate phases in 2020, as seen in iron. On average, dissolved aluminum accounted for 33% of the total aluminum in the discharge in 2019 (Appendix Table B.1 in DJRC 2020), while it represented 57% of the total in 2020 (Appendix Table B.1). Adsorption to dissolved organic matter also can keep aluminum in the dissolved phase when it otherwise would form a particulate (Brusewitz, 1984; Litaor 1987; Dahlgren and Ugolini 1989). Although not as large a shift to the dissolved phase as

occurred with iron, the combination of more dissolved aluminum and the higher flows together generally account for the lower attenuation in the mixing zone in 2020.

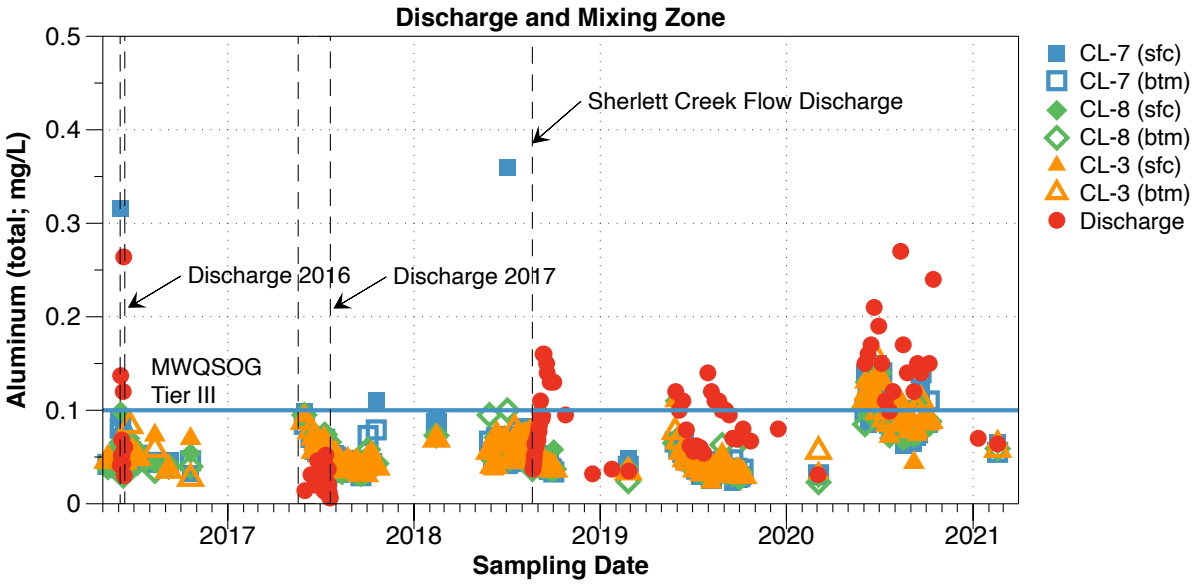

Figure 28. Total aluminum concentrations in the Camp Lake Discharge and Cold Lake Mixing Zone, May 2016 to February 2021.

The higher aluminum concentrations at the mixing zone stations during the 2020 open water season carried through to all 4 stations in Cold Lake outside the mixing zone (Figure 29). Concentrations were typically higher than in previous years but, for most of the open water season, remained within the historical range observed in the absence of a discharge.

The first seasonal peak in aluminum concentrations didn't appear in Cold Lake until mid-July, and then only at CL4, CL5, and CL6, at concentrations that were the same as or higher than occurred in the mixing zone. The spring runoff peak concentrations in the mixing zone appeared as a short-lived aluminum peak at stations CL4 (sfc and btm), CL5 (sfc), and CL6 (sfc) in early summer - around July 13 – when concentrations in these samples reached 0.14 to 0.18 mg/L. The highest background concentrations measured in the absence of a discharge were 0.128 mg/L at CL5 (sfc) on 2 June 2015 and 0.15 mg/L at CL6 (btm) on 1 August 2018. Only the CL5 (sfc) and CL4 (btm) values measured on July 13 exceeded the background range. July 13 also was the only date in 2020 when the MWQSOG Tier III guideline was clearly exceeded outside the mixing zone in Cold Lake. Otherwise, aluminum concentrations were generally in the range of 0.05 to 0.11 mg/L during the open water season, about 0.025 mg/L higher than in previous years.

This is the first time since the discharges were started in 2016 that the Camp Lake discharge has caused elevated (i.e., above the background range) aluminum concentrations in Cold Lake outside the mixing zone. The elevation above background was small (0.03 mg/L) and was particularly short-lived and, on that basis, is not considered an adverse effect.

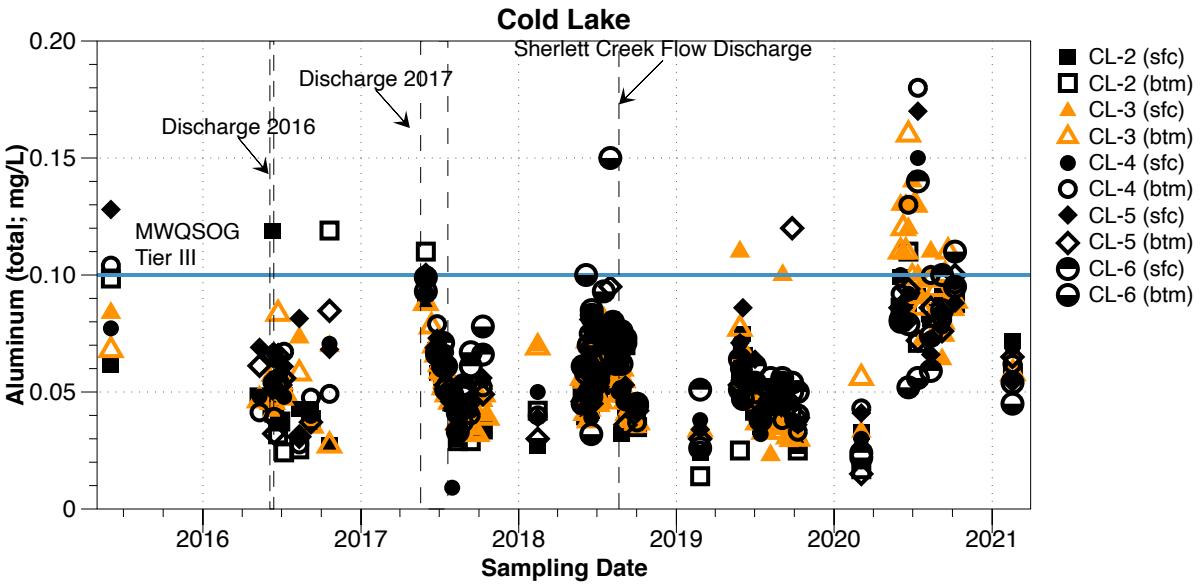

Figure 29. Total aluminum concentrations in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

3.3.2 Cadmium

Total cadmium concentrations in the South, Central, and North basins of Camp Lake and the Camp Lake discharge in 2020 followed the same two-peak pattern of seasonal fluctuations as observed in the concentrations of aluminum, copper, and zinc in the lake (Figure 30). This seasonal pattern was driven by runoff events, the first peak developing during spring runoff and the second peak following a heavy rainfall event in late July. Cadmium concentrations in the East basin were considerably higher, by approximately a factor of 2, than in the remainder of Camp Lake throughout the open water season (Figure 30) and there was no clear separation between the first and second peaks. As noted previously, the bulk of the remnant mine waste is located adjacent to the East basin, which generally accounts for the higher cadmium concentrations there than in other parts of the lake. Active construction work to remove this material also contributed to the higher cadmium concentrations and to obscure the separation between the first and second peaks.

The lowest cadmium concentrations in Camp Lake during the open water season occurred at the South basin stations (Figure 30). Total cadmium concentrations in the Central and North basins and in the discharge were higher than in the South basin but were still well below those in the East basin. Runoff from remnant mine waste on the peninsula separating the East basin from the Central and North basins enters the North and Central basins in addition to the East basin which, along with any inflow from the East basin, accounts for the higher concentrations in these basins than in the South basin.

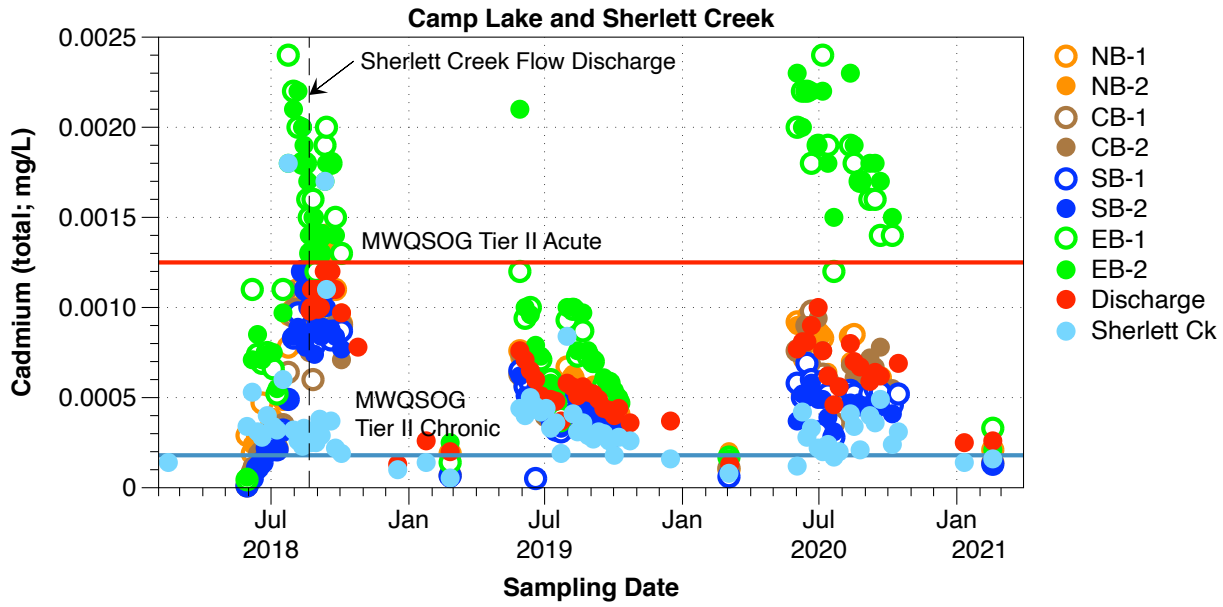

Figure 30. Total cadmium concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, February 2018 to February 2021.

Total cadmium concentrations in Sherlett Creek also followed the two-peak pattern and, consistent with 2018 and 2019, were consistently at or above the MWQSOG Tier II chronic (see Section 2.3 for more information regarding the MWQSOG criteria) exposure objective during the 2020 open water season (Figure 30). The seasonal cadmium peaks in Sherlett Creek contributed significantly to the peaks at the South basin stations, accounting for about 50% of the first peak and about 70% of the second peak. Overall, the lowest cadmium concentrations occurred during periods of ice cover at all stations in Camp Lake and in Sherlett Creek. This remains consistent with previous years and indicates the cadmium originates from sources external to the creek and lake.

Cadmium is more mobile in freshwaters than are other metals, typically occurring predominantly in the dissolved fraction (EPA 1979). Unlike most of the other metals, the proportion of total cadmium as dissolved was similar in 2019 (78%) (Appendix Tables B.1 to B.9 in DJRC 2020) and in 2020 (86%) (Appendix Tables B.1 to B.9).

Total cadmium concentrations in Sherlett Creek and the South basin of Camp Lake during the open water season of 2020 were similar to values measured in 2019 (Figure 30). Concentrations in the Central and North basins and in the discharge were 40 to 50% higher and in the East basin were more than twice as high as in 2019 (Figure 30). The higher concentrations in the Central, North, and particularly the East basins in 2020 are attributable to the adjacent mine waste, the unusually wet conditions and related runoff from the waste, and the presence of construction works disturbing and removing adjacent waste.

Total cadmium concentrations in the South, Central, and North basins of Camp Lake, and in the Camp Lake discharge were above the MWQSOG Tier II chronic exposure objective but well

below the Tier II acute exposure objective throughout 2020 open water season (Figure 30). Concentrations in the East basin generally exceeded the Tier II acute objective during the same period.

The Camp Lake discharge affected cadmium concentrations in the Cold Lake mixing zone for a much longer period in 2020 than in 2019 due partly to the slightly higher concentrations in the discharge, but mostly due to the high discharge flows that persisted through the 2020 open water season (Figure 31). Total cadmium concentrations at the mixing zone stations exceeded the MWQSOG Tier II chronic exposure objective (0.00018 mg/L) through the open water season but remained well below the Tier II acute exposure objective (0.00125 mg/L).

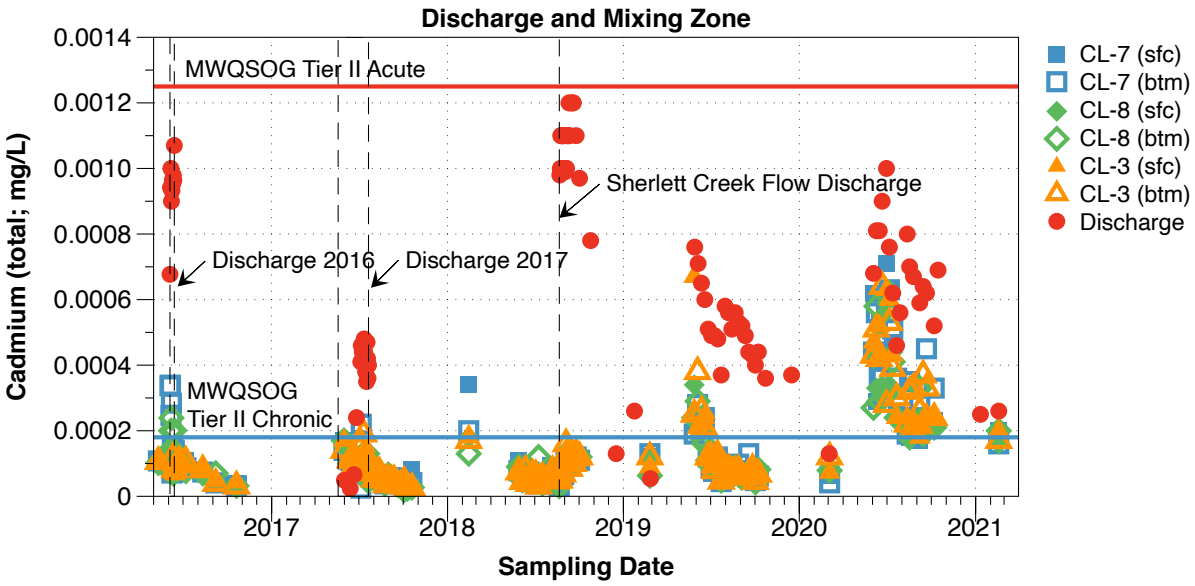

Figure 31. Total cadmium concentrations in the Camp Lake Discharge and Cold Lake Mixing Zone, May 2016 to February 2021.

The effect of the Camp Lake discharge on cadmium concentrations extended beyond the mixing zone into Cold Lake (Figure 32). The MWQSOG Tier II chronic exposure objective was exceeded in the near-surface samples from CL2 and CL4 from June 3 through July 13, and at CL5 on June 21, during the first seasonal cadmium peak in the discharge. Cadmium concentrations in the near-surface samples at all stations were at or below the Tier II chronic exposure objective on August 12 and remained below the objective at CL5 and CL6 through to the end of the open water season. Concentrations in the near-surface samples at CL2 increased above the Tier II chronic objective on September 7 and continued through October 7 during the second seasonal cadmium peak in the discharge.

Cadmium concentrations in the near-bottom samples were consistently below the Tier II chronic objective throughout the open water season, with one notable exception, a particularly high cadmium concentration (0.00054 mg/L) in the near-bottom sample at CL6 on July 13 (Figure 32). It is very unlikely that this value was related to the Camp Lake discharge given the

absence of concentrations close to this value at any location between CL6 and the mixing zone and the requirement for discharge water to somehow pass, undiluted and without affecting water quality at either CL4 or CL5, from the mixing zone to CL6, some 3.2 km distance. This one high value most likely originated from the local metal contaminated sediments that occur throughout the Cold Lake arm.

In the absence of the Camp Lake discharge, total cadmium concentrations in Cold Lake have occurred up to a maximum of 0.00034 mg/L (CL7 (sfc) 14 Feb 2018). Aside from the unusual value measured at CL6 noted above, only one of the values measured in Cold Lake outside the mixing zone - 0.00038 mg/L at CL4 (sfc) on 3 June 2020 - was higher than this maximum background value during the 2020 open water season (Figure 32). The elevation above background was small (0.00004 mg/L), localized to a single station, was particularly short-lived and, on that basis, is not considered an adverse effect.

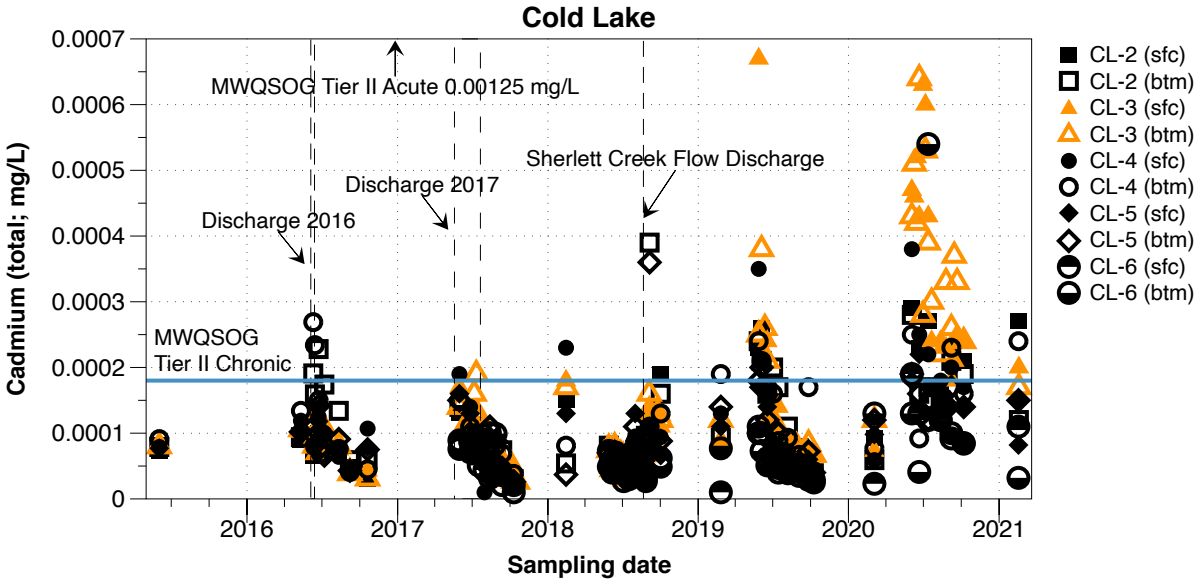

Figure 32. Total cadmium concentrations in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

3.3.3 Copper

Total copper concentrations in Camp Lake followed a two-peak pattern of seasonal fluctuations (Figure 33) that was the same as observed in the concentrations of aluminum, cadmium, and zinc in the lake (Sections 3.3.1, 3.3.2, and 3.3.4). As was typical for the metals, the lowest copper concentrations occurred in the South basin and the highest concentrations occurred in the East basin for almost all the open water season. Total copper concentrations in the Central and North basins and in the Camp Lake discharge were intermediate between those in the South and East basins. Copper concentrations in the South basin were, on average about 2X those in Sherlett Creek throughout the open water season. Under winter ice cover, copper concentrations in Sherlett Creek and at all stations in Camp Lake were at their annual lows, once again

highlighting the influence of runoff from the local watershed as the primary source of copper to Camp Lake.

Total copper concentrations in Sherlett Creek exceeded the MWQSOG Tier II chronic exposure objective of 0.00598 mg/L on all sampling dates in the open water season and exceeded the Tier II acute exposure objective of 0.00857 mg/L on 15 of the 16 open water sampling dates (Figure 33). Copper concentrations in Camp Lake exceeded the Tier II acute objective on all open water dates.

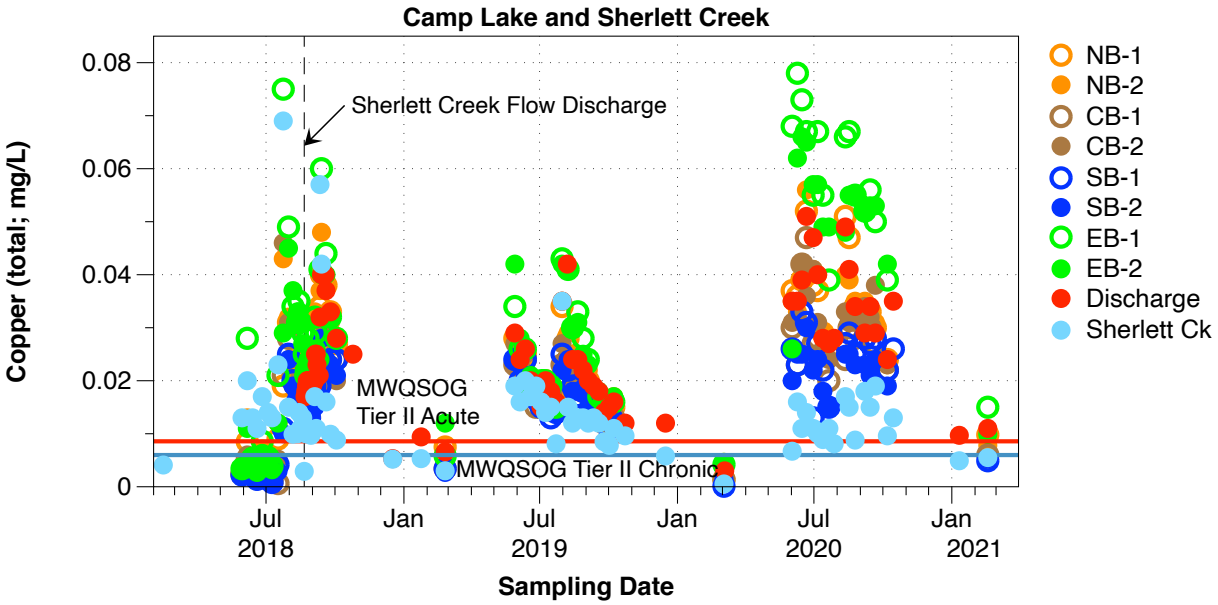

Figure 33. Total copper concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, February 2018 to February 2021.

Copper concentrations were higher across Camp Lake in 2020 compared to 2019, by 1.35X in the South basin, 1.8X in the Central basin, 1.6X in the North basin, 2.4 X in the East basin, and 1.7X in the discharge, on average (Figure 33). Most of the remaining mine waste lies adjacent to the East basin, and this also was the primary area of construction activity, with both factors accounting for the higher copper concentrations in this basin than in the remainder of the lake. Mine waste removal works also extended to the peninsula that separates the East basin from the Central and North basins, likely accounting for the higher copper concentrations in these basins than in the South basin, at least in part.

Copper was the only one of the four key metals in which the concentrations in the South basin in 2020 were notably higher, by about 35% on average, than in 2019. The seasonal pattern of copper fluctuation is generally explained by precipitation and runoff patterns, and the low concentrations in winter indicate the copper source is external. The mine waste adjacent to the South basin, primarily comprised of weathered mineralized waste used to construct the access road embankment for mine operations as long as 90 years ago, differs from that located around the East basin, which is primarily comprised of recently (since 2012) exposed mine tailings.

These differences in mine waste sources, and the wetter precipitation conditions in 2020, likely account for the higher concentrations of copper in the South basin in 2020 but not of the other metals, although this would require additional investigation to verify.

Another difference between 2019 and 2020 is that dissolved copper accounted for a much higher proportion of total copper in 2020 (80%) compared to 2019 (50%) (Appendix Tables B.1 to B.9 in DJRC 2020 and this study). This is consistent with between-year differences in partitioning of aluminum and iron, as already discussed. Copper also readily adsorbs to dissolved organic matter (Breault et al. 1996, EPA 1979, Tan et al. 1988), keeping more copper in solution than would otherwise be expected based on water chemistry. This behaviour can result in higher copper concentrations remaining in the Camp Lake water column, due to less local sedimentation of particulates, and will affect the attenuation of copper in the Cold Lake mixing zone, also due to less local sedimentation.

Copper concentrations in the discharge in 2020 generally were within the range measured in 2018 and 2019, except for slightly higher concentrations on June 21 (0.051 mg/L) and June 30 (0.047 mg/L), but the discharge had a much greater effect on copper concentrations in the mixing zone than in previous years (Figure 34). This is in part a result of the higher discharge flows throughout the open water season, as noted previously, and of the higher proportion of copper in the dissolved phase.

The Camp Lake discharge affected total copper concentrations in the Cold Lake mixing zone throughout the 2020 open water season (Figure 34). Copper concentrations at all 3 mixing zone stations exceeded the MWQSOG Tier II acute exposure objective (0.00857 mg/L) throughout the 2020 open water season compared to the relatively short 3-week period in which the acute objective was exceeded in 2019. Concentrations were highest during the spring runoff period, peaking around June 30-July 7, declining by about 50% over the following two weeks and levelling out for the remainder of the open water season. A similar L-shaped open water season profile occurred in 2019, but at copper concentrations in the mixing zone that were about one-third those in 2020. The lowest total copper concentrations occurred under winter ice cover, both in March 2020 and February 2021.

Overall, both Sherlett Creek and Cold Lake support unusually high background total copper concentrations. In Sherlett Creek, values above the MWQSOG Tier II acute exposure objective (0.00857 mg/L) were the norm during the open water period (Figure 33). Total copper concentrations in Cold Lake have recently ranged as high as 0.011 mg/L outside of discharge events, both within the mixing zone and in other parts of Cold Lake, which sets the upper range of background concentrations (Figures 34 and 35). The high background concentrations in Cold Lake reflect the long history of uncontrolled ARD discharges from the Sherridon site prior to the start of the reclamation project (Tetra Tech WEI 2016). Although these discharges ended in the fourth quarter of 2008, the long-term effects of historical discharges from the mine site, beginning as early as 1927, remain to the present. Internal metal loading, released from the lake sediments, is prevalent on Cold Lake, particularly under ice cover, as seen in March 2020 and February 2021 (Figure 35).

Total copper concentrations at all 3 mixing zone stations were generally elevated (i.e., above 0.011 mg/L) throughout the 2020 open water season (Figure 34). Outside the mixing zone, concentrations at CL2 (sfc) and CL4 (sfc) weren't as high as in the mixing zone, but also were elevated throughout the open water season (Figure 35). Concentrations at CL5 (sfc) and at CL2 (btm), CL4 (btm), and CL5 (btm) were elevated in early June and again in early October but were below 0.011 mg/L for most of the open water season. Copper concentrations at CL6 were generally below 0.011 mg/L in both the near-surface and near-bottom samples through the open water season.

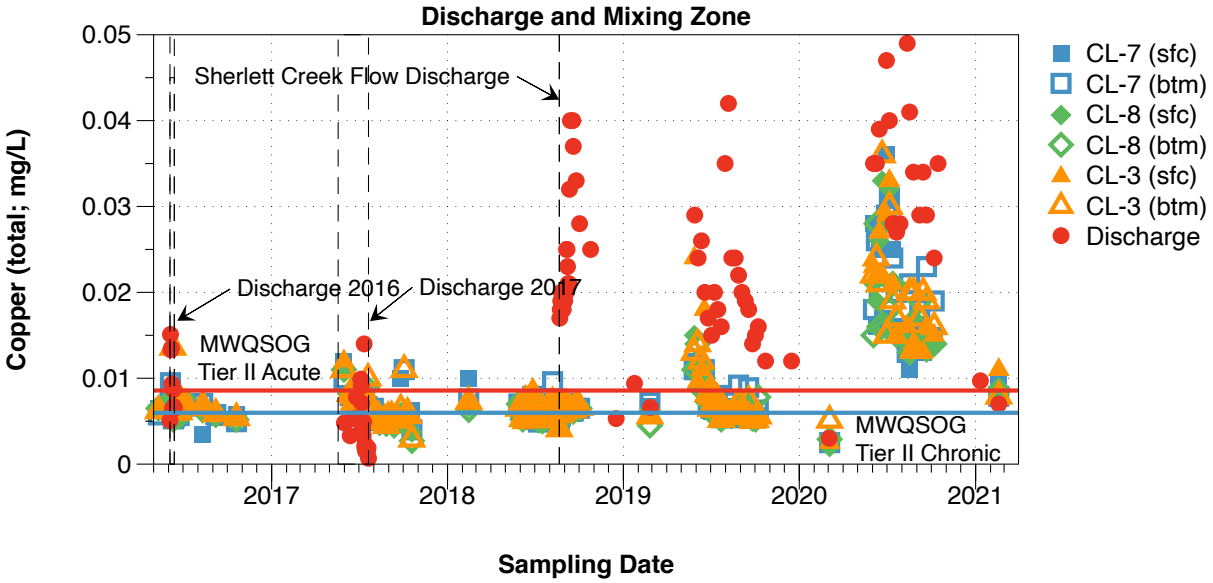

Figure 34. Total copper concentrations in the Camp Lake Discharge and Cold Lake Mixing Zone, May 2016 to February 2021.

The elevated copper concentrations at stations CL2 and CL4 in Cold Lake outside the mixing zone were potentially adverse because they prevailed for the entire open water season (Figure 35). Although consistently above the Tier II acute effects objective, these concentrations were not acutely toxic, as indicated by the consistently non-acutely toxic discharge from Camp Lake. The term potentially is used here because it is not known how available the copper was and, given the prevailing high copper background condition in Cold Lake, the degree of adaptation and tolerance that aquatic biota in Cold Lake may have developed as a result of long-term exposure also is unknown.

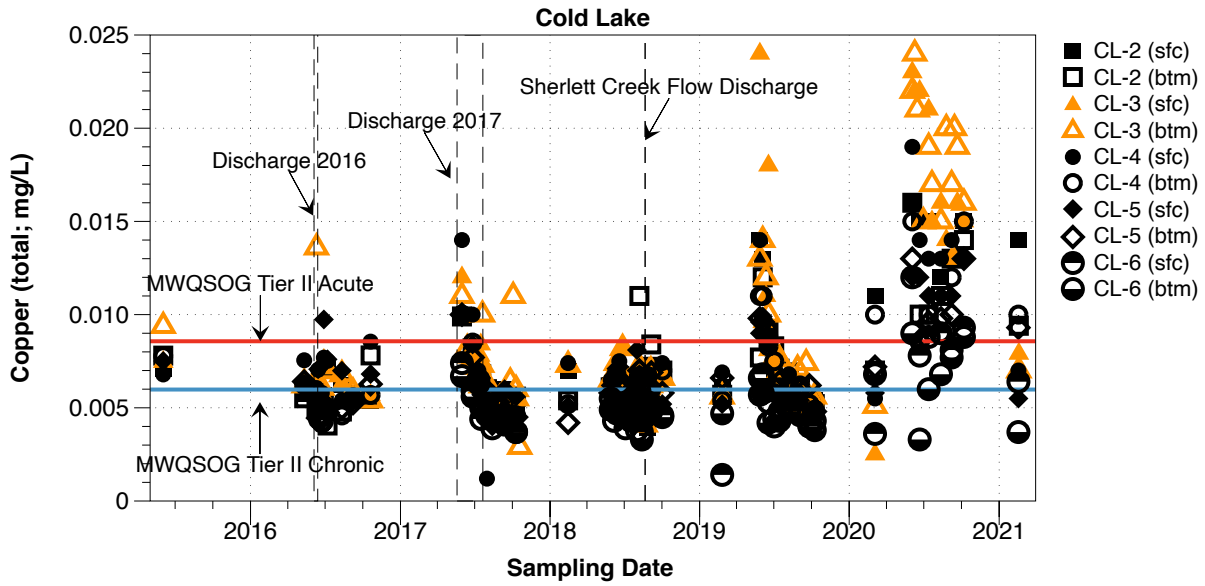

Figure 35. Total copper concentrations in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

3.3.4 Zinc

Total zinc concentrations in Camp Lake followed a two-peak pattern of seasonal fluctuations (Figure 36) consistent with those observed in the concentrations of aluminum, cadmium, and copper in the lake (Sections 3.3.1, 3.3.2, and 3.3.3). The first peak occurred coincident with spring runoff and the spring rains. The second peak developed following the late July rainfall event. The two-peak seasonal pattern also was evident in Sherlett Creek.

Throughout the open water season, zinc concentrations in Camp Lake were lowest in the South basin, and progressively increased through the Central basin to the North basin (Figure 36). The first peaks were notably higher in all the Camp Lake basins than in Sherlett Creek, but the second peak in the South basin was no larger than in Sherlett Creek, indicating the second peak in the South basin was primarily a result of zinc in the creek inflow with, at most, a minor contribution from the local Camp Lake watershed.

Total zinc concentrations were substantially higher in the East basin, by about a factor of 2, than in the remainder of Camp Lake during the open water season. As with the other metals, this is attributable to the mine waste adjacent to the East basin and to the construction activity. Mine waste removal works also extended to the peninsula that separates the East basin from the Central and North basins, at least partly accounting for the higher zinc concentrations in these basins than in the South basin.

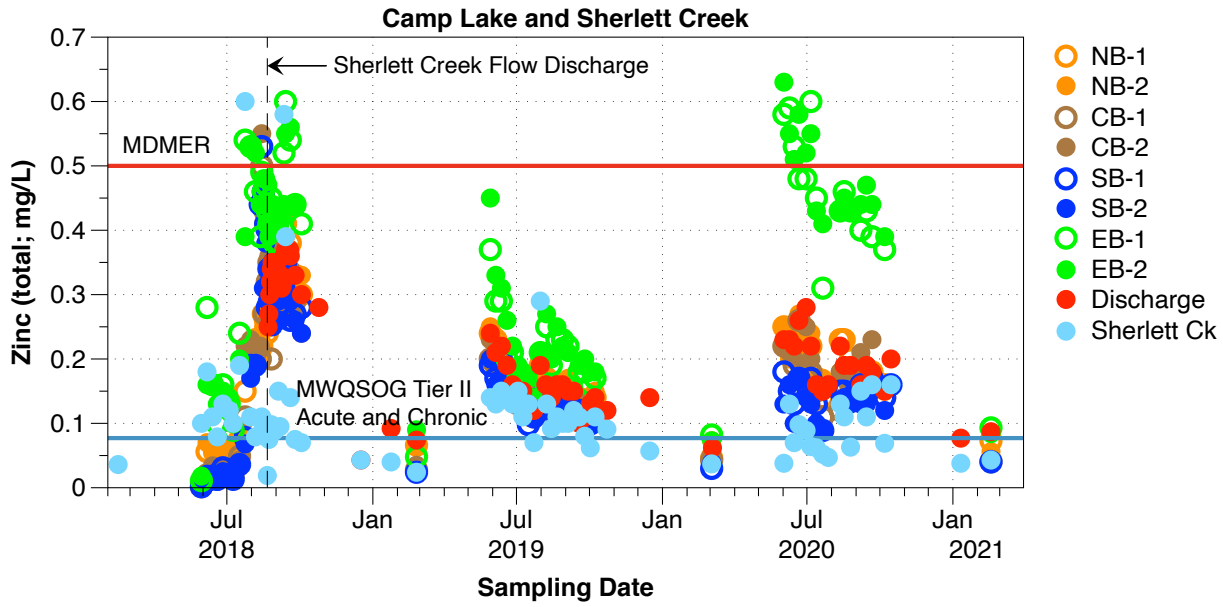

Figure 36. Total zinc concentrations in Camp Lake, the Camp Lake Discharge, and Sherlett Creek, February 2018 to February 2021.

Overall, the lowest zinc concentrations at all stations in the lake occurred during periods of ice cover, once again highlighting the influence of runoff from the local watershed as the primary source of zinc to Camp Lake, particularly to the East basin, as was noted in 2018 and 2019 (DJRC 2019 and 2020). Total zinc concentrations in all parts of Camp Lake exceeded both the MWQSOG Tier II chronic and acute objectives (both set at 0.0771 mg/L) throughout the open water period (Figure 36). Concentrations in the South, Central, and North basins were near or below these objectives under winter ice cover in March 2020 and February 2021.

Total zinc concentrations in Sherlett Creek exceeded the Tier II chronic and acute objectives about half the time during the open water season, principally during the first and second peaks (Figure 36). Concentrations were below the Tier II objectives under winter ice cover. Previous investigation in 2017 and 2018 identified a groundwater inflow to Sherlett Creek that could account for the much higher concentrations of several metals that periodically occur in Sherlett Creek above Camp Lake (DJRC 2019). However, in the absence of sampling multiple stations on Sherlett Creek between Sherlett Lake and Camp Lake, it is not known if the peaks in zinc in 2020 originated from this groundwater source.

Total zinc concentrations in the South, Central, and North basins of Camp Lake and in the Camp Lake discharge in 2020 were generally similar to concentrations measured in 2019 (Figure 36). Concentrations in the East basin in 2020 were, in general, considerably higher than in 2019, and maximum concentrations in 2020 also were higher than in 2018, likely a combined result of the wetter conditions and the presence of construction activity adjacent to the East basin in 2020. The proportion of zinc occurring in the dissolved fraction (90%) also was similar to 2019 (82%) (Appendix Tables B.1 to B.9 in DJRC 2020 and the present study).

The Camp Lake discharge affected zinc concentrations in the Cold Lake mixing zone for a much longer period in 2020 than in 2019 due to the high discharge flows that persisted through the 2020 open water season (Figure 37). Zinc concentrations in the discharge were not markedly different from 2019. Total zinc concentrations at the mixing zone stations exceeded the MWQSOG Tier II objectives from June 2 through the first peak, dropping below the Tier II objective by July13-21. Concentrations increased slightly above the Tier II objective during the second peak as well, peaking around September 7 and fluctuating slightly above and below the Tier II objective through to the end of sampling on October 7. The Camp Lake discharge affected zinc concentrations in the mixing zone in August, September, and October even though the zinc concentrations in the discharge during the second peak (i.e., after late July) were not substantially higher than in Sherlett Creek. Any effect of the discharge on water quality in Cold Lake after July therefore is attributable to zinc carried in Sherlett Creek rather than originating from the Camp Lake watershed. Because the zinc was carried in Sherlett Creek, it would have entered Cold Lake in the absence of a discharge from Camp Lake.

The effect of the Camp Lake discharge on zinc concentrations extended beyond the mixing zone into Cold Lake (Figure 38). This was most notable at CL4, where the zinc concentration exceeded the MWQSOG Tier II objective of 0.0771 mg/L on June 3 (0.12 mg/L) and June 21 (0.084 mg/L) but was not limited to this station – zinc concentrations at all stations except CL6 were higher than in previous years, although values remained below the MWQSOG Tier II objective.

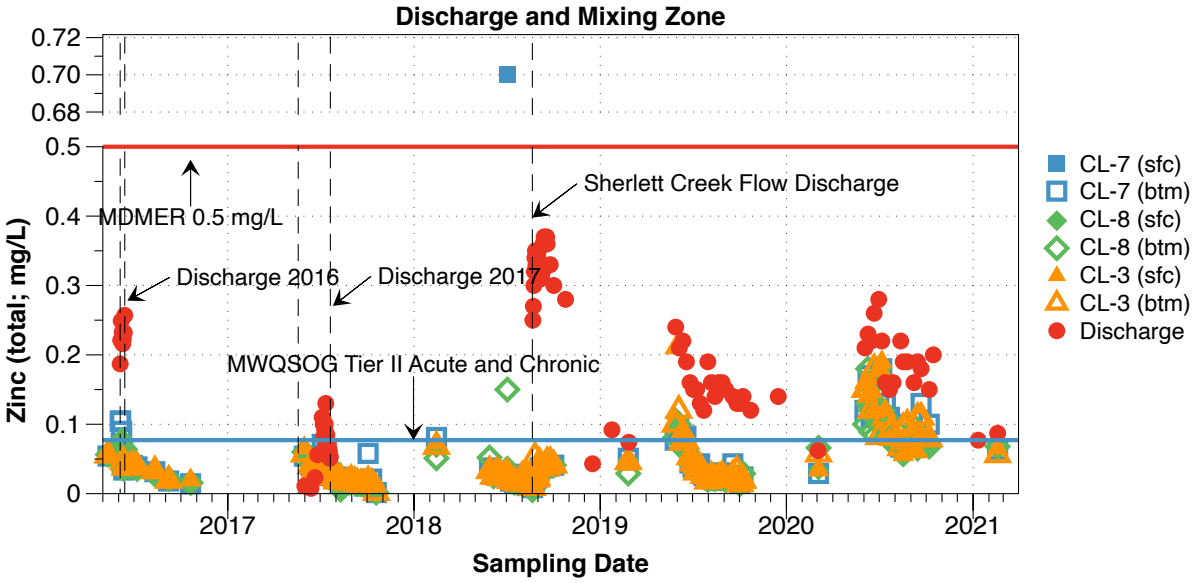

Figure 37. Total zinc concentrations in the Camp Lake Discharge and Cold Lake Mixing Zone, May 2016 to February 2021 (note y-axis break).

Total zinc concentrations at CL2 on March 3 (0.13 mg/L) and June 3 (0.11 mg/L) were as high as measured at CL4 on June 3 (Figure 38). However, there is no clear evidence that either occurrence was related to the Camp Lake discharge. The March 3, 2020, value was substantially

higher than had been measured in the mixing zone on any date since the previous May. As noted in DJRC (2020), the sediments of the Cold Lake arm remain heavily contaminated from the historical mine activities, and this contamination can be expected to appear in the water column from time to time, especially under anoxic conditions which typically develop under winter ice cover. In the absence of sampling between the dates, it is not possible to attribute a specific cause to the elevated value measured on June 3. The June 3 value may have been a continuation of the elevated concentration measured on March 3 or could have been related to the Camp Lake discharge, and there is no means of distinguishing between these possible explanations.

Zinc concentrations in Cold Lake, outside the mixing zone, through the open water season were higher than in previous years but, after the June peak, were below the Tier II objective (Figure 38). The higher concentrations in August, September, and October than in previous years are attributable to zinc in Sherlett Creek and would have occurred in the absence of any flow through Camp Lake.

Over the past 3 winters (2018, 2019, and 2020), zinc concentrations under ice in Cold Lake have tended to be higher than during much of the open water season and in all years were higher at many stations than in the Camp Lake discharge during winter. This was not an effect of the Camp Lake discharge, instead indicating internal loading within Cold Lake. The remaining contaminated sediments within Cold Lake noted above are the likely source of this internal loading.

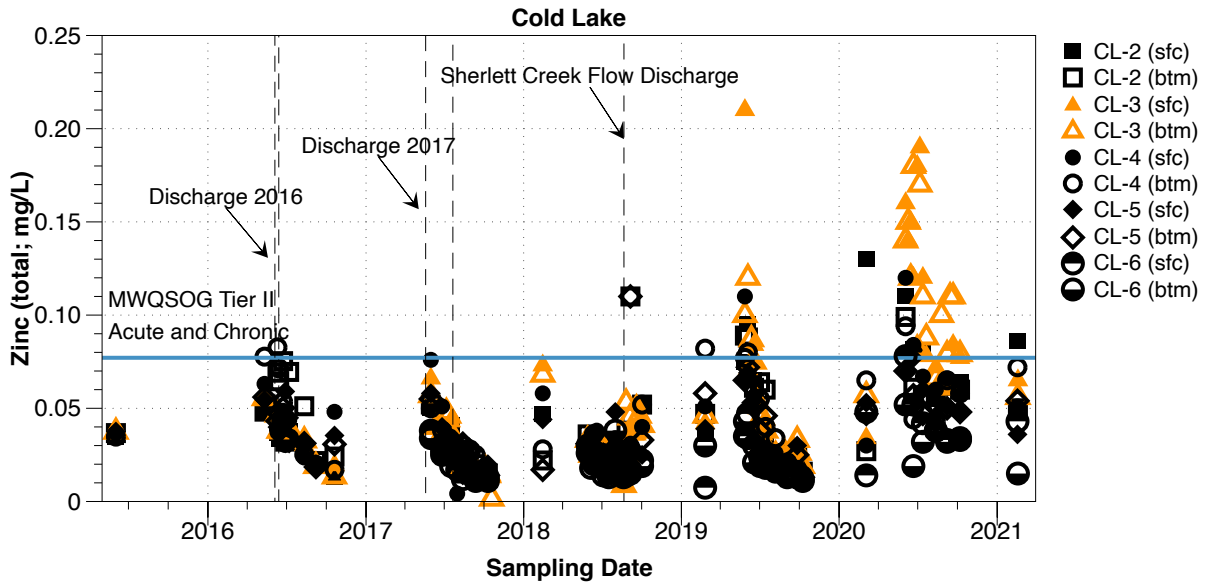

Figure 38. Total zinc concentrations in the Cold Lake arm of Kississing Lake, May 2015 to February 2021.

3.4 Discharge Toxicity

The Camp Lake discharge at the North weir was sampled for testing of acute toxicity (96-hour LC_{50}) to juvenile Rainbow trout on 5 dates in 2020 (June 2, July 6, August 12, September 7, and October 7). The LC_{50} is the effluent concentration that is lethal to 50% of the fish tested. Rainbow trout are one of the standard test organisms and are used because they are more sensitive to potentially toxic materials than many other fish species. An LC_{50} result of >100% indicates the discharge is not acutely toxic to fish. All 5 test results returned an LC_{50} > 100% (Appendix B). The Camp Lake discharge was not acutely toxic to fish at any time over the five-month open water period considered in this study. Toxicity testing was focused on the open water season because parameter concentrations in the Camp Lake discharge are highest during the open water season – under ice cover parameter concentrations approach those in Sherlett Creek upstream of Camp Lake.

4.0 Conclusions

Sherlett Creek flow was returned through Camp Lake in August 2018, with 2020 representing the second full year of this operating regime. For the second consecutive year, Sherlett Creek provided sufficient alkalinity to carry the lake through the entire year without requiring a lime treatment. Camp Lake pH closely tracked the pH of Sherlett Creek, with no late summer development of acidic conditions.

Elimination of lime treatment has made it possible to more fully understand the effect of the remaining mine waste adjacent to Camp Lake on water quality. Winter conditions isolate the lake from local watershed runoff and the concentrations of all metals reach their annual lows under winter ice cover. Iron, turbidity, TSS, and aluminum concentrations in all basins of the lake were the same as in Sherlett Creek under ice cover in both March 2020 and February 2021, as was previously the case in February 2019. Winter cadmium, copper, and zinc concentrations in the lake ranged from the same as in Sherlett Creek (South basin) to slightly higher (East basin). Camp Lake discharge quality was comparable to inflowing Sherlett Creek water quality in February 2019, March 2020, and February 2021.

Alkalinity in Camp Lake continued to be highest under winter ice cover in 2020 and 2021, as previously noted in 2019 and, consistent with previous observations, was higher than in the inflowing Sherlett Creek, indicating net alkalinity generation occurs in the lake in the absence of watershed runoff. Camp Lake is beginning to function as a lake rather than just providing the essential water cover for the submerged mine waste. Net alkalinity generation also was noted in Cold Lake under winter ice cover.

The role of runoff events in affecting water quality in Camp Lake was first identified in 2018, with decreases in alkalinity and peaks in metal concentrations occurring in the lake following runoff events. This pattern continued in 2019 and in 2020. Mine waste remaining adjacent to Camp Lake is the primary contributor of acid rock drainage containing aluminum, cadmium, copper, and zinc to the lake. Most of the remnant mine waste is adjacent to the East basin, producing the higher peak concentrations that typically develop in the East basin than in the rest of the lake. Less waste is adjacent to the North and Central basins, principally located on the peninsula that separates these basins from the East basin, generally accounting for the lower metal concentrations.

The lowest metal concentrations typically occur in the South basin both because there is less adjacent waste, and the waste that does remain is from a different source. The East, Central, and North basins are bounded by waste predominantly in the form of mine tailings (rock that was ground and processed for metal recovery early in the mine life and sat buried deep in the tailings pile) that were only recently exposed to weathering in 2009-2012, whereas the South basin is affected by runoff from mineralized waste rock in the access road embankment that was placed early in mine development and could have been exposed to weathering for as long as 90 years.

The red-coloured turbidity that developed in the lake in both 2018 and 2019 was caused by high concentrations of particulate iron. The turbidity in 2018 was related to the lime treatment completed in advance of spring melt, with the red coloured, iron containing, lime floc that resulted from the lime treatment periodically being suspended by strong northerly winds. The turbidity that developed in 2019 was similar to 2018 in that it comprised particulate iron, but the particles were much finer than in 2018 and remained suspended in the water column whether or not the wind was blowing. In both years, the particulate iron in the Camp Lake water settled out quickly on reaching Cold Lake, not moving beyond the 100 m diameter mixing zone.

Total iron concentrations in 2020 were almost as high as in 2019 and were higher than in 2018 but the red turbidity did not develop in 2020 because particulate iron concentrations remained low throughout the open water season. There was a substantial change in iron partitioning in 2020 although it isn't entirely clear from the 2020 monitoring results why this shift in partitioning has occurred. The circumneutral pH and oxidizing conditions in the lake favour the formation of particulate iron, but iron also can adsorb to dissolved organic matter, resulting in the occurrence of higher dissolved iron concentrations than would otherwise be expected based on water chemistry. Concentrations of organic matter will increase in Camp Lake as it begins to function as a lake, with microbial and algal populations becoming established and producing dissolved and particulate organic matter. Dissolved organic carbon has not been measured in Camp Lake to date but has been added to the laboratory analyses in 2021 to examine this explanation.

The combination of elevated dissolved iron concentrations in the Camp Lake discharge compared to concentrations in Cold Lake and the much higher discharge flows in 2020 resulted in the development of increased iron concentrations in Cold Lake outside the margins of the mixing zone during the spring and fall iron peaks; mid-summer iron concentrations were not affected by the discharge. This is the first time that total iron concentrations in Cold Lake outside the mixing zone have been affected by the Camp Lake discharge since the reclamation project began. This likely was a combined result of the much higher flows and predominance of dissolved iron in the discharge. In previous years, the mixing zone residence time was much longer at the lower flows. The predominance of the particulate iron fraction also resulted in sedimentation close to the point of discharge such that any iron entering Cold Lake settled out very close to the point of discharge.

The focus of the community on the red-coloured turbidity that developed in Camp Lake in the past couple of years is related, in part, to the appearance of red staining on their boats since the full-time Camp Lake discharge was resumed in 2018. Despite the elevated iron-stained turbidity that developed in Camp Lake in both 2018 and 2019, the discharge had no effect on iron concentrations in Cold Lake beyond the mixing zone in those years, yet the boat-staining was occurring, indicating the staining is not a result of elevated iron concentrations in the Camp Lake discharge.

The explanation for the red-staining of boats likely lies in Cold Lake itself, where there is abundant iron in the water column and in the sediments due to the historical, uncontrolled,

mine-affected water discharges from Camp Lake. Background total iron concentrations in Cold Lake in the absence of the Camp Lake discharge ranged as high as 0.63 mg/L in the near-surface samples and 2.29 mg/L in the near-bottom samples, compared to 0.06 mg/L in parts of Kississing Lake unaffected by the historical Camp Lake discharges. Similarly Cold Lake sediments at stations CL3, CL4, and CL5 have iron contents in the range of 16% to 28%, compared to about 3.5% in comparable unaffected parts of Kississing Lake. The Camp Lake discharge passes through this iron-enriched part of Cold Lake in the general southward flow of water through Cold Lake and then west out into the main basin of Kississing Lake. Sherlett Creek is the single largest source of surface inflow to Cold Lake, delivering runoff from 66% of the Cold Lake watershed. Resumption of the discharge from Camp Lake would have changed the water flow pattern in Cold Lake, directing 2/3 of the total inflow to Cold Lake through the most iron-contaminated part of Cold Lake and past the community.

Concentrations of aluminum, cadmium, copper, and zinc in the Camp Lake discharge were somewhat higher in 2020 than in 2019 but were similar to concentrations in 2018 after Sherlett Creek flow-through was restored. Although concentrations in the discharge were no higher than in recent years, the discharge had a much greater effect on concentrations of these metals in the Cold Lake mixing zone. This was true, to varying degrees, for all 4 metals. All parameters were subject to the same higher flows, but the degree of attenuation within and beyond the mixing zone also was dependent on the dissolved/particulate partitioning. Cadmium and zinc partitioning did not substantially differ between 2019 and 2020, with both parameters predominantly occurring as dissolved in both years, and the discharge had a lesser effect on concentrations of these parameters in Cold Lake than was the case for either aluminum or copper. Partitioning of both aluminum and copper shifted from predominantly particulate in 2019 to predominantly dissolved in 2020, as also occurred in iron, so that both aluminum and copper in the discharge had a greater effect on concentrations in Cold Lake outside the mixing zone than did either cadmium or zinc.

The higher aluminum, cadmium, and zinc concentrations in Cold Lake in 2020, while not desirable, substantially fell within the historical range in the absence of a discharge from Camp Lake, and consequently are not considered adverse effects.

The elevated copper concentrations at stations CL2 and CL4 in Cold Lake outside the mixing zone were identified as potentially adverse primarily because they prevailed for the entire open water season. Although consistently above the Tier II acute effects objective, these concentrations were not acutely toxic, as indicated by the consistently non-acutely toxic discharge from Camp Lake. The term potentially is used here because it is not known how available the copper was and, given the prevailing high copper background condition in Cold Lake, the degree of adaptation and tolerance that aquatic biota in Cold Lake may have developed as a result of long-term exposure also is unknown. Dissolved organic matter also is known to provide some protection against copper toxicity in particular.

The circumstances in which these increases occurred also were very unusual, given the very high flows that prevailed throughout the open water season. With mine waste removal well-progressed and scheduled for completion in 2021, concentrations of all four metals in Camp Lake are expected to decrease over the next 4 to 5 years and, most importantly, the large seasonal spikes in metal concentrations should largely be eliminated. The influence of Sherlett Creek inflows on water quality in Camp Lake, which already was evident in the cadmium and zinc concentrations after July, will continue to increase. While this will generally translate to lower concentrations of all metals in Camp Lake under most circumstances, there will continue to be rare instances of higher metal concentrations in Camp Lake due to higher concentrations in Sherlett Creek.

In addition to the already planned addition of total and dissolved organic carbon analyses to the analytical program, the following field measurements and laboratory analyses also are recommended:

- Real-time flow measurements on Sherlett Creek – while Camp Lake levels provide a general indication of flow conditions, real-time flows would allow for quantitative analysis and modelling of metal loading. This would require the installation of water level monitoring loggers upstream of the Sherlett Creek diversion and at the Camp Lake discharge weir and the collection of periodic instream flow measurements across Sherlett Creek at the level monitoring location to develop a stage/discharge curve that would allow calculation of flows from the level measurements.

- In the event that measurements of dissolved organic carbon indicate an explanation for the prevalence of dissolved iron in Camp Lake, further investigation into the nature of the organic matter (e.g., humic/fulvic acids or other constituents) is warranted, both to better understand its role in adsorption or binding of iron but also its role in potentially reducing metal toxicities.

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Appendix A – Field Data

Note: Shaded values in the Cold Lake tables approximate the depth of the hypolimnion and indicate the layer of the lake that is isolated by summer thermal stratification.

Table A.1. Camp Lake Discharge - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Jun-20	--	--	6.81	0.25	14.4	9.29	244	6.56	9.2	108
09-Jun-20	--	--	6.90	0.25	12.5	9.62	221	6.38	7.8	108
15-Jun-20	--	--	6.97	0.25	17.0	9.03	207	6.85	8.0	84
21-Jun-20	--	--	7.30	0.25	15.3	9.43	182	6.66	4.5	158
30-Jun-20	--	--	7.34	0.25	17.4	8.80	158	6.78	2.5	134
06-Jul-20	--	--	7.35	0.25	20.7	8.45	146	6.71	0.6	127
13-Jul-20	--	--	7.32	0.25	22.1	8.13	143	7.05	1.1	189
21-Jul-20	--	--	7.36	0.25	22.2	8.09	137	7.06	1.2	175
12-Aug-20	--	--	7.15	0.25	20.4	8.10	181	6.86	5.4	123
17-Aug-20	--	--	6.97	0.25	17.9	8.10	144	6.86	1.0	130
25-Aug-20	--	--	7.13	0.25	16.7	7.69	58	6.59	7.8	104
07-Sep-20	--	--	7.18	0.25	11.9	10.47	173	6.54	5.0	160
14-Sep-20	--	--	7.25	0.25	11.5	9.86	179	6.49	6.1	91
21-Sep-20	--	--	7.01	0.25	11.9	9.96	183	6.54	4.6	88
07-Oct-20	--	--	7.08	0.25	8.6	10.97	172	6.62	7.5	120
15-Oct-20	--	--	7.33	0.25	2.5	15.76	174	5.70	10.1	160

Table A.2. Camp Lake Station NB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Mar-20	1.3	--	7.94	0.25	0.1	13.42	111	7.48	-1.8	34
				1.00	0.2	13.06	112	7.45	-1.7	38
02-Jun-20	2.2	1.0	7.01	0.25	14.9	9.34	233	6.56	8.8	93
				1.00	14.8	9.33	233	6.56	8.8	94
				2.00	14.7	9.31	233	6.56	8.8	94
09-Jun-20	2.0	1.0	6.84	0.25	12.7	9.55	219	6.33	8.0	117
				1.00	12.6	9.55	219	6.33	8.0	117
15-Jun-20	2.3	0.9	6.93	0.25	16.8	9.02	206	6.78	8.0	86
				1.00	16.7	9.02	206	6.78	8.0	86
				2.00	16.6	9.02	206	6.77	8.6	87
21-Jun-20	2.1	1.2	7.05	0.25	14.3	9.46	179	6.63	4.7	148
				1.00	14.3	9.46	179	6.63	4.7	146
				2.00	14.2	9.42	179	6.63	4.8	144
30-Jun-20	2.3	1.8	7.31	0.25	17.3	8.69	159	6.60	1.9	130
				1.00	17.3	8.67	159	6.61	1.8	130
06-Jul-20	2.4	1.8	7.32	0.25	20.9	8.48	145	6.68	0.6	130
				1.00	20.9	8.47	145	6.70	0.6	130
13-Jul-20	2.2	1.9	7.41	0.25	22.0	8.19	143	6.75	1.2	255
				1.00	21.8	8.18	143	6.78	1.2	251
				2.00	21.4	8.16	143	6.80	1.3	248
21-Jul-20	2.6	1.8	7.31	0.25	22.2	8.10	135	6.52	1.1	200
				1.00	22.2	8.09	135	6.54	1.1	199
				2.00	19.9	8.18	142	6.67	1.2	187
12-Aug-20	2.8	1.0	7.08	0.25	20.4	8.21	177	6.65	5.4	156
				1.00	20.3	8.09	177	6.65	5.4	153
				2.00	19.1	8.02	182	6.66	5.7	145
17-Aug-20	2.6	1.0	6.86	0.25	17.9	8.23	184	6.75	4.9	62
				1.00	17.9	8.22	184	6.75	4.9	62
				2.00	17.9	8.22	184	6.75	4.9	63
25-Aug-20	2.8	1.0	7.35	0.25	16.4	8.49	174	6.67	4.4	70
				1.00	16.3	8.46	174	6.66	4.4	71
7-Sep-20	2.1	0.9	7.19	0.25	11.9	9.61	170	6.55	5.1	119
				1.00	11.9	9.61	170	6.55	5.0	118
14-Sep-20	2.2	1.0	7.17	0.25	11.6	9.89	178	6.51	6.1	110
				1.00	11.6	9.83	178	6.49	6.1	109
21-Sep-20	2.0	0.9	7.01	0.25	12.1	10.00	181	6.46	4.7	89
				1.00	11.9	9.99	181	6.46	4.6	89
07-Oct-20	--	--	7.13	0.25	8.6	10.54	171	6.53	7.3	105
				1.00	8.6	10.53	171	6.53	7.3	104

Table A.3. Camp Lake Station NB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	--	--	--	0.25	0.5	12.00	177	8.77	2.0	65
				1.00	0.7	11.76	114	8.40	1.0	75
02-Jun-20	1.6	0.8	--	0.25	14.5	9.35	222	6.51	8.4	81
				1.00	14.5	9.34	221	6.52	8.4	83
09-Jun-20	1.8	0.8	6.95	0.25	12.8	9.57	180	6.40	7.0	113
				1.00	12.2	9.51	179	6.39	7.0	114
15-Jun-20	1.8	0.8	7.04	0.25	16.8	9.02	198	6.76	8.1	84
				1.00	16.8	9.05	198	6.77	8.0	83
21-Jun-20	2.0	1.1	7.04	0.25	14.8	9.52	173	6.65	4.6	149
				1.00	14.7	9.49	175	6.66	4.6	142
30-Jun-20	1.8	1.50	7.29	0.25	17.2	8.52	131	6.82	1.6	110
				1.00	17.2	8.50	131	6.75	1.7	113
06-Jul-20	1.8	1.7	7.35	0.25	20.5	8.45	135	6.67	0.8	166
				1.00	20.5	8.44	135	6.68	0.8	165
13-Jul-20	1.7	1.5	7.28	0.25	21.9	8.20	136	6.73	1.9	189
				1.00	21.8	8.18	136	6.76	1.8	186
21-Jul-20	1.7	1.4	7.29	0.25	21.7	8.16	136	6.98	1.2	179
				1.00	21.6	8.14	136	6.99	1.3	177
12-Aug-20	2.2	0.9	7.06	0.25	20.2	8.25	169	6.77	5.3	126
				1.00	20.2	8.20	169	6.77	5.3	126
17-Aug-20	2.0	1.0	6.62	0.25	17.8	8.15	175	6.65	4.9	97
				1.00	17.8	8.15	175	6.66	4.9	96
25-Aug-20	1.8	1.1	7.01	0.25	16.3	8.57	173	6.48	4.3	113
				1.00	16.3	8.50	173	6.10	4.2	112
07-Sep-20	--	--	7.37	0.25	11.4	9.86	164	6.30	6.3	164
				1.00	11.4	9.86	164	6.34	6.4	161
14-Sep-20	1.7	1.0	7.23	0.25	11.7	9.87	170	5.98	6.1	136
				1.00	11.6	9.82	170	5.98	6.2	133
21-Sep-20	1.4	0.8	7.01	0.25	11.7	9.88	163	6.44	45.0	84
				1.00	11.7	9.87	163	6.45	45.0	84
07-Oct-20	1.7	0.7	7.17	0.25	8.6	10.54	157	6.50	7.1	90
				1.00	8.6	10.53	157	6.50	7.1	90

Table A.4. Camp Lake Station CB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Mar-20	--	--	--	0.25	0.1	12.09	90	6.99	0.5	35
				1.00	1.8	12.03	142	6.77	2.2	48
02-Jun-20	2.9	1.0	6.95	0.25	14.4	9.42	195	6.77	7.6	127
				1.00	14.4	9.42	195	6.75	7.6	127
				2.00	14.3	9.40	199	9.74	7.9	127
09-Jun-20	3.7	1.0	6.98	0.25	12.2	9.46	157	6.20	6.2	104
				1.00	12.1	9.43	153	6.19	5.9	105
				2.00	11.9	9.38	160	6.18	6.2	106
				3.00	11.8	9.39	186	6.17	7.7	109
15-Jun-20	4.0	1.0	7.05	0.25	16.9	9.18	168	6.86	6.0	43
				1.00	16.7	9.17	168	6.86	6.2	44
				2.00	16.4	9.18	167	6.85	6.2	45
				3.00	16.2	9.16	163	6.85	5.9	46
21-Jun-20	3.5	1.2	6.94	0.25	13.7	9.42	172	6.32	5.2	100
				1.00	13.7	9.41	172	6.32	5.1	100
				2.00	13.6	9.37	165	6.32	4.8	100
				3.00	13.4	9.34	159	6.32	4.6	101
30-Jun-20	3.9	2.0	7.38	0.25	17.3	8.68	116	6.13	1.7	108
				1.00	17.4	8.55	116	6.13	1.9	110
				2.00	17.4	8.49	117	6.13	2.1	111
				3.00	14.1	8.43	146	6.09	2.5	116
06-Jul-20	2.6	2.5	7.24	0.25	20.3	8.37	118	6.55	0.5	83
				1.00	20.1	8.34	116	6.58	0.5	82
				2.00	17.9	8.25	119	6.63	0.5	82
13-Jul-20	2.5	1.9	7.35	0.25	21.9	8.11	122	6.71	1.2	94
				1.00	21.7	8.07	120	6.72	1.1	95
				2.00	21.2	8.05	116	6.72	1.1	95
21-Jul-20	3.7	1.8	7.32	0.25	21.9	8.03	110	6.59	0.9	90
				1.00	21.9	8.03	110	6.61	0.9	89
				2.00	21.8	8.02	110	6.62	0.9	88
				3.00	19.3	8.13	169	6.63	1.1	88
12-Aug-20	3.7	0.9	7.49	0.25	20.0	7.70	150	5.98	5.3	106
				1.00	20.0	7.70	150	6.01	5.3	105
				2.00	20.0	7.70	150	6.03	5.3	104
				3.00	19.9	7.70	151	6.05	5.2	103
17-Aug-20	3.8	1.0	6.95	0.25	17.9	7.95	156	6.05	4.9	88
				1.00	17.9	7.94	156	6.08	4.9	87
				2.00	17.9	7.94	156	6.10	5.0	85
				3.00	17.9	7.93	156	6.12	4.9	84
25-Aug-20	4.5	1.1	7.03	0.25	16.6	8.26	146	6.00	4.4	125
				1.00	16.6	8.24	146	6.00	4.3	125
				2.00	16.6	8.21	146	6.01	4.3	124
				3.00	16.6	8.21	147	6.02	4.3	122

Table A.4. Continued. Camp Lake Station CB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
07-Sep-20	3.8	0.9	7.08	0.25	11.8	9.81	151	6.35	5.8	119
				1.00	11.8	9.71	151	6.35	5.8	118
				2.00	11.9	9.65	152	6.36	5.7	117
				3.00	11.9	9.60	152	6.36	5.7	116
14-Sep-20	3.8	1.0	6.08	0.25	11.8	9.65	157	6.00	6.4	132
				1.00	11.8	9.63	157	5.99	6.4	131
				2.00	11.8	9.61	157	5.99	6.4	131
				3.00	11.8	9.61	158	5.99	6.4	130
21-Sep-20	2.5	1.0	6.94	0.25	11.7	9.85	153	5.98	4.2	83
				1.00	11.7	9.85	153	5.99	4.2	83
				2.00	11.7	9.85	153	6.00	4.3	84
07-Oct-20	3.6	1.0	7.18	0.25	8.7	10.55	147	6.51	6.9	103
				1.00	8.7	10.48	147	6.50	7.0	102
				2.00	8.7	10.45	148	6.49	7.0	102
				3.00	8.7	10.39	215	5.90	7.0	101

Table A.5. Camp Lake Station CB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	--	--	--	0.25	0.2	12.17	97	6.96	0.4	76
				1.00	0.6	12.16	86	6.95	0.2	78
				2.00	3.9	8.98	830	6.38	9.1	42
02-Jun-20	3.5	1.0	7.27	0.25	14.3	9.42	190	7.32	7.5	173
				1.00	14.3	9.42	189	7.31	7.4	173
				2.00	14.2	9.43	189	7.30	7.3	172
				3.00	14.2	9.44	188	7.28	7.3	171
09-Jun-20	3.6	0.9	6.92	0.25	12.8	9.56	181	6.10	7.1	122
				1.00	12.7	9.60	182	6.13	7.1	122
				2.00	12.7	9.58	181	6.11	7.1	110
				3.00	12.4	9.53	196	6.08	8.8	78
15-Jun-20	3.7	1.0	7.06	0.25	16.7	9.17	110	6.76	6.0	86
				1.00	16.6	9.16	170	6.76	6.0	37
				2.00	14.5	9.35	179	6.76	6.3	38
				3.00	12.1	9.07	272	6.63	7.7	46
21-Jun-20	3.7	1.2	7.05	0.25	14.2	9.35	150	6.71	4.0	84
				1.00	14.1	9.33	151	6.71	4.1	83
				2.00	13.9	0.31	154	0.71	4.2	83
				3.00	13.5	9.29	157	6.71	4.3	84
30-Jun-20	3.7	1.9	7.30	0.25	17.0	8.50	143	6.41	1.8	117
				1.00	17.0	8.49	143	6.44	1.8	116
				2.00	16.9	8.46	144	6.47	1.9	115
				3.00	13.8	8.64	163	6.48	2.3	115
06-Jul-20	3.5	1.5	7.31	0.25	20.3	8.43	123	6.87	0.6	70
				1.00	20.3	8.43	123	6.87	0.6	75
				2.00	20.2	8.42	123	6.77	0.7	78
				3.00	13.5	7.33	410	5.99	3.1	99
13-Jul-20	4.0	1.9	7.31	0.25	21.9	8.14	120	6.60	1.1	114
				1.00	21.7	8.12	121	6.62	1.1	113
				2.00	21.3	8.09	125	6.63	1.3	113
				3.00	18.3	7.51	226	6.63	2.4	113
21-Jul-20	4.0	1.8	7.30	0.25	22.1	7.95	137	6.76	1.3	96
				1.00	20.8	8.02	142	6.76	1.6	96
				2.00	19.4	8.14	150	6.77	1.8	96
				3.00	18.7	7.51	164	6.77	2.4	96
12-Aug-20	3.7	1.0	7.06	0.25	19.7	7.91	165	5.98	6.9	102
				1.00	19.6	7.90	165	6.01	6.2	101
				2.00	19.3	7.88	167	6.03	5.6	100
				3.00	18.8	7.80	171	6.08	5.5	99
17-Aug-20	3.8	1.0	6.95	0.25	17.9	8.07	167	6.10	5.2	76
				1.00	17.9	8.07	167	6.12	5.2	75
				2.00	17.9	8.06	168	6.24	5.3	73
				3.00	17.8	8.03	171	6.24	5.6	72

Table A.5. Continued. Camp Lake Station CB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
25-Aug-20	4.2	1.1	7.22	0.25	16.4	8.43	161	5.99	4.3	92
				1.00	16.4	8.42	161	6.13	4.2	87
				2.00	16.4	8.39	161	6.26	4.3	82
				3.00	16.4	8.40	161	6.28	4.2	81
07-Sep-20	3.5	0.9	7.08	0.25	11.6	9.85	165	6.15	5.2	86
				1.00	11.7	9.79	165	6.16	5.2	86
				2.00	11.7	9.77	165	6.18	5.2	86
				3.00	11.7	9.73	165	5.54	5.7	57
14-Sep-20	4.0	0.9	6.09	0.25	11.8	9.77	169	6.13	6.4	114
				1.00	11.8	9.76	169	6.13	6.4	114
				2.00	11.8	9.76	169	6.13	6.4	114
				3.00	11.8	9.76	169	6.14	6.4	114
21-Sep-20	3.2	1.0	6.86	0.25	11.8	9.83	174	6.10	5.3	67
				1.00	11.8	9.84	174	6.10	5.3	68
				2.00	11.8	9.83	174	6.10	5.3	68
				3.00	11.8	9.83	173	6.10	5.3	68
07-Oct-20	4.3	1.0	7.22	0.25	8.5	10.56	156	6.33	6.9	83
				1.00	8.5	10.55	156	6.33	6.9	84
				2.00	8.5	10.54	156	6.34	7.0	85
				3.00	8.5	10.52	156	6.35	7.0	85

Table A.6. Camp Lake Station SB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Mar-20	--	--	--	0.25	0.1	11.90	75	6.75	0.3	61
				1.00	0.4	11.90	227	6.43	4.5	77
				2.00	2.9	10.22	517	6.34	163.1	78
02-Jun-20	3.1	1.00	7.09	0.25	14.1	9.45	169	6.75	6.4	106
				1.00	14.1	9.45	169	6.74	6.4	106
				2.00	14.1	9.46	169	6.73	6.5	107
				3.00	14.1	9.46	169	6.72	6.4	107
09-Jun-20	3.5	1.0	6.96	0.25	--	--	--	--	--	--
				1.00	12.5	9.51	149	6.19	5.5	92
				2.00	12.5	9.46	149	6.17	5.5	93
15-Jun-20	3.9	1.1	7.14	0.25	16.3	9.10	140	7.12	4.7	84
				1.00	15.9	9.13	144	6.98	5.1	88
				2.00	15.9	9.11	146	6.95	5.1	90
				3.00	15.9	9.07	147	6.91	5.3	92
21-Jun-20	3.3	1.3	7.12	0.25	14.2	9.25	132	6.53	3.5	49
				1.00	14.2	9.22	133	6.53	3.5	50
				2.00	14.0	9.20	135	6.53	3.6	51
				3.00	13.7	9.18	139	6.54	3.7	52
30-Jun-20	3.1	1.9	7.17	0.25	17.5	8.41	111	6.10	1.6	82
				1.00	17.5	8.37	111	6.12	1.5	82
				2.00	17.5	8.34	112	6.13	1.4	83
				3.00	15.2	8.29	123	6.13	1.5	84
06-Jul-20	3.4	1.8	7.15	0.25	20.0	8.27	106	5.87	0.5	72
				1.00	20.0	8.25	106	5.90	0.5	73
				2.00	20.0	8.24	105	5.92	0.4	74
				3.00	16.3	8.07	117	5.93	0.5	79
13-Jul-20	3.5	2.0	7.35	0.25	21.5	8.06	109	6.88	0.8	112
				1.00	21.3	0.02	109	6.87	0.9	113
				2.00	20.8	7.96	108	6.85	0.9	114
21-Jul-20	3.9	1.8	7.24	0.25	20.9	7.75	93	6.20	0.7	70
				1.00	20.8	7.75	94	6.22	0.7	69
				2.00	19.3	7.76	101	6.24	0.8	68
				3.00	18.9	7.69	108	6.26	1.0	68
12-Aug-20	3.5	0.9	6.96	0.25	19.9	7.54	144	5.79	5.0	94
				1.00	19.9	7.54	144	5.81	5.1	93
				2.00	19.8	7.53	145	5.85	5.1	93
				3.00	19.7	7.50	146	5.87	5.2	93
17-Aug-20	3.1	1.0	6.96	0.25	17.8	7.71	151	6.39	5.0	50
				1.00	17.8	7.71	151	6.41	5.0	50
				2.00	17.8	7.72	151	6.43	5.0	50
				3.00	17.8	7.72	151	6.45	5.0	50
25-Aug-20	3.2	1.1	7.04	0.25	16.7	8.18	138	6.48	4.2	110
				1.00	16.7	8.16	138	6.46	4.2	111
				2.00	16.8	8.12	138	6.43	4.2	112
				3.00	16.8	8.11	138	6.41	4.8	112

Table A.6. Continued. Camp Lake Station SB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
07-Sep-20	3.4	0.9	6.97	0.25	11.8	9.48	145	6.08	6.7	103
				1.00	11.8	9.45	145	6.09	6.7	102
				2.00	11.9	9.42	146	6.11	6.6	101
14-Sep-20	3.1	1.0	6.18	0.25	11.9	9.48	146	5.89	6.0	171
				1.00	11.9	9.46	147	5.89	6.1	170
				2.00	11.9	9.45	147	5.89	6.2	169
21-Sep-20	3.2	1.0	6.93	0.25	11.6	9.78	155	6.00	4.4	83
				1.00	11.6	9.78	155	6.01	4.5	84
				2.00	11.6	9.78	155	6.01	4.4	84
07-Oct-20	4.0	1.0	7.24	0.25	8.7	10.44	139	6.59	6.6	93
				1.00	8.7	10.42	139	6.58	6.6	92
				2.00	8.7	10.41	140	6.57	6.6	91
				3.00	8.7	10.37	140	6.56	7.0	89
15-Oct-20	4.5	--	7.80	0.25	2.8	11.23	138	6.11	9.6	155
				1.00	2.7	11.55	138	6.10	9.6	139
				2.00	2.7	11.67	138	6.10	9.6	136
				3.00	2.7	11.82	138	6.07	9.6	126

Table A.7. Camp Lake Station SB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	--	--	--	0.25	0.0	11.89	75	6.80	0.2	76
				1.00	1.2	11.62	325	6.46	8.8	92
				2.00	3.8	10.39	591	6.44	17.3	93
02-Jun-20	4.8	1.2	7.18	0.25	14.0	9.52	139	6.77	5.0	88
				1.00	14.0	9.52	139	6.76	5.0	88
				2.00	14.0	9.52	140	6.75	5.0	89
				3.00	13.9	9.52	140	6.74	5.0	89
				4.00	10.4	8.01	400	5.86	5.1	25
09-Jun-20	5.2	1.2	6.96	0.25	12.5	9.33	148	7.20	5.4	104
				1.00	12.5	9.33	148	7.16	5.4	107
				2.00	12.5	9.35	148	7.12	5.4	109
				3.00	12.4	9.36	146	7.11	5.3	110
15-Jun-20	4.1	0.4	7.29	0.25	16.1	9.05	126	7.27	4.1	76
				1.00	16.0	9.04	123	7.25	4.0	76
				2.00	15.8	9.03	122	7.13	4.0	82
				3.00	13.8	9.15	136	7.12	4.6	83
21-Jun-20	4.6	1.6	7.22	0.25	14.4	9.51	124	7.43	3.1	127
				1.00	14.2	9.44	124	7.41	3.1	127
				2.00	14.0	9.44	125	7.39	3.2	127
				3.00	13.9	9.41	126	7.36	3.3	119
30-Jun-20	5.0	1.4	7.14	0.25	17.4	8.19	98	7.54	1.1	65
				1.00	17.4	8.17	98	7.43	1.1	74
				2.00	17.4	8.14	98	7.40	1.1	85
				3.00	14.4	8.15	145	7.25	2.2	95
06-Jul-20	4.4	0.8	6.75	0.25	19.8	8.17	95	7.55	0.2	79
				1.00	19.8	8.17	95	7.43	0.2	88
				2.00	19.8	8.15	94	7.41	0.2	90
				3.00	17.5	7.84	99	7.41	0.3	95
13-Jul-20	3.5	2.0	7.32	0.25	21.5	7.64	94	7.38	0.7	80
				1.00	21.0	7.51	92	7.23	0.7	83
				2.00	20.4	7.52	97	7.12	0.7	90
21-Jul-20	4.8	1.8	7.28	0.25	20.6	7.55	89	7.31	0.6	122
				1.00	20.5	7.54	88	7.22	0.6	122
				2.00	19.1	7.42	90	7.17	0.6	127
				3.00	18.4	7.36	97	7.15	0.8	129
				4.00	15.0	6.51	--	--	--	--
12-Aug-20	5.2	1.0	7.07	0.25	19.9	7.44	128	6.86	4.1	121
				1.00	19.9	7.42	128	6.84	4.1	122
				2.00	19.6	7.37	131	6.82	4.3	123
				3.00	19.2	7.33	134	6.79	4.8	124
				4.00	14.1	4.88	136	6.70	5.9	126

Table A.7. Continued. Camp Lake Station SB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
17-Aug-20	3.9	1.0	6.99	0.25	17.8	7.63	126	6.99	3.8	131
				1.00	17.8	7.61	126	6.95	3.8	130
				2.00	17.8	7.61	126	6.92	3.9	130
				3.00	17.8	7.60	119	6.80	4.2	119
25-Aug-20	4.3	1.2	7.43	0.25	16.8	7.83	128	7.03	3.9	80
				1.00	16.9	7.82	128	6.88	4.0	90
				2.00	16.9	7.81	129	6.83	4.0	92
				3.00	16.8	7.82	132	6.76	4.2	94
07-Sep-20	4.0	0.9	7.00	0.25	11.9	9.59	150	6.28	6.7	91
				1.00	11.9	9.49	150	6.27	6.6	82
				2.00	11.9	9.44	150	6.25	6.6	80
				3.00	11.9	9.41	150	6.24	6.6	70
14-Sep-20	4.8	1.2	6.22	0.25	12.0	9.22	108	6.22	3.6	143
				1.00	12.0	9.22	107	6.22	3.5	143
				2.00	12.0	9.20	110	6.21	3.9	143
				3.00	12.0	9.18	134	6.18	5.6	144
21-Sep-20	3.2	1.0	6.90	0.25	11.5	9.70	140	7.23	3.8	101
				1.00	11.5	9.70	140	7.23	3.8	101
				2.00	11.5	9.70	140	7.09	3.7	92
				3.00	11.4	9.69	141	7.05	3.8	78
07-Oct-20	3.9	1.0	7.33	0.25	8.8	10.65	130	6.98	6.2	137
				1.00	8.8	10.59	130	6.93	6.9	134
				2.00	8.8	10.47	130	6.89	6.1	122
				3.00	8.8	10.41	130	6.87	6.1	120

Table A.8. Camp Lake Station EB-1 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Mar-20	--	--	--	0.25	0.5	12.86	94	8.05	0.3	107
				1.00	1.0	12.68	221	7.80	136.2	114
02-Jun-20	1.8	0.8	6.92	0.25	14.9	9.25	265	6.69	12.5	191
				1.00	14.9	9.25	265	6.68	12.5	188
09-Jun-20	2.5	0.6	6.88	0.25	12.4	9.93	272	6.27	13.0	115
				1.00	12.4	9.95	272	6.27	13.0	118
15-Jun-20	2.1	0.6	6.88	0.25	17.5	9.11	271	6.65	11.8	80
				1.00	17.5	9.11	271	6.65	11.7	80
21-Jun-20	2.1	0.8	6.85	0.25	14.4	9.70	239	6.47	9.2	90
				1.00	14.3	9.69	239	6.47	9.3	91
				2.00	12.9	9.86	250	6.47	9.9	92
30-Jun-20	2.0	1.1	7.06	0.25	17.0	8.72	220	6.29	5.0	171
				1.00	17.0	8.68	220	6.29	5.0	171
				1.50	17.0	8.66	220	6.29	4.9	170
06-Jul-20	2.2	1.2	7.10	0.25	20.8	8.33	209	6.28	3.2	126
				1.00	20.8	8.33	209	6.29	3.2	125
				2.00	19.1	0.37	222	6.30	3.5	125
13-Jul-20	2.2	1.1	7.13	0.25	22.0	8.22	207	6.55	3.9	186
				1.00	21.9	8.20	208	6.57	3.8	182
21-Jul-20	2.2	1.6	7.23	0.25	22.5	8.28	186	6.74	2.6	145
				1.00	22.5	8.28	186	6.74	2.6	144
				2.00	20.0	8.48	200	6.74	2.9	144
12-Aug-20	2.0	0.8	7.03	0.25	19.3	8.45	234	5.94	7.0	101
				1.00	19.4	8.41	234	6.19	7.2	90
17-Aug-20	2.7	0.9	7.01	0.25	17.1	8.72	248	6.30	6.6	82
				1.00	17.1	8.71	248	6.31	6.7	82
				2.00	17.1	8.70	248	6.30	6.8	82
25-Aug-20	2.5	1.0	6.95	0.25	15.3	9.07	242	6.09	5.2	72
				1.00	15.3	9.07	242	6.09	5.2	73
07-Sep-20	1.8	0.9	7.20	0.25	11.1	10.16	248	6.11	5.2	111
				1.00	11.1	10.16	248	6.11	5.2	111
14-Sep-20	2.4	0.8	6.12	0.25	11.3	10.19	255	5.69	7.3	65
				1.00	11.3	10.18	256	5.70	7.3	66
				2.00	11.2	10.16	253	5.73	7.3	69
21-Sep-20	2.1	0.8	6.84	0.25	12.2	10.15	255	6.26	6.3	64
				1.00	12.2	10.16	255	6.23	6.5	67
07-Oct-20	1.6	0.8	7.26	0.25	8.4	10.90	263	6.28	8.9	88
				1.00	8.4	10.90	263	6.27	8.9	88
15-Oct-20	2.5	--	7.79	0.25	0.8	13.83	274	5.18	15.7	274
				1.00	0.8	13.63	275	5.19	15.4	270

Table A.9. Camp Lake Station EB-2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
03-Mar-20	--	--	--	0.25	0.1	12.54	108	7.18	0.4	81
				1.00	1.6	12.33	513	6.71	2.2	103
02-Jun-20	1.8	0.6	6.82	0.25	14.9	9.45	289	6.70	13.6	92
				1.00	14.9	9.42	290	6.70	13.6	92
09-Jun-20	2.0	0.8	6.77	0.25	12.7	9.73	280	6.64	12.4	81
				1.00	12.6	9.79	280	6.61	12.3	85
15-Jun-20	2.0	0.8	6.87	0.25	17.3	9.20	276	6.65	12.5	63
				1.00	17.3	9.18	276	6.63	12.2	65
21-Jun-20	2.1	0.8	6.74	0.25	13.8	9.62	263	6.33	10.4	98
				1.00	13.8	9.62	263	6.33	10.5	98
30-Jun-20	1.9	1.0	7.04	0.25	17.1	8.78	221	6.12	5.2	139
				1.00	17.1	8.73	222	6.13	5.2	139
				1.60	16.9	8.65	227	6.15	7.8	139
06-Jul-20	1.9	1.4	7.00	0.25	20.6	8.40	212	6.44	3.2	138
				1.00	20.6	8.40	212	6.45	3.2	136
13-Jul-20	2.2	1.4	7.05	0.25	22.2	8.25	223	6.72	3.9	175
				1.00	22.0	8.22	223	6.71	3.9	174
21-Jul-20	1.4	1.9	7.14	0.25	22.1	8.34	222	6.52	3.2	180
				1.00	22.1	8.33	210	6.52	3.3	179
12-Aug-20	1.9	0.7	7.01	0.25	19.3	8.44	244	6.10	8.4	106
				1.00	19.2	8.41	244	6.13	8.1	105
17-Aug-20	2.0	0.8	7.02	0.25	17.3	8.71	258	6.26	8.4	97
				1.00	17.3	8.70	258	6.30	8.4	94
25-Aug-20	2.1	1.0	6.27	0.25	16.0	8.94	255	5.87	5.5	105
				1.00	16.0	8.93	255	5.91	5.5	104
07-Sep-20	--	--	7.15	0.25	11.1	10.61	260	6.28	7.2	141
				1.00	11.1	10.55	260	6.27	7.2	139
14-Sep-20	2.4	0.8	6.12	0.25	11.3	10.19	255	5.69	7.3	65
				1.00	11.3	10.18	256	5.70	7.3	66
21-Sep-20	1.8	0.6	6.91	0.25	12.0	10.24	265	6.28	6.9	80
				1.00	12.0	10.25	265	6.29	6.9	81
07-Oct-20	1.6	0.8	7.07	0.25	8.4	10.94	276	6.33	10.0	93
				1.00	8.4	10.93	276	6.34	10.0	93

Table A.10. Sherlett Creek (SC-1) - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	--	--	--	0.25	0.4	13.94	32	7.04	2.5	64
02-Jun-20	--	--	7.29	0.25	12.7	9.74	60	6.54	2.0	48
09-Jun-20	--	--	7.09	0.25	12.4	9.55	60	6.80	1.2	100
15-Jun-20	--	--	7.27	0.25	16.0	9.07	30	7.18	1.5	77
21-Jun-20	--	--	7.30	0.25	14.4	9.50	56	7.05	2.8	138
30-Jun-20	--	--	7.58	0.25	16.8	8.13	39	6.77	2.7	138
06-Jul-20	--	--	7.33	0.25	18.8	9.22	60	6.89	5.0	137
13-Jul-20	--	--	7.39	0.25	19.0	8.19	47	7.15	20.8	116
21-Jul-20	--	--	7.37	0.25	21.4	8.20	59	7.18	7.8	91
12-Aug-20	--	--	7.15	0.25	20.5	7.66	17	6.23	5.3	151
17-Aug-20	--	--	7.12	0.25	18.3	7.64	59	6.83	0.3	95
25-Aug-20	--	--	7.13	0.25	16.7	7.69	58	6.59	7.8	104
07-Sep-20	--	--	7.25	0.25	13.2	9.01	91	6.85	4.2	139
14-Sep-20	--	--	7.31	0.25	12.2	9.19	55	6.65	4.8	104
21-Sep-20	--	--	7.17	0.25	11.4	9.33	40	6.66	8.3	91
7-Oct-20	--	--	6.98	0.25	8.6	10.35	59	6.31	3.0	73
15-Oct-20	--	--	7.89	0.25	4.0	11.94	64	6.01	1.8	185

Table A.11. Trap Lake - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
17-Aug-20	--	--	5.72	0.25	20.8	8.30	569	5.62	3.7	159

Table A.12. Fox Lake - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
17-Aug-20	--	--	8.10	0.25	21.6	8.98	439	5.79	0.2	296

Table A.13. Cold Lake Station CL2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	9.8	--	7.76	0.25	0.0	12.76	167	7.24	-2.1	137
				1.00	0.0	12.76	165	7.23	-2.2	137
				2.00	0.3	12.76	163	7.22	-2.3	137
				3.00	0.6	12.74	163	7.22	-2.5	137
				4.00	1.0	12.65	170	7.21	-2.6	138
				5.00	1.5	12.39	178	7.20	-2.4	138
				6.00	2.3	11.57	218	7.16	2.2	139
				7.00	2.8	11.03	243	7.14	5.2	139
				8.00	3.2	9.52	261	7.12	505.9	127
02-Jun-20	9.2	2.2	7.36	0.25	12.4	10.10	152	8.22	3.4	76
				1.00	12.4	10.12	151	8.00	3.4	79
				2.00	12.2	10.07	151	7.76	3.4	89
				3.00	12.1	10.04	149	7.73	3.5	96
				4.00	11.4	9.98	149	7.60	3.5	99
				5.00	9.9	10.06	152	7.58	3.6	100
				6.00	8.9	9.55	146	7.50	3.9	109
				7.00	8.8	9.47	146	7.45	3.9	111
				8.00	6.9	9.22	158	7.41	4.3	115
				9.00	6.0	8.27	172	7.35	6.1	123
21-Jun-20	10.4	1.7	7.05	0.25	12.5	9.27	141	8.06	3.2	21
				1.00	12.5	9.24	141	7.99	3.2	31
				2.00	12.4	9.21	140	7.83	3.2	34
				3.00	12.3	9.21	139	7.77	3.2	41
				4.00	12.2	9.22	137	7.74	3.1	43
				5.00	12.1	9.16	136	7.60	3.2	52
				6.00	11.8	9.02	136	7.58	3.4	53
				7.00	11.5	8.76	134	7.56	3.9	59
				8.00	11.3	8.65	133	7.53	4.2	61
				9.00	10.6	7.82	134	7.48	5.3	68
13-Jul-20	9.8	3.0	7.34	0.25	21.2	8.26	123	7.33	0.6	92
				1.00	21.1	8.25	123	7.32	0.6	99
				2.00	21.0	8.23	123	7.29	0.7	99
				3.00	20.8	8.20	122	7.27	0.8	100
				4.00	18.3	8.00	128	7.26	0.9	100
				5.00	15.5	7.91	134	7.26	1.0	106
				6.00	13.2	7.74	138	7.25	1.2	107
				7.00	12.4	7.20	135	7.25	1.5	108
				8.00	10.4	7.08	139	7.24	2.3	109
				9.00	8.7	5.88	148	7.22	4.9	110

Table A.13. Continued. Cold Lake Station CL2 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
12-Aug-20	10.5	2.0	7.35	0.25	20.6	7.37	114	7.57	1.0	40
				1.00	20.6	7.37	114	7.47	1.1	48
				2.00	20.6	7.37	114	7.44	1.1	52
				3.00	20.5	7.35	114	7.42	1.1	55
				4.00	20.3	7.31	104	7.40	1.1	57
				5.00	20.1	6.78	113	7.32	1.2	63
				6.00	18.4	6.27	115	7.30	1.5	66
				7.00	14.8	5.36	125	7.29	2.0	72
				8.00	11.0	4.14	138	7.27	3.0	74
				9.00	9.2	1.98	153	7.22	11.3	81
07-Sep-20	11.0	1.9	6.61	0.25	14.3	8.01	119	5.28	0.3	244
				1.00	14.3	8.01	119	5.29	0.3	243
				2.00	14.3	8.01	119	5.32	0.3	242
				3.00	14.3	7.98	119	5.34	0.3	241
				4.00	14.3	7.98	119	5.36	0.3	240
				5.00	14.3	7.96	119	5.40	0.3	238
				6.00	14.3	7.97	119	0.45	0.3	235
				7.00	14.3	0.95	119	5.47	0.3	234
				8.00	14.3	7.94	119	5.48	0.3	233
07-Oct-20	11.4	2.0	6.88	0.25	9.9	9.55	126	7.53	3.6	49
				1.00	9.9	9.54	26	7.41	3.7	61
				2.00	9.9	9.51	126	7.31	3.7	73
				3.00	9.9	9.51	126	7.28	3.7	75
				4.00	9.9	9.51	126	7.27	3.7	77
				5.00	9.9	9.50	126	7.22	3.7	84
				6.00	9.9	0.51	126	7.17	3.7	86
				7.00	9.9	9.49	125	7.15	3.7	88
				8.00	9.9	9.48	125	7.13	3.7	90
				9.00	9.9	9.49	125	7.11	3.7	92

Table A.14. Cold Lake Station CL3 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	4.2	--	8.29	0.25	0.1	11.51	128	8.12	-2.2	37
				1.00	0.2	11.54	129	8.08	-2.3	41
				2.00	0.9	11.66	158	7.88	-1.2	47
03-Jun-20	1.6	1.2	7.33	0.25	13.3	9.70	191	6.80	6.2	108
				1.00	13.3	9.70	189	6.79	6.0	108
09-Jun-20	4.1	--	7.22	0.25	12.7	9.94	169	6.49	4.3	133
				1.00	12.5	9.92	182	6.48	5.5	133
				2.00	12.3	9.89	192	6.46	6.4	133
				3.00	11.6	9.70	174	6.46	38.5	132
15-Jun-20	4.5	1.2	7.42	0.25	14.6	9.42	159	6.80	4.4	150
				1.00	14.5	9.42	158	6.79	4.2	151
				2.00	14.1	9.45	148	6.78	3.4	151
				3.00	13.7	9.49	140	6.77	3.0	152
21-Jun-20	3.2	1.5	7.28	0.25	12.9	9.95	150	7.44	3.7	237
				1.00	12.9	9.83	151	7.43	3.7	234
				2.00	12.9	0.76	153	7.42	3.8	231
				3.00	12.9	9.71	161	7.40	4.1	229
30-Jun-20	3.6	1.8	7.37	0.25	16.6	8.76	148	6.42	2.2	156
				1.00	16.4	8.76	143	6.44	2.1	155
				2.00	16.1	8.75	138	6.54	2.0	153
				3.00	15.8	8.89	135	6.66	1.9	147
06-Jul-20	3.9	1.6	7.38	0.25	20.9	8.46	140	7.16	0.6	108
				1.00	20.9	8.46	139	7.15	0.6	108
				2.00	20.8	8.46	138	7.14	0.6	109
				3.00	19.1	8.53	139	7.11	0.7	111
13-Jul-20	4.3	2.0	7.28	0.25	21.0	8.16	131	7.16	1.0	90
				1.00	20.9	8.15	130	7.15	1.0	90
				2.00	20.7	8.13	129	7.14	1.0	91
				3.00	20.5	8.11	127	7.12	1.1	92
21-Jul-20	4.7	1.9	7.53	0.25	21.5	8.20	119	7.42	0.7	151
				1.00	21.5	8.18	119	7.41	0.7	151
				2.00	21.4	8.16	120	7.37	0.8	150
				3.00	19.7	8.17	126	7.36	0.8	150
				4.00	19.1	8.01	126	7.35	0.8	150
12-Aug-20	4.7	2.4	7.41	0.25	20.8	7.58	117	7.18	1.2	83
				1.00	20.6	7.56	117	7.19	1.2	82
				2.00	20.5	7.54	117	7.19	1.2	82
				3.00	20.4	7.52	117	7.20	1.2	81
17-Aug-20	4.9	2.0	7.45	0.25	19.0	7.78	119	6.91	0.1	116
				1.00	19.0	7.75	119	6.89	0.1	116
				2.00	19.0	7.73	118	6.88	0.1	116
				3.00	18.9	7.71	122	6.86	0.3	116

Table A.14. Continued. Cold Lake Station CL3 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
25-Aug-20	4.4	2.1	7.43	0.25	17.6	7.66	119	6.95	1.3	117
				1.00	17.6	7.64	119	6.96	1.3	115
				2.00	17.6	7.64	120	6.95	1.4	114
				3.00	17.4	7.69	127	6.94	1.8	113
07-Sep-20	3.9	1.8	7.28	0.25	14.0	8.80	122	6.03	0.9	292
				1.00	13.9	8.75	122	6.06	0.9	287
				2.00	13.9	8.72	123	6.09	1.0	282
				3.00	13.8	8.70	124	9.12	1.0	279
14-Sep-20	5.1	1.8	6.41	0.25	13.1	9.06	117	5.04	1.7	260
				1.00	13.2	8.91	117	5.08	1.7	257
				2.00	13.2	8.87	117	5.10	1.7	256
				3.00	13.1	8.83	118	5.12	1.7	255
				4.00	13.0	8.79	123	5.15	2.3	253
21-Sep-20	2.9	1.4	7.02	0.25	12.4	9.37	130	7.21	1.0	117
				1.00	12.4	9.35	130	7.17	1.0	118
				2.00	12.3	9.35	132	7.14	1.1	119
				3.00	12.3	9.36	136	7.11	1.4	120
07-Oct-20	4.9	1.5	7.25	0.25	9.4	9.98	133	6.67	4.4	239
				1.00	9.4	9.92	133	6.64	4.4	235
				2.00	9.4	9.90	133	6.63	4.4	231
				3.00	9.4	9.88	133	6.62	4.4	228
				4.00	9.3	9.87	136	6.61	4.7	225

Table A.15. Cold Lake Station CL4 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
05-Mar-20	11.1	--	8.36	0.25	0.1	11.22	141	8.38	-2.3	46
				1.00	0.2	11.17	138	8.36	-2.6	48
				2.00	0.8	11.22	143	8.19	-2.4	49
				3.00	1.0	11.30	159	8.14	-1.8	50
				4.00	1.3	11.50	170	7.96	-1.6	54
				5.00	1.5	11.54	173	7.99	-1.5	56
				6.00	1.6	11.55	181	7.93	-1.1	57
				7.00	2.1	11.45	195	7.90	-1.0	59
				8.00	2.8	10.13	212	7.77	6.6	61
				9.00	3.3	6.31	224	7.61	11.3	67
				10.00	3.4	6.24	227	7.58	12.8	70
				11.00	4.1	3.14	265	7.50	449.2	74
02-Jun-20	11.3	1.5	7.24	0.25	12.5	10.12	154	7.13	4.1	268
				1.00	12.5	10.11	154	7.11	4.1	267
				2.00	12.5	10.12	152	7.06	3.9	264
				3.00	12.4	10.12	151	7.05	3.8	264
				4.00	11.4	9.97	140	7.11	3.2	260
				5.00	9.6	10.07	135	7.01	3.0	259
				6.00	9.3	10.01	130	7.00	3.0	258
				7.00	8.8	9.79	132	6.98	3.3	257
				8.00	8.4	9.60	137	6.95	4.2	257
				9.00	8.3	9.46	140	6.93	4.8	257
				10.00	8.2	9.25	144	6.91	5.6	256
21-Jun-20	14.0	1.5	7.28	0.25	12.9	10.35	138	7.40	3.1	278
				1.00	12.9	10.23	138	7.40	3.1	276
				2.00	12.9	10.10	138	7.39	3.1	272
				3.00	12.8	9.98	138	7.38	3.1	270
				4.00	12.7	9.86	137	7.37	3.1	268
				5.00	12.6	9.75	134	7.36	3.2	266
				6.00	12.4	9.69	130	7.35	3.1	265
				7.00	12.2	9.65	125	7.34	3.0	263
				8.00	12.0	9.60	120	7.34	3.0	262
				9.00	11.6	9.42	114	7.33	3.6	258
				10.00	11.2	8.61	116	7.31	3.2	257
				11.00	10.3	7.39	126	7.27	15.7	256
13-Jul-20	11.7	2.0	7.42	0.25	20.7	8.22	113	0.48	0.8	221
				1.00	20.7	8.21	113	6.48	0.8	219
				2.00	20.6	8.19	112	6.48	0.8	218
				3.00	20.4	8.16	112	6.49	0.8	216
				4.00	18.8	7.98	117	6.49	0.9	215
				5.00	17.3	7.86	124	6.63	0.9	213
				6.00	14.4	7.72	132	6.71	1.2	198
				7.00	12.9	7.33	132	6.75	1.8	196
				8.00	12.1	7.12	130	6.78	2.8	194
				9.00	11.9	6.38	127	6.81	4.4	193
				10.00	11.7	6.08	125	6.83	6.9	191
				11.00	11.5	5.46	125	6.86	9.4	189

Table A.15. Continued. Cold Lake Station CL4 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
12-Aug-20	14.0	2.4	7.40	0.25	20.6	7.57	113	7.31	1.1	116
				1.00	20.6	7.55	113	7.29	1.1	117
				2.00	20.5	7.54	113	7.27	1.1	118
				3.00	20.4	7.53	113	7.25	1.1	118
				4.00	20.2	7.24	111	7.24	1.1	118
				5.00	19.6	7.43	105	7.23	1.3	118
				6.00	19.4	7.06	105	7.23	1.4	117
				7.00	16.0	6.34	114	7.22	1.8	118
				8.00	13.7	5.06	122	7.13	3.1	121
				9.00	13.1	3.63	126	7.11	5.9	123
				10.00	12.6	2.67	127	7.10	10.2	123
				11.00	12.2	2.26	127	7.08	14.5	124
07-Sep-20	12.7	1.6	7.23	0.25	14.2	8.15	114	5.95	2.2	323
				1.00	14.2	8.12	114	6.07	2.2	320
				2.00	14.2	8.11	114	6.08	2.2	317
				3.00	14.2	8.09	114	6.10	2.2	313
				4.00	14.2	8.07	114	6.12	2.2	309
				5.00	14.2	8.05	114	6.14	2.2	305
				6.00	14.2	8.04	114	6.28	2.1	299
				7.00	14.2	8.03	114	6.29	2.1	296
				8.00	14.2	8.02	115	6.32	2.1	291
				9.00	14.2	8.02	115	6.34	2.5	287
				10.00	14.2	7.92	115	6.36	3.7	282
				11.00	12.4	6.53	121	6.38	11.5	211
07-Oct-20	13.0	2.0	7.27	0.25	9.9	9.65	119	6.47	3.8	201
				1.00	9.9	9.62	119	6.45	3.8	198
				2.00	9.9	0.60	119	6.43	3.8	196
				3.00	9.9	9.58	119	6.42	3.8	193
				4.00	9.9	9.57	119	6.41	3.7	191
				5.00	9.9	9.56	119	6.40	3.7	189
				6.00	9.9	9.55	119	6.39	3.7	187
				7.00	9.9	9.54	119	6.39	3.7	186
				8.00	9.9	9.54	119	6.39	3.7	184
				9.00	9.9	9.54	119	6.38	3.7	183
				10.00	9.9	9.52	119	6.37	3.7	181
				11.00	9.9	9.49	119	6.36	3.7	180

Table A.16. Cold Lake Station CL5 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
05-Mar-20	9.7	--	8.12	0.25	0.2	13.24	54	7.45	4.0	69
				1.00	0.3	13.00	101	7.42	-2.6	77
				2.00	0.7	12.78	114	7.40	-3.0	77
				3.00	1.1	12.59	127	7.38	-3.3	77
				4.00	1.6	12.20	148	7.31	-3.2	79
				5.00	2.0	11.97	176	7.25	-2.2	81
				6.00	2.9	10.67	211	7.19	0.0	84
				7.00	3.6	9.33	235	7.14	200.2	79
				8.00	4.1	6.87	261	7.00	2.3	44
02-Jun-20	9.3	1.6	7.30	0.25	11.9	10.09	137	6.88	3.1	308
				1.00	11.9	10.09	137	6.87	3.2	305
				2.00	11.8	10.09	137	6.86	3.3	313
				3.00	11.8	10.08	136	6.85	3.3	301
				4.00	10.4	10.28	137	6.83	3.2	299
				5.00	9.9	10.10	129	6.83	3.0	297
				6.00	9.5	9.98	126	6.82	2.8	296
				7.00	9.1	9.94	127	6.81	3.0	295
				8.00	8.8	9.88	129	6.80	3.2	294
				9.00	8.4	9.24	134	6.79	5.1	293
21-Jun-20	11.5	1.5	7.28	0.25	13.0	9.38	122	7.15	2.7	167
				1.00	13.0	9.38	122	7.15	2.6	165
				2.00	12.9	9.37	122	7.16	2.7	163
				3.00	12.9	9.35	122	7.16	2.7	162
				4.00	12.9	9.33	122	7.17	2.6	160
				5.00	12.8	9.31	122	7.17	0.7	159
				6.00	12.7	9.32	122	7.16	2.7	158
				7.00	12.5	9.31	122	7.15	2.8	157
				8.00	12.1	9.25	119	7.15	3.1	157
13-Jul-20	10.3	2.0	7.37	0.25	20.9	8.20	106	7.17	1.0	149
				1.00	20.6	8.17	106	7.16	1.0	146
				2.00	20.3	8.16	106	7.15	0.9	146
				3.00	20.0	8.12	106	7.12	0.9	145
				4.00	18.7	8.02	110	7.11	1.0	145
				5.00	16.9	7.80	117	7.10	1.1	145
				6.00	14.5	7.65	125	7.08	1.3	145
				7.00	13.9	7.26	126	7.07	1.5	146
				8.00	12.4	7.15	127	7.06	2.2	147
				9.00	12.2	6.98	125	7.03	3.4	148
				10.00	12.1	6.38	124	7.01	4.5	149

Table A.16. Continued. Cold Lake Station CL5 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
12-Aug-20	11.2	2.0	7.42	0.25	20.4	7.70	109	7.06	1.0	170
				1.00	20.3	7.68	109	7.06	1.0	169
				2.00	20.2	7.65	109	7.06	1.1	168
				3.00	20.1	7.62	109	7.06	1.1	167
				4.00	19.9	7.57	108	7.06	1.2	166
				5.00	19.7	7.50	106	7.06	1.2	165
				6.00	19.4	7.42	105	7.06	1.4	164
				7.00	16.3	6.48	113	7.06	1.8	164
				8.00	14.0	5.09	121	7.05	2.7	164
				9.00	13.3	3.78	124	7.03	4.6	164
07-Sep-20	10.5	1.7	7.39	0.25	14.3	8.39	107	6.35	1.3	137
				1.00	14.3	8.37	107	6.38	1.3	136
				2.00	14.3	8.36	107	6.41	1.3	135
				3.00	14.3	8.35	107	6.54	1.2	127
				4.00	14.3	8.34	107	6.54	1.2	126
				5.00	14.3	8.33	107	6.56	1.2	126
				6.00	14.3	8.32	107	6.57	1.2	125
				7.00	14.3	8.32	107	6.59	1.3	124
				8.00	14.3	8.33	107	6.61	1.3	122
				9.00	14.2	8.33	107	6.63	1.3	121
07-Oct-20	10.8	1.2	7.36	0.25	9.9	9.78	110	6.36	3.3	257
				1.00	9.9	9.76	110	6.35	3.3	252
				2.00	9.9	9.73	110	6.35	3.3	248
				3.00	9.9	9.71	110	6.34	3.3	245
				4.00	9.9	9.71	110	6.34	3.3	242
				5.00	9.9	9.69	110	6.34	3.3	239
				6.00	9.9	9.68	110	6.34	3.3	237
				7.00	9.9	9.67	110	6.34	3.3	234
				8.00	9.9	9.66	110	6.34	3.3	231
				9.00	9.9	9.66	110	6.34	3.3	229

Table A.17. Cold Lake Station CL6 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
05-Mar-20	7.5	--	8.13	0.25	0.1	10.92	125	7.18	-2.9	65
				1.0	0.2	10.75	124	7.16	-3.0	66
				2.0	0.5	10.60	124	7.15	-3.1	67
				3.0	1.1	10.50	124	7.14	-3.3	67
				4.0	1.7	10.54	125	7.12	-3.3	69
				5.0	2.2	10.66	137	7.09	-3.2	71
				6.0	2.7	10.57	165	7.03	-2.0	73
				7.0	3.3	9.58	182	6.99	0.7	75
02-Jun-20	7.9	1.8	7.27	0.25	11.3	10.25	126	6.82	2.9	315
				1.0	11.3	10.24	126	6.80	2.9	315
				2.0	11.2	10.22	125	6.78	2.8	314
				3.0	11.1	10.21	125	6.77	2.8	313
				4.0	10.9	10.20	124	6.76	2.7	312
				5.0	10.6	10.21	121	6.76	2.6	310
				6.0	10.3	10.23	120	6.75	2.6	309
				7.0	8.7	10.39	123	6.75	2.5	308
21-Jun-20	9.5	1.5	7.36	0.25	12.7	9.74	117	7.30	2.2	225
				1.0	12.7	9.73	117	7.28	2.3	224
				2.0	12.6	9.72	117	7.27	2.3	223
				3.0	12.6	9.70	117	7.27	2.3	223
				4.0	12.5	9.68	117	7.26	2.3	222
				5.0	12.3	9.64	116	7.25	2.3	220
				6.0	12.0	9.61	114	7.24	2.2	219
				7.0	11.5	9.62	111	7.24	1.9	217
13-Jul-20	8.8	2.0	7.44	0.25	20.5	8.32	106	7.04	1.0	141
				1.0	20.5	8.30	106	7.04	1.0	140
				2.0	20.2	8.26	105	7.04	1.0	139
				3.0	19.7	8.20	103	4.00	1.0	139
				4.0	17.6	8.06	106	7.03	1.0	139
				5.0	14.9	8.10	112	7.01	1.0	139
				6.0	12.8	7.76	118	7.01	1.5	139
				7.0	12.1	6.85	120	6.99	2.5	140
				8.0	11.6	5.26	121	6.97	6.0	141
12-Aug-20	10.0	2.0	7.47	0.25	19.9	8.08	105	6.92	1.2	169
				1.0	19.9	8.04	105	6.93	1.2	167
				2.0	19.8	8.00	105	6.94	1.2	165
				3.0	19.6	7.94	105	6.96	1.2	162
				4.0	19.4	7.86	104	6.98	1.3	160
				5.0	19.3	7.78	104	6.99	1.3	157
				6.0	19.2	7.70	104	7.00	1.3	156
				7.0	16.4	7.00	110	7.00	1.6	155
				8.0	12.9	5.43	120	6.99	6.5	155

Table A.17. Continued. Cold Lake Station CL6 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
07-Sep-20	8.5	1.7	7.47	0.25	14.1	8.88	102	6.73	0.7	102
				1.0	14.1	8.87	102	6.74	0.7	103
				2.0	14.1	8.86	102	6.75	0.7	103
				3.0	14.1	8.86	102	6.76	0.7	103
				4.0	14.1	8.87	102	6.78	0.7	103
				5.0	14.1	8.87	101	6.80	0.7	103
				6.0	14.1	8.83	101	6.81	0.7	103
				7.0	14.0	8.88	101	6.82	0.7	103
				8.0	14.0	8.87	101	6.83	0.7	103
07-Oct-20	10.4	1.2	7.37	0.25	9.6	10.20	104	6.39	2.8	296
				1.0	9.6	10.12	104	6.39	2.8	290
				2.0	9.6	10.07	104	6.38	2.8	286
				3.0	9.7	10.04	104	6.38	2.8	283
				4.0	9.7	10.02	104	6.38	2.8	279
				5.0	9.7	10.00	104	6.38	2.8	276
				6.0	9.7	9.98	104	6.39	2.8	273
				7.0	9.7	9.98	104	6.39	2.9	270

Table A.18. Cold Lake Station CL7 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	1.0	--	8.90	0.25	0.1	12.72	144	7.52	-2.4	106
				1.0	0.2	12.50	137	7.49	0.2	107
03-Jun-20	3.9	1.0	7.40	0.25	13.3	9.78	187	6.54	5.9	145
				1.0	13.2	9.77	185	6.54	5.6	145
				2.0	12.8	9.77	171	6.55	4.6	144
				3.0	11.8	9.92	140	6.57	3.3	142
09-Jun-20	3.5	1.5	7.25	0.25	12.8	9.95	159	6.53	3.4	87
				1.0	12.6	9.94	167	6.53	4.4	88
				2.0	12.4	9.91	182	6.52	5.5	90
15-Jun-20	2.2	1.4	7.46	0.25	14.8	9.38	164	6.80	4.7	64
				1.0	14.7	9.38	162	6.79	4.5	65
				2.0	14.4	9.38	155	6.79	4.0	65
21-Jun-20	3.4	1.4	7.20	0.25	12.9	9.39	145	7.25	3.4	253
				1.0	12.9	9.39	146	7.23	3.5	252
				2.0	12.8	9.39	146	7.23	3.5	252
				3.0	12.8	9.37	148	7.21	3.6	251
30-Jun-20	1.9	--	7.34	0.25	16.6	8.76	146	7.01	2.0	43
				1.0	16.5	8.76	146	7.01	2.0	45
06-Jul-20	3.5	2.0	7.43	0.25	21.1	8.43	140	7.03	0.6	153
				1.0	21.0	8.42	141	7.03	0.7	153
				2.0	20.6	8.40	141	7.01	0.7	154
				3.0	20.3	8.40	140	7.00	0.7	154
13-Jul-20	2.7	1.6	7.30	0.25	20.7	8.15	134	7.03	1.0	73
				1.0	20.7	8.14	134	7.00	1.1	75
				2.0	20.6	8.13	136	6.98	1.2	77
21-Jul-20	3.7	2.0	7.43	0.25	21.5	8.11	119	7.40	0.5	149
				1.0	21.5	8.10	119	7.40	0.5	148
				2.0	21.3	8.05	121	7.39	0.6	148
				3.0	19.3	8.04	129	7.38	0.7	148
12-Aug-20	3.0	2.0	7.39	0.25	20.8	7.55	118	7.32	1.2	64
				1.0	20.7	7.53	117	7.31	1.2	65
				2.0	20.6	7.52	118	7.29	1.4	67
17-Aug-20	4.2	2.0	7.25	0.25	19.0	7.76	118	6.52	0.1	137
				1.0	19.0	7.71	118	6.50	0.1	136
				2.0	18.9	7.68	119	6.50	0.3	136
				3.0	18.8	7.69	126	6.49	0.8	136
25-Aug-20	2.4	2.0	7.31	0.25	17.6	7.69	119	6.93	1.4	114
				1.0	17.6	7.67	119	6.93	1.5	113
				2.0	17.4	7.88	130	6.94	1.9	110
07-Sep-20	2.8	1.8	7.31	0.25	14.1	8.60	121	6.29	0.9	187
				1.0	13.9	8.57	124	6.33	1.1	192
				2.0	13.7	8.60	127	6.36	1.3	193

Table A.18. Continued. Cold Lake Station CL7 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
14-Sep-20	3.8	1.9	6.43	0.25	13.2	8.85	117	5.94	1.8	163
				1.0	13.2	8.83	117	5.94	1.8	163
				2.0	13.2	8.83	117	5.93	1.9	164
				3.0	13.0	8.79	165	5.90	2.9	165
21-Sep-20	3.7	1.5	7.06	0.25	12.3	9.33	132	6.59	1.0	149
				1.0	12.3	9.32	131	6.57	0.9	149
				2.0	12.3	9.31	132	6.56	1.0	150
				3.0	12.3	9.32	137	6.54	1.4	150
07-Oct-20	4.0	1.2	7.23	0.25	9.5	9.99	132	6.59	4.4	252
				1.0	9.5	9.94	132	6.57	4.5	249
				2.0	9.4	9.91	133	6.55	4.5	247
				3.0	9.3	9.89	137	6.53	4.9	244

Table A.19. Cold Lake Station CL8 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
04-Mar-20	3.9	--	9.30	0.25	0.1	12.25	129	7.68	-2.2	100
				1.0	0.2	12.21	129	7.64	-2.4	101
				2.0	0.8	12.06	143	7.58	-1.8	104
				3.0	0.9	12.04	153	7.55	592.1	105
03-Jun-20	3.8	1.1	7.46	0.25	13.0	9.89	176	7.16	5.0	143
				1.0	12.9	9.90	176	6.99	5.2	144
				2.0	12.6	9.86	167	7.00	4.6	143
				3.0	12.3	9.85	154	7.00	3.9	143
09-Jun-20	4.5	1.3	7.18	0.25	12.7	9.91	168	6.84	4.1	103
				1.0	12.1	9.85	186	6.81	5.8	106
				2.0	11.7	9.78	184	6.79	5.5	107
				3.0	11.5	9.69	170	6.80	4.5	107
15-Jun-20	4.9	1.7	7.30	0.25	14.5	9.50	145	7.23	3.4	137
				1.0	14.1	9.55	141	7.16	3.3	139
				2.0	13.7	9.54	138	7.12	2.9	141
				3.0	13.7	9.54	138	7.10	2.9	142
				4.0	13.7	9.53	138	7.07	3.2	142
21-Jun-20	4.9	1.2	7.05	0.25	12.9	9.68	148	7.50	3.4	202
				1.0	12.9	9.57	148	7.47	3.5	198
				2.0	12.8	9.55	149	7.46	3.6	197
				3.0	12.7	9.52	147	7.45	3.6	196
30-Jun-20	4.2	1.9	7.43	0.25	16.5	8.80	143	6.59	2.0	142
				1.0	16.0	8.81	134	6.77	2.0	133
				2.0	16.0	8.80	134	6.80	2.0	132
				3.0	14.6	8.95	135	6.82	2.0	131
				3.6	14.1	8.81	125	6.86	1.9	129
06-Jul-20	4.2	2.0	7.41	0.25	20.8	8.48	137	7.15	0.6	114
				1.0	20.7	8.48	133	7.14	0.6	114
				2.0	20.6	8.48	133	7.14	0.7	114
				3.0	18.9	8.32	134	7.13	0.7	115
13-Jul-20	4.2	2.0	7.31	0.25	20.5	8.14	133	7.12	1.1	118
				1.0	20.6	8.14	133	7.12	1.1	117
				2.0	20.5	8.13	133	7.11	1.2	116
				3.0	20.5	8.12	133	7.02	1.2	116
21-Jul-20	4.2	2.0	7.93	0.25	21.4	8.10	119	7.35	0.5	106
				1.0	21.4	8.09	120	7.33	0.5	107
				2.0	21.2	8.07	121	7.32	0.5	108
				3.0	19.7	8.01	126	7.29	0.6	111
12-Aug-20	4.5	2.0	7.44	0.25	20.9	7.68	117	6.91	1.2	91
				1.0	20.8	7.63	117	6.90	1.2	91
				2.0	20.6	7.60	117	6.89	1.2	91
				3.0	20.5	7.58	117	6.89	1.2	91

Table A.19. Continued. Cold Lake Station CL8 - Field Measurements - 2020

Date	Station Depth (m)	Secchi (m)	Pen pH	Sample Depth (m)	Temp. (ºC)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	pH	Turbidity (NTU)	ORP (mV)
17-Aug-20	4.5	1.9	7.31	0.25	19.0	7.66	118	7.04	0.0	87
				1.0	19.0	7.65	118	7.03	0.0	89
				2.0	19.0	7.65	119	7.00	0.0	95
				3.0	19.0	7.64	119	6.97	0.1	96
25-Aug-20	4.8	2.0	7.93	0.25	17.6	7.66	119	6.95	1.3	117
				1.0	17.6	7.64	119	6.96	1.3	115
				2.0	17.6	7.64	120	6.95	1.4	114
				3.0	17.4	7.69	127	6.94	1.8	113
07-Sep-20	4.4	1.6	7.29	0.25	14.1	8.55	121	5.63	0.8	276
				1.0	14.0	8.53	122	5.78	0.7	266
				2.0	14.0	8.53	122	5.80	0.8	263
				3.0	14.0	8.54	123	5.81	0.8	260
				4.0	13.9	8.56	124	5.83	0.9	256
14-Sep-20	4.7	1.9	6.69	0.25	13.3	9.03	117	5.56	1.7	251
				1.0	13.2	8.98	117	5.60	1.7	248
				2.0	13.2	8.90	117	5.72	1.7	243
				3.0	13.2	8.83	117	5.74	1.7	239
21-Sep-20	4.1	1.5	6.75	0.25	12.4	9.27	126	7.65	0.5	10
				1.0	12.4	9.25	126	7.52	0.6	14
				2.0	12.4	9.25	127	7.49	0.6	18
				3.0	12.4	9.26	128	7.47	0.7	27
07-Oct-20	4.6	1.8	7.27	0.25	9.7	9.83	127	6.50	3.9	259
				1.0	9.7	9.81	127	6.48	3.9	256
				2.0	9.7	9.80	127	6.48	4.0	253
				3.0	9.7	9.79	128	6.47	4.0	250

Appendix B – Laboratory Data

Table B.1. Camp Lake Discharge - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Physical/Chemical (mg/L)																		
pH (pH units)	7.00	6.31	6.12	6.07	6.17	6.25	6.90	6.02	6.79	6.86	6.52	6.49	6.58	6.86	6.55	6.49	6.73	--
Alkalinity (Total as $CaCO_3$)	26	13	12	11	13	16	21	21	21	17	15	14	15	12	13	12	14	--
Bicarbonate (HCO_3)	31	16	15	14	16	20	25	25	25	20	18	17	18	14	15	15	17	--
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Total Hardness ($CaCO_3$)	58.6	94.4	88.0	83.3	73.3	63.3	60.2	57.5	56.3	68.0	74.7	73.1	73.6	72.7	73.2	76.0	67.1	75.3
Hardness ($CaCO_3$)	75	96	93	85	75	64	59	57	57	68	76	76	73	80	80	72	70	75
Turbidity (NTU)	3.0	--	8.2	6.7	4.7	1.4	2.2	1.5	1.5	2.7	4.9	6.6	5.5	--	7.7	9.2	--	--
Total Suspended Solids	1.4	2.7	4.7	4.6	3.5	2.5	2.1	3.0	1.8	5.2	3.1	1.9	2.5	4.1	1.9	2.2	<1.0	--
Total Metals (mg/L)																		
Aluminum (Al)	0.031	0.15	0.16	0.17	0.21	0.19	0.15	0.11	0.099	0.12	0.27	0.17	0.14	0.12	0.15	0.14	0.15	0.24
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00038	0.00032	0.00028	0.00033	0.00045	0.00049	0.00051	0.00031	0.00077	0.00032	0.00040	0.00044	0.00047	0.00049	0.00050	0.00060	0.00041	0.00048
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00013	0.00077	0.00081	0.00081	0.00090	0.0010	0.00076	0.00062	0.00046	0.00056	0.00080	0.00070	0.00067	0.00059	0.00064	0.00062	0.00052	0.00069
Calcium (Ca)	17	29	27	25	22	19	18	17	16	20	22	22	22	22	22	22	20	22
Chromium (Cr)	0.0012	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0014	0.0014	0.0012	0.0014	0.0014	0.00083	0.00049	0.00048	0.00067	0.00082	0.00083	0.00064	0.00045	0.00071	0.00058	0.00049	0.00075
Copper (Cu)	0.0030	0.035	0.035	0.039	0.051	0.047	0.040	0.028	0.027	0.028	0.049	0.041	0.034	0.029	0.034	0.029	0.024	0.035
Iron (Fe)	0.42	3.5	4.6	4.8	3.3	1.6	1.1	0.85	1.3	1.8	3.1	3.7	3.7	4.9	5.3	5.9	4.6	5.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	0.00023
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.0	5.2	5.0	4.9	4.4	4.0	3.8	3.7	3.8	4.2	4.5	4.3	4.5	4.4	4.4	4.9	4.1	4.7
Manganese (Mn)	0.018	0.15	0.15	0.13	0.092	0.067	0.043	0.030	0.033	0.057	0.064	0.067	0.060	0.063	0.054	0.064	0.053	0.062
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.0014	0.0019	0.0022	0.0018	0.0015	0.0019	0.0014	0.00076	0.00060	0.0011	0.0047	0.0019	0.0012	0.0012	0.0013	0.0015	0.0014	0.0018
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.0	2.3	2.4	2.3	2.1	1.9	1.7	1.7	1.8	1.8	1.9	2.1	1.9	1.9	2.0	2.2	1.9	2.0
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	0.00022	<0.00020	<0.00020
Silicon (Si)	1.5	1.4	1.4	1.4	1.4	1.4	1.2	1.1	1.1	1.2	1.2	1.0	1.2	1.3	1.4	1.5	1.5	1.9
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.2	2.4	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.8	1.7	1.8	1.9	1.8	1.8	1.8	1.7	2.0
Strontium (Sr)	0.029	0.033	0.032	0.032	0.028	0.027	0.028	0.027	0.027	0.031	0.033	0.031	0.033	0.033	0.028	0.033	0.031	0.033
Sulphur (S)	9.1	25	25	23	20	16	13	12	11	16	19	18	19	19	19	20	16	19
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	0.0016	<0.0010	0.0028	<0.0010
Titanium (Ti)	<0.0010	0.0028	0.0029	0.0028	0.0038	0.0018	0.0027	<0.0010	0.0019	0.0013	0.0060	0.0037	0.0030	0.0028	0.0039	0.0027	0.0023	0.0061
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	0.00021	<0.00010	0.00020	<0.00010	0.00019	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.062	0.23	0.23	0.22	0.26	0.28	0.22	0.16	0.15	0.16	0.22	0.19	0.19	0.16	0.19	0.18	0.15	0.20

Table B.1. Continued. Camp Lake Discharge - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.012	0.070	0.085	0.088	0.11	0.11	0.083	0.069	0.074	0.087	0.11	0.12	0.092	0.076	0.10	0.088	0.086	0.11
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00026	0.00022	0.00029	<0.00020	0.00024	0.00035	0.00038	0.00039	0.00036	0.00023	0.00038	0.00035	0.00038	0.00047	0.00040	0.00038	0.00037	0.00038
Barium (Ba)	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00010	0.00068	0.00071	0.00067	0.00072	0.00084	0.00060	0.00049	0.00046	0.00053	0.00056	0.00069	0.00059	0.00051	0.00061	0.00055	0.00050	0.00066
Calcium (Ca)	22	29	29	26	23	19	17	17	17	20	23	23	22	24	24	21	21	22
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0014	0.0012	0.0011	0.0011	0.00087	<0.00030	<0.00030	<0.00030	0.00047	0.00067	0.00077	0.00050	0.00044	0.00061	0.00052	0.00046	0.00061
Copper (Cu)	0.0006	0.025	0.029	0.027	0.033	0.036	0.031	0.024	0.026	0.026	0.036	0.039	0.030	0.025	0.029	0.026	0.023	0.029
Iron (Fe)	0.27	2.4	3.2	3.6	2.5	1.2	0.73	0.63	1.1	1.5	2.4	3.1	3.3	4.8	6.2	4.8	3.6	4.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	5.0	5.5	5.3	5.1	4.4	4.1	3.7	3.6	3.8	4.2	4.7	4.6	4.5	4.9	4.9	4.5	4.3	4.6
Manganese (Mn)	0.0085	0.15	0.15	0.12	0.093	0.047	0.0060	0.0077	0.0098	0.043	0.059	0.064	0.050	0.064	0.057	0.055	0.052	0.057
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0014	0.0014	0.00088	0.0013	0.0012	0.0011	0.00090	<0.00050	0.0011	0.0018	0.0017	0.0012	0.0014	0.0013	0.0014	0.0012	0.0013
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.2	2.6	2.5	2.4	2.2	1.9	1.7	1.7	1.8	1.7	2.0	2.1	2.1	2.4	2.2	2.0	1.8	2.2
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.4	1.3	1.2	1.2	1.3	1.2	1.1	0.97	0.94	1.1	0.96	0.77	1.0	1.3	1.4	1.3	1.5	1.6
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.2	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8	2.0	1.9	2.0	1.9	2.2	1.9	2.0	1.9	1.9
Strontium (Sr)	0.038	0.034	0.032	0.032	0.029	0.030	0.028	0.027	0.029	0.030	0.032	0.034	0.031	0.038	0.031	0.033	0.032	0.034
Sulphur (S)	9.6	25	24	23	20	16	13	12	11	15	19	18	17	19	19	19	17	17
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	0.0015	0.0010	0.0016	0.001	0.0011	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	0.00013	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.041	0.21	0.22	0.19	0.21	0.23	0.18	0.14	0.14	0.16	0.18	0.19	0.17	0.15	0.18	0.17	0.16	0.19

Table B.2. Camp Lake Station NB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Physical/Chemical (mg/L)						**Duplicate**											
pH (pH units)	7.36	6.31	6.14	6.06	6.20	6.93	6.23	6.31	6.15	6.79	6.47	6.53	6.63	6.93	6.60	6.45	6.7
Alkalinity (Total as $CaCO_3$)	30	13	11	12	13	11	16	18	21	18	14	14	13	13	12	13	13
Bicarbonate (HCO_3)	36	16	14	14	16	14	19	22	26	22	18	17	16	16	15	16	16
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	49.1	101	85.5	81.2	71.0	74.5	63.7	56.9	57.2	55.2	72.1	70.8	71.8	72.0	72.6	75.3	65.7
Hardness ($CaCO_3$)	43	87	93	84	72	73	64	57	58	57	73	76	72	75	80	72	68
Turbidity (NTU)	2.8	--	7.8	6.5	4.7	5.1	1.6	2.2	1.6	1.6	5.4	6.3	5.5	--	7.6	8.4	--
Total Suspended Solids	1.3	2.0	5.8	4.0	3.1	2.9	1.7	1.5	3.3	1.7	3.7	3.1	1.9	3.5	1.7	2.3	<1.0
Total Metals (mg/L)																	
Aluminum (Al)	0.032	0.17	0.17	0.18	0.20	0.20	0.16	0.15	0.11	0.097	0.26	0.20	0.14	0.13	0.15	0.14	0.12
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00051	0.00027	0.00025	0.00030	0.00035	0.00047	0.00032	0.00056	0.00043	0.00057	0.00047	0.00039	0.00056	0.00057	0.00051	0.00042	0.00046
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.021	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00010	0.00092	0.00078	0.00082	0.00097	0.00094	0.00086	0.00083	0.00056	0.00050	0.00084	0.00085	0.00067	0.00060	0.00063	0.00061	0.0005
Calcium (Ca)	14	31	26	25	21	22	19	17	17	16	22	21	21	22	22	22	20
Chromium (Cr)	<0.0010	<0.0010	0.0047	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0016	0.0016	0.0014	0.0013	0.0015	0.0010	0.00086	0.00053	0.00048	0.00095	0.0010	0.00070	0.00056	0.00070	0.00060	0.00046
Copper (Cu)	0.0014	0.037	0.036	0.039	0.052	0.051	0.038	0.037	0.029	0.026	0.051	0.047	0.034	0.031	0.033	0.030	0.024
Iron (Fe)	0.3	3.7	4.7	4.7	3.2	3.3	1.6	0.95	0.82	1.3	3.0	3.8	3.6	5.0	5.2	6.0	4.6
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	0.00024	<0.00020	<0.00020	0.00024	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.6	5.5	4.9	4.8	4.3	4.7	4.0	3.6	3.7	3.7	4.4	4.2	4.4	4.4	4.4	4.9	4.1
Manganese (Mn)	0.013	0.16	0.15	0.13	0.090	0.093	0.066	0.038	0.029	0.033	0.061	0.065	0.058	0.059	0.052	0.065	0.053
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	0.00026	0.00027	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025
Nickel (Ni)	0.0011	0.0013	0.0040	0.0014	0.0016	0.0014	0.0013	0.0016	0.0010	0.00095	0.0031	0.0019	0.0013	0.0012	0.0016	0.0014	0.0015
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.5	2.4	2.2	2.1	2.2	1.9	1.7	1.7	1.8	1.9	2.0	1.9	1.9	2.1	2.2	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031	<0.00020	0.00021	0.00026	<0.00020
Silicon (Si)	1.6	1.5	1.4	1.3	1.3	1.4	1.4	1.1	1.1	1.1	1.1	1.0	1.2	1.4	1.4	1.6	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.1	2.4	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.8	1.9	1.8	1.9	1.8	1.7
Strontium (Sr)	0.027	0.035	0.031	0.032	0.028	0.029	0.027	0.026	0.027	0.027	0.032	0.030	0.033	0.033	0.028	0.033	0.031
Sulphur (S)	5.7	27	24	22	19	19	16	12	12	11	18	17	18	18	19	20	16
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0044	<0.0010	0.0014	<0.0010	0.0016
Titanium (Ti)	<0.0010	0.0031	0.0033	0.0033	0.0014	0.0020	0.0013	0.0016	0.0024	0.0012	0.0059	0.0043	0.0034	0.0034	0.0031	0.0025	0.0036
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00012	0.00042	<0.00010	0.0002	<0.00010	0.00011
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.046	0.25	0.23	0.22	0.26	0.27	0.23	0.22	0.17	0.14	0.23	0.23	0.20	0.17	0.18	0.18	0.16

Table B.2. Continued. Camp Lake Station NB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Dissolved Metals (mg/L)						**Duplicate**											
Aluminum (Al)	0.012	0.066	0.088	0.097	0.12	0.12	0.10	0.11	0.061	0.075	0.12	0.11	0.098	0.086	0.10	0.096	0.094
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00066	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00039	0.00022	0.00026	<0.00020	0.00032	0.00034	0.00034	0.00036	<0.00020	0.00035	0.00039	0.00028	0.00041	0.00044	0.00041	0.00042	0.00040
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00011	0.00070	0.00067	0.00076	0.00078	0.00077	0.00073	0.00067	0.00043	0.00047	0.00058	0.00063	0.00062	0.00056	0.00060	0.00058	0.00051
Calcium (Ca)	12	27	28	25	22	22	19	17	17	16	22	23	22	22	24	21	20
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0013	0.0013	0.0011	0.0014	0.0013	0.00081	0.00035	<0.00030	<0.00030	0.00065	0.00064	0.00048	0.00047	0.00059	0.00054	0.00052
Copper (Cu)	0.00065	0.025	0.029	0.031	0.041	0.041	0.034	0.032	0.021	0.025	0.038	0.035	0.031	0.026	0.029	0.026	0.024
Iron (Fe)	0.19	2.7	3.3	3.5	2.5	2.4	1.2	0.75	0.63	1.1	2.5	3.3	3.1	4.7	5.3	4.8	3.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.5	5.1	5.3	5.1	4.4	4.6	4.0	3.6	3.6	3.8	4.6	4.6	4.5	4.7	4.9	4.6	4.2
Manganese (Mn)	0.0059	0.15	0.15	0.12	0.090	0.091	0.047	0.0075	0.0069	0.012	0.053	0.061	0.049	0.057	0.052	0.060	0.052
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	0.00034	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0014	0.0011	0.0014	0.0014	0.0014	0.0016	0.0015	<0.00050	0.00068	0.0012	0.0014	0.0011	0.0010	0.0012	0.0013	0.0012
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.4	2.6	2.4	2.1	2.2	1.9	1.7	1.7	1.8	2.1	2.2	2.1	2.2	2.2	2.1	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.5	1.3	1.2	1.2	1.2	1.3	1.2	0.96	0.98	0.97	0.97	0.73	0.97	1.3	1.3	1.3	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.0	1.9	2.0	2.0	1.8	2.0	2.0	1.7	1.7	1.8	1.9	2.0	1.9	2.1	1.9	2.1	1.8
Strontium (Sr)	0.025	0.031	0.032	0.032	0.029	0.030	0.032	0.027	0.027	0.029	0.032	0.034	0.031	0.036	0.030	0.033	0.031
Sulphur (S)	6.0	25	24	23	19	19	16	11	12	11	18	17	17	18	19	19	17
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0017	0.0019	0.0017	<0.0010	0.0018
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	0.00018	<0.00010	0.00023
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.042	0.22	0.22	0.22	0.25	0.24	0.21	0.19	0.12	0.15	0.18	0.18	0.18	0.16	0.18	0.18	0.16

Table B.3. Camp Lake Station NB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Physical/Chemical (mg/L)										Duplicate							
pH (pH units)	7.40	6.27	6.19	6.11	6.18	6.31	6.24	6.16	6.78	7.19	6.56	6.53	6.50	6.94	6.55	6.53	6.75
Alkalinity (Total as $CaCO_3$)	38	14	13	12	14	18	21	21	18	21	15	15	15	12	13	13	13
Bicarbonate (HCO_3)	47	17	16	15	17	22	26	26	22	26	19	18	19	15	16	16	16
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	71.9	93.9	71.7	76.8	69.5	52.3	54.6	53.8	55.0	--	69.3	68.7	72.1	67.5	69.5	68.0	60.9
Hardness ($CaCO_3$)	68	99	74	81	70	53	53	54	58	--	70	70	73	74	73	65	64
Turbidity (NTU)	2.5	--	7.8	6.5	4.9	1.4	2.2	1.9	1.7	1.6	5.3	6.3	5.2	--	7.8	7.8	--
Total Suspended Solids	2.7	3.8	5.3	5.7	3.4	1.5	1.3	3.4	1.5	2.7	3.7	3.1	2.3	3.9	1.8	1.9	1.3
Total Metals (mg/L)																	
Aluminum (Al)	0.031	0.16	0.15	0.23	0.22	0.16	0.17	0.14	0.12	0.097	0.21	0.16	0.14	0.16	0.14	0.15	0.11
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00073	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.0013	<0.00060
Arsenic (As)	0.00050	0.00044	0.00040	0.00040	0.00045	0.00053	0.00034	0.00052	0.00078	0.00034	0.00045	0.00042	0.00044	0.00061	0.00050	0.00050	0.00042
Barium (Ba)	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	0.045	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00020	0.00090	0.00071	0.00096	0.00094	0.00082	0.00085	0.00064	0.00055	0.00041	0.00070	0.00067	0.00067	0.00066	0.00064	0.00059	0.00047
Calcium (Ca)	20	29	21	23	21	15	16	15	16	15	21	21	22	20	21	20	18
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0025
Cobalt (Co)	<0.00030	0.0017	0.0012	0.0017	0.0018	0.00089	0.0012	0.00066	0.00063	<0.00030	0.00075	0.00080	0.00065	0.00062	0.00061	0.00069	0.00049
Copper (Cu)	0.0046	0.035	0.033	0.042	0.056	0.041	0.040	0.029	0.028	0.024	0.040	0.039	0.035	0.035	0.033	0.031	0.023
Iron (Fe)	0.55	3.6	4.1	3.8	3.1	1.2	0.99	0.81	1.2	1.3	3.2	3.8	3.6	4.7	5.3	5.3	4.2
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	5.2	5.2	4.5	4.7	4.3	3.6	3.8	3.7	3.8	3.7	4.3	4.2	4.5	4.2	4.3	4.6	3.9
Manganese (Mn)	0.021	0.15	0.12	0.13	0.090	0.053	0.047	0.035	0.038	0.032	0.060	0.062	0.057	0.054	0.051	0.058	0.046
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.0010	0.0017	0.0022	0.0019	0.0016	0.0015	0.0018	0.0011	0.00085	0.0024	0.0032	0.0017	0.0011	0.0015	0.0015	0.0014	0.0019
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	3.1	2.4	2.3	2.3	2.1	1.7	1.7	1.7	1.8	1.8	1.9	2.1	1.9	1.8	2.2	2.1	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	0.00022
Silicon (Si)	2.1	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.2	1.0	1.2	1.4	1.4	1.6	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	3.1	2.4	1.9	1.8	1.9	1.7	1.7	1.7	1.7	1.8	1.7	1.8	1.9	1.8	1.9	1.8	1.7
Strontium (Sr)	0.039	0.033	0.029	0.032	0.028	0.025	0.027	0.027	0.027	0.026	0.032	0.030	0.033	0.032	0.027	0.031	0.03
Sulphur (S)	9.4	25	19	21	18	11	11	11	11	11	17	16	18	17	18	17	14
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0022	<0.0010	<0.0010	<0.0010	<0.0010	0.0024
Titanium (Ti)	0.0011	0.0032	0.0028	0.0054	0.0046	0.0019	0.0024	0.0020	0.0034	<0.0010	0.0048	0.0039	0.0021	0.0052	0.0055	0.0031	0.0021
Uranium (U)	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00010	<0.00010	0.00013	<0.00010	0.00015
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.073	0.25	0.20	0.24	0.27	0.23	0.24	0.17	0.17	0.13	0.18	0.18	0.19	0.19	0.19	0.18	0.15

Table B.3. Continued. Camp Lake Station NB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Dissolved Metals (mg/L)										**Duplicate**							
Aluminum (Al)	0.014	0.068	0.079	0.10	0.12	0.088	0.076	0.071	0.12	0.068	0.15	0.094	0.10	0.090	0.098	0.095	0.072
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00045	<0.00020	0.00022	0.00024	0.00024	0.00030	<0.00020	0.00033	0.00040	0.00047	0.00037	0.00030	0.00042	0.00045	0.00040	0.00046	0.00036
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	0.048	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00021	0.00078	0.00062	0.00090	0.00082	0.00066	0.00054	0.00051	0.00057	0.00055	0.00058	0.00064	0.00064	0.00052	0.00058	0.00055	0.00046
Calcium (Ca)	18	30	22	24	21	15	15	16	17	15	21	21	22	22	22	19	19
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0015	0.0012	0.0016	0.0013	0.00067	0.00030	<0.00030	<0.00030	<0.00030	0.00076	0.00061	0.00051	0.00044	0.00051	0.00053	0.00041
Copper (Cu)	0.0039	0.025	0.026	0.033	0.044	0.031	0.026	0.023	0.027	0.022	0.038	0.036	0.032	0.027	0.028	0.027	0.021
Iron (Fe)	0.24	2.9	3.0	2.7	2.3	0.99	0.67	0.56	0.99	0.96	3.0	2.3	3.2	4.5	4.9	4.4	3.4
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	5.2	5.7	4.7	5.1	4.3	3.7	3.7	3.7	4.0	3.7	4.4	4.3	4.5	4.7	4.6	4.2	4.1
Manganese (Mn)	0.009	0.17	0.11	0.13	0.089	0.040	0.014	0.009	0.017	0.009	0.048	0.062	0.048	0.047	0.049	0.050	0.045
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00075	0.0015	0.00093	0.0027	0.0015	0.00099	0.0012	0.00090	0.00092	0.0012	0.0010	0.0014	0.0016	0.0013	0.0012	0.0013	0.001
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	3.1	2.7	2.4	2.5	2.2	1.7	1.7	1.7	1.9	1.8	2.1	2.1	2.1	2.3	2.1	1.9	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	2.1	1.3	1.2	1.3	1.2	1.2	1.1	0.99	1.0	0.98	1.1	0.72	0.97	1.3	1.3	1.4	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.9	2.0	1.9	2.0	1.9	1.7	1.7	1.7	1.9	1.9	1.6	1.9	1.9	2.1	1.9	1.9	1.8
Strontium (Sr)	0.038	0.035	0.029	0.032	0.028	0.027	0.027	0.026	0.029	0.027	0.032	0.033	0.032	0.036	0.029	0.031	0.031
Sulphur (S)	9.9	25	19	22	18	12	11	11	11	11	17	16	17	16	18	16	15
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0034	<0.0010	0.0014	0.0010	0.0011	<0.0010	0.0011
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	<0.00010	0.00015	0.00017	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.072	0.22	0.18	0.25	0.26	0.20	0.16	0.14	0.16	0.15	0.18	0.18	0.18	0.15	0.16	0.17	0.14

Table B.4. Camp Lake Station CB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Physical/Chemical (mg/L)									**Duplicate**								
pH (pH units)	7.3	6.35	6.22	6.11	6.17	6.3	6.36	6.19	6.86	6.78	6.56	6.53	6.63	7.03	6.55	6.45	6.73
Alkalinity (Total as $CaCO_3$)	32	14	15	13	13	21	22	22	22	22	16	14	15	12	12	14	13
Bicarbonate (HCO_3)	39	17	18	16	16	26	27	27	26	26	19	17	19	15	15	17	16
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	--	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	42.5	80.3	60.8	66.8	68.3	46.7	47.8	46.4	48.7	44.9	62.1	70.8	59.9	60.3	62.5	64.5	60.3
Hardness ($CaCO_3$)	39	81	63	68	68	48	47	47	52	48	62	76	61	68	68	60	58
Turbidity (NTU)	0.9	--	6.8	4.8	5.2	1.4	1.7	1.3	1.3	1.3	5.4	6.3	5.4	--	7.9	8.4	--
Total Suspended Solids	1.2	3.4	4.3	4.3	3.5	1.9	<1.0	2.3	2.4	1.4	3.5	3.1	2.1	2.9	2.1	1.7	1.6
Total Metals (mg/L)																	
Aluminum (Al)	0.023	0.14	0.10	0.19	0.21	0.12	0.13	0.11	0.15	0.076	0.13	0.12	0.11	0.12	0.15	0.13	0.12
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00088	0.00069	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.0011	<0.00060
Arsenic (As)	0.00067	<0.00020	0.00043	0.00038	0.00041	0.00040	0.00051	0.00051	0.00057	0.00084	0.00053	0.00045	0.00043	0.00056	0.00050	0.00044	0.00049
Barium (Ba)	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00011	0.00076	0.00052	0.00090	0.00098	0.00062	0.00063	0.00059	0.00038	0.00036	0.00047	0.00056	0.00055	0.00056	0.00062	0.00056	0.00048
Calcium (Ca)	11	24	18	20	20	13	13	13	14	13	18	18	17	18	18	18	18
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0021	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0015	0.00093	0.0015	0.0017	0.00063	0.00074	0.00040	0.00035	0.00038	0.00044	0.00059	0.00054	0.00050	0.00065	0.00045	0.00046
Copper (Cu)	0.0013	0.030	0.023	0.042	0.047	0.027	0.028	0.025	0.038	0.020	0.024	0.030	0.028	0.030	0.030	0.027	0.022
Iron (Fe)	0.23	3.1	3.7	3.5	3.2	1.1	0.8	0.67	0.71	0.99	3.7	4.1	3.5	5.2	5.3	5.4	4.4
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0049	<0.00020	<0.00020	0.00028	<0.00020	<0.00020	<0.00020	0.00021	0.00023
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.4	4.8	4.0	4.3	4.5	3.4	3.4	3.4	3.5	3.3	4.1	3.9	4.0	3.9	4.1	4.5	3.9
Manganese (Mn)	0.012	0.14	0.089	0.10	0.10	0.043	0.036	0.026	0.028	0.028	0.056	0.059	0.052	0.055	0.050	0.057	0.046
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00044	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00073	0.0017	0.0019	0.0018	0.0019	0.00082	0.0012	0.00088	0.0013	0.00090	0.0024	0.0013	0.0019	0.0013	0.0017	0.0020	0.0015
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.7	2.2	2.1	2.2	2.2	1.6	1.7	1.6	1.6	1.6	1.9	1.9	1.7	1.7	2.0	2.0	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00047	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020
Silicon (Si)	1.7	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.2	1.1	1.2	1.1	1.3	1.4	1.4	1.7	1.7
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00037	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.2	2.3	1.8	1.8	1.9	1.6	1.7	1.7	1.7	1.6	1.7	1.8	1.8	1.7	1.9	1.8	1.8
Strontium (Sr)	0.027	0.031	0.026	0.030	0.028	0.024	0.025	0.025	0.029	0.024	0.031	0.029	0.030	0.031	0.026	0.031	0.031
Sulphur (S)	2.5	21	15	17	18	8.9	8.3	8.0	8.4	7.5	14	14	14	15	16	15	14
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	0.0029	<0.0010	0.0013
Titanium (Ti)	0.0010	0.0015	0.0019	0.0035	0.0019	0.0013	0.0013	0.0024	0.0018	0.0012	0.0032	0.0046	0.0025	0.0035	0.0054	0.0029	0.0038
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00010	<0.00010	<0.00010	0.00026	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.043	0.22	0.15	0.24	0.26	0.17	0.18	0.15	0.14	0.11	0.12	0.16	0.16	0.17	0.17	0.17	0.14

Table B.4. Continued. Camp Lake Station CB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Dissolved Metals (mg/L)									**Duplicate**								
Aluminum (Al)	0.011	0.064	0.059	0.081	0.11	0.063	0.060	0.051	0.039	0.062	0.052	0.073	0.079	0.075	0.081	0.083	0.068
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00039	0.00026	0.00038	0.00030	0.00035	0.00033	0.00035	0.00033	<0.00020	0.00035	0.00036	0.00039	0.00040	0.00046	0.00039	0.00038	0.00041
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000085	0.00070	0.00045	0.00068	0.00081	0.00046	0.00042	0.00037	0.00012	0.00040	0.00036	0.00051	0.00051	0.00051	0.00048	0.00048	0.00042
Calcium (Ca)	10	24	18	20	20	13	13	13	15	13	18	18	18	20	20	18	17
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0013	0.00077	0.00098	0.0013	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00054	0.00039	0.00046	0.00056	0.00051	0.00038
Copper (Cu)	<0.00020	0.024	0.019	0.026	0.038	0.022	0.019	0.017	0.0092	0.020	0.019	0.026	0.024	0.022	0.024	0.022	0.019
Iron (Fe)	0.13	2.3	2.8	2.6	2.3	0.82	0.56	0.49	0.53	0.86	2.8	1.8	2.9	5.2	5.3	4.2	3.3
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.4	5.1	4.1	4.5	4.4	3.4	3.4	3.3	3.4	3.5	4.2	4.0	4.0	4.5	4.5	4.1	3.8
Manganese (Mn)	<0.0040	0.14	0.086	0.095	0.097	0.017	0.0043	<0.0040	<0.0040	0.012	0.046	0.054	0.043	0.058	0.054	0.051	0.041
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0012	0.00091	0.0011	0.0012	0.00074	0.0010	0.00078	0.00064	0.00081	0.0010	0.0011	0.00090	0.0012	0.0012	0.0012	0.0011
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.8	2.5	2.1	2.3	2.2	1.7	1.7	1.6	1.8	1.7	1.9	2.0	1.9	2.2	2.0	1.9	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.6	1.3	1.2	1.2	1.2	1.2	1.1	0.99	1.0	1.0	0.97	0.77	1.1	1.4	1.4	1.4	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.2	2.0	1.8	1.9	1.9	1.7	1.7	1.6	2.0	1.7	1.9	1.8	1.8	2.1	1.8	2.0	1.7
Strontium (Sr)	0.026	0.032	0.027	0.030	0.028	0.026	0.026	0.025	0.029	0.027	0.029	0.031	0.029	0.035	0.029	0.03	0.029
Sulphur (S)	2.7	20	15	17	18	9.1	8.7	8.3	9.7	7.3	14	14	13	15	17	15	13
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0013	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.037	0.21	0.14	0.20	0.26	0.16	0.13	0.11	0.049	0.12	0.11	0.15	0.14	0.14	0.15	0.15	0.13

Table B.5. Camp Lake Station CB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	12-Aug-20	17-Aug-20	25-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	7-Oct-20
Physical/Chemical (mg/L)											Duplicate			Duplicate					Duplicate
pH (pH units)	7.36	6.36	6.21	6.14	6.20	6.28	6.28	6.17	6.79	6.53	6.57	6.52	6.60	7.15	7.01	6.43	6.42	6.75	6.80
Alkalinity (Total as $CaCO_3$)	34	15	13	14	15	17	21	22	20	15	16	14	15	14	12	11	12	14	14
Bicarbonate (HCO_3)	42	18	16	17	18	21	26	27	25	18	19	17	18	17	15	14	15	17	17
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	50.0	79.4	70.6	67.1	60.1	58.0	50.8	48.5	54.0	67.7	65.3	64.2	66.8	65.0	65.9	67.4	71.7	64.5	64.8
Hardness ($CaCO_3$)	46	77	74	59	59	57	49	48	57	67	66	68	67	68	75	73	69	63	63
Turbidity (NTU)	1.5	--	7.4	5.1	4.2	1.6	1.9	1.3	1.8	5.6	5.2	6.9	5.3	5.1	--	8.0	8.6	--	--
Total Suspended Solids	2.3	2.7	5.1	3.1	3.8	1.2	1.7	2.3	2.3	3.9	2.7	2.9	3.6	2.6	2.3	3.7	3.0	<1.0	1.8
Total Metals (mg/L)																			
Aluminum (Al)	0.026	0.14	0.16	0.20	0.15	0.18	0.15	0.11	0.12	0.18	0.18	0.14	0.14	0.12	0.15	0.17	0.21	0.12	0.17
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00098	<0.00060	<0.00060
Arsenic (As)	0.00045	0.00049	0.00030	0.00051	0.00030	0.00040	0.00041	0.00041	0.00063	0.00033	0.00046	0.00038	0.00059	0.00035	0.00060	0.00057	0.00070	0.00049	0.00042
Barium (Ba)	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00015	0.00075	0.00074	0.00090	0.00069	0.00094	0.00076	0.00062	0.00053	0.00068	0.00068	0.00061	0.00060	0.00062	0.00072	0.00067	0.00078	0.00055	0.00060
Calcium (Ca)	14	24	21	20	17	17	14	14	15	20	19	19	20	19	19	20	21	19	19
Chromium (Cr)	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0014	0.0015	0.0016	0.0010	0.0011	0.00091	0.00056	0.00061	0.00076	0.00080	0.00070	0.00066	0.00062	0.00082	0.00072	0.0011	0.00056	0.00052
Copper (Cu)	0.0018	0.031	0.032	0.042	0.036	0.041	0.031	0.026	0.024	0.033	0.034	0.031	0.031	0.030	0.034	0.032	0.038	0.023	0.025
Iron (Fe)	0.26	3.1	4.0	3.5	2.9	1.4	0.87	0.70	1.3	3.4	3.3	4.0	3.4	3.3	4.8	5.2	5.6	4.3	4.3
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.9	4.8	4.6	4.4	4.0	4.0	3.6	3.5	3.8	4.4	4.3	4.1	4.4	4.2	4.2	4.3	4.9	4.1	4.2
Manganese (Mn)	0.013	0.13	0.12	0.10	0.076	0.061	0.042	0.028	0.042	0.055	0.053	0.059	0.055	0.053	0.056	0.052	0.068	0.048	0.048
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00085	0.0012	0.0022	0.0017	0.0010	0.0014	0.0017	0.0011	0.0012	0.0049	0.0014	0.0013	0.0013	0.0014	0.0016	0.0027	0.0015	0.0016	0.0013
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.2	2.3	2.2	2.0	1.9	1.8	1.6	1.8	2.0	2.1	2.1	1.9	2.0	1.9	2.1	2.2	1.9	1.6
Selenium (Se)	0.00021	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0003	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.8	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.1	0.99	1.3	1.2	1.3	1.4	1.7	1.6	1.7
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.4	2.3	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.8	2.2	1.8	1.9	1.8	1.8	1.9	1.9	1.8	1.5
Strontium (Sr)	0.03	0.031	0.029	0.030	0.026	0.027	0.026	0.026	0.027	0.032	0.031	0.030	0.032	0.031	0.032	0.027	0.033	0.032	0.031
Sulphur (S)	4.4	20	19	17	15	13	9.4	8.7	11	16	16	15	16	16	17	18	18	15	15
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019	0.0011	<0.0010	0.0011	<0.0010	0.0019	<0.0010
Titanium (Ti)	<0.0010	0.0014	0.0020	0.0036	0.0014	0.0015	0.0017	0.0017	0.0015	0.0031	0.0044	0.0039	0.0030	0.0022	0.0039	0.0044	0.0041	0.0041	0.0033
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.0048	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00031	<0.00010	<0.00010	0.00014	<0.00010	0.00013	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.052	0.22	0.21	0.25	0.19	0.25	0.20	0.16	0.15	0.18	0.18	0.17	0.18	0.17	0.21	0.19	0.23	0.16	0.16

Table B.5. Continued. Camp Lake Station CB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	12-Aug-20	17-Aug-20	25-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	7-Oct-20
Dissolved Metals (mg/L)											**Duplicate**			**Duplicate**					**Duplicate**
Aluminum (Al)	0.011	0.063	0.089	0.082	0.092	0.095	0.070	0.061	0.083	0.15	0.11	0.096	0.089	0.085	0.089	0.096	0.12	0.071	0.077
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00035	0.00030	0.00029	0.00032	0.00037	0.00041	0.00032	0.00036	0.00024	0.00042	0.00039	0.00030	0.00036	0.00045	0.00041	0.00039	0.00040	0.00042	0.0004
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00012	0.00068	0.0007	0.00063	0.00073	0.00069	0.00049	0.00045	0.00054	0.00050	0.00061	0.00062	0.00059	0.00065	0.00063	0.00059	0.00071	0.00047	0.00050
Calcium (Ca)	12	23	22	17	17	16	14	14	16	20	19	20	20	20	22	21	20	18	18
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0013	0.0013	0.0010	0.00088	0.00070	<0.00030	<0.00030	<0.00030	0.00055	0.00073	0.00074	0.00048	0.00050	0.00066	0.00067	0.00086	0.00043	0.00047
Copper (Cu)	0.00084	0.023	0.027	0.026	0.033	0.032	0.021	0.020	0.024	0.030	0.029	0.032	0.027	0.029	0.026	0.025	0.030	0.019	0.022
Iron (Fe)	0.14	2.2	2.7	2.5	2.1	1.1	0.60	0.53	1.0	3.1	2.4	3.7	3.0	3.0	4.7	5.1	4.3	3.3	3.5
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.8	4.9	4.7	4.1	3.9	4.0	3.5	3.4	3.9	4.4	4.3	4.3	4.4	4.5	4.9	4.7	4.5	4.0	4.2
Manganese (Mn)	0.0059	0.13	0.12	0.073	0.070	0.039	0.0087	0.0043	0.021	0.043	0.053	0.058	0.045	0.044	0.059	0.054	0.062	0.043	0.043
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0014	0.00088	0.0012	0.0012	0.0012	0.0011	0.00074	0.0012	0.0012	0.0013	0.0015	0.0012	0.0013	0.0015	0.0012	0.0015	0.0012	0.0016
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.0	2.4	2.4	2.3	2.0	1.9	1.8	1.6	1.9	2.2	2.0	2.2	2.1	2.2	2.4	2.2	2.1	1.9	2.0
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00029	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.8	1.3	1.2	1.2	1.2	1.2	1.1	1.0	1.0	1.1	0.86	0.79	1.1	1.1	1.3	1.3	1.4	1.5	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.4	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.8	1.7	1.8	1.9	2.0	2.5	2.2	1.9	2.1	1.8	1.9
Strontium (Sr)	0.029	0.031	0.029	0.026	0.026	0.029	0.026	0.025	0.029	0.031	0.032	0.033	0.031	0.032	0.038	0.030	0.033	0.030	0.030
Sulphur (S)	5	19	19	18	14	13	9.9	8.7	10	16	16	15	15	16	16	18	18	15	15
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0027	<0.0010	<0.0010	0.0012	0.0015	0.0014	0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	0.00012	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.045	0.20	0.21	0.19	0.21	0.20	0.14	0.12	0.16	0.16	0.17	0.18	0.17	0.18	0.17	0.17	0.21	0.14	0.16

Table B.6. Camp Lake Station SB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	21-Sep-20 Duplicate	7-Oct-20	15-Oct-20
Physical/Chemical (mg/L)																		
pH (pH units)	7.30	6.25	6.28	6.15	6.23	6.29	6.28	6.19	6.86	6.53	6.55	6.64	6.94	6.59	6.48	7.23	6.78	--
Alkalinity (Total as $CaCO_3$)	27	15	15	16	15	21	22	22	22	17	13	15	13	13	14	14	15	--
Bicarbonate (HCO_3)	33	19	18	20	19	26	27	27	27	21	16	18	16	16	17	17	18	--
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Total Hardness ($CaCO_3$)	33.8	70.8	57.9	55.3	53.1	45.6	43.8	43.7	38.1	52.6	58.3	56.8	59.6	59.6	64.5	62.5	60.0	58.9
Hardness ($CaCO_3$)	26	69	61	57	53	46	43	44	41	54	64	59	64	66	61	87	57	59
Turbidity (NTU)	0.77	--	5.8	4.0	3.4	1.2	1.7	1.3	1.2	4.6	6.5	5.1	--	8.0	8.3	7.6	--	--
Total Suspended Solids	<1.0	3.9	3.9	3.6	2.7	2.3	1.0	3.3	1.7	2.1	3.5	4.2	3.4	2.0	2.3	5.4	1.1	--
Total Metals (mg/L)																		
Aluminum (Al)	0.025	0.13	0.11	0.13	0.11	0.056	0.13	0.087	0.063	0.10	0.13	0.098	0.12	0.12	0.14	0.14	0.10	0.16
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00041	0.00029	0.00034	0.00055	0.00042	0.00038	0.00049	0.00050	0.00063	0.00043	0.00064	0.00048	0.00052	0.00052	0.00051	0.00044	0.00048	0.00056
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000061	0.00058	0.00050	0.00069	0.00060	0.00031	0.00059	0.00052	0.00028	0.00054	0.00059	0.00046	0.00052	0.00055	0.00053	0.00059	0.00046	0.00052
Calcium (Ca)	8.9	21	17	16	15	13	12	12	11	15	17	16	17	17	18	18	18	17
Chromium (Cr)	0.0012	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0010	0.00083	0.00087	0.00076	<0.00030	0.00061	0.00034	<0.00030	0.00046	0.00062	0.00049	0.00046	0.00061	0.00058	0.00058	0.00042	0.00039
Copper (Cu)	<0.00020	0.026	0.023	0.033	0.031	0.013	0.027	0.022	0.015	0.027	0.034	0.025	0.028	0.027	0.028	0.028	0.022	0.026
Iron (Fe)	0.20	2.7	3.7	2.9	2.6	0.98	0.71	0.63	0.73	2.8	4.2	3.3	6.1	5.2	5.2	4.8	4.5	6.5
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	0.00022
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.8	4.3	3.8	3.8	3.6	3.3	3.3	3.2	2.9	3.6	4.0	3.8	4.0	3.9	4.5	4.1	4.0	4.0
Manganese (Mn)	0.010	0.11	0.083	0.070	0.060	0.039	0.030	0.023	0.023	0.053	0.060	0.050	0.058	0.049	0.057	0.053	0.047	0.054
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	0.00038	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00083	0.0015	0.0023	0.0012	0.00081	<0.00050	0.0019	0.00056	<0.00050	0.0014	0.0014	0.00083	0.0012	0.0014	0.0013	0.0012	0.0017	0.0014
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.4	2.0	2.0	1.9	1.9	1.6	1.6	1.5	1.4	1.6	1.8	1.7	1.8	1.9	2.0	1.8	1.8	1.8
Selenium (Se)	<0.00020	0.00022	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	0.00020	<0.00020	0.00020	<0.00020
Silicon (Si)	1.4	1.4	1.4	1.3	1.3	1.4	1.2	1.1	1.1	1.2	1.1	1.3	1.5	1.5	1.7	1.6	1.7	1.8
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.8	2.1	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.7	1.8	1.7	1.8	1.8	1.6	1.8	1.9
Strontium (Sr)	0.022	0.028	0.027	0.027	0.024	0.024	0.025	0.024	0.023	0.028	0.029	0.029	0.031	0.025	0.030	0.030	0.031	0.030
Sulphur (S)	1.3	17	14	12	12	8.2	6.8	7.0	4.9	11	14	12	15	15	15	15	13	14
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019	<0.0010
Titanium (Ti)	0.0010	0.0027	0.0022	0.0018	0.0020	0.0019	0.0023	0.0010	<0.0010	0.0019	0.0029	0.0027	0.0035	0.0045	0.0030	0.0033	0.0030	0.0050
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	0.00011	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.030	0.18	0.15	0.18	0.17	0.080	0.17	0.13	0.089	0.15	0.17	0.14	0.16	0.16	0.17	0.17	0.14	0.16

Table B.6. Continued. Camp Lake Station SB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Dissolved Metals (mg/L)																**Duplicate**		
Aluminum (Al)	0.011	0.053	0.056	0.058	0.065	0.065	0.057	0.055	0.049	0.043	0.084	0.064	0.069	0.068	0.079	0.084	0.062	0.10
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00021	0.00032	0.00033	<0.00020	0.00045	0.00040	0.00048	<0.00020	0.00033	0.00041	0.00022	0.00036	0.00044	0.00043	0.00035	0.00036	0.00042	0.00041
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.024	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000060	0.00049	0.00042	0.00048	0.00052	0.00043	0.00033	0.00037	0.00032	0.00042	0.00050	0.00043	0.00043	0.00046	0.00051	0.00050	0.00040	0.00048
Calcium (Ca)	6.4	20	18	16	15	13	12	12	11	15	18	17	18	19	18	19	16	17
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.00088	0.00069	0.00063	0.00069	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00053	0.00030	0.00042	0.00047	0.00052	0.00040	0.00038	0.00039
Copper (Cu)	<0.00020	0.019	0.019	0.021	0.025	0.023	0.018	0.016	0.016	0.023	0.029	0.022	0.021	0.023	0.023	0.023	0.019	0.022
Iron (Fe)	0.13	2.0	2.7	2.2	2.0	0.72	0.48	0.47	0.63	2.2	3.7	2.9	5.9	5.8	4.3	4.4	3.3	5.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00030	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.4	4.5	4.0	3.9	3.6	3.4	3.2	3.2	3.1	3.8	4.3	3.9	4.4	4.4	4.1	4.5	3.8	4.0
Manganese (Mn)	<0.0040	0.11	0.081	0.062	0.055	0.015	<0.0040	<0.0040	0.0099	0.045	0.059	0.043	0.061	0.051	0.051	0.052	0.042	0.052
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00054	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0010	0.00099	0.0010	0.00089	0.00080	0.0012	0.00054	<0.00050	0.00077	0.00099	0.00077	0.0012	0.0013	0.0012	0.0012	0.0010	0.0011
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.4	2.2	2.1	2.0	1.9	1.6	1.5	1.5	1.5	1.8	2.0	1.9	2.2	2.0	1.9	2.0	1.7	1.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.0	1.1	1.1	0.83	1.1	1.4	1.5	1.4	1.5	1.5	1.7
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.7	1.8	1.8	1.8	1.7	1.8	1.7	1.6	1.6	1.8	2.0	1.8	2.1	1.8	1.9	2.1	1.7	1.8
Strontium (Sr)	<0.020	0.029	0.026	0.027	0.025	0.027	0.024	0.024	0.025	0.028	0.032	0.029	0.035	0.029	0.030	0.031	0.029	0.031
Sulphur (S)	1.4	16	14	13	12	8.4	6.8	7.2	4.9	11	14	11	15	15	15	16	12	12
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	0.0011	0.0013
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.024	0.16	0.14	0.14	0.16	0.14	0.12	0.10	0.10	0.14	0.16	0.13	0.13	0.14	0.16	0.17	0.12	0.15

Table B.7. Camp Lake Station SB-2 - Laboratory Data

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	30-Jun-20	6-Jul-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	7-Sep-20	14-Sep-20	21-Sep-20	07-Oct-20
Physical/Chemical (mg/L)				Duplicate				Duplicate		Duplicate							Duplicate			
pH (pH units)	7.06	6.38	6.25	6.02	6.19	6.26	6.31	6.58	6.31	6.98	6.18	6.85	6.55	6.58	6.60	6.92	6.55	6.67	6.52	6.78
Alkalinity (Total as $CaCO_3$)	25	17	14	16	18	16	22	23	23	23	52	23	16	17	17	11	11	21	15	17
Bicarbonate (HCO_3)	31	21	18	19	22	20	27	28	28	28	63	28	19	20	20	14	14	25	18	20
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	33.9	59.1	57.0	57.6	48.6	49.9	39.2	38.5	41.2	41.0	39.4	37.7	58.5	49.4	53.7	59.4	64.6	42.2	57.2	51.7
Hardness ($CaCO_3$)	30	58	61	62	49	50	48	41	40	42	39	<0.50	59	54	55	69	65	47	55	53
Turbidity (NTU)	0.76	--	5.7	5.6	3.6	3.2	1.2	1.5	2.0	2.2	1.4	1.2	5.3	6.0	4.9	--	--	5.3	7.5	--
Total Suspended Solids	<1.0	2.1	3.2	3.0	3.4	1.7	<1.0	1.9	<1.0	1.9	2.8	1.0	3.2	4.7	3.1	3.2	1.3	2.1	3.0	2.5
Total Metals (mg/L)																				
Aluminum (Al)	0.035	0.098	0.10	0.10	0.10	0.11	0.092	0.079	0.10	0.076	0.076	0.066	0.12	0.092	0.096	0.099	0.12	0.079	0.12	0.10
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00068	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00045	0.00026	0.00054	0.00043	0.00043	0.00030	0.00047	0.00028	0.00051	0.00037	0.00032	0.00068	0.00046	0.00050	0.00064	0.00056	0.00073	0.00056	0.00047	0.00052
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.028	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000086	0.00037	0.00052	0.00051	0.00050	0.00058	0.00049	0.00040	0.00049	0.00044	0.00039	0.00031	0.00047	0.00046	0.00046	0.00046	0.00054	0.00043	0.00046	0.00041
Calcium (Ca)	9.0	17	17	16	14	14	11	11	11	11	11	10	17	14	15	17	19	12	16	15
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0058	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.00081	0.00094	0.00084	0.00060	0.00071	0.00049	0.00035	0.00038	0.00037	<0.00030	<0.00030	0.00048	0.00039	0.00040	0.00039	0.00057	0.00031	0.00044	0.00036
Copper (Cu)	0.0014	0.020	0.025	0.025	0.025	0.030	0.022	0.020	0.024	0.020	0.018	0.015	0.025	0.025	0.023	0.023	0.026	0.021	0.024	0.019
Iron (Fe)	0.19	2.1	3.5	3.5	2.2	2.3	0.79	0.75	0.65	0.65	0.51	0.69	3.5	3.3	3.2	6.5	7.2	2.5	4.8	3.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.8	3.7	3.8	4.0	3.4	3.5	2.9	3.0	3.1	3.1	3.0	2.9	3.9	3.4	3.7	4.0	4.4	3.0	4.1	3.5
Manganese (Mn)	0.011	0.080	0.080	0.078	0.055	0.053	0.031	0.028	0.027	0.027	0.020	0.023	0.055	0.052	0.051	0.060	0.066	0.032	0.051	0.040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	<0.00020	<0.00020	0.00027	<0.00020	0.00033	0.0032	0.0035	<0.00020	<0.00020	0.00024
Nickel (Ni)	0.00071	0.0011	0.0018	0.0012	0.00084	0.00092	0.00060	0.0012	0.0011	0.0017	<0.00050	0.00061	0.0019	0.00092	0.00069	0.00094	0.0014	0.00086	0.0014	0.0011
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.4	1.8	2.0	1.9	1.8	1.8	1.5	1.3	1.5	1.5	1.4	1.4	1.7	1.7	1.5	1.7	2.0	1.5	1.9	1.6
Selenium (Se)	0.0016	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00028	<0.00020	0.00043	<0.00020	<0.00020	<0.00020	<0.00020	0.00020
Silicon (Si)	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.3	1.2	1.3	1.1	1.2	1.2	1.1	1.4	1.4	1.5	1.6	1.6	1.6
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.8	2.2	1.7	1.7	1.6	1.7	1.5	1.1	1.6	1.6	1.6	1.5	1.7	1.7	1.7	1.7	2.0	1.6	1.7	1.6
Strontium (Sr)	0.022	0.026	0.026	0.028	0.026	0.024	0.022	0.023	0.024	0.024	0.023	0.023	0.030	0.026	0.029	0.030	0.034	0.021	0.029	0.028
Sulphur (S)	1.3	13	14	14	9.4	10	5.9	5.8	5.8	6.1	5.2	4.6	13	9.6	11	15	17	7.3	13	11
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0074	<0.0010	<0.0010	<0.0010	<0.0010	0.0016
Titanium (Ti)	0.0014	0.0019	0.0011	0.0027	0.0020	0.0018	0.0015	0.0019	0.0019	0.0011	0.0014	0.0025	0.0027	0.0029	0.0037	0.0033	0.0050	0.0037	0.0024	0.0022
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00069	<0.00010	<0.00010	0.00010	<0.00010	0.00012
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.039	0.13	0.16	0.15	0.15	0.17	0.14	0.12	0.13	0.10	0.10	0.088	0.13	0.14	0.13	0.13	0.16	0.13	0.15	0.12

Table B.7. Continued. Camp Lake Station SB-2 - Laboratory Data

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	30-Jun-20	6-Jul-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	7-Sep-20	14-Sep-20	21-Sep-20	07-Oct-20
Dissolved Metals (mg/L)				**Duplicate**				**Duplicate**		**Duplicate**							**Duplicate**			
Aluminum (Al)	0.010	0.047	0.052	0.061	0.052	0.060	0.056	0.047	0.050	0.052	0.042	0.049	0.050	0.055	0.058	0.075	0.068	0.050	0.068	0.060
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	<0.00020	0.00024	0.00029	0.00028	0.00035	0.00027	0.00043	0.00040	0.00041	0.00033	<0.00020	0.00024	0.00041	0.00039	0.00036	0.00061	0.00038	0.00047	0.00039	0.00044
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000046	0.00041	0.00039	0.00045	0.00044	0.00050	0.00034	0.00031	0.00028	0.00036	0.00032	0.00030	0.00037	0.00042	0.00041	0.00046	0.00042	0.00036	0.00043	0.00042
Calcium (Ca)	7.4	17	18	18	14	14	14	11	11	12	11	<0.30	17	15	16	20	19	13	16	15
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.00062	0.00067	0.00070	0.00044	0.00045	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00040	0.00031	0.00043	0.00042	<0.00030	0.00035	0.00033
Copper (Cu)	<0.00020	0.015	0.018	0.020	0.019	0.025	0.019	0.015	0.017	0.017	0.013	0.014	0.021	0.023	0.020	0.022	0.022	0.017	0.021	0.018
Iron (Fe)	0.14	1.6	2.7	2.7	1.6	1.9	0.65	0.60	0.45	0.46	0.36	<0.060	2.8	3.1	2.9	6.8	7.5	2.7	4.0	2.9
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.7	3.9	4.1	4.2	3.5	3.4	3.3	3.1	3.0	3.2	2.9	<0.20	4.0	3.7	3.7	4.7	4.5	3.3	3.8	3.6
Manganese (Mn)	<0.0040	0.075	0.082	0.080	0.045	0.047	0.010	0.0081	<0.0040	0.016	<0.0040	<0.0040	0.046	0.051	0.045	0.067	0.061	0.031	0.046	0.039
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0021	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.00093	0.0013	0.0011	0.00070	0.00072	0.00084	0.00051	0.0010	0.0011	<0.00050	<0.00050	0.00074	0.00078	0.00061	0.0011	0.00068	0.00083	0.00094	0.00090
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.4	2.0	2.1	2.2	1.9	1.8	1.5	1.6	1.5	1.5	1.4	<0.30	1.9	1.8	1.8	2.4	2.1	1.6	1.8	1.5
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00052	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.4	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.1	1.0	1.0	<0.10	1.0	0.93	1.2	1.4	1.5	1.6	1.4	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.7	1.7	1.8	1.9	1.7	1.7	1.6	1.6	1.6	1.7	1.6	<0.50	1.8	1.8	1.8	2.3	1.9	1.7	1.8	1.7
Strontium (Sr)	0.021	0.026	0.026	0.028	0.026	0.024	0.024	0.022	0.024	0.025	0.023	<0.020	0.029	0.030	0.027	0.037	0.031	0.023	0.029	0.028
Sulphur (S)	1.5	12	14	13	9.4	10	6.5	5.9	6.1	5.5	5.4	<0.20	13	9.3	10	15	16	7.2	13	11
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0032	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	0.0013	0.0012	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.023	0.12	0.13	0.14	0.13	0.16	0.12	0.11	0.096	0.11	0.080	0.090	0.12	0.13	0.12	0.14	0.12	0.11	0.14	0.12

Table B.8. Camp Lake Station EB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Physical/Chemical (mg/L)																	
pH (pH units)	7.25	6.23	6.07	5.92	6.04	6.13	6.16	6.01	6.68	6.40	6.39	6.51	6.78	6.43	6.34	6.57	--
Alkalinity (Total as $CaCO_3$)	31	8.7	7.6	6.9	7.7	10	11	13	13	11	9.4	9.1	7.9	8.3	8.9	8.0	--
Bicarbonate (HCO_3)	37	11	9.3	8.5	9.3	13	14	16	16	14	11	11	9.6	10	11	9.8	--
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	--
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	--
Total Hardness ($CaCO_3$)	42.5	111	108	108	95.1	85	84.3	83.7	75.2	92.5	97.1	101	104	105	107	110	115
Hardness ($CaCO_3$)	49	100	110	110	96	89	81	80	75	97	100	100	110	120	110	110	120
Turbidity (NTU)	1.7	--	12	9.1	8.0	3.4	4.9	3.7	2.9	6.6	7.5	6.0	--	8.0	9.1	--	--
Total Suspended Solids	1.4	4.8	12	9.2	5.6	2.0	2.4	4.5	3.0	5.5	5.4	4.4	3.7	3.7	4.5	4.9	--
Total Metals (mg/L)																	
Aluminum (Al)	0.027	0.38	0.44	0.53	0.46	0.41	0.48	0.37	0.26	0.48	0.46	0.41	0.36	0.37	0.40	0.34	0.71
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00066	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00069	<0.00060
Arsenic (As)	0.00060	0.00049	0.00043	0.00042	0.00049	0.00037	0.00040	0.00031	0.00066	0.00053	0.00039	0.00043	0.00044	0.00042	0.00053	0.00049	0.00048
Barium (Ba)	0.010	<0.010	0.010	0.011	<0.010	<0.010	0.010	0.010	<0.010	0.011	0.012	0.011	0.011	0.010	0.012	0.012	0.013
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00017	0.0020	0.0022	0.0022	0.0018	0.0019	0.0024	0.0019	0.0012	0.0019	0.0018	0.0017	0.0016	0.0016	0.0014	0.0014	0.0027
Calcium (Ca)	11	34	33	32	28	25	25	24	22	28	29	30	32	32	32	34	35
Chromium (Cr)	<0.0010	<0.0010	0.0023	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0044	0.0048	0.0052	0.0037	0.0037	0.0042	0.0036	0.0021	0.0037	0.0030	0.0026	0.0023	0.0024	0.0023	0.0018	0.0034
Copper (Cu)	0.0042	0.069	0.078	0.073	0.067	0.055	0.067	0.055	0.039	0.066	0.067	0.055	0.052	0.056	0.050	0.039	0.17
Iron (Fe)	0.22	3.9	3.9	3.6	3.2	1.9	1.4	1.2	1.4	2.2	2.6	2.8	3.2	3.5	4.3	4.0	4.6
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00081	0.00037	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	0.00037
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.4	6.3	6.5	6.5	5.9	5.5	5.6	5.5	4.9	5.6	5.7	6.0	6.1	6.1	6.6	6.3	6.9
Manganese (Mn)	0.012	0.30	0.31	0.27	0.20	0.16	0.14	0.12	0.089	0.10	0.11	0.10	0.091	0.090	0.10	0.091	0.13
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00078	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00073	0.0037	0.0057	0.0046	0.0037	0.0034	0.0042	0.0032	0.0028	0.0051	0.016	0.0034	0.0034	0.0038	0.0039	0.0052	0.0049
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.7	2.6	2.9	2.8	2.6	2.3	2.4	2.3	2.2	2.3	2.6	2.5	2.5	2.7	2.8	2.6	2.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	0.00029	0.00022	0.00021
Silicon (Si)	1.6	1.6	1.8	1.7	1.6	1.7	1.6	1.6	1.4	1.5	1.4	1.5	1.5	1.4	1.9	1.7	2.1
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	0.00017	<0.00010	<0.00010
Sodium (Na)	2.2	2.5	2.3	2.2	2.2	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.5
Strontium (Sr)	0.026	0.039	0.038	0.041	0.035	0.034	0.036	0.036	0.033	0.041	0.039	0.043	0.044	0.037	0.042	0.045	0.045
Sulphur (S)	3.1	32	34	33	29	25	23	23	19	26	27	30	31	32	31	32	35
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0041	<0.0010
Titanium (Ti)	0.0012	0.0037	0.0065	0.0062	0.0057	0.0029	0.0087	0.0070	0.0037	0.0076	0.0082	0.0040	0.0063	0.0065	0.015	0.0092	0.021
Uranium (U)	<0.00010	0.00014	0.00011	0.00014	0.00012	0.00012	0.00015	0.00018	0.00011	0.00079	0.00015	0.00020	0.00014	0.00021	0.00016	0.00027	0.00024
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.082	0.58	0.59	0.57	0.48	0.48	0.60	0.45	0.31	0.43	0.46	0.43	0.40	0.43	0.39	0.37	0.73

Table B.8. Continued. Camp Lake Station EB-1 - Laboratory Data

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Dissolved Metals (mg/L)																	
Aluminum (Al)	0.0077	0.083	0.42	0.12	0.13	0.14	0.13	0.15	0.15	0.19	0.19	0.18	0.17	0.17	0.15	0.12	0.19
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00064	<0.00060
Arsenic (As)	0.00036	0.00032	0.00023	<0.00020	0.00022	0.00023	0.00020	0.00034	0.00032	0.00036	<0.00020	0.00028	0.00020	0.00034	0.00029	0.00029	0.00031
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	0.011	0.010	0.012	<0.010	0.011	0.010	0.011
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00011	0.0018	0.0021	0.0019	0.0017	0.0016	0.0015	0.0014	0.0012	0.0015	0.0017	0.0015	0.0015	0.0014	0.0014	0.0012	0.0027
Calcium (Ca)	13	31	33	33	29	26	24	24	22	29	31	31	34	35	32	33	36
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.0041	0.0045	0.0042	0.0037	0.0035	0.0031	0.0027	0.0019	0.0027	0.0029	0.0023	0.0023	0.0023	0.002	0.0017	0.0033
Copper (Cu)	0.0011	0.033	0.083	0.036	0.044	0.040	0.036	0.037	0.036	0.055	0.053	0.042	0.042	0.041	0.037	0.029	0.12
Iron (Fe)	0.11	1.8	3.8	1.1	1.6	1.1	0.79	0.67	0.97	1.5	1.6	1.9	2.4	2.6	2.9	2.3	2.3
Lead (Pb)	<0.00020	<0.00020	0.00035	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.0	6.2	6.5	6.8	5.9	5.8	5.3	5.2	4.9	6.0	6.1	6.2	6.7	6.8	6.6	6.1	7.1
Manganese (Mn)	0.0058	0.31	0.30	0.27	0.20	0.16	0.12	0.10	0.075	0.097	0.11	0.10	0.096	0.097	0.097	0.086	0.13
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.0031	0.0036	0.0038	0.0031	0.0033	0.0027	0.0027	0.0021	0.0038	0.0037	0.0030	0.0033	0.0034	0.0034	0.0030	0.0041
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.7	2.8	3.0	2.6	2.4	2.2	2.2	2.2	2.4	2.7	2.7	2.9	2.7	2.9	2.6	2.9
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020
Silicon (Si)	1.5	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.3	1.0	1.2	1.3	1.3	1.4	1.4	1.6
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.1	2.1	2.3	2.4	2.2	2.1	2.0	2.1	2.0	2.3	2.4	2.4	2.6	2.3	2.3	2.3	2.5
Strontium (Sr)	0.031	0.037	0.037	0.041	0.036	0.038	0.035	0.034	0.034	0.040	0.044	0.041	0.048	0.041	0.044	0.043	0.047
Sulphur (S)	3.2	33	34	34	29	27	23	22	19	28	26	28	31	33	30	31	31
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0029	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00011	0.00011	0.00012	0.00015	0.00010	0.00014	0.00012	0.00019	0.00015
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.050	0.48	0.61	0.50	0.48	0.45	0.39	0.33	0.31	0.42	0.42	0.37	0.38	0.38	0.36	0.33	0.75

Table B.9. Camp Lake Station EB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	3-Mar-20	2-Jun-20	2-Jun-20	9-Jun-20	15-Jun-20	15-Jun-30	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	14-Sep-20	21-Sep-20	07-Oct-20
Physical/Chemical (mg/L)		**Duplicate**		**Duplicate**			**Duplicate**											**Duplicate**		
pH (pH units)	7.43	7.39	6.10	6.15	6.06	5.98	6.84	6.04	6.11	6.11	6.04	6.61	6.43	6.28	6.46	6.84	6.53	6.04	6.32	6.63
Alkalinity (Total as $CaCO_3$)	31	38	6.9	7.1	7.2	6.7	6.3	6.3	10	12	12	11	11	9.2	8.6	8.2	8.0	8.1	7.9	7.9
Bicarbonate (HCO_3)	38	47	8.4	8.6	8.8	8.1	7.7	7.7	13	14	14	13	14	11	10	10	9.8	9.8	9.7	9.7
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	48.5	47.3	121	121	110	112	--	107	87.0	81.9	86.0	89.5	98.1	101	109	108	114	112	108	115
Hardness ($CaCO_3$)	42	41	120	110	120	110	--	110	90	82	88	92	100	110	110	120	120	130	110	110
Turbidity (NTU)	1.4	2.5	--	--	13	8.8	8.9	9.0	3.4	4.4	3.6	3.4	7.5	8.5	5.9	--	9.8	9.0	9.5	--
Total Suspended Solids	1.2	1.6	5.8	5.9	10	9.0	8.5	6.6	3.6	2.1	4.4	3.9	6.9	5.6	4.9	5.6	5.5	5.4	7.5	5.9
Total Metals (mg/L)																				
Aluminum (Al)	0.023	0.030	0.42	0.39	0.47	0.51	0.49	0.61	0.43	0.43	0.37	0.33	0.56	0.49	0.39	0.45	0.44	0.47	0.43	0.38
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00065	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00064	<0.00060
Arsenic (As)	0.00046	0.00054	0.00030	0.00031	0.00034	0.00041	0.00024	0.00024	0.00047	0.00042	0.00046	0.00052	0.00057	0.00041	0.00037	0.00041	0.00051	0.00045	0.00051	0.00044
Barium (Ba)	0.010	0.010	<0.010	<0.010	<0.010	0.011	<0.010	0.010	<0.010	<0.010	0.015	0.010	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.013
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00016	0.00017	0.0023	0.0024	0.0020	0.0022	0.0021	0.0022	0.0019	0.0022	0.0018	0.0015	0.0023	0.0019	0.0017	0.0018	0.0018	0.0018	0.0017	0.0015
Calcium (Ca)	13	13	37	37	33	34	30	32	26	24	25	26	30	31	33	33	35	34	32	35
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	0.0021	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0029	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.029	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.0054	0.0051	0.0051	0.0051	0.0049	0.0053	0.0041	0.0042	0.0035	0.0035	0.0033	0.0033	0.0029	0.0026	0.0031	0.0036	0.0024	0.0020
Copper (Cu)	0.0040	0.0039	0.068	0.068	0.062	0.066	0.065	0.065	0.057	0.057	0.049	0.049	0.048	0.055	0.055	0.052	0.053	0.052	0.053	0.042
Iron (Fe)	0.22	0.21	4.2	4.1	4.2	3.5	3.3	3.3	2.0	1.4	1.2	1.4	2.2	2.5	2.8	3.1	3.5	3.6	4.0	3.9
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	0.00023	<0.00020	0.00024	0.00027	0.00022	<0.00020	0.00023
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.7	3.7	6.8	6.7	6.5	6.7	6.5	6.5	5.6	5.4	5.6	5.7	5.8	5.8	6.4	6.2	6.6	6.5	6.6	6.4
Manganese (Mn)	0.013	0.012	0.38	0.37	0.32	0.29	0.26	0.24	0.16	0.14	0.14	0.12	0.11	0.12	0.11	0.10	0.11	0.12	0.10	0.099
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00036	<0.00020	0.00039
Nickel (Ni)	0.00058	0.00069	0.0037	0.0039	0.0053	0.0045	0.0038	0.0043	0.0034	0.0041	0.0033	0.0036	0.0097	0.0047	0.0039	0.0043	0.0047	0.036	0.0039	0.0036
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	1.9	2.8	2.8	2.9	2.9	2.4	2.8	2.4	2.3	2.4	2.4	2.4	2.6	2.6	2.6	2.9	3.1	2.8	2.8
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00032	<0.00020	<0.00020	<0.00020	0.00022	0.00030	0.00025	<0.00020
Silicon (Si)	1.8	1.7	1.6	1.6	1.7	1.7	1.5	1.8	1.7	1.5	1.6	1.5	1.8	1.7	1.6	1.6	1.7	1.8	1.7	1.7
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.3	2.3	2.6	2.7	2.3	2.2	2.3	2.3	2.0	2.0	2.2	2.1	2.2	2.3	2.4	2.3	2.5	2.7	2.2	2.4
Strontium (Sr)	0.029	0.028	0.042	0.042	0.040	0.042	0.040	0.038	0.035	0.035	0.040	0.037	0.044	0.041	0.045	0.045	0.040	0.045	0.043	0.047
Sulphur (S)	4.5	4.4	37	37	35	34	33	33	26	22	24	25	28	28	32	32	35	34	32	34
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	0.0016
Titanium (Ti)	0.0011	<0.0010	0.0040	0.0028	0.0035	0.0059	0.0042	0.0075	0.0031	0.0040	0.0036	0.0033	0.011	0.012	0.0042	0.0082	0.013	0.013	0.011	0.0094
Uranium (U)	<0.00010	<0.00010	0.00011	0.00012	0.00012	0.00012	0.00012	0.00015	0.00012	0.00016	0.00016	0.00014	0.00018	0.00016	0.00021	0.00014	0.0003	0.00019	0.00016	0.00019
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.073	0.074	0.63	0.62	0.55	0.55	0.54	0.58	0.52	0.55	0.43	0.41	0.43	0.45	0.43	0.44	0.47	0.46	0.44	0.39

Table B.9. Continued. Camp Lake Station EB-2 - Laboratory Data

Parameter/Sample Date	3-Mar-20	3-Mar-20	2-Jun-20	2-Jun-20	9-Jun-20	15-Jun-20	15-Jun-30	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	14-Sep-20	21-Sep-20	07-Oct-20
Dissolved Metals (mg/L)		**Duplicate**		**Duplicate**			**Duplicate**											**Duplicate**		
Aluminum (Al)	0.011	0.012	0.070	0.21	0.14	0.099	0.11	0.16	0.13	0.14	0.14	0.17	0.18	0.16	0.17	0.16	0.17	0.18	0.15	0.12
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00030	0.00038	0.00025	0.00023	<0.00020	0.00021	0.00036	0.00028	0.00031	0.00027	0.00026	0.00034	0.00035	0.00026	0.00035	0.00040	0.00035	0.00038	0.00030	0.00040
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	0.011	0.012	0.011	0.012	0.011	0.012	0.010	0.011
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.023	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00015	0.00015	0.0019	0.0021	0.0018	0.0020	0.0020	0.0019	0.0015	0.0016	0.0016	0.0015	0.0014	0.0017	0.0016	0.0016	0.0016	0.0015	0.0014	0.0013
Calcium (Ca)	11	11	36	34	35	34	34	32	26	24	26	27	31	32	34	36	36	39	32	35
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.0049	0.0052	0.0048	0.0048	0.0048	0.0045	0.0034	0.0031	0.0032	0.0032	0.0030	0.0033	0.0028	0.0024	0.0028	0.0027	0.0022	0.0019
Copper (Cu)	0.0025	0.0031	0.045	0.060	0.035	0.032	0.035	0.038	0.035	0.035	0.036	0.039	0.036	0.040	0.042	0.036	0.038	0.038	0.036	0.029
Iron (Fe)	0.12	0.12	1.5	1.1	1.3	1.0	1.2	1.1	1.1	0.69	0.79	1.0	1.4	1.6	1.9	2.4	2.2	2.3	2.6	2.2
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.6	3.5	7.0	6.7	6.9	6.9	6.7	6.4	5.8	5.4	5.6	5.8	6.1	6.2	6.4	7.0	7.0	7.2	6.3	6.3
Manganese (Mn)	0.0063	0.0060	0.39	0.38	0.32	0.28	0.28	0.23	0.16	0.13	0.13	0.12	0.10	0.13	0.11	0.11	0.11	0.12	0.097	0.095
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.00059	0.0036	0.0036	0.0036	0.0038	0.0039	0.0041	0.0034	0.0033	0.0033	0.0032	0.0040	0.0040	0.0036	0.0037	0.0039	0.0038	0.0035	0.0034
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.0	2.0	3.0	2.8	3.1	3.0	2.9	2.8	2.5	2.3	2.3	2.5	2.5	2.7	2.8	3.2	3.0	3.1	2.7	2.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.7	1.7	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.1	1.2	1.4	1.4	1.5	1.3	1.4
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.3	2.2	2.4	2.3	2.4	2.4	2.4	2.6	2.1	2.1	2.2	2.2	2.4	2.4	2.5	2.8	2.6	2.9	2.5	2.3
Strontium (Sr)	0.027	0.026	0.042	0.040	0.040	0.041	0.039	0.039	0.052	0.035	0.037	0.039	0.042	0.045	0.043	0.051	0.042	0.048	0.043	0.045
Sulphur (S)	4.8	4.8	36	38	35	35	33	33	27	24	25	24	30	28	29	33	34	33	32	33
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0023
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.0015	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00012	0.00012	0.00011	0.00010	0.00014	<0.00010	0.00016	0.00013	<0.00010	0.00016
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.063	0.065	0.54	0.62	0.54	0.51	0.52	0.53	0.46	0.41	0.40	0.38	0.38	0.40	0.39	0.38	0.41	0.40	0.38	0.35

Table B.10. Camp Lake Station SC-1 - Laboratory Data

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Physical/Chemical (mg/L)																		
pH (pH units)	7.25	6.43	6.39	--	6.31	6.37	6.20	6.20	6.92	7.08	6.69	6.70	6.77	7.22	7.00	6.68	6.97	--
Alkalinity (Total as $CaCO_3$)	27	23	24	--	23	25	25	24	25	23	23	23	22	24	24	24	24	--
Bicarbonate (HCO_3)	33	28	30	--	28	30	30	29	30	28	28	28	27	29	29	29	29	--
Carbonate (CO_3)	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Hydroxide (OH)	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
Total Hardness ($CaCO_3$)	32.7	28.0	29.0	31.2	30.0	28.1	30.1	28.2	28.6	28.1	29.6	27.1	28.4	29.9	27.9	30.4	28.7	30.9
Hardness ($CaCO_3$)	27	28	31	30	29	27	30	29	30	28	30	29	28	33	30	29	29	32
Turbidity (NTU)	0.79	--	1.2	--	1.0	0.83	1.2	0.82	0.57	0.5	1.3	1.9	1.0	--	1.1	2.1	--	--
Total Suspended Solids	<1.0	2.6	3.3	--	1.4	1.3	1.0	1.5	1.2	2.3	1.3	1.1	1.9	2.1	1.8	1.7	1.0	--
Total Metals (mg/L)																		
Aluminum (Al)	0.027	0.064	0.068	0.067	0.068	0.074	0.082	0.065	0.052	0.045	0.061	0.046	0.037	0.044	0.066	0.055	0.066	0.072
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00065	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00073	<0.00060	<0.00060
Arsenic (As)	0.00047	0.00046	0.00030	0.00045	0.00051	0.00047	0.00054	0.00036	0.00058	0.00068	0.00055	0.00051	0.00050	0.00058	0.00049	0.00054	0.00049	0.00045
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000080	0.00012	0.00042	0.00028	0.00033	0.00022	0.00020	0.00024	0.00017	0.00020	0.00041	0.00020	0.00021	0.00040	0.00036	0.00049	0.00024	0.00031
Calcium (Ca)	8.6	7.6	7.7	8.2	8.0	7.4	7.9	7.4	7.5	7.3	7.8	7.2	7.5	8.0	7.5	7.9	7.7	8.2
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0024	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00053	0.0067	0.016	0.011	0.014	0.011	0.010	0.0089	0.011	0.0081	0.017	0.015	0.0088	0.018	0.015	0.019	0.0096	0.013
Iron (Fe)	0.14	0.24	0.40	0.19	0.22	0.37	0.22	0.21	0.23	0.19	0.25	0.23	0.24	0.28	0.24	0.24	0.27	0.26
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.7	2.2	2.4	2.6	2.4	2.4	2.5	2.3	2.4	2.4	2.4	2.2	2.4	2.4	2.2	2.6	2.3	2.5
Manganese (Mn)	0.010	0.014	0.022	0.014	0.014	0.013	0.014	0.015	0.019	0.016	0.030	0.025	0.025	0.027	0.019	0.022	0.017	0.015
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020
Nickel (Ni)	0.00066	0.00073	0.0034	0.00051	0.00051	0.00057	0.0012	<0.00050	0.00061	<0.00050	0.00079	0.00068	<0.00050	0.0010	0.0010	0.0050	0.00086	0.00070
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	0.32	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.3	1.3	1.4	1.5	1.4	1.2	1.3	1.2	1.2	1.1	1.1	1.1	1.0	0.98	1.1	1.2	1.0	1.1
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	0.019	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	<0.00020
Silicon (Si)	1.4	1.4	1.6	1.5	1.4	1.3	1.3	1.2	1.3	1.2	1.5	1.2	1.6	1.8	1.6	1.8	1.7	1.8
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.7	1.8	1.6	1.7	5.0	1.4	1.6	1.5	1.5	1.4	1.4	1.3	1.4	1.5	1.4	1.4	1.4	1.6
Strontium (Sr)	0.022	<0.020	<0.020	0.021	<0.020	<0.020	0.021	0.021	0.020	0.021	0.022	<0.020	0.021	0.022	<0.020	0.021	0.021	0.022
Sulphur (S)	1.2	1.2	1.7	1.4	2.3	1.3	1.2	1.2	1.2	1.1	1.6	1.2	1.1	1.6	1.2	1.5	1.2	1.3
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0040	<0.0010
Titanium (Ti)	0.0016	0.0020	0.0029	0.0032	0.0025	0.0030	0.0019	0.0014	0.0012	0.0016	0.0019	<0.0010	0.0019	0.0011	0.0021	0.0019	0.0036	0.0023
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	0.00031	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.037	0.038	0.13	0.070	0.098	0.089	0.064	0.062	0.056	0.047	0.13	0.11	0.063	0.15	0.11	0.16	0.069	0.087

Table B.10. Continued. Camp Lake Station SC-1 - Laboratory Data

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20	15-Oct-20
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.0090	0.031	0.038	0.033	0.037	0.042	0.037	0.034	0.035	0.032	0.018	0.028	0.020	0.028	0.032	0.035	0.028	0.037
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.0013	<0.00060	<0.00060
Arsenic (As)	0.00024	0.00028	0.00039	0.00030	0.00041	0.00039	0.00029	0.00023	0.00057	0.00036	0.00046	0.00042	0.00041	0.00043	0.00041	0.00039	0.00042	0.00041
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000058	0.000093	0.00039	0.00023	0.00028	0.00017	0.00015	0.00020	0.00020	0.00013	0.00031	0.00017	0.00017	0.00038	0.00029	0.00042	0.00018	0.00024
Calcium (Ca)	6.8	7.5	8.2	7.9	7.7	7.1	8.1	7.6	7.8	7.2	7.9	7.7	7.5	8.6	8.0	7.6	7.7	8.4
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	0.0052	0.014	0.0090	0.011	0.0085	0.0070	0.0074	0.0086	0.0067	0.015	0.014	0.0084	0.016	0.013	0.017	0.0085	0.010
Iron (Fe)	0.11	0.16	0.16	0.20	0.15	0.13	0.15	0.15	0.17	0.15	0.16	0.16	0.15	0.20	0.14	0.13	0.15	0.16
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	2.6	2.4	2.5	2.5	2.3	2.3	2.5	2.4	2.5	2.3	2.5	2.4	2.3	2.7	2.4	2.4	2.3	2.6
Manganese (Mn)	<0.0040	<0.0040	0.011	0.013	0.0050	0.0052	0.0043	0.0071	0.0095	0.012	0.015	0.0086	0.0078	0.017	0.0064	0.011	0.0052	0.0063
Molybdenum (Mo)	<0.00020	<0.00020	0.00045	<0.00020	0.00078	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0003	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	<0.00050	0.00076	<0.00050	<0.00050	<0.00050	0.00061	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	<0.00050	0.00065	0.00059	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.4	1.4	1.5	1.4	1.3	1.2	1.3	1.2	1.3	0.95	1.1	1.2	1.2	1.4	1.2	1.2	0.93	1.2
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.3	1.3	1.4	1.4	1.2	1.2	1.3	1.1	1.2	1.1	1.4	1.1	1.3	1.8	1.6	1.6	1.6	1.6
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010
Sodium (Na)	1.7	1.5	1.6	1.6	1.5	1.5	1.7	1.5	1.6	1.4	1.6	1.5	1.4	1.8	1.5	1.5	1.4	1.5
Strontium (Sr)	<0.020	<0.020	<0.020	0.021	<0.020	<0.020	0.022	0.020	0.022	0.020	0.021	0.022	<0.020	0.025	<0.020	0.021	0.021	0.023
Sulphur (S)	1.3	1.0	1.8	1.5	1.4	1.4	1.4	1.2	1.2	1.1	1.5	1.2	1.0	1.6	1.2	1.5	1.2	1.2
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.024	0.032	0.13	0.068	0.090	0.064	0.042	0.055	0.061	0.044	0.12	0.11	0.056	0.13	0.097	0.15	0.061	0.087

Table B.11. Camp Lake Station CL2 - Laboratory Data

Sample Date	4-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**
Physical/Chemical (mg/L)														
pH (pH units)	6.83	6.70	6.26	6.45	6.32	6.35	6.17	6.82	6.71	6.59	6.77	6.71	7.03	7.02
Alkalinity (Total as $CaCO_3$)	34	24	22	25	18	22	22	22	23	23	22	23	23	22
Bicarbonate (HCO_3)	41	29	27	30	22	27	27	26	29	28	27	27	28	27
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	74.4	84.8	64.1	63.7	61.6	57.2	52.9	53.8	45.6	48.6	--	--	53.3	51.6
Hardness ($CaCO_3$)	63	81	63	62	57	53	49	47	46	49	54	53	51	51
Turbidity (NTU)	1.1	1.5	--	--	--	--	1.0	2.1	1.1	2.0	--	--	--	--
Total Suspended Solids	2.4	<1.0	2.0	3.1	2.9	3.5	1.6	2.3	<1.0	1.7	1.7	2.7	2.1	2.4
Total Metals (mg/L)														
Aluminum (Al)	0.033	0.017	0.099	0.086	0.084	0.11	0.091	0.071	0.081	0.084	0.091	0.081	0.087	0.088
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00099	0.00084	0.00045	0.00044	0.00031	0.00037	0.00036	0.00039	0.00045	0.00048	0.00062	0.00080	0.00042	0.00040
Barium (Ba)	0.014	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000092	0.000059	0.00029	0.00028	0.00023	0.00016	0.00027	0.00017	0.00016	0.00015	0.00023	0.00021	0.00021	0.00019
Calcium (Ca)	22	26	19	19	18	17	15	16	13	14	16	15	16	15
Chromium (Cr)	0.0012	<0.0010	0.0020	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00051	0.00045	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.011	0.007	0.016	0.016	0.015	0.010	0.015	0.010	0.012	0.011	0.013	0.013	0.015	0.014
Iron (Fe)	0.12	0.18	0.90	0.91	1.2	1.1	0.63	0.86	0.50	0.76	1.0	0.98	1.7	1.6
Lead (Pb)	0.0066	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	5.0	5.0	4.0	3.9	4.0	3.7	3.6	3.6	3.2	3.3	3.6	3.5	3.5	3.4
Manganese (Mn)	0.0052	<0.0040	0.073	0.078	0.054	0.062	0.013	0.022	0.012	0.036	0.034	0.033	0.029	0.029
Molybdenum (Mo)	0.00029	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	0.00036	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.0017	0.0019	0.0022	0.0022	0.00064	0.00066	0.0010	0.00083	0.00087	0.00079	0.00095	0.00093	0.0026	0.00068
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.5	2.6	2.1	2.1	2.1	2.0	1.8	1.8	1.6	1.7	1.7	1.7	1.4	1.4
Selenium (Se)	0.00029	0.00028	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.80	0.92	1.2	1.3	1.2	1.3	1.2	1.2	1.1	1.3	1.4	1.3	1.4	1.4
Silver (Ag)	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	3.2	2.8	2.0	2.1	2.0	2.0	1.8	1.9	1.7	1.8	2.1	2.0	1.5	1.5
Strontium (Sr)	0.040	0.038	0.030	0.031	0.029	0.028	0.028	0.028	0.027	0.028	0.032	0.031	0.029	0.029
Sulphur (S)	13	19	13	13	13	11	9.5	10	7.5	8.5	9.5	9.1	9.4	9.1
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0019	0.0020	0.0017	0.0020	<0.0010	0.0018	0.0027	0.0017	0.0030	0.0017	0.0022	0.0024
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.13	0.027	0.11	0.099	0.082	0.061	0.080	0.057	0.055	0.057	0.063	0.062	0.064	0.060

Table B.11. Continued. Camp Lake Station CL2 - Laboratory Data

Sample Date	4-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**	**CL2 (sfc)**	**CL2 (btm)**
Dissolved Metals (mg/L)														
Aluminum (Al)	0.0037	0.0031	0.050	0.050	0.048	0.050	0.050	0.059	0.055	0.046	0.047	0.040	0.052	0.051
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00032	0.00028	0.00043	0.00038	0.00045	0.00046	0.00032	0.00034	0.00045	0.00045	0.00039	0.00041	0.00055	0.00041
Barium (Ba)	<0.010	0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000035	0.000038	0.00025	0.00026	0.00021	0.00014	0.00022	0.00012	0.00018	0.00015	0.00012	0.00014	0.00015	0.00015
Calcium (Ca)	18	25	19	18	17	16	14	13	13	14	16	15	15	15
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00073	0.00075	0.012	0.012	0.017	0.015	0.013	0.0091	0.011	0.010	0.012	0.013	0.013	0.013
Iron (Fe)	<0.060	0.069	0.57	0.56	0.65	0.49	0.43	0.49	0.35	0.49	1.1	1.2	1.3	1.2
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.3	4.7	3.9	3.9	3.6	3.4	3.2	3.3	3.1	3.2	3.7	3.7	3.5	3.5
Manganese (Mn)	<0.0040	<0.0040	0.063	0.068	0.019	0.028	<0.0040	<0.0040	<0.0040	0.018	0.0080	0.0087	0.0057	0.0093
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00035	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00054	<0.00050	<0.00050	0.00056	<0.00050	0.00064	0.00075	0.0012	0.00078	0.00096	<0.00050	<0.00050	0.00055	0.00084
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.3	2.3	2.1	2.1	1.9	1.9	1.7	1.6	1.5	1.7	1.8	1.8	1.7	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.64	0.77	1.1	1.2	1.1	1.1	1.0	0.99	0.94	1.1	1.3	1.3	1.3	1.3
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.9	2.5	2.0	2.1	1.9	1.9	1.8	1.7	1.8	1.8	2.0	1.9	1.9	2.0
Strontium (Sr)	0.038	0.039	0.030	0.030	0.028	0.027	0.027	0.025	0.028	0.029	0.029	0.029	0.028	0.028
Sulphur (S)	12	18	12	12	12	10	8.9	8.1	7.7	8.6	8.7	9.0	9.4	9.4
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00011	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.017	0.019	0.092	0.085	0.074	0.061	0.069	0.049	0.056	0.059	0.053	0.049	0.058	0.060

Table B.12. Camp Lake Station CL4 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**
Physical/Chemical (mg/L)														
pH (pH units)	6.76	6.60	6.25	6.26	6.36	7.22	6.89	6.77	6.66	6.65	6.77	6.87	7.00	7.00
Alkalinity (Total as $CaCO_3$)	29	24	21	26	21	21	22	22	22	23	23	24	23	23
Bicarbonate (HCO_3)	36	30	25	32	25	26	26	27	27	28	28	30	29	28
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	56.3	90.1	64.4	58.8	59.7	50.8	47.4	53.1	44.7	44.0	--	--	48.9	49.3
Hardness ($CaCO_3$)	52	85	64	59	55	47	45	50	45	43	53	52	49	49
Turbidity (NTU)	1.0	13	--	--	--	--	1.1	5.6	0.96	1.1	--	--	--	--
Total Suspended Solids	<1.0	<1.0	2.1	1.3	3.9	6.2	1.9	3.1	<1.0	1.1	2.3	4.1	1.7	2.1
Total Metals (mg/L)														
Aluminum (Al)	0.030	0.043	0.10	0.092	0.092	0.13	0.15	0.18	0.073	0.10	0.078	0.081	0.097	0.096
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00083	0.00096	0.00039	0.00038	0.00026	0.00051	0.00045	0.00038	0.00050	0.00050	0.00060	0.00064	0.00043	0.00039
Barium (Ba)	0.012	0.012	<0.010	<0.010	<0.010	0.011	<0.010	0.011	<0.010	0.010	0.011	0.011	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000059	0.000077	0.00038	0.00025	0.00025	0.000092	0.00022	0.00015	0.00018	0.00012	0.00020	0.00023	0.00017	0.00016
Calcium (Ca)	16	27	19	18	17	15	14	15	13	12	15	15	14	14
Chromium (Cr)	<0.0010	<0.0010	0.0014	0.0015	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	0.0020
Cobalt (Co)	<0.00030	0.00038	0.00065	0.00041	0.00031	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00033	<0.00030	<0.00030
Copper (Cu)	0.0055	0.010	0.019	0.015	0.014	0.0085	0.013	0.010	0.013	0.0090	0.014	0.012	0.013	0.015
Iron (Fe)	0.13	1.8	1.2	0.95	1.2	1.5	0.52	1.3	0.50	0.46	1.2	1.6	1.4	1.4
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.0	5.4	4.0	3.7	3.9	3.5	3.3	3.5	3.1	3.1	3.6	3.6	3.2	3.3
Manganese (Mn)	0.010	0.18	0.079	0.076	0.050	0.062	0.013	0.051	0.012	0.025	0.058	0.11	0.023	0.024
Molybdenum (Mo)	0.00025	0.00027	<0.00020	<0.00020	0.00049	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.001	0.0009	0.0014	0.0024	0.0010	0.00054	0.0011	0.0041	0.00087	0.00085	0.0010	0.00098	0.00080	0.0023
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.0	2.7	2.1	2.0	2.0	1.8	1.7	1.8	1.5	1.5	1.7	1.7	1.3	1.3
Selenium (Se)	<0.00020	0.00036	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.9	1.5	1.2	1.2	1.2	1.2	1.1	1.3	1.0	1.1	1.4	1.4	1.4	1.4
Silver (Ag)	<0.00010	0.00023	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.7	2.7	2.0	2.0	2.0	2.0	1.8	2.0	1.7	1.8	2.1	2.1	1.4	1.4
Strontium (Sr)	0.033	0.039	0.030	0.029	0.029	0.027	0.031	0.036	0.026	0.029	0.032	0.032	0.028	0.028
Sulphur (S)	7.9	22	14	12	12	8.5	7.6	9.3	7.2	6.5	8.7	8.6	8.1	8.1
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0025	0.0022	0.0010	0.0034	0.0014	0.0023	0.0023	0.0035	0.0027	0.0018	0.0028	0.0028
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.030	0.065	0.12	0.094	0.084	0.044	0.067	0.048	0.060	0.043	0.066	0.065	0.057	0.058

Table B.12. Continued. Camp Lake Station CL4 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**	**CL4 (sfc)**	**CL4 (btm)**
Dissolved Metals (mg/L)														
Aluminum (Al)	0.0061	0.017	0.050	0.047	0.047	0.030	0.043	0.039	0.050	0.036	0.041	0.035	0.050	0.052
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00033	<0.00020	0.00050	0.00054	0.00030	0.00045	0.00026	<0.00020	0.00042	0.00046	0.00042	0.00042	0.00048	0.00055
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000050	0.000091	0.00028	0.00022	0.00018	0.000062	0.00019	0.00011	0.00014	0.000090	0.00013	0.00014	0.00017	0.00015
Calcium (Ca)	15	26	19	18	16	14	13	15	13	12	15	15	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00040	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00038	0.0032	0.013	0.012	0.016	0.0059	0.0097	0.0082	0.011	0.0086	0.011	0.011	0.013	0.013
Iron (Fe)	<0.060	1.6	0.77	0.55	0.63	0.41	0.36	0.63	0.38	0.26	1.0	1.1	1.1	1.1
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.7	5.2	4.0	3.7	3.5	3.2	3.1	3.3	3.0	3.0	3.7	3.7	3.4	3.4
Manganese (Mn)	0.0045	0.15	0.069	0.069	0.014	0.024	<0.0040	<0.0040	<0.0040	<0.0040	0.019	0.063	0.013	0.0055
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00055	<0.00050	0.00070	0.00068	0.00061	<0.00050	0.00066	0.00086	0.00087	0.00061	<0.00050	<0.00050	0.00073	0.00072
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.7	2.1	2.1	1.9	1.7	1.7	1.8	1.5	1.5	1.7	1.7	1.7	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.75	1.4	1.1	1.2	1.0	0.92	0.97	1.1	0.91	0.86	1.3	1.3	1.3	1.3
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.5	2.8	2.0	2.0	1.9	1.9	1.9	2.0	1.7	1.8	1.9	1.9	1.9	2.0
Strontium (Sr)	0.033	0.036	0.029	0.029	0.027	0.027	0.026	0.028	0.027	0.028	0.029	0.029	0.027	0.028
Sulphur (S)	7.8	22	13	11	11	8.0	7.4	8.9	7.4	6.5	8.2	8.0	8.4	8.4
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.022	0.040	0.10	0.085	0.070	0.032	0.056	0.040	0.057	0.039	0.049	0.047	0.058	0.055

Table B.13. Camp Lake Station CL5 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**
Physical/Chemical (mg/L)														
pH (pH units)	6.66	7.08	6.26	6.26	6.27	6.38	6.93	6.81	6.68	6.61	6.77	6.77	7.05	7.00
Alkalinity (Total as $CaCO_3$)	30	23	21	24	21	24	23	22	24	24	24	24	24	25
Bicarbonate (HCO_3)	37	28	26	29	26	29	27	27	30	29	29	29	29	31
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	42.0	94.8	55.1	52.4	53.1	50.4	45.2	50.5	43.4	46.6	--	--	47.4	45.6
Hardness ($CaCO_3$)	35	86	58	56	50	47	43	49	43	46	49	50	45	45
Turbidity (NTU)	1.8	3.7	--	--	--	--	0.98	3.9	0.88	2.2	--	--	--	--
Total Suspended Solids	<1.0	<1.0	1.7	1.6	3.7	3.1	2.0	2.3	<1.0	<1.0	1.6	2.8	2.2	2.1
Total Metals (mg/L)														
Aluminum (Al)	0.041	0.015	0.087	0.086	0.080	0.094	0.17	0.072	0.066	0.086	0.085	0.076	0.088	0.10
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00069	0.00063	0.00052	0.00059	0.00043	0.00035	0.00045	0.00048	0.00035	0.00050	0.00072	0.00045	0.00039	0.00044
Barium (Ba)	0.010	0.012	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	0.011	0.011	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000098	0.00012	0.00018	0.00019	0.00022	0.00016	0.00017	0.00012	0.00014	0.00016	0.00014	0.00017	0.00014	0.00014
Calcium (Ca)	11	29	16	15	15	14	13	15	12	13	14	14	14	13
Chromium (Cr)	0.0011	<0.0010	0.0020	0.0026	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00039	0.00032	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.0058	0.0072	0.012	0.013	0.012	0.0086	0.011	0.0096	0.011	0.0098	0.011	0.010	0.013	0.013
Iron (Fe)	0.29	0.54	0.59	0.56	0.77	0.74	0.46	0.88	0.42	0.70	0.82	0.84	1.0	1.0
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.5	5.5	3.6	3.4	3.6	3.5	3.2	3.4	3.1	3.2	3.3	3.4	3.2	3.1
Manganese (Mn)	0.019	0.012	0.052	0.050	0.037	0.036	0.012	0.028	0.012	0.045	0.039	0.039	0.020	0.019
Molybdenum (Mo)	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00094	0.00072	0.0065	0.0024	0.00078	0.00063	0.00057	0.00090	0.0011	0.00082	0.0010	0.00068	0.00085	0.0063
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.8	2.8	1.9	1.9	1.9	1.8	1.6	1.7	1.5	1.6	1.6	1.6	1.3	1.3
Selenium (Se)	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.6	1.3	1.1	1.1	1.2	1.1	1.1	1.2	0.99	1.3	1.3	1.3	1.4	1.3
Silver (Ag)	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.3	2.8	2.0	1.9	2.0	2.0	1.8	1.9	1.7	1.8	2.0	2.1	1.5	1.4
Strontium (Sr)	0.026	0.039	0.029	0.028	0.027	0.027	0.032	0.028	0.026	0.028	0.030	0.031	0.028	0.027
Sulphur (S)	2.5	23	9.8	9.3	9.3	8.5	6.7	8.7	6.7	7.6	7.2	7.4	7	6.7
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	0.0012	<0.0010	0.0030	0.0027	0.0012	0.0025	<0.0010	<0.0010	0.0021	0.0028	0.0025	0.0025	0.0031	0.0025
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.053	0.047	0.069	0.070	0.077	0.057	0.060	0.047	0.046	0.051	0.051	0.050	0.047	0.048

Table B.13. Continued. Camp Lake Station CL5 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**	**CL5 (sfc)**	**CL5 (btm)**
Dissolved Metals (mg/L)														
Aluminum (Al)	0.014	0.0058	0.042	0.059	0.037	0.035	0.039	0.034	0.039	0.044	0.038	0.032	0.040	0.040
Antimony (Sb)	<0.00060	0.0028	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00035	<0.00020	0.00025	0.00036	0.00030	0.00028	0.00031	0.00036	0.00048	0.00034	0.00051	0.00047	0.00053	0.00063
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000080	0.000067	0.00027	0.00026	0.00021	0.000083	0.00015	0.00010	0.00015	0.00014	0.000097	0.000083	0.00011	0.000093
Calcium (Ca)	8.9	26	17	16	14	14	12	14	12	13	14	14	13	13
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	0.00039	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00063	0.0037	0.011	0.013	0.015	0.012	0.0094	0.0078	0.0094	0.0095	0.0096	0.0098	0.011	0.0098
Iron (Fe)	0.19	0.26	0.52	0.72	0.39	0.28	0.31	0.49	0.31	0.37	1.8	0.67	0.74	0.71
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.0	5.0	3.7	3.6	3.4	3.2	3.0	3.3	2.9	3.0	3.5	3.6	3.2	3.2
Manganese (Mn)	0.011	0.0077	0.054	0.062	0.0070	<0.0040	<0.0040	<0.0040	<0.0040	0.021	0.013	0.0062	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00070	<0.00050	0.00078	0.00085	0.0011	0.00051	0.00064	0.00061	<0.00050	0.00063	<0.00050	<0.00050	0.00066	0.00080
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.6	2.5	2.0	2.0	1.8	1.7	1.6	1.7	1.5	1.6	1.6	1.7	1.6	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.4	1.1	1.1	1.1	1.0	0.92	1.0	0.99	0.87	1.0	1.5	1.2	1.2	1.2
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.1	2.6	2.0	2.0	1.9	2.0	1.8	2.0	1.7	1.8	1.9	2.0	1.9	1.9
Strontium (Sr)	0.025	0.040	0.028	0.027	0.027	0.026	0.026	0.028	0.027	0.028	0.028	0.029	0.027	0.027
Sulphur (S)	2.5	21	10	11	8.9	8.2	6.6	8.7	6.6	7.9	7.1	6.8	7.0	7.0
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	0.0014	0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00012	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.041	0.029	0.076	0.098	0.065	0.044	0.051	0.041	0.048	0.050	0.039	0.040	0.041	0.041

Table B.14. Camp Lake Station CL6 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**
Physical/Chemical (mg/L)														
pH (pH units)	6.69	6.67	6.29	6.29	7.29	7.26	6.93	6.86	6.65	6.64	6.82	6.81	6.99	7.09
Alkalinity (Total as $CaCO_3$)	37	24	25	23	21	24	23	24	23	26	23	24	25	25
Bicarbonate (HCO_3)	45	29	30	28	26	30	28	30	28	32	29	29	30	30
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	55.6	77.7	53.6	50.0	50.4	48.7	45.4	46.8	42.6	45.8	--	--	44.4	45.8
Hardness ($CaCO_3$)	51	72	50	51	47	45	43	45	42	44	48	46	43	44
Turbidity (NTU)	1.1	3.9	--	--	--	--	2.0	2.1	0.81	4.7	--	--	--	--
Total Suspended Solids	<1.0	<1.0	2.6	1.5	4.0	3.7	2.3	2.1	1.2	<1.0	3.0	2.6	1.8	1.3
Total Metals (mg/L)														
Aluminum (Al)	0.024	0.022	0.080	0.081	0.079	0.052	0.14	0.056	0.059	0.074	0.10	0.085	0.095	0.11
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00094	0.00077	0.00054	0.00043	0.00033	0.00050	0.00034	0.00038	0.00057	0.00051	0.00050	0.00063	0.00051	0.00050
Barium (Ba)	0.014	0.013	<0.010	<0.010	<0.010	0.011	0.010	0.010	<0.010	0.011	0.010	0.011	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000023	0.00013	0.00019	0.00013	0.00013	0.000041	0.00012	0.000054	0.00012	0.00012	0.000092	0.00010	0.000084	0.000085
Calcium (Ca)	15	23	16	14	14	14	13	13	12	13	13	13	13	13
Chromium (Cr)	0.0010	<0.0010	0.0017	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.0036	0.0068	0.012	0.0090	0.0078	0.0033	0.0088	0.0060	0.0090	0.0068	0.0081	0.0077	0.0093	0.0088
Iron (Fe)	0.24	0.50	0.50	0.42	0.59	1.7	0.39	0.37	0.31	0.71	0.54	0.54	0.66	0.70
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.2	4.7	3.5	3.4	3.5	3.5	3.3	3.3	3.1	3.2	3.3	3.3	3.1	3.2
Manganese (Mn)	0.049	0.12	0.046	0.040	0.028	0.29	0.011	0.016	0.014	0.17	0.021	0.021	0.016	0.017
Molybdenum (Mo)	0.00023	0.00029	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00072	0.00076	0.0034	0.0024	0.00092	0.00081	0.00094	0.00082	0.00074	0.0012	0.0015	0.00074	0.00081	0.0012
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.2	2.3	1.9	1.8	1.8	1.8	1.6	1.6	1.5	1.6	1.6	1.5	1.3	1.3
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.3	1.5	1.1	1.1	1.1	0.74	1.1	0.82	0.89	1.2	1.2	1.2	1.1	1.1
Silver (Ag)	0.00012	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.9	2.5	2.0	2.1	2.0	2.2	1.8	2.0	1.8	1.9	2.1	2.1	1.5	1.5
Strontium (Sr)	0.034	0.037	0.028	0.028	0.027	0.029	0.032	0.028	0.027	0.029	0.031	0.031	0.028	0.029
Sulphur (S)	5.8	17	9.5	8.1	8.6	7.8	6.7	7.1	6.2	6.6	6.5	6.4	6.1	6.2
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0026	0.0029	0.0018	0.0023	0.0011	<0.0010	0.0019	0.0030	0.0025	0.0033	0.0023	0.0037
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.014	0.048	0.078	0.052	0.052	0.019	0.042	0.032	0.038	0.038	0.033	0.032	0.033	0.034

Table B.14. Continued. Camp Lake Station CL6 - Laboratory Data

Sample Date	5-Mar-20		2-Jun-20		21-Jun-20		13-Jul-20		12-Aug-20		7-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**	**CL6 (sfc)**	**CL6 (btm)**
Dissolved Metals (mg/L)														
Aluminum (Al)	0.010	0.0069	0.051	0.034	0.034	0.013	0.038	0.022	0.031	0.026	0.033	0.037	0.037	0.031
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00039	0.00023	0.00040	0.00050	0.00040	0.00053	0.00034	0.00036	0.00058	0.00031	0.00052	0.00048	0.00062	0.00049
Barium (Ba)	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000028	0.000068	0.00020	0.00011	0.000088	0.000026	0.000080	0.000053	0.00015	0.000083	0.000064	0.000046	0.000080	0.000091
Calcium (Ca)	14	21	15	15	14	13	12	13	12	13	13	13	12	12
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	0.00068	0.0096	0.0073	0.0068	0.0033	0.0077	0.0045	0.0076	0.0059	0.0070	0.0072	0.0077	0.0075
Iron (Fe)	0.15	0.25	0.47	0.23	0.25	<0.060	0.25	0.20	0.22	0.21	0.39	0.63	0.44	0.44
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.9	4.4	3.3	3.4	3.2	3.1	3.0	3.1	3.0	3.0	3.5	3.4	3.2	3.2
Manganese (Mn)	0.032	0.088	0.048	0.022	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.12	<0.0040	0.0042	0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00054	<0.00050	0.00073	<0.00050	0.00061	0.00087	0.00095	0.00072	0.00061	<0.00050	<0.00050	<0.00050	0.00074	0.00056
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.0	2.2	1.9	2.0	1.7	1.6	1.6	1.7	1.5	1.5	1.7	1.5	1.6	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	1.2	1.4	1.0	0.93	0.83	0.46	0.89	0.67	0.78	0.99	1.1	1.2	0.94	0.92
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.7	2.6	1.9	2.0	1.9	2.0	1.9	2.0	1.7	1.9	2.0	1.9	2.0	2.0
Strontium (Sr)	0.036	0.037	0.026	0.028	0.027	0.028	0.026	0.029	0.028	0.029	0.029	0.029	0.027	0.027
Sulphur (S)	5.7	18	8.9	7.9	8.1	6.7	6.6	7.1	6.2	6.7	6.2	6.2	6.1	6.0
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	0.0010	0.0012	0.0013	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.010	0.031	0.069	0.047	0.041	0.016	0.036	0.024	0.034	0.035	0.024	0.025	0.028	0.026

Table B.15. Camp Lake Station CL3 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**
Physical/Chemical (mg/L)																				
pH (pH units)	7.23	7.41	6.34	6.37	6.21	6.05	6.17	6.19	6.29	6.21	6.29	6.33	6.29	8.88	6.17	6.20	6.83	6.78	6.69	6.65
Alkalinity (Total as $CaCO_3$)	29	29	20	17	16	15	16	18	18	16	18	21	21	79	22	22	22	22	22	22
Bicarbonate (HCO_3)	35	35	24	21	20	19	20	22	22	19	22	26	25	77	26	27	27	27	27	27
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	9.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	55.6	63.4	77.8	77.1	68.9	74.4	66.6	60.7	60.7	66.8	58.3	52.4	56.9	55.9	53.1	50.1	49.0	49.6	48.4	50.2
Hardness ($CaCO_3$)	49	66	78	78	74	80	69	62	61	67	60	52	56	55	53	51	50	52	49	50
Turbidity (NTU)	0.99	3.1	--	--	5.3	6.7	3.9	3.2	3.5	4.0	1.5	1.3	1.8	2.2	1.4	1.5	0.93	1.2	1.5	1.2
Total Suspended Solids	3.0	1.3	3.3	2.4	6.0	4.9	3.3	2.7	3.7	2.4	1.7	1.5	1.7	2.3	2.8	2.2	<1.0	<1.0	1.8	2.0
Total Metals (mg/L)																				
Aluminum (Al)	0.033	0.056	0.13	0.11	0.11	0.12	0.13	0.11	0.12	0.16	0.14	0.099	0.13	0.13	0.10	0.091	0.072	0.086	0.11	0.098
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00052	0.00054	0.00043	0.00020	0.00041	0.00026	0.00041	0.00035	0.00026	0.00031	0.00037	0.00053	0.00045	0.00035	0.00025	0.00029	0.00071	0.00069	0.00058	0.00050
Barium (Ba)	0.012	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000073	0.00012	0.00047	0.00043	0.00046	0.00051	0.00052	0.00042	0.00043	0.00064	0.00063	0.00028	0.00060	0.00053	0.00043	0.00039	0.00024	0.00030	0.00024	0.00022
Calcium (Ca)	16	19	24	24	21	23	20	18	18	20	17	15	17	16	15	15	14	14	14	15
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	0.0025	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00093	0.00073	0.00078	0.00085	0.00076	0.00059	0.00056	0.00083	0.00081	<0.00030	0.00068	0.00063	0.00033	0.00031	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.0025	0.0051	0.023	0.022	0.022	0.024	0.027	0.021	0.022	0.036	0.029	0.015	0.033	0.030	0.021	0.019	0.015	0.017	0.016	0.015
Iron (Fe)	0.18	0.64	2.2	2.1	2.7	3.2	2.5	1.6	1.7	2.5	1.2	0.83	0.92	0.89	0.71	0.69	0.60	0.72	0.65	0.74
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.8	4.1	4.4	4.4	4.1	4.4	4.0	3.8	3.8	4.1	3.7	3.5	3.7	3.6	3.5	3.3	3.3	3.4	3.3	3.4
Manganese (Mn)	0.0087	0.015	0.11	0.11	0.096	0.11	0.083	0.066	0.060	0.075	0.049	0.028	0.031	0.029	0.021	0.020	0.013	0.017	0.014	0.016
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0011	<0.00020
Nickel (Ni)	0.00065	0.00062	0.0017	0.0011	0.0028	0.0029	0.0013	0.0012	0.00081	0.0012	0.0012	0.0012	0.0021	0.0015	0.00099	0.00074	0.00056	0.00051	0.067	0.0036
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.1	2.1	2.1	2.1	2.2	2.0	1.9	2.0	2.0	1.8	1.8	1.7	1.8	1.7	1.6	1.6	1.6	1.5	1.5
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.81	0.93	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.4	1.2	1.2	1.3	1.1	1.1	1.1	1.1	1.1	1.1
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.5	2.5	2.3	2.3	1.9	1.9	1.8	1.8	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.7
Strontium (Sr)	0.034	0.034	0.031	0.031	0.028	0.029	0.030	0.029	0.027	0.027	0.027	0.027	0.028	0.028	0.027	0.026	0.026	0.027	0.029	0.029
Sulphur (S)	7.6	11	19	18	17	19	16	13	14	17	13	11	11	11	10	9.4	8.5	8.8	8.2	8.7
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	0.0016	0.0020	0.0021	0.0020	0.0025	0.0030	0.0027	0.0025	0.0020	0.0020	0.0027	0.0012	0.0025	0.0021	0.0010	0.0023	0.0019	0.0020	0.0015	0.0021
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.034	0.057	0.16	0.14	0.14	0.15	0.15	0.12	0.12	0.18	0.18	0.082	0.19	0.17	0.12	0.11	0.078	0.088	0.072	0.066

Table B.15. Continued. Camp Lake Station CL3 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**
Physical/Chemical (mg/L)												
pH (pH units)	6.66	6.64	6.74	6.51	7.22	7.24	6.77	6.72	7.33	6.45	6.86	6.88
Alkalinity (Total as $CaCO_3$)	22	21	21	20	22	23	22	21	21	17	18	21
Bicarbonate (HCO_3)	27	25	25	25	27	28	26	26	25	21	22	26
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	47.0	54.3	51.6	57.0	51.0	52.7	49.2	57.2	54.9	59.6	52.8	54.2
Hardness ($CaCO_3$)	50	59	53	51	56	58	52	62	53	56	55	55
Turbidity (NTU)	1.9	3.3	1.9	1.8	--	--	3.0	4.6	4.1	5.1	--	--
Total Suspended Solids	1.1	1.9	1.1	1.3	3.1	3.1	<1.0	2.1	2.3	2.3	2.1	<1.0
Total Metals (mg/L)												
Aluminum (Al)	0.088	0.10	0.077	0.094	0.064	0.080	0.074	0.10	0.089	0.11	0.085	0.089
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00045	0.00040	0.00051	0.00046	0.00045	0.00048	0.00055	0.00056	0.00063	0.00042	0.00044	0.00049
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00020	0.00032	0.00023	0.00033	0.00018	0.00026	0.00021	0.00037	0.00025	0.00033	0.00024	0.00024
Calcium (Ca)	14	16	15	17	15	15	14	17	16	17	16	16
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.00032	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00031	<0.00030	0.00030	<0.00030	<0.00030
Copper (Cu)	0.013	0.020	0.014	0.020	0.013	0.017	0.013	0.020	0.016	0.019	0.015	0.016
Iron (Fe)	0.80	1.6	1.1	1.8	1.2	1.5	1.1	2.6	2.2	2.9	2.1	2.2
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.1	3.4	3.5	3.7	3.4	3.5	3.3	3.7	3.8	4.1	3.4	3.5
Manganese (Mn)	0.016	0.030	0.022	0.032	0.028	0.029	0.025	0.035	0.034	0.040	0.029	0.030
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00081	0.0012	0.00071	0.00086	0.00063	0.0010	0.00099	0.0011	0.00075	0.0012	0.0018	0.00087
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.6	1.7	1.5	1.6	1.5	1.6	1.7	1.8	1.8	1.9	1.6	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.94	0.97	1.2	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.3	1.4
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8
Strontium (Sr)	0.026	0.027	0.030	0.030	0.029	0.029	0.024	0.025	0.029	0.030	0.029	0.029
Sulphur (S)	7.7	11	9.0	12	9.1	9.8	8.5	12	11	12	10	10
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0021	0.0012	<0.0010	<0.0010	0.0013	0.0029
Titanium (Ti)	0.0023	0.0024	0.0024	0.0024	0.0010	0.0020	0.0027	0.0041	0.0021	0.0024	0.0044	0.0034
Uranium (U)	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	0.00023	0.00019	<0.00010	<0.00010	<0.00010	0.00023
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.056	0.095	0.066	0.10	0.063	0.079	0.060	0.11	0.084	0.11	0.077	0.079

Table B.15. Continued. Camp Lake Station CL3 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (sfc)**
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.0048	0.013	0.059	0.056	0.065	0.069	0.062	0.047	0.068	0.090	0.083	0.055	0.062	0.061	0.057	0.056	0.052	0.055	0.032	0.034
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00041	0.00029	0.00022	0.00030	0.00023	0.00033	0.00024	0.00023	0.00041	0.00036	0.00032	0.00033	0.00027	0.00033	0.00028	0.00034	0.00042	0.00042	0.00044	0.00042
Barium (Ba)	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000045	0.000098	0.00044	0.00043	0.00045	0.00053	0.00039	0.00026	0.00033	0.00058	0.00062	0.00019	0.00038	0.00036	0.00043	0.00033	0.00028	0.00023	0.00014	0.00016
Calcium (Ca)	14	19	24	24	22	24	21	18	18	20	18	15	16	16	15	15	14	15	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00081	0.00078	0.00073	0.00083	0.00037	<0.00030	<0.00030	0.00061	0.00032	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	0.0017	0.020	0.019	0.020	0.021	0.019	0.013	0.018	0.029	0.028	0.012	0.020	0.019	0.018	0.018	0.016	0.015	0.011	0.020
Iron (Fe)	<0.060	0.17	1.6	1.6	1.8	2.2	1.8	1.1	1.2	1.7	0.91	0.52	0.64	0.61	0.52	0.51	0.52	0.54	0.45	0.52
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.6	4.4	4.7	4.7	4.4	4.7	4.3	3.9	3.7	4.1	3.9	3.5	3.6	3.5	3.4	3.4	3.4	3.5	3.4	3.4
Manganese (Mn)	<0.0040	0.013	0.11	0.11	0.093	0.11	0.066	0.043	0.040	0.063	0.024	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0046
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00086	<0.00020
Nickel (Ni)	<0.00050	<0.00050	0.0011	0.00084	0.00098	0.00089	0.0013	0.00061	0.00075	0.0013	0.0010	0.0006	0.00077	0.0011	0.00053	<0.00050	0.00058	<0.00050	<0.00050	0.011
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.9	2.1	2.4	2.4	2.2	2.3	2.2	2.1	2.0	2.1	1.9	1.8	1.7	1.7	1.7	1.6	1.7	1.8	1.7	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.71	0.83	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	0.99	0.99	0.96	0.96	1.0	1.0
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.8	2.0	1.8	1.8	1.7	1.7	1.8	1.9	2.0	1.9
Strontium (Sr)	0.032	0.037	0.032	0.032	0.029	0.030	0.030	0.029	0.028	0.028	0.029	0.029	0.028	0.028	0.026	0.026	0.028	0.028	0.027	0.027
Sulphur (S)	7.9	11	18	18	19	19	16	13	13	16	14	11	12	11	10	9.7	8.2	8.3	8.2	8.5
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	0.0021	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
Uranium (U)	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.021	0.035	0.16	0.15	0.15	0.16	0.12	0.086	0.11	0.18	0.16	0.073	0.12	0.11	0.099	0.099	0.079	0.083	0.055	0.058

Table B.15. Continued. Camp Lake Station CL3 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**	**CL3 (sfc)**	**CL3 (btm)**
Dissolved Metals (mg/L)												
Aluminum (Al)	0.047	0.060	0.044	0.052	0.046	0.045	0.047	0.065	0.057	0.062	0.054	0.054
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.0009	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00038	0.00032	0.00042	0.00038	0.00055	0.00048	0.00043	0.00042	0.00042	0.00034	0.00044	0.00033
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00017	0.00031	0.00019	0.00020	0.00015	0.00021	0.00013	0.00028	0.00022	0.00030	0.00021	0.00021
Calcium (Ca)	15	17	15	15	16	17	15	18	15	16	16	16
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.012	0.018	0.012	0.014	0.012	0.014	0.012	0.018	0.014	0.017	0.014	0.014
Iron (Fe)	0.69	1.4	0.88	0.93	1.0	1.3	1.3	2.9	1.6	2.3	1.6	1.7
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.4	3.8	3.6	3.4	3.7	3.9	3.5	4.0	3.5	3.7	3.5	3.5
Manganese (Mn)	<0.0040	0.024	<0.0040	0.0042	0.0081	0.012	0.0044	0.018	0.011	0.019	0.011	0.015
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00087	0.00071	0.00053	0.0015	0.0014	0.00098	0.00069	0.00092	0.0011	0.00095	0.00080	0.00075
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.7	1.9	1.9	1.7	2.0	2.0	1.7	1.9	1.7	1.7	1.5	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.82	0.76	0.92	0.93	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.9	1.9	2.0	1.9	2.2	2.2	1.9	1.9	1.9	1.9	1.8	1.8
Strontium (Sr)	0.029	0.031	0.029	0.027	0.033	0.034	0.026	0.028	0.029	0.029	0.029	0.029
Sulphur (S)	7.8	10	7.7	9.1	9.3	9.7	8.1	12	10	12	10	10
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0010	0.0012	<0.0010	0.0010	<0.0010	0.0012	0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.0001	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.055	0.091	0.058	0.067	0.055	0.064	0.054	0.090	0.082	0.094	0.068	0.070

Table B.16. Camp Lake Station CL7 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**
Physical/Chemical (mg/L)																				
pH (pH units)	7.52	7.45	6.38	6.43	6.10	6.04	6.19	6.23	6.28	6.26	6.26	6.30	6.27	6.31	6.20	6.19	6.83	6.80	6.65	6.66
Alkalinity (Total as $CaCO_3$)	30	32	17	21	18	15	17	21	21	17	17	17	20	62	22	22	21	21	22	22
Bicarbonate (HCO_3)	36	39	20	26	23	18	21	25	25	21	21	21	25	76	27	27	26	26	27	27
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	59.5	56.7	79.9	68.4	60.1	75.1	65.5	61.6	58.3	59.6	59.1	59.2	55.7	57.7	53.3	53.4	49.0	53.3	49.3	48.8
Hardness ($CaCO_3$)	55	48	79	67	64	80	67	59	59	59	60	60	56	56	54	55	51	55	49	49
Turbidity (NTU)	0.8	1.0	--	--	3.1	6.0	3.8	2.5	3.0	3.2	1.7	1.7	1.8	1.9	1.6	2.1	1.1	1.3	1.3	1.6
Total Suspended Solids	<1.0	<1.0	2.3	2.9	2.4	3.9	3.1	2.7	3.5	3.5	1.7	2.5	2.9	1.3	2.9	2.9	1.8	1.5	2.3	1.7
Total Metals (mg/L)																				
Aluminum (Al)	0.029	0.031	0.14	0.10	0.085	0.12	0.13	0.12	0.10	0.11	0.15	0.13	0.13	0.14	0.11	0.099	0.074	0.086	0.087	0.090
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00068	0.00057	0.00037	0.00043	0.00039	0.00035	0.00030	0.00052	0.00045	0.00027	0.00043	0.00049	0.00031	0.00038	0.00035	0.00032	0.00073	0.00062	0.00058	0.00043
Barium (Ba)	0.013	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000063	0.000041	0.00062	0.00044	0.00029	0.00056	0.00053	0.00037	0.00032	0.00036	0.00071	0.00056	0.00063	0.00063	0.00047	0.00051	0.00026	0.00036	0.00021	0.00019
Calcium (Ca)	17	16	25	21	18	23	20	18	17	18	17	17	16	17	16	16	14	15	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	0.0058	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.0011	0.00080	0.00045	0.0010	0.00069	0.00048	0.00039	0.00047	0.00079	0.00070	0.00059	0.00058	0.00034	0.00034	<0.00030	0.00034	<0.00030	<0.00030
Copper (Cu)	0.0027	0.0025	0.028	0.018	0.016	0.026	0.025	0.020	0.017	0.020	0.036	0.029	0.031	0.031	0.025	0.024	0.016	0.020	0.014	0.015
Iron (Fe)	0.10	0.078	2.3	1.4	1.2	3.1	2.3	1.2	1.4	1.5	1.3	1.3	0.89	0.92	0.77	0.78	0.68	0.98	0.70	0.64
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.0	3.8	4.5	3.9	3.7	4.4	4.0	4.0	3.6	3.7	3.8	3.8	3.6	3.7	3.5	3.5	3.4	3.6	3.3	3.3
Manganese (Mn)	0.0065	0.0056	0.11	0.083	0.067	0.11	0.078	0.059	0.054	0.056	0.049	0.049	0.030	0.032	0.025	0.026	0.014	0.024	0.015	0.014
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0041	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00091	0.00068	0.0015	0.00094	0.0014	0.0025	0.0011	0.0012	0.00053	0.00097	0.0021	0.0011	0.0015	0.0023	0.00099	0.00073	<0.00050	0.0013	0.0012	0.0014
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.1	1.9	2.1	2.0	2.0	2.2	2.0	2.1	1.9	2.0	1.9	1.8	1.8	1.8	1.7	1.6	1.6	1.7	1.5	1.5
Selenium (Se)	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	<0.00020	<0.00020	<0.00020	0.00020
Silicon (Si)	0.80	0.74	1.3	1.3	1.2	1.3	1.2	1.3	1.2	1.2	1.3	1.4	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.7	2.5	2.3	2.5	1.9	1.9	1.8	2	1.9	1.9	1.8	1.8	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.7
Strontium (Sr)	0.036	0.034	0.031	0.030	0.027	0.029	0.030	0.029	0.027	0.027	0.028	0.028	0.027	0.028	0.028	0.026	0.026	0.027	0.028	0.028
Sulphur (S)	8.5	8.2	19	15	13	19	15	13	13	13	14	13	11	11	10	11	8.6	10	8.4	8.0
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	0.0018	0.0012	0.0036	0.0033	0.0020	0.0018	0.0032	0.0035	0.0023	0.0011	0.0025	0.0024	0.0018	0.0021	<0.0010	0.0013	0.0015	0.0012	0.0023	0.0020
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.032	0.029	0.19	0.13	0.097	0.17	0.14	0.11	0.097	0.11	0.19	0.17	0.18	0.18	0.13	0.13	0.078	0.11	0.067	0.069

Table B.16. Continued. Camp Lake Station CL7 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**
Physical/Chemical (mg/L)												
pH (pH units)	6.64	6.62	6.71	6.67	7.30	7.29	6.69	6.75	6.54	6.57	6.92	6.86
Alkalinity (Total as $CaCO_3$)	23	18	20	21	22	20	23	22	22	16	21	17
Bicarbonate (HCO_3)	28	22	25	26	27	25	28	27	27	19	25	20
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	46.3	54.9	50.0	50.0	50.1	52.2	51.0	50.1	52.0	66.2	53.9	58.9
Hardness ($CaCO_3$)	50	58	51	53	57	59	53	54	50	62	54	58
Turbidity (NTU)	1.6	3.1	2.0	2.1	--	--	3.0	3.1	4.1	6.4	--	--
Total Suspended Solids	<1.0	<1.0	1.9	1.9	2.2	3.2	1.0	1.3	2.9	4.0	1.1	1.3
Total Metals (mg/L)												
Aluminum (Al)	0.062	0.10	0.076	0.075	0.064	0.077	0.071	0.076	0.12	0.14	0.085	0.11
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00038	0.00040	0.00057	0.00045	0.00039	0.00052	0.00053	0.00056	0.00050	0.00050	0.00054	0.00047
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00018	0.00035	0.00022	0.00024	0.00017	0.00028	0.00020	0.00023	0.00021	0.00045	0.00023	0.00033
Calcium (Ca)	13	16	14	15	15	15	15	15	15	19	16	17
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	0.00035	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00042	<0.00030	<0.00030
Copper (Cu)	0.011	0.021	0.016	0.016	0.013	0.018	0.013	0.015	0.014	0.023	0.015	0.019
Iron (Fe)	0.76	1.7	1.0	1.2	1.1	1.7	1.2	1.3	1.7	4.5	2.1	2.9
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.1	3.5	3.4	3.3	3.3	3.4	3.4	3.3	3.6	4.4	3.5	3.8
Manganese (Mn)	0.016	0.031	0.021	0.024	0.027	0.031	0.026	0.027	0.031	0.051	0.030	0.037
Molybdenum (Mo)	0.00027	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00032
Nickel (Ni)	0.0011	0.0011	0.00054	<0.00050	0.00083	0.00071	0.0014	0.0011	0.0010	0.0013	0.0010	0.0017
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.6	1.7	1.5	1.5	1.5	1.5	1.7	1.7	1.8	2.0	1.7	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	0.00024	<0.00020	0.00025
Silicon (Si)	0.99	0.96	1.1	1.1	1.2	1.2	1.3	1.2	1.4	1.6	1.4	1.5
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.8	1.8	1.8	1.8	1.8	1.7	1.9	1.8	1.8	1.9	1.8	1.8
Strontium (Sr)	0.026	0.028	0.029	0.028	0.029	0.029	0.025	0.024	0.028	0.031	0.030	0.031
Sulphur (S)	7.5	11	8.7	9.3	8.8	10	8.8	9.1	9.3	15	10	12
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	0.0015	0.0017	<0.0010	<0.0010	<0.0010	<0.0010	0.0026	0.0014	<0.0010	<0.0010	0.0021	0.0067
Titanium (Ti)	0.0022	0.0041	0.0043	0.0026	0.0015	0.0017	0.0030	0.0024	0.0033	0.0030	0.0022	0.0038
Uranium (U)	<0.00010	0.00011	0.00011	0.00011	<0.00010	<0.00010	0.00027	0.00019	<0.00010	<0.00010	0.00015	0.00063
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.0.52	0.10	0.074	0.071	0.060	0.087	0.063	0.068	0.068	0.13	0.075	0.10

Table B.16. Continued. Camp Lake Station CL7 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.031	0.0051	0.063	0.054	0.053	0.072	0.063	0.045	0.050	0.057	0.077	0.072	0.065	0.064	0.060	0.061	0.055	0.065	0.036	0.038
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00044	0.00031	0.00036	0.00028	0.00023	0.00030	0.00024	0.00034	0.00030	0.00035	0.00026	0.00034	0.00031	0.00032	0.00034	<0.00020	0.00027	0.00045	0.00044	0.00040
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000064	0.000031	0.00046	0.00038	0.00026	0.00051	0.00039	0.00022	0.00025	0.00031	0.00050	0.00041	0.00042	0.00040	0.00041	0.00037	0.00023	0.00034	0.00013	0.00015
Calcium (Ca)	15	13	24	20	19	24	20	17	18	18	18	17	16	16	16	16	15	16	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00079	0.00053	0.00031	0.00099	0.00033	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00084	<0.00020	0.020	0.016	0.014	0.023	0.017	0.012	0.014	0.015	0.025	0.022	0.021	0.021	0.020	0.021	0.015	0.020	0.012	0.012
Iron (Fe)	<0.060	<0.060	1.6	0.92	0.82	2.1	1.6	0.69	0.98	1.0	0.93	0.90	0.65	0.64	0.57	0.56	0.51	0.83	0.49	0.56
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	4.0	3.6	4.7	4.1	3.9	4.7	4.2	3.8	3.6	3.6	3.9	3.9	3.6	3.6	3.5	3.5	3.4	3.7	3.4	3.4
Manganese (Mn)	<0.0040	<0.0040	0.11	0.077	0.060	0.11	0.060	0.033	0.031	0.033	0.022	0.018	<0.0040	<0.0040	0.0041	0.0042	<0.0040	0.0058	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0035	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00085	<0.00050	0.0010	0.00088	0.00071	0.00088	0.0012	0.00062	0.00078	0.00071	0.0013	0.0010	0.0010	0.0013	0.00070	0.00074	<0.00050	<0.00050	0.00061	0.00056
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.1	2.0	2.3	2.3	2.1	2.3	2.2	2.0	1.9	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.8	1.6	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.70	0.66	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.99	0.98	0.94	0.96	1.0	1.0
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.6	2.5	2.1	2.1	2.0	2.0	2.0	2.0	1.9	2.0	1.8	1.8	1.8	1.8	1.7	1.7	1.9	1.8	1.9	1.9
Strontium (Sr)	0.035	0.031	0.032	0.031	0.028	0.030	0.030	0.029	0.027	0.028	0.029	0.029	0.027	0.028	0.026	0.027	0.028	0.028	0.027	0.027
Sulphur (S)	9.1	8.7	18	14	13	19	15	12	13	13	14	14	12	12	11	11	8.3	9.7	8.5	8.5
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010
Uranium (U)	0.00061	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.022	0.017	0.15	0.12	0.096	0.17	0.12	0.077	0.084	0.099	0.16	0.15	0.13	0.12	0.11	0.12	0.077	0.11	0.059	0.059

Table B.16. Continued. Camp Lake Station CL7 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**	**CL7 (sfc)**	**CL7 (btm)**
Dissolved Metals (mg/L)												
Aluminum (Al)	0.043	0.069	0.044	0.052	0.044	0.049	0.047	0.048	0.051	0.077	0.051	0.059
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.0011	0.00092	<0.00060	<0.00060
Arsenic (As)	0.00033	0.00035	0.00040	0.00038	0.00061	0.00050	0.00051	0.00046	0.00045	0.00052	0.00046	0.00040
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00014	0.00034	0.00017	0.00022	0.00016	0.00022	0.00016	0.00015	0.00019	0.00043	0.00020	0.00027
Calcium (Ca)	14	17	15	16	17	17	16	16	15	18	16	17
Chromium (Cr)	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.011	0.020	0.013	0.014	0.012	0.014	0.013	0.012	0.013	0.022	0.013	0.016
Iron (Fe)	0.63	1.4	0.84	1.1	0.95	1.6	1.0	1.7	1.2	3.0	1.6	2.2
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.4	3.7	3.4	3.5	3.8	3.9	3.6	3.5	3.4	4.0	3.5	3.7
Manganese (Mn)	<0.0040	0.024	<0.0040	0.0053	0.0077	0.014	<0.0040	0.0067	0.0074	0.031	0.0080	0.017
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00077	0.00095	0.00072	0.00092	0.00059	0.00082	0.00082	0.00067	0.00089	0.0014	0.00081	0.00076
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.7	1.9	1.7	1.8	1.9	1.9	1.7	1.7	1.7	1.9	1.6	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.80	0.75	0.92	0.92	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.4
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.9	1.9	1.9	1.9	2.2	2.1	1.9	1.9	2.0	2.0	1.8	1.8
Strontium (Sr)	0.029	0.030	0.027	0.028	0.034	0.034	0.026	0.026	0.029	0.031	0.029	0.030
Sulphur (S)	7.4	11	8.3	9.1	8.5	10	8.2	8.8	9.0	14	10	12
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0013	0.0013	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.050	0.099	0.055	0.071	0.054	0.070	0.050	0.055	0.062	0.13	0.065	0.090

Table B.17. Camp Lake Station CL8 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**
Physical/Chemical (mg/L)																				
pH (pH units)	7.15	7.47	6.38	6.42	6.10	6.11	6.17	6.20	6.26	6.23	6.21	6.29	6.30	6.28	6.14	6.17	6.80	6.85	6.73	6.64
Alkalinity (Total as $CaCO_3$)	31	28	18	31	22	17	16	18	17	21	18	21	20	22	21	21	22	22	22	21
Bicarbonate (HCO_3)	38	35	22	37	27	20	19	22	20	25	22	26	24	26	26	26	26	27	27	26
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	54.3	63.9	73.6	62.1	60.6	70.8	68.9	54.7	63.7	58.6	57.1	52.8	55.6	51.3	52.1	50.5	50.2	48.6	47.6	48.1
Hardness ($CaCO_3$)	47	58	70	63	64	74	69	57	62	58	60	53	56	52	53	51	51	51	49	49
Turbidity (NTU)	0.86	1.3	--	--	4.3	5.0	4.3	2.5	3.8	3.3	1.5	1.3	2.1	2.1	1.4	1.4	1.1	1.4	1.6	2.0
Total Suspended Solids	1.1	<1.0	2.3	3.7	3.4	4.7	3.1	2.7	2.9	3.5	1.5	2.3	2.7	2.3	2.3	2.1	1.7	1.9	2.2	1.1
Total Metals (mg/L)																				
Aluminum (Al)	0.028	0.023	0.11	0.085	0.096	0.13	0.13	0.097	0.15	0.11	0.13	0.10	0.14	0.10	0.096	0.094	0.070	0.081	0.086	0.090
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00051	0.00047	0.00026	0.00032	0.00039	0.00040	0.00040	0.00040	0.00043	0.00048	0.00045	0.00043	0.00064	0.00051	0.00040	0.00041	0.00064	0.00061	0.00033	0.00043
Barium (Ba)	0.012	0.012	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	0.025	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000090	0.000079	0.00042	0.00027	0.00033	0.00058	0.00051	0.00029	0.00055	0.00033	0.00059	0.00031	0.00063	0.00033	0.00044	0.00041	0.00024	0.00024	0.00020	0.00022
Calcium (Ca)	15	19	23	19	18	21	21	16	19	17	17	15	16	15	15	15	14	14	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	0.0022	0.0023	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.0010	0.00044	0.00052	0.0011	0.00078	<0.00030	0.00086	0.00055	0.00066	<0.00030	0.00051	<0.00030	0.00036	0.00038	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.0020	0.0029	0.021	0.015	0.019	0.028	0.026	0.016	0.033	0.020	0.028	0.016	0.032	0.018	0.021	0.021	0.015	0.015	0.014	0.015
Iron (Fe)	0.13	0.16	1.8	0.97	1.3	2.6	2.7	0.97	1.9	1.5	1.2	0.87	0.91	0.74	0.74	0.66	0.63	0.71	0.69	0.64
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.8	4.1	4.2	3.7	3.7	4.2	4.2	3.5	3.9	3.7	3.7	3.5	3.6	3.4	3.4	3.4	3.4	3.3	3.2	3.3
Manganese (Mn)	0.0092	0.0060	0.095	0.068	0.070	0.099	0.086	0.051	0.065	0.053	0.044	0.028	0.031	0.019	0.023	0.018	0.013	0.016	0.015	0.014
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020
Nickel (Ni)	0.00070	0.0018	0.0019	0.00077	0.0024	0.0034	0.0013	0.00094	0.0016	0.00063	0.0011	0.00090	0.0018	0.0012	0.00079	0.00070	0.00064	<0.00050	0.0012	0.0014
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.1	2.1	2.0	1.9	2.0	2.2	2.1	1.9	2.0	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.7	1.6	1.5	1.5
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	0.00025	<0.00020	<0.00020	0.00039	0.0002
Silicon (Si)	0.90	0.76	1.3	1.2	1.2	1.3	1.3	1.1	1.2	1.2	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Silver (Ag)	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.6	2.5	2.5	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.8	1.7	1.8	1.8	1.8	1.7	1.7
Strontium (Sr)	0.034	0.035	0.030	0.029	0.027	0.029	0.031	0.028	0.028	0.027	0.027	0.027	0.027	0.028	0.026	0.026	0.027	0.026	0.027	0.028
Sulphur (S)	7.1	11	17	12	14	18	16	11	15	13	13	11	11	9.3	10	9.4	8.7	8.5	8.1	8.0
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	0.0015	0.0017	0.0034	0.0022	0.0025	0.0031	0.0019	0.0039	0.0037	0.0030	0.0019	0.0024	0.0010	0.0027	<0.0010	0.0016	0.0010	0.0025	0.0011	0.0020
Uranium (U)	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.034	0.066	0.15	0.093	0.12	0.18	0.15	0.089	0.17	0.11	0.16	0.095	0.18	0.10	0.12	0.11	0.073	0.079	0.063	0.069

Table B.17. Camp Lake Station CL8 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**
Physical/Chemical (mg/L)												
pH (pH units)	6.67	6.66	6.76	6.74	7.31	7.31	6.78	6.77	6.60	6.63	6.91	6.82
Alkalinity (Total as $CaCO_3$)	22	23	21	20	24	21	23	24	22	22	23	17
Bicarbonate (HCO_3)	27	28	26	24	29	25	28	29	27	27	28	21
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	46.1	47.4	50.2	50.0	51.7	53.9	49.7	49.5	53.2	54.1	53.8	52.7
Hardness ($CaCO_3$)	49	50	50	58	55	57	53	53	51	71	53	53
Turbidity (NTU)	1.8	1.9	2.2	2.7	--	--	2.9	2.9	4.2	3.8	--	--
Total Suspended Solids	2.1	<1.0	1.7	2.1	2.5	3.6	1.6	1.4	2.4	2.0	<1.0	<1.0
Total Metals (mg/L)												
Aluminum (Al)	0.067	0.073	0.070	0.079	0.071	0.10	0.076	0.076	0.11	0.082	0.082	0.088
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00098	0.00078	<0.00060	<0.00060
Arsenic (As)	0.00039	0.00045	0.00054	0.00053	0.00048	0.00061	0.00043	0.00040	0.00044	0.00040	0.00050	0.00048
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00018	0.00018	0.00024	0.00021	0.00024	0.00033	0.00018	0.00019	0.00022	0.00024	0.00021	0.00021
Calcium (Ca)	13	14	15	15	15	16	14	14	15	16	16	15
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.013	0.013	0.017	0.014	0.014	0.019	0.014	0.014	0.013	0.015	0.014	0.014
Iron (Fe)	0.74	0.78	1.0	1.0	1.2	2.0	1.2	1.2	1.8	1.9	1.9	1.9
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.1	3.1	3.4	3.4	3.4	3.5	3.3	3.3	3.7	3.7	3.5	3.4
Manganese (Mn)	0.016	0.017	0.022	0.021	0.028	0.033	0.026	0.026	0.031	0.032	0.028	0.028
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00081	0.0011	0.00055	0.00066	0.00057	0.00097	0.0012	0.0016	0.00082	0.0014	0.0013	0.00095
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.6	1.6	1.5	1.5	1.6	1.5	1.7	1.6	1.8	1.8	1.7	1.6
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.91	0.98	1.1	1.1	1.2	1.3	1.3	1.2	1.4	1.4	1.4	1.4
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8
Strontium (Sr)	0.026	0.026	0.029	0.029	0.030	0.030	0.025	0.024	0.029	0.029	0.030	0.029
Sulphur (S)	7.5	7.7	8.8	8.7	9.1	10	8.6	8.6	9.6	9.9	9.8	9.6
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0036	0.0020	<0.0010	<0.0010	0.0020	0.0014
Titanium (Ti)	0.0025	0.0022	0.0026	0.0019	0.0015	0.0037	0.0026	0.0031	0.0027	0.0022	0.0040	0.0025
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00034	0.00018	<0.00010	<0.00010	0.0001	0.00011
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.054	0.057	0.073	0.063	0.068	0.097	0.064	0.065	0.066	0.080	0.067	0.068

Table B.17. Continued. Camp Lake Station CL8 - Laboratory Data

Sample Date	4-Mar-20		3-Jun-20		9-Jun-20		15-Jun-20		21-Jun-20		30-Jun-20		6-Jul-20		13-Jul-20		21-Jul-20		12-Aug-20	
Parameter/Station (depth)	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.0057	0.0041	0.049	0.046	0.053	0.064	0.064	0.044	0.073	0.055	0.071	0.061	0.064	0.049	0.053	0.054	0.054	0.051	0.038	0.035
Antimony (Sb)	<0.00060	<0.00060	<0.00060	0.00076	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00032	0.00031	0.00031	0.00040	0.00029	0.00030	0.00034	0.00036	0.00043	0.00048	0.00053	0.00040	0.00025	0.00037	<0.00020	<0.00020	0.00045	0.00038	0.00037	0.00045
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.000056	0.000045	0.00037	0.00028	0.00030	0.00043	0.00041	0.00020	0.00040	0.00034	0.00043	0.00022	0.00046	0.00019	0.00034	0.00031	0.00022	0.00022	0.00015	0.00011
Calcium (Ca)	13	17	21	19	19	23	20	17	19	17	18	15	16	15	16	15	15	15	14	14
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	0.00048	0.00039	0.00034	0.00085	0.00046	<0.00030	0.00051	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.00031	0.00038	0.016	0.014	0.015	0.020	0.019	0.012	0.022	0.018	0.021	0.014	0.021	0.013	0.017	0.017	0.016	0.014	0.012	0.012
Iron (Fe)	<0.060	0.12	1.2	0.77	0.88	1.8	1.9	0.63	1.3	1.0	0.97	0.58	0.66	0.53	0.53	0.49	0.51	0.53	0.53	0.44
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.6	4.0	4.3	3.9	3.9	4.4	4.3	3.7	3.8	3.6	3.9	3.5	3.6	3.5	3.4	3.4	3.4	3.5	3.4	3.3
Manganese (Mn)	<0.0040	<0.0040	0.091	0.067	0.062	0.095	0.066	0.030	0.045	0.030	0.016	<0.0040	0.0051	<0.0040	0.0041	<0.0040	<0.0040	<0.0040	0.0070	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00028	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	<0.00050	0.00091	0.00084	0.00059	0.0015	0.00086	<0.00050	0.00075	0.00095	0.00086	0.00086	0.00087	0.00070	0.00073	0.00055	<0.00050	<0.00050	0.00062	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	2.1	2.1	2.1	2.1	2.1	2.3	2.2	1.9	2.0	1.9	2.1	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.79	0.70	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.2	1.1	1.1	1.1	0.98	0.99	0.97	0.95	1.1	1.0
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	2.5	2.4	1.9	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.8	1.7	1.8	1.7	1.7	1.8	1.9	1.9	1.9
Strontium (Sr)	0.031	0.034	0.030	0.029	0.028	0.029	0.030	0.029	0.028	0.027	0.027	0.028	0.028	0.028	0.026	0.026	0.028	0.028	0.027	0.027
Sulphur (S)	7.5	11	17	13	14	18	16	12	14	12	12	11	11	9.9	11	9.7	8.3	8.3	8.2	8.1
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0017	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.022	0.023	0.13	0.10	0.10	0.15	0.13	0.076	0.13	0.11	0.15	0.076	0.13	0.071	0.098	0.094	0.080	0.074	0.059	0.056

Table B.17. Continued. Camp Lake Station CL8 - Laboratory Data

Sample Date	17-Aug-20		25-Aug-20		07-Sep-20		14-Sep-20		21-Sep-20		7-Oct-20	
Parameter/Station (depth)	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**	**CL8 (sfc)**	**CL8 (btm)**
Dissolved Metals (mg/L)												
Aluminum (Al)	0.043	0.045	0.049	0.058	0.051	0.060	0.049	0.054	0.055	0.051	0.049	0.051
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00043	<0.00020	0.00038	0.00040	0.00051	0.00035	0.00046	0.00041	0.00045	0.00036	0.00047	0.00041
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	0.00018	0.00018	0.00018	0.00030	0.00016	0.00022	0.00015	0.00016	0.00020	0.00020	0.00016	0.00019
Calcium (Ca)	14	14	15	17	16	17	15	16	15	21	15	16
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	0.012	0.011	0.013	0.018	0.011	0.013	0.012	0.013	0.013	0.013	0.013	0.013
Iron (Fe)	0.62	0.65	0.81	1.4	0.98	1.4	1.1	1.4	1.3	1.5	1.4	1.4
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	3.3	3.3	3.4	3.8	3.7	3.9	3.5	3.5	3.4	4.4	3.4	3.4
Manganese (Mn)	<0.0040	0.0058	<0.0040	0.013	0.0082	0.017	<0.0040	0.0048	0.0078	0.0081	0.0043	0.0099
Molybdenum (Mo)	<0.00020	<0.00020	0.0017	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.00061	0.00089	<0.00050	0.00074	0.00075	0.0011	0.00066	0.00081	0.00083	0.00095	0.00068	0.00075
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	1.7	1.7	1.7	1.9	1.9	1.9	1.7	1.7	1.6	2.0	1.6	1.5
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	0.79	0.78	0.93	0.94	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.3
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.9	1.9	1.9	1.9	2.2	2.2	1.9	1.8	2.0	2.0	1.8	1.8
Strontium (Sr)	0.028	0.029	0.027	0.029	0.033	0.033	0.026	0.026	0.028	0.032	0.029	0.029
Sulphur (S)	7.8	7.6	8.4	11	9.2	10	8.3	8.5	9.3	9.9	9.5	9.7
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	0.0012	0.0010	0.0016	0.0012	<0.0010	0.0019	<0.0010	<0.0010	0.0010	0.0015
Uranium (U)	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00012	0.00033	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	0.054	0.055	0.058	0.091	0.056	0.066	0.051	0.056	0.065	0.070	0.059	0.063

Table B.18. Trap and Fox Lakes- Laboratory Data

Lake	Trap		Fox	
Parameter/Sample Date	**9-Aug-20**		**9-Aug-20**	
Physical/Chemical (mg/L)				
pH (pH units)	5.96		7.26	
Alkalinity (Total as $CaCO_3$)	3.4		58	
Bicarbonate (HCO_3)	4.2		71	
Carbonate (CO_3)	<1.0		<1.0	
Hydroxide (OH)	<1.0		<1.0	
Total Hardness ($CaCO_3$)	233		179	
Hardness ($CaCO_3$)	260		190	
Turbidity (NTU)	--		--	
Total Suspended Solids	1.5		<1.0	
Metals (mg/L)	**Total**	**Dissolved**	**Total**	**Dissolved**
Aluminum (Al)	0.39	0.15	0.026	0.018
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00043	0.00031	0.00031	0.00039
Barium (Ba)	0.024	0.027	0.020	0.020
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	0.021	0.020	<0.020	<0.020
Cadmium (Cd)	0.0044	0.0047	<0.000020	<0.000020
Calcium (Ca)	74	84	62	65
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	0.021	0.020	<0.00030	<0.00030
Copper (Cu)	0.060	0.050	0.0014	0.0015
Iron (Fe)	0.75	0.36	<0.060	<0.060
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	11	13	5.6	5.9
Manganese (Mn)	0.44	0.51	0.0057	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	0.020	0.018	0.0012	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10
Potassium (K)	4.8	5.4	5.3	5.5
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	3.7	3.5	1.0	1.0
Silver (Ag)	0.00023	<0.00010	0.00012	<0.00010
Sodium (Na)	6.4	7.1	8.5	8.8
Strontium (Sr)	0.11	0.13	0.11	0.12
Sulphur (S)	79	80	45	46
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	0.0013
Uranium (U)	0.00025	0.00014	0.00012	0.00014
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	1.5	1.5	<0.0030	0.0042

Table B.19. 2020 QA/QC Sample Analyses - Equipment Blanks

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Physical/Chemical (mg/L)																
pH (pH units)	5.07	5.10	5.39	5.17	5.20	4.63	5.97	5.78	5.16	5.26	5.04	6.10	6.14	4.99	5.39	4.38
Alkalinity (Total as $CaCO_3$)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<1.0
Bicarbonate (HCO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<1.0	<1.0
Carbonate (CO_3)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Hardness ($CaCO_3$)	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hardness ($CaCO_3$)	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Turbidity (NTU)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids	1.2	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	1.1
Total Metals (mg/L)																
Aluminum (Al)	<0.0030	0.0031	0.0047	0.0031	<0.0030	0.0054	<0.0030	<0.0030	<0.0030	<0.0030	0.0032	<0.0030	0.0046	0.0034	<0.0030	0.0035
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium (Ca)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	0.00021	0.00031	0.00024	<0.00020	<0.00020	0.00031	0.00031	0.00021	<0.00020	<0.00020
Iron (Fe)	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Manganese (Mn)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.00066	0.00055	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00078	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00033	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
Sodium (Na)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphur (S)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	0.0015	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
Zinc (Zn)	<0.0030	<0.0030	0.0031	0.0055	<0.0030	<0.0030	<0.0030	0.0033	<0.0030	<0.0030	<0.0030	0.0042	<0.0030	<0.0030	<0.0030	<0.0030

Table B.19. Continued. 2020 QA/QC Sample Analyses - Equipment Blanks

Parameter/Sample Date	3-Mar-20	2-Jun-20	9-Jun-20	15-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	25-Aug-20	7-Sep-20	14-Sep-20	21-Sep-20	7-Oct-20
Dissolved Metals (mg/L)																
Aluminum (Al)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	<0.00060	<0.00060	<0.00060	0.0011	0.0011	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	0.00021
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.026	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium (Ca)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	<0.00020	0.00093	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031	0.00039	0.00027	<0.00020
Iron (Fe)	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Manganese (Mn)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphur (S)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	0.006	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	<0.0030	<0.0030	0.0049	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0033	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

Table B.20. 2020 QA/QC Sample Analyses - Trip Blanks

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	14-Sep-20	21-Sep-20	7-Oct-20
Physical/Chemical (mg/L)															
pH (pH units)	5.14	7.80	6.62	6.28	5.18	5.59	6.03	7.19	7.79	6.13	5.48	6.39	7.20	5.35	7.15
Alkalinity (Total as $CaCO_3$)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bicarbonate (HCO_3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate (CO_3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide (OH)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Hardness ($CaCO_3$)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hardness ($CaCO_3$)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Turbidity (NTU)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Suspended Solids	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/L)															
Aluminum (Al)	<0.0030	<0.0030	0.0034	<0.0030	0.0048	<0.0030	<0.0030	<0.0030	<0.0030	0.0045	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	0.00027	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000049
Calcium (Ca)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	<0.00020	0.00029	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Iron (Fe)	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Manganese (Mn)	<0.0040	<0.0040	<0.0040	0.026	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00072	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	<0.10	<0.10	<0.10	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphur (S)	<0.20	<0.20	<0.20	0.47	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

Table B.20. Continued. 2020 QA/QC Sample Analyses - Trip Blanks

Parameter/Sample Date	4-Mar-20	2-Jun-20	9-Jun-20	21-Jun-20	30-Jun-20	6-Jul-20	13-Jul-20	21-Jul-20	28-Jul-20	12-Aug-20	17-Aug-20	25-Aug-20	14-Sep-20	21-Sep-20	7-Oct-20
Dissolved Metals (mg/L)															
Aluminum (Al)	<0.0030	0.0037	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Arsenic (As)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Barium (Ba)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium (Cd)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium (Ca)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chromium (Cr)	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)	<0.00020	<0.00020	0.00028	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00037	0.00023	<0.00020
Iron (Fe)	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060
Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Lithium (Li)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Manganese (Mn)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00033	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.00050	0.00081	0.00057	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium (Se)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphur (S)	<0.20	0.34	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)	<0.0030	<0.0030	0.0039	<0.0030	<0.0030	0.0042	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0046	<0.0030

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 7863 TETRA TECH CANADA INC., WINNIPEG Job Number: C038255

Client Project Name & Number: SHERRIDON 705-09240103-ALL

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100% (N/A) Statistical Method: Visual

Sample Name : TOX-WEIR-20200603 Sample Matrix : Water

Description: Yellow, Clear Sample Number: XW5364-01

Sample Collected: Jun 03, 2020 09:10 AM Sampling Method : N/A Site Collection: N/A

Sample Collected By: ED Volume Received: 40 L Temp.Upon Arrival: 13 °C Storage: 2-6°C

Sample Received: Jun 05, 2020 12:22 PM pH: 6.7 Dissolved Oxygen: 9.8 mg/L

Analysis Start : Jun 08, 2020 11:10 PM Temperature : 14 °C Sample Conductance: 170 µS/cm

Concentration	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	Start	Start	Start	Start	24 hrs	24 hrs	24 hrs	24 hrs	48 hrs	48 hrs	48 hrs	48 hrs
0	16	8.0	396	9.0	0	0	0	0	0	0	0	0
6.25	16	8.0	383	9.0	0	0	0	0	0	0	0	0
12.5	16	7.9	369	9.0	0	0	0	0	0	0	0	0
25	16	7.8	342	9.1	0	0	0	0	0	0	0	0
50	15	7.6	285	9.2	0	0	0	0	0	0	0	0
100	15	7.3	177	9.3	0	0	0	0	0	0	0	0

Concentration	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	72 hrs	72 hrs	72 hrs	72 hrs	96 hrs	96 hr	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs
0	0	0	0	0	16	7.7	398	8.1	0	0	0	0
6.25	0	0	0	0	16	7.6	385	7.9	0	0	0	0
12.5	0	0	0	0	16	7.7	371	8.0	0	0	0	0
25	0	0	0	0	16	7.7	346	8.4	0	0	0	0
50	0	0	0	0	16	7.4	295	7.9	0	0	0	0
100	0	0	0	0	16	7.0	181	8.3	0	0	0	0

Comments : None

Culture/Control/Dilution Water City of Edmonton dechlorinated tap water

Hardness: 150 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	30 min.	Rate of Aeration	6.5±1 mL/min/L
Test Volume :	20 L	Vessel Volume :	38L	Test pH Adjusted:	No
Loading Density :	0.3 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Spring Valley Trout Hatchery

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.7 ± 0.2 g	Length (Mean) +- SD :	4.29 ± 0.43 cm
Culture Water Renewal :	≥ 1.0 L/min/kg fish	Weight (Range) :	0.3 – 1.0 g	Length (Range) :	3.40 – 4.80 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Phenol Test Date: May 30, 2020

Test Endpoint 96 hrs LC50 (95% confidence interval) : 11.2 (10.2, 12.3)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 10.1 (8.68, 11.7) mg/L Concentration : 0,8,10,12,15,20 mg/L

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 7863 TETRA TECH CANADA INC., WINNIPEG Job Number: C047264

Client Project Name & Number: SHERRIDON, MB 705-09240103-ALL; 2020 WATER S

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100% (N/A) Statistical Method: Visual

Sample Name : TOX-WEIR-20200706 Sample Matrix : Water

Description: Yellow, clear Sample Number: YB0446-01

Sample Collected: Jul 06, 2020 11:10 AM Sampling Method : N/A Site Collection: N/A

Sample Collected By: KS Volume Received: 40 L Temp.Upon Arrival: 10 °C Storage: 2-6°C

Sample Received: Jul 08, 2020 12:45 PM pH: 6.8 Dissolved Oxygen: 9.8 mg/L

Analysis Start : Jul 11, 2020 09:40 AM Temperature : 14 °C Sample Conductance: 111 µS/cm

Concentration	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	Start	Start	Start	Start	24 hrs	24 hrs	24 hrs	24 hrs	48 hrs	48 hrs	48 hrs	48 hrs
0	14	7.7	364	9.2	0	0	0	0	0	0	0	0
6.25	14	7.7	349	9.2	0	0	0	0	0	0	0	0
12.5	15	7.6	326	9.2	0	0	0	0	0	0	0	0
25	15	7.6	307	9.2	0	0	0	0	0	0	0	0
50	14	7.4	245	9.3	0	0	0	0	0	0	0	0
100	14	7.0	114	9.4	0	0	0	0	0	0	0	0

Concentration	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	72 hrs	72 hrs	72 hrs	72 hrs	96 hrs	96 hr	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs
0	0	0	0	0	14	7.7	364	9.4	0	0	0	0
6.25	0	0	0	0	14	7.5	349	8.9	0	0	0	0
12.5	0	0	0	0	14	7.6	325	9.4	0	0	0	0
25	0	0	0	0	14	7.5	307	9.3	0	0	0	0
50	0	0	0	0	14	7.4	243	9.4	0	0	0	0
100	0	0	0	0	14	6.9	117	8.2	0	0	0	0

Comments : None

Culture/Control/Dilution Water City of Edmonton dechlorinated tap water

Hardness: 150 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	120 min.	Rate of Aeration	6.5±1 mL/min/L
Test Volume :	20 L	Vessel Volume :	38L	Test pH Adjusted:	No
Loading Density :	0.3 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Spring Valley Trout Hatchery

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.6 ± 0.2 g	Length (Mean) +- SD :	3.97 ± 0.41 cm
Culture Water Renewal :	≥ 1.0 L/min/kg fish	Weight (Range) :	0.3 – 0.9 g	Length (Range) :	3.30 – 4.70 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Phenol Test Date: Jun 19, 2020

Test Endpoint 96 hrs LC50 (95% confidence interval) : 11.2 (10.1, 12.5)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 10.1 (8.68, 11.6) mg/L Concentration : 0,8,10,12,15,20 mg/L

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 7863 TETRA TECH CANADA INC., WINNIPEG Job Number: C057802

Client Project Name & Number: SHERRIDON, MB 705-09240103-ALL; 2020 WATER S

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100% (N/A) Statistical Method: Visual

Sample Name : TOX-WEIR Sample Matrix : Water

Description: Clear and Orange Sample Number: YG7020-01

Sample Collected: Aug 13, 2020 02:08 PM Sampling Method : N/A Site Collection: N/A

Sample Collected By: KS Volume Received: 40 L Temp.Upon Arrival: 8 °C Storage: 2-6°C

Sample Received: Aug 14, 2020 02:00 PM pH: 6.9 Dissolved Oxygen: 8.7 mg/L

Analysis Start : Aug 17, 2020 12:52 PM Temperature : 15 °C Sample Conductance: 142 µS/cm

Concentration	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	Start	Start	Start	Start	24 hrs	24 hrs	24 hrs	24 hrs	48 hrs	48 hrs	48 hrs	48 hrs
0	15	8.0	296	9.2	0	0	0	0	0	0	0	0
6.25	15	8.0	286	9.1	0	0	0	0	0	0	0	0
12.5	15	7.9	277	9.0	0	0	0	0	0	0	0	0
25	15	8.1	264	9.0	0	0	0	0	0	0	0	0
50	15	8.0	219	8.9	0	0	0	0	0	0	0	0
100	16	7.0	144	8.8	0	0	0	0	0	0	0	0

Concentration	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	72 hrs	72 hrs	72 hrs	72 hrs	96 hrs	96 hr	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs
0	0	0	0	0	15	7.9	304	8.7	0	0	0	0
6.25	0	0	0	0	15	7.8	293	7.9	0	0	0	0
12.5	0	0	0	0	14	8.1	280	8.4	0	0	0	0
25	0	0	0	0	14	8.1	264	8.6	0	0	0	0
50	0	0	0	0	14	7.9	222	8.6	0	0	0	0
100	0	0	0	0	14	7.4	143	8.6	0	0	0	0

Comments : None

Culture/Control/Dilution Water City of Edmonton dechlorinated tap water

Hardness: 180 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	30 min.	Rate of Aeration	6.5±1 mL/min/L
Test Volume :	20 L	Vessel Volume :	38L	Test pH Adjusted:	No
Loading Density :	0.4 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Spring Valley Trout Hatchery

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.8 ± 0.2 g	Length (Mean) +- SD :	4.49 ± 0.43 cm
Culture Water Renewal :	≥ 1.0 L/min/kg fish	Weight (Range) :	0.4 – 1.2 g	Length (Range) :	3.80 – 5.40 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Phenol Test Date: Aug 01, 2020

Test Endpoint 96 hrs LC50 (95% confidence interval) : 10.6 (9.57, 11.6)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 10.1 (8.63, 11.8) mg/L Concentration : 0,8,10,12,15,20 mg/L

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 7863 TETRA TECH CANADA INC., WINNIPEG Job Number: C065036

Client Project Name & Number: SHERRIDON, MB 705-09240103-ALL 2020 WATER SA

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100% (N/A) Statistical Method: Visual

Sample Name : TOX-WEIR-090720 Sample Matrix : Water

Description: Orange, clear Sample Number: YK4849-01

Sample Collected: Sep 07, 2020 02:28 PM Sampling Method : N/A Site Collection: N/A

Sample Collected By: N/A Volume Received: 40 L Temp.Upon Arrival: 6 °C Storage: 2-6°C

Sample Received: Sep 09, 2020 10:50 AM pH: 6.7 Dissolved Oxygen: 9.9 mg/L

Analysis Start : Sep 12, 2020 11:00 AM Temperature : 14 °C Sample Conductance: 137 µS/cm

Concentration	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	Start	Start	Start	Start	24 hrs	24 hrs	24 hrs	24 hrs	48 hrs	48 hrs	48 hrs	48 hrs
0	14	8.0	298	9.1	0	0	0	0	0	0	0	0
6.25	14	8.1	288	9.1	0	0	0	0	0	0	0	0
12.5	14	8.0	280	9.1	0	0	0	0	0	0	0	0
25	14	8.0	262	9.1	0	0	0	0	0	0	0	0
50	14	7.9	220	9.3	0	0	0	0	0	0	0	0
100	14	7.1	138	9.5	0	0	0	0	0	0	0	0

Concentration	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	72 hrs	72 hrs	72 hrs	72 hrs	96 hrs	96 hr	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs
0	0	0	0	0	14	7.8	301	9.3	0	0	0	0
6.25	0	0	0	0	14	8.0	294	9.2	0	0	0	0
12.5	0	0	0	0	14	8.1	287	9.3	0	0	0	0
25	0	0	0	0	14	8.1	267	9.3	0	0	0	0
50	0	0	0	0	15	8.1	227	9.2	0	0	0	0
100	0	0	0	0	15	8.1	144	9.0	0	0	0	0

Comments : None

Culture/Control/Dilution Water City of Edmonton dechlorinated tap water

Hardness: 180 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	30 min.	Rate of Aeration	6.5±1 mL/min/L
Test Volume :	20 L	Vessel Volume :	38L	Test pH Adjusted:	No
Loading Density :	0.3 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Spring Valley Trout Hatchery

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.6 ± 0.1 g	Length (Mean) +- SD :	4.08 ± 0.29 cm
Culture Water Renewal :	≥ 1.0 L/min/kg fish	Weight (Range) :	0.5 – 0.8 g	Length (Range) :	3.60 – 4.50 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Phenol Test Date: Sep 09, 2020

Test Endpoint 96 hrs LC50 (95% confidence interval) : 10.2 (9.23, 11.1)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 10.1 (8.65, 11.8) mg/L Concentration : 0,8,10,12,15,20 mg/L

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 7863 TETRA TECH CANADA INC., WINNIPEG Job Number: C074405

Client Project Name & Number: SHERRIDON, MB 705-09240103-ALL

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100% (N/A) Statistical Method: Visual

Sample Name : TOX-WEIR- Sample Matrix : Water

Description: Orange, Hazy Sample Number: YQ0508-01

Sample Collected: Oct 07, 2020 01:45 PM Sampling Method : N/A Site Collection: N/A

Sample Collected By: KS Volume Received: 40L Temp.Upon Arrival: 4 °C Storage: 2-6°C

Sample Received: Oct 10, 2020 11:45 AM pH: 7.1 Dissolved Oxygen: 10.1 mg/L

Analysis Start : Oct 12, 2020 12:10 PM Temperature : 14 °C Sample Conductance: 134 µS/cm

Concentration	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	Start	Start	Start	Start	24 hrs	24 hrs	24 hrs	24 hrs	48 hrs	48 hrs	48 hrs	48 hrs
0	15	7.5	293	9.2	0	0	0	0	0	0	0	0
6.25	15	7.5	288	9.2	0	0	0	0	0	0	0	0
12.5	15	7.5	275	9.1	0	0	0	0	0	0	0	0
25	16	7.4	261	8.9	0	0	0	0	0	0	0	0
50	16	7.3	211	9.2	0	0	0	0	0	0	0	0
100	14	7.1	136	9.8	0	0	0	0	0	0	0	0

Concentration	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)	Temperature (°C)	pH (pH)	Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)	Atypical Behaviour (%)
% vol/vol	72 hrs	72 hrs	72 hrs	72 hrs	96 hrs	96 hr	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs	96 hrs
0	0	0	0	0	15	7.5	293	9.2	0	0	0	0
6.25	0	0	0	0	15	7.5	288	9.2	0	0	0	0
12.5	0	0	0	0	15	7.5	275	9.1	0	0	0	0
25	0	0	0	0	16	7.4	261	8.9	0	0	0	0
50	0	0	0	0	16	7.3	211	9.2	0	0	0	0
100	0	0	0	0	14	7.1	136	9.8	0	0	0	0

Comments : None

Culture/Control/Dilution Water City of Edmonton dechlorinated tap water

Hardness: 180 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	120 min.	Rate of Aeration	6.5±1 mL/min/L
Test Volume :	20 L	Vessel Volume :	38L	Test pH Adjusted:	No
Loading Density :	0.3 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Spring Valley Trout Hatchery

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.7 ± 0.1 g	Length (Mean) +- SD :	4.16 ± 0.32 cm
Culture Water Renewal :	≥ 1.0 L/min/kg fish	Weight (Range) :	0.5 – 0.9 g	Length (Range) :	3.50 – 4.50 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Phenol Test Date: Oct 06, 2020

Test Endpoint 96 hrs LC50 (95% confidence interval) : 9.13 (8.78, 9.49)mg/L Statistical Method : Untrimmed Spearman-Kärber

Historical Mean LC50 (warning limits) : 10.1 (8.69, 11.8) mg/L Concentration : 0,8,10,12,15,20 mg/L

Transmittal Letter

From: Trevor Sims, MBA P.Eng. Conservation and Climate

Date: 2021-07-25

Subject: 2020 Water Quality Monitoring Program Summary

Project: Sherridon Mine Rehabilitation - Tailing Neutralization and Relocation and Associated Works

Comments:

Please find attached the above-mentioned report. If you have any questions please contact me.

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