



PE:7008 QUARTER 3 REPORT

Oct- Dec 2021

Kathleen Russell
kathleen.russell@quinsam.com

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SUMMARY OF EVENTS FOR THE THIRD QUARTER

During the 3rd Quarter (Q3) October 1st through December 31st, Quinsam Mine maintained the environmental obligations for permits PE: 7008 held with the Ministry of Environment and Climate Change Strategy and the Mines Act permit, C-172. The mine continues to be operated in a “*care and maintenance*” mode with The Bowra Group Inc. as the receiver.

Discharge occurred from the two authorized discharge locations for Q3. Authorized discharge locations include Settling Pond #1 (SPD), (EMS ID: E218582) on the south side and Settling Pond # 4 (WD), (EMS ID: E207409) on the north side. Characteristics of the discharge, (water quality and quantity) from the authorized discharge locations is compared to the applicable permit limits.

The receiving environment monitoring program for both lakes and river/stream stations were completed along with other necessary environmental sampling pertaining to permit PE:7008. The receiving environment monitoring program followed the 5 samples in 30 days schedule with sampling events spanning October 5th through November 2nd. These events were completed during the “fall flush” period with 217 mm of accumulated precipitation. Apart from some slightly elevated parameters of interest (i.e., dissolved aluminum (Al-D), total arsenic (As-T), dissolved copper (Cu-D), total and dissolved iron (Fe-T, Fe-D), total manganese (Mn-T), and pH; concentrations were not elevated above British Columbia Water Quality Guideline’s – Freshwater Aquatic Life (BC WQG-FWAL) levels, in the receiving environment throughout the ‘5 in 30’ sampling period.

Routine inspections were conducted, and any required maintenance of the water management structures was completed.

In addition to the aforementioned monitoring, the Environmental Department sampled 17 groundwater / underground areas. These included all 9 flooded mine pools (in-situ) and 8 groundwater outside the mine footprint (Ex-situ). This Quarter both in-situ and ex-situ sites were compared to Contaminated Sites Regulations, Schedule 6 - Aquatic Life (CSR-AL). Apart from some slightly elevated parameters of interest (i.e., Dissolved arsenic (As-D), selenium (Se-D), dissolved sulphate (SO₄), and sulfide calculated as hydrogen sulfide (H₂S), concentrations were not elevated above CSR-AL.

1.0 Non-Compliance Events

1.1 PERMIT LIMIT EXCEEDANCE

There were no parameters above permit limits this quarter.

1.2 COMPLIANCE WITH PERMIT

The following represents a summary of permit non-compliance(s) (PNC) specific to missed samples / parameter analysis, continuous flow requirements and unauthorized discharges. This information is also summarized in Appendix I, Table 2.

The Long Lake Middle Seep started flowing on October 24th and sampling for this site was initiated on November 1st, 2021. A PNC results from missing the October monthly sampling event as dangerous conditions limited site access for the last week of October.

An unauthorized discharge occurs year-round from the smaller seep (LLS) and from the larger seep (LLSM) when its starts flowing, usually occurring mid-fall.

A natural flow path with possible mine seepage was discovered draining into the Quinsam river in April of 2021 and started flowing again in October. This area started discharging to the river with increased surface flow associated with precipitation and surface runoff. It has not been determined if this flow path is also a groundwater discharge zone related to mine water seepage. Further monitoring is required. Water quality resulted in elevated conductivity (from elevated sodium) and arsenic.

2.0 WATER MANAGEMENT SYSTEMS

2.1 NORTH WATER MANAGEMENT – SETTLING POND 4 (WD / SP4)

Discharge at Settling Pond 4 (SP4) occurred for all 92 days during this quarter with an average daily flow rate of 0.1082 m³/s and a quarterly maximum flow rate of 0.233 m³/s. Appendix I, Table 23 display the results for flow at SP4.

Dewatering of the underground 2-North mine continued throughout this quarter with pumping from 1-Mains 2-North (1M2N), 5-Mains 2-North (5M2N) and 3-Mains 2-North (3M2N) with discharge to surface at Brinco Brook. Brinco Brook mixes with water pumped from 2-North Portal Sump and flows into SP4 where it is either released to the receiving environment (Middle Quinsam Lake), used to maintain cover over the 2-North Pond (WP) or used for coal processing activities (when operating).

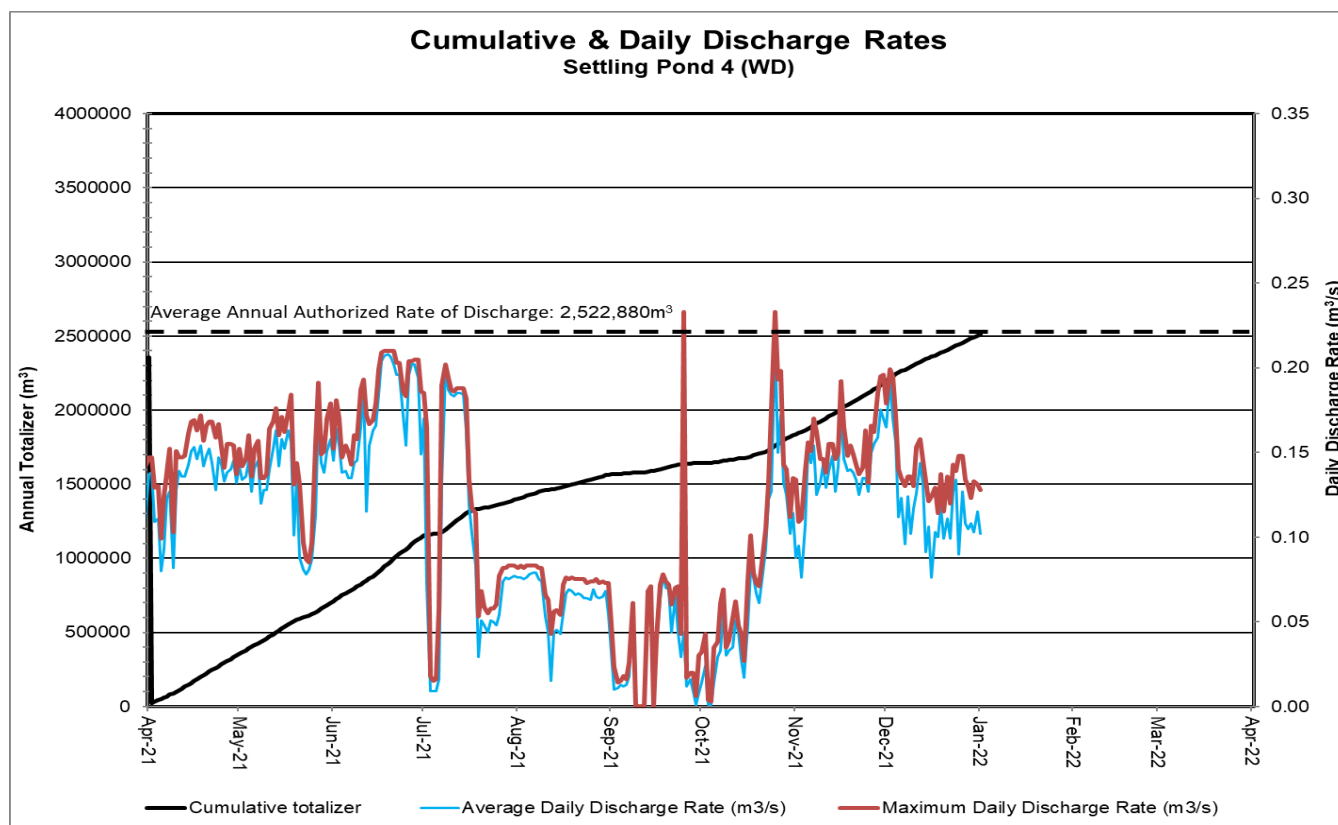


Figure 1: Settling Pond 4 (WD) Cumulative and Daily Discharge Rates

All permitted parameters applied to discharge at SP4 were found in compliance with permit limits. Average quarterly results for dissolved sulphate and total suspended solids (TSS) were 598 mg/L and 3.67 mg/L, respectively. With pH remaining neutral ranging from 7.33 to 8.34 throughout the quarter. Complete results for Settling Pond 4 are displayed in Appendix I, Table 5.

2.2 SOUTH WATER MANAGEMENT - SETTLING POND 1 (SPD / SP1)

Discharge at Settling Pond 1 (SP1) occurred for 92 days during this quarter with an average daily flow rate of 0.045 m³/s and quarterly maximum of 0.300 m³/s. Appendix I, Table 24 display the results for flow at SP1.

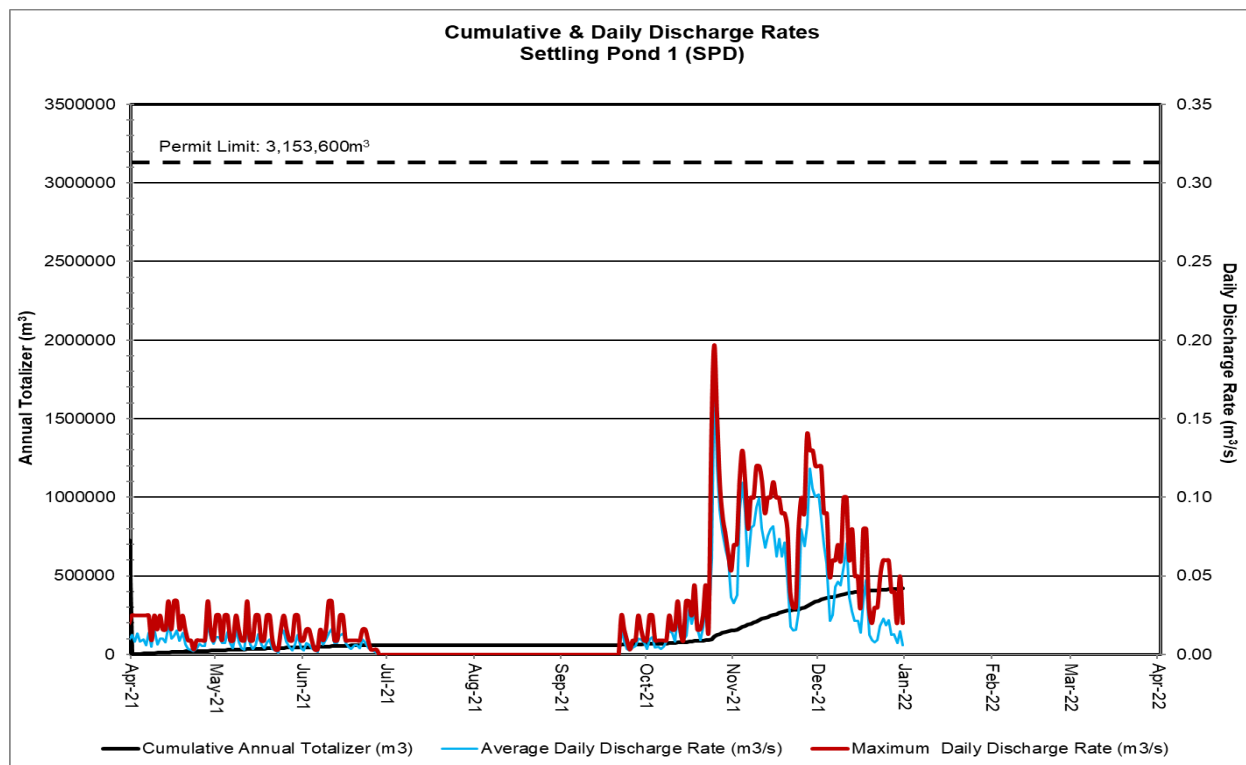


Figure 2: Settling Pond 1 (SP1 / SPD) Cumulative and Daily Discharge Rates

Water from 2-South and 3-South PAG-CCR storage facilities (pits) was routinely pumped into SP1 throughout the quarter. Dewatering of the 2S mine pool at QU11-11 (INF) continued with all water directed through the Passive Treatment System (PTS) at cells, Biochemical Reactor (BCREFF) and Sulphide Polishing Cell (SPCEFF). The discharge from the PTS is directed into the 2-South pit where it overflows into the 3-South pit and is pumped to SP1.

All permitted parameters applied to SP1 discharge were found in compliance with permit limits. Averaged quarterly results for dissolved sulphate and TSS were 207 mg/L and 1.52 mg/L, respectively. Weekly pH remained neutral ranging from 6.73 to 7.75 throughout the quarter. Complete results for SP1 are displayed in Appendix I, Table 10.

2.3 96-HOUR RAINBOW TROUT BIOASSAYS

Discharge from Settling Pond 1 and 4 were collected for 96-hour rainbow trout bioassays on October 14th, 2021, after a significant rain event. Each test passed with 100 % survival rates.

2.4 7-SOUTH (7SSD) WATER MANAGEMENT

No discharge occurred from the 7-South Surface Decant Pond (7SSD). All water is directed into the 7-South portal sump (7SPS) where it is pumped into the 5-South Mine Pool. The supernatant from 7SSD was sampled on October 4th this quarter as required by the amended permit. Complete results for 7SSD are displayed in Appendix 1, Tables 21 and 25.

Water quality at 7S, Stream 1 remained within water quality guidelines during monthly sampling events for all parameters except dissolved copper. Dissolved copper guideline varies and is dependent on pH, hardness and dissolved organic carbon (DOC). The first two monthly samples from October and November were above the acute guideline of ≤ 0.0002 mg/L, resulting in 0.00026 mg/L and 0.00040 mg/L. The December acute guideline was ≤ 0.00241 mg/L and the result was 0.00029 mg/L, lower than the guideline.

3.0 WATER QUANTITIES & FLOW RATES

Flow data is presented tabularly in Appendix I Tables 26 and 27 for the following sites:

- EMS ID E292127 - 2 South Pit Inflow and outflow,
- EMS ID E292130 - Long Lake Entrance (LLE),
- EMS ID E292130 - Long Lake Seeps (LLSM and LLS),
- EMS ID E292109 - Stream1 7S (not obtained in Q3),
- EMS ID 126402 - Quinsam River at Argonaut Bridge (WA),
- EMS ID 900504 - Middle Quinsam Lake Outlet (WB),
- EMS ID E219412 - Long Lake Outlet (LLO),
- EMS ID E297232 - Iron River Site 8 (not obtained in Q3)

Flow data for WA has been obtained from the Environment Canada weather monitoring station. Flow data

The Quinsam environmental department has established flow curves for all sites required under the effluent permit. Flows were observed to increase during October and through early December in the rivers with peaks observed during the last two weeks of October correlating with heavy rains. The below hydrographs display the flow conditions for the site up to January 2022.

The fall flush was experienced through the months of October and November with monthly accumulations of 212.40 mm and 231.80 mm of precipitation, respectively. October experienced the most isolated events of heavy rain (i.e., on October 25th the site experienced 67 mm of precipitation). Total precipitation was 551.5 mm during Q3 with the greatest accumulation observed in the month of November (231.80mm). Precipitation data for the site is included in Appendix I, Table 28.

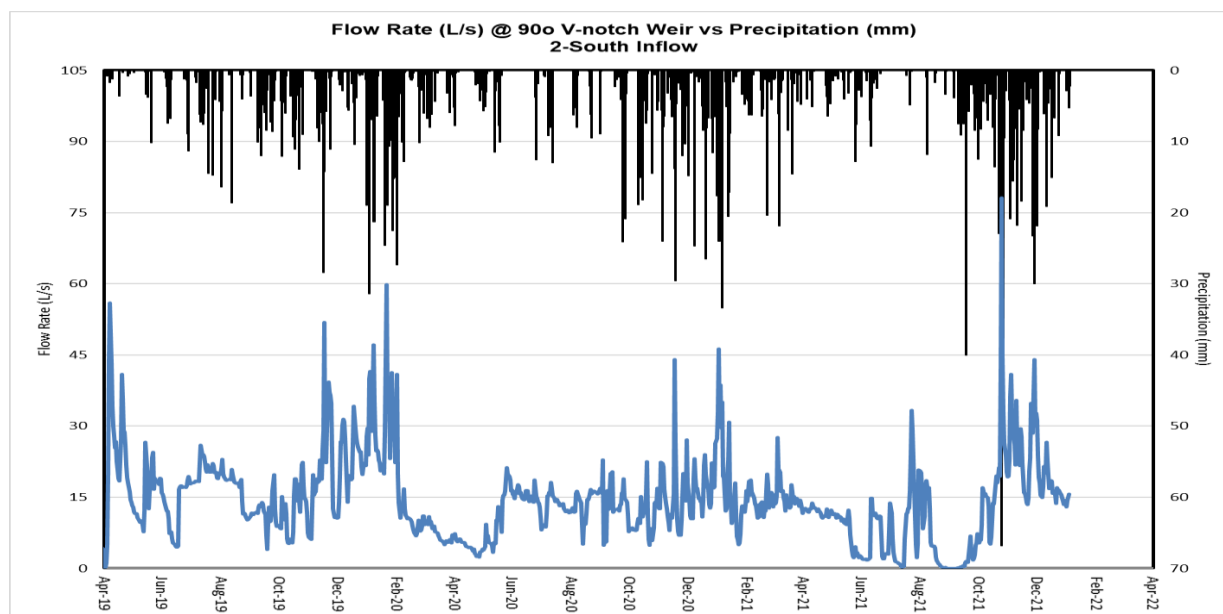


Figure 3: 2-South Pit Continuous Inflow

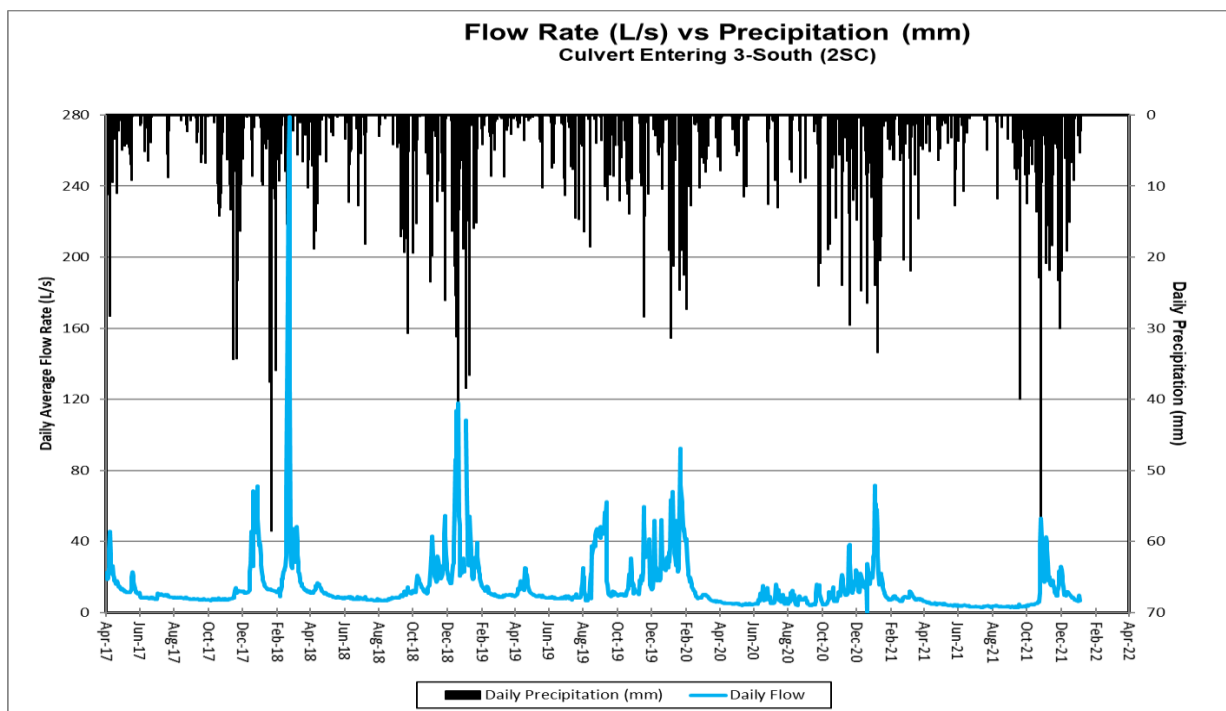


Figure 4: 2-South Pit Continuous Outflow

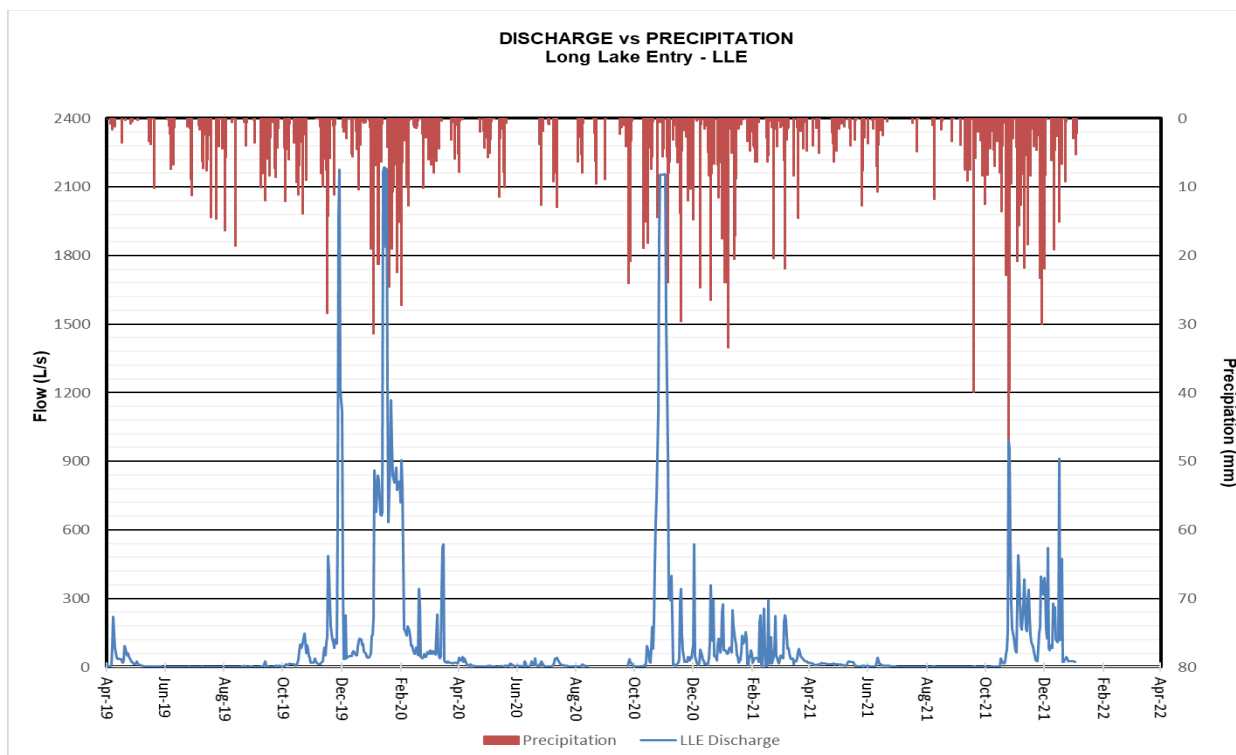


Figure 5: Inflow to Long Lake from the South Mine Area (LLE)

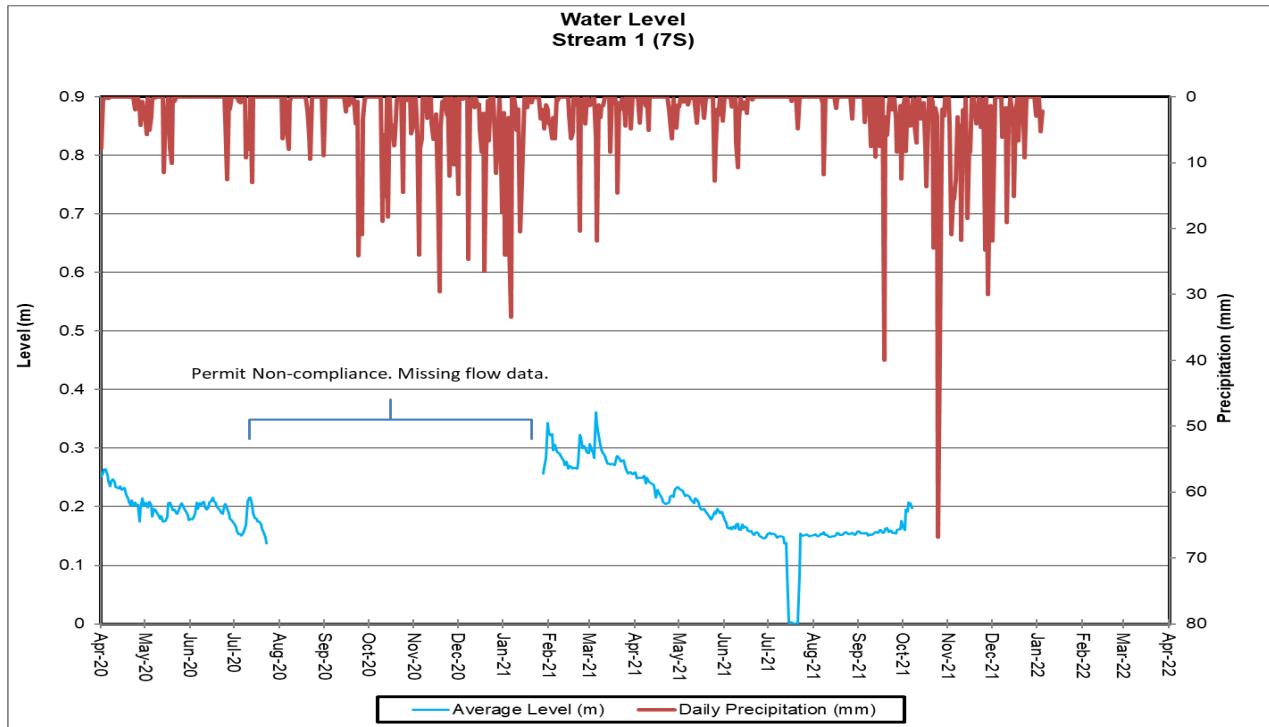


Figure 6: Stream 1 (7S)

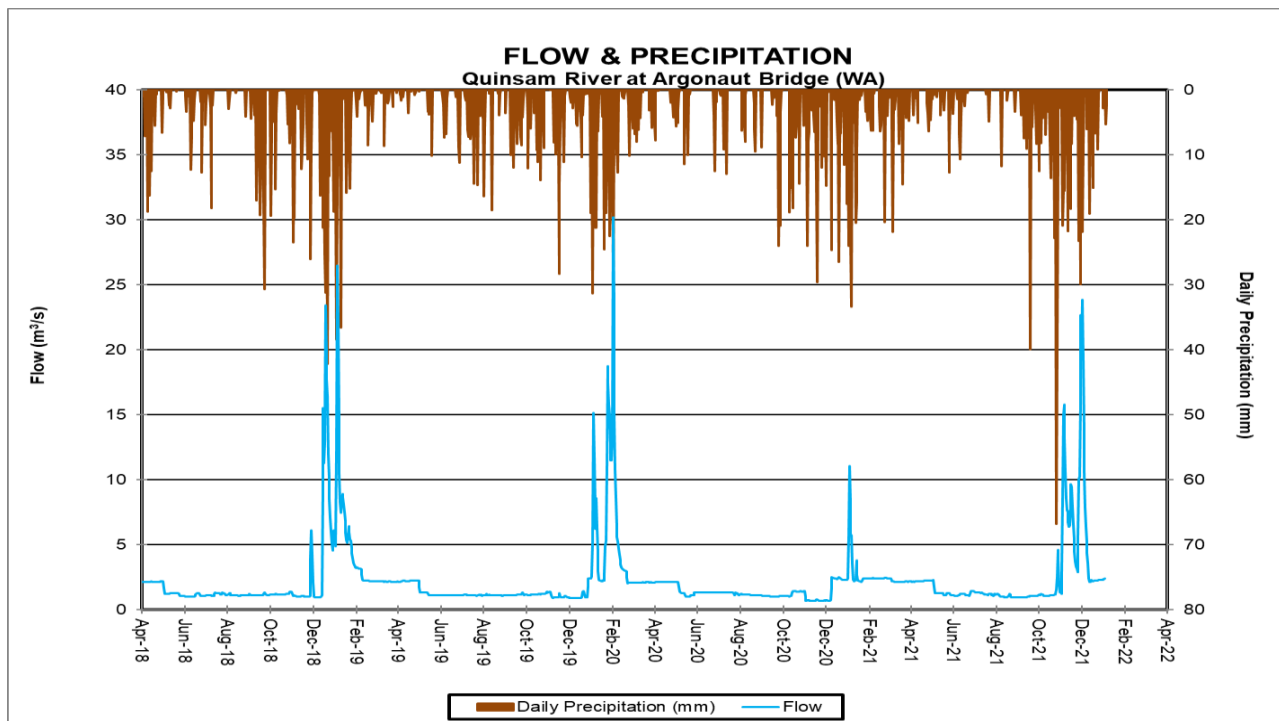


Figure 7: Quinsam River at Argonaut Bridge (WA)

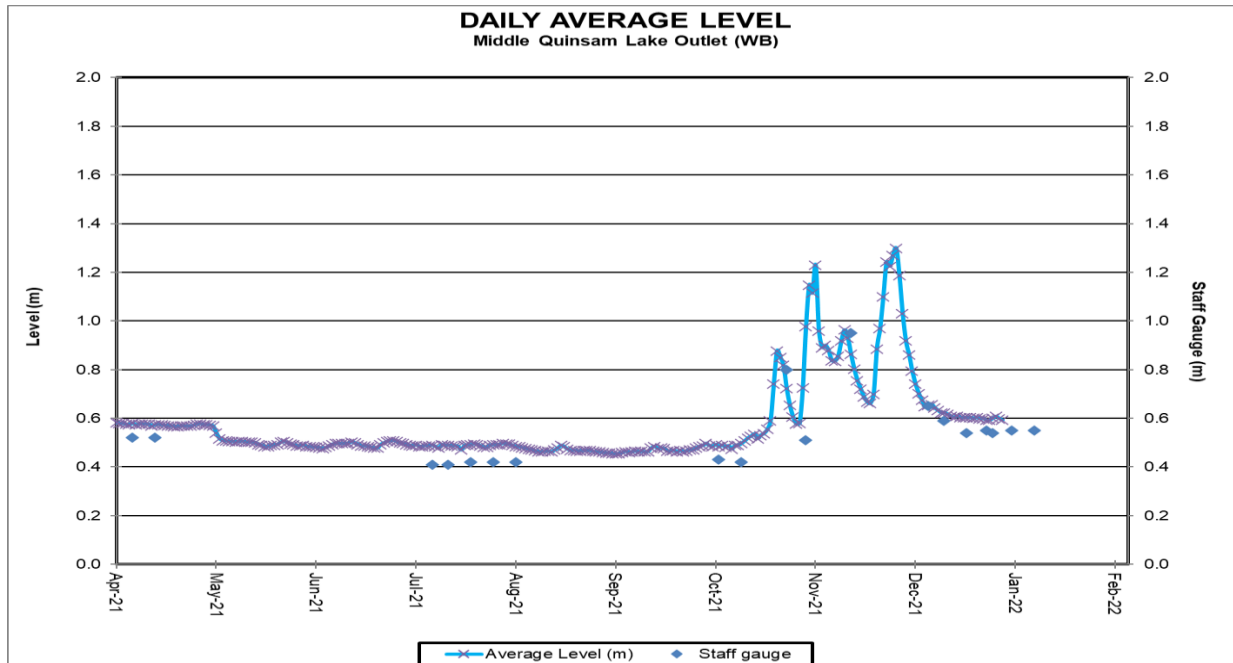


Figure 8: Middle Quinsam Lake Outlet (WB)

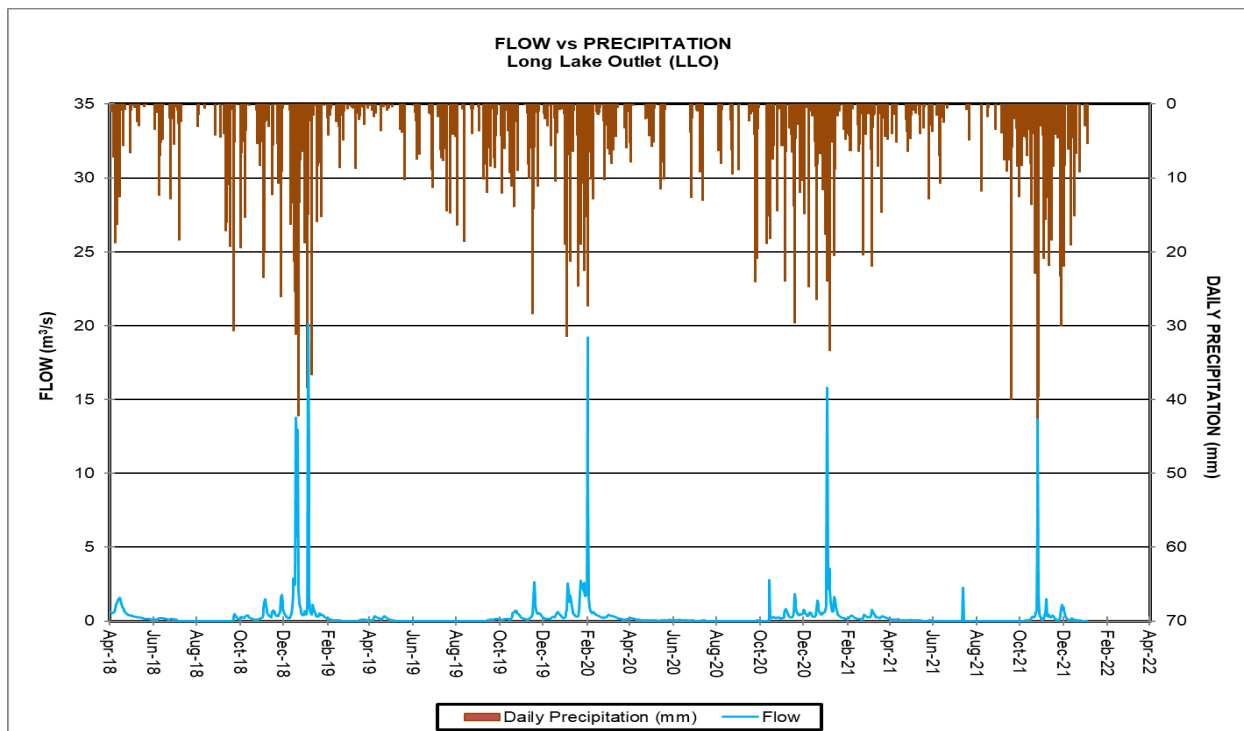


Figure 9: Long Lake Outlet (LLO)

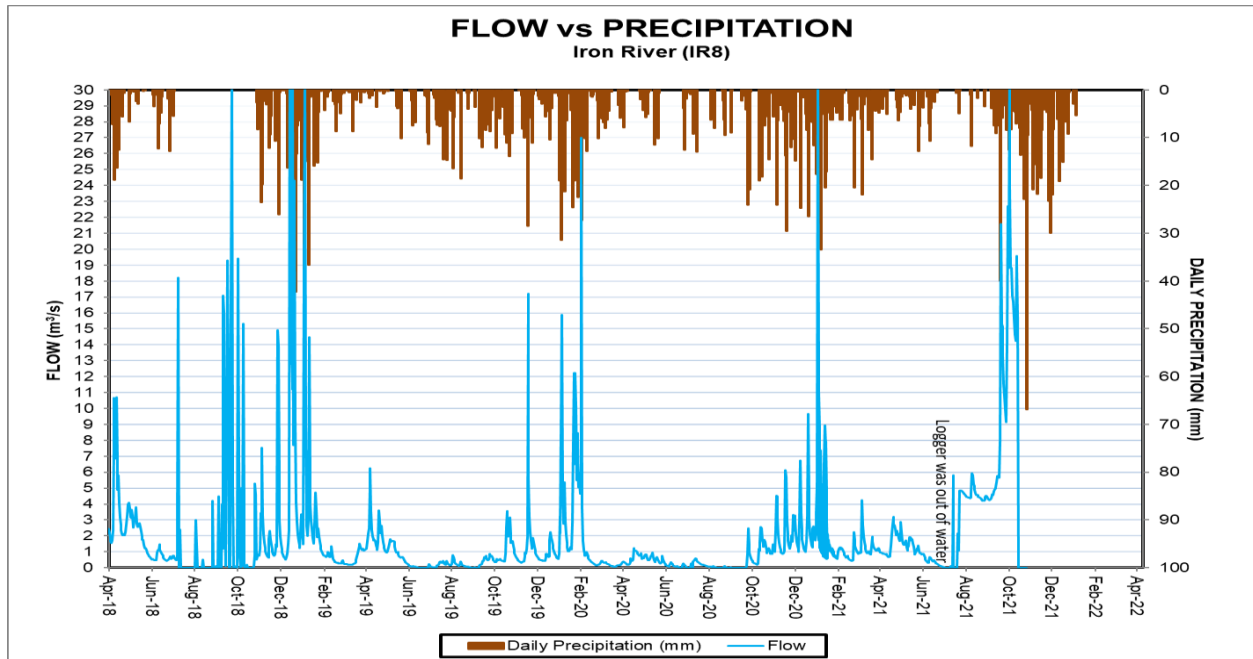


Figure 10: Iron River (IR8)

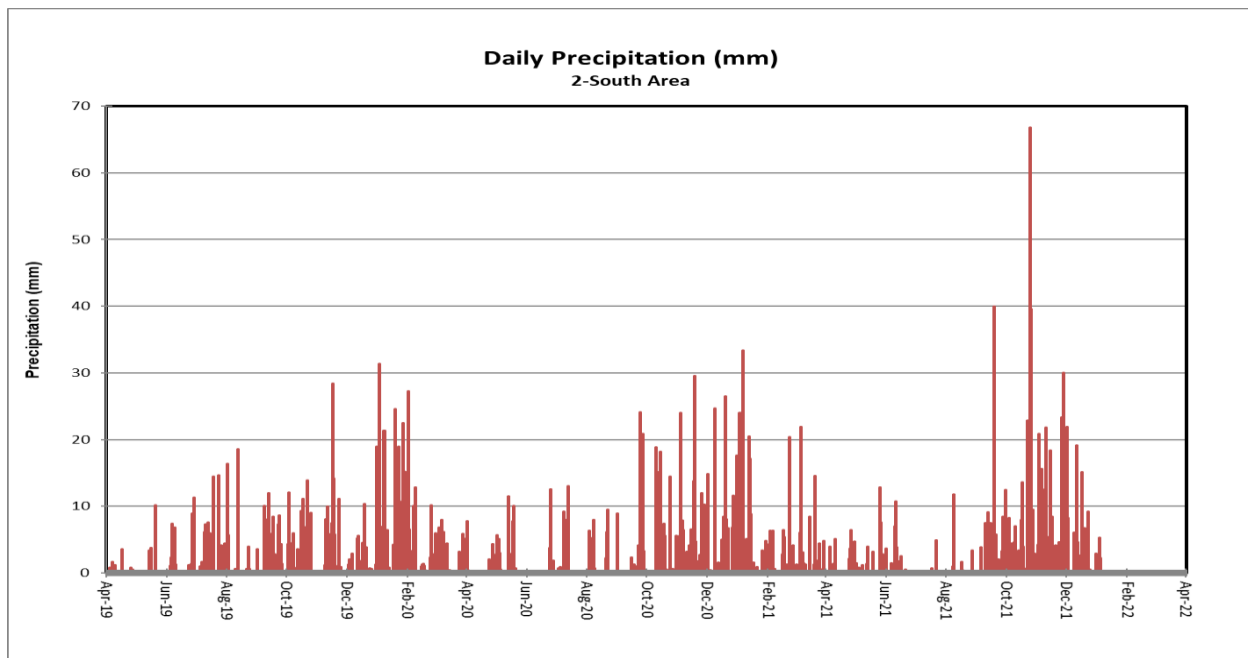


Figure 11: Daily Precipitation (mm)

4.0 RECEIVING WATER (STREAMS AND LAKES) MONITORING SITES

Monitoring stations captured within the Quinsam Mine Site are listed in the table below.

Table 1: Receiving Water (Streams and Lakes) Monitoring Sites

Streams	Lakes	Site Code for Lakes
North Mining Operation		
Quinsam River at Argonaut Road (WA) (EMS # 0126402) – Upstream of mine influence Outflow from Middle Quinsam Lake (WB) (EMS # 0900504)	Middle Quinsam Lake (MQL) Centre at depths of 1 metre (1m), 4 metre (4m), 9 metre (9m) and 1 metre from bottom (1MB) (EMS # E206618)	MQL1, MQL4, MQL9 and MQLB
South Mining Operation		
Long Lake Outlet (LLO) (EMS # E219412) No Name Lake Outlet (NNO) (EMS # E217017)	Long Lake at Centre (LLM) at depths of 1m, 4m, 9m, and 1MB (EMS # E206619) No Name Lake (NNL) at depths of 1m, 4m, 9m, and 1MB (EMS # E217018)	LLM1, LLM4, LLM9 and LLMB NNL1, NNL4, NNL9 and NNLB
7-South Mining Operation (Areas 1 to 4)		
Quinsam River upstream of 7 South Mining Operation (QRDS1) (EMS # E286930) Quinsam River downstream of 7 South Mining Operation (7SQR) (EMS # E292113) Lower Wetland Outlet at the confluence of Quinsam River (LWO) (EMS # E292112)	Lower Quinsam Lake (LQL) (EMS # E292118) at depths of 1m, 4m, 9m, and 1MB	LQL1, LQL4, LQL9 and LQLB
7-South Area 5 Mining Operation		
Iron River upstream of 7SA5 (IR6) (EMS # E297231) Iron River downstream of 7SA5 and 242 inputs (IR8) (EMS # E297232) Quinsam River downstream of confluence with Iron River (IRQR) (EMS # E299256)	Lower Quinsam Lake (LQL) (EMS # E292118)	LQL1, LQL4, LQL9 and LQLB

Preamble – Water Hardness and Copper

For the purposes of this report, water quality in the receiving environment is compared to Acute and Chronic BC Water Quality Guidelines for Freshwater Aquatic Life (WQG). For those parameters that are hardness dependent the guideline has been derived using background (i.e., monitoring location WA) hardness (~30mg/L) at all stations. Quinsam Coal has adopted this approach for the Iron River to provide a conservative comparison of receiving environment water quality except for dissolved copper.

To obtain the dissolved copper guideline ambient water quality from the receiving environment sites has been uploaded into the British Columbia Copper Biotic Ligand Model Database. The database uses ambient hardness, pH, temperature and dissolved organic carbon from each sampling event and derives a site specific acute and chronic WQG for copper. The below graphs display the acute and chronic Aquatic Life – WQG's derived for copper compared to individual copper results from receiving environment sites during fall.

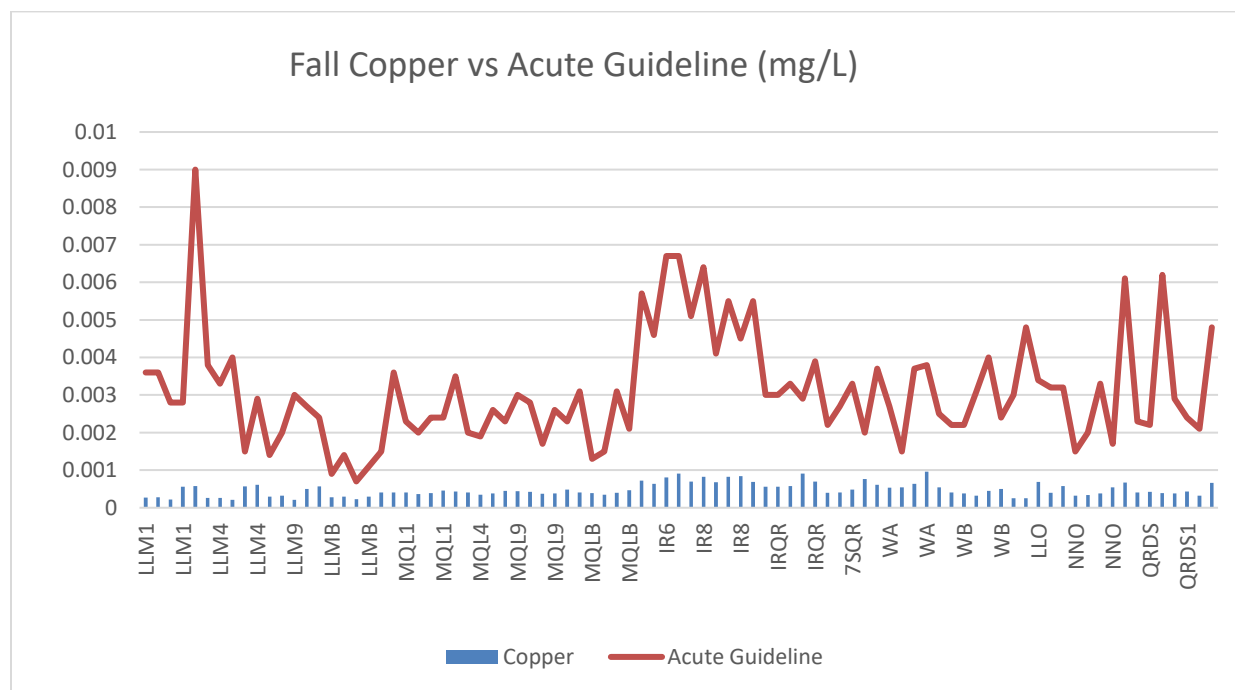


Figure 12: Fall Copper Versus Acute Guidelines Receiving Sites (mg/L)

Receiving water quality during fall remained below the acute copper guidelines derived from ambient water quality.

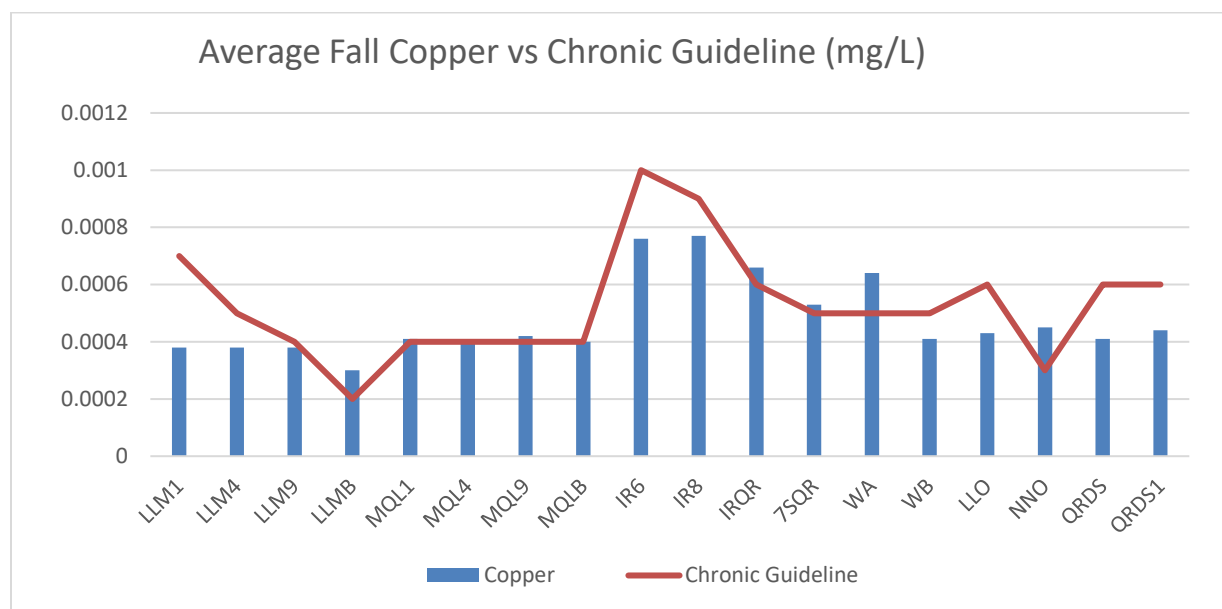


Figure 13: Average Fall Copper Versus Chronic Guidelines Receiving Sites (mg/L)

Receiving water quality during fall remained below the chronic copper guidelines at most sites, derived from ambient averaged water quality. Those sites that were observed slightly above the chronic guideline include the lakes (MQL1, MQL9 and LLMB) and the Quinsam river upstream of mine influence (WA), downstream of mine influence (7SQR) and downstream of the confluence with the Iron and Quinsam Rivers (IRQR). No Name Lake Outlet (NNO) also experienced average elevated copper draining from No Name Lake.

4.1 LAKES

Lake sampling commenced on October 6th following the 5 samples in 30 days approach “5 in 30” and completed on November 2nd. This program included Long Lake (LLM) and Middle Quinsam Lake (MQL). Depth profiling for physical parameters is performed at every meter from surface to bottom with an Exo Sonde that captures pH, conductivity, temperature, dissolved oxygen (DO) and oxidation reduction potential (ORP). Water samples are collected for laboratory analysis at 1 metre (1m), 4 metre (4m), 9 metre (9m) and 1 metre from bottom (1MB). Appendix 1, Tables 29 through 31 display the physical and chemical water quality results compared WQG-FWAL.

Fall monitoring is meant to capture the fall turn over event so the deeper portions (hypolimnion) have been replenished with dissolved oxygen. This was evident in Middle Quinsam Lake (MQL) as it is a long, shallow lake (14m to 15m) with inputs controlled by the upstream dam on the Quinsam River.

Long lake (LL) is deeper (19m to 22m) and shorter in length with inputs received from No Name Lake and groundwater inputs including Long Lake seeps and mine related discharge at the outlet (LLE).

When there is limited inflow at the inlet (from No Name Lake) and ambient temperatures remain warm, lake stratification is extended in LL compared to MQL. In LL, turnover occurs late in the fall, with stratification remaining late into November and dissolved oxygen levels depleted (<3 mg/L) in the hypolimnion, referred to as anoxic conditions. Anoxic conditions at depth causes manganese concentrations to increase at the sediment / water interface. Anoxic conditions were observed during the fall sampling events in the hypolimnion zone (16 m to 22 m) and as a results manganese was elevated at the 1 metre from bottom depth (1MB).

In MQL turnover was apparent, distinguished by a less pronounced temperature gradient of less than 1 degree between surface (epilimnion), middle (metalimnion), and bottom (hypolimnion) depths compared to summer. Dissolved oxygen levels in the fall remained consistent from surface to depth ranging from 9.35 to 10.32 over the 5 weeks.

Refer to figures 14 and 15 showing both lakes (LLM and MQL) 5 in 30 average dissolved sulphate over time.

Noteworthy observations resulting from the lake monitoring program include:

- Average dissolved sulphate in MQL was below the chronic WQG (128 mg/L) at all depths resulting in 44 mg/L at 1M and 4M depths, and 45 mg/L at 9M and 1MB depths.
- Average dissolved sulphate in LL was below the chronic WQG (128 mg/L) at all depths averaging 62 mg/L at 1M and 63 mg/L 4M, and 79 mg/L at 9M and 103 mg/L at 1MB depths.
- The fall turnover was apparent in MQL, observed through temperatures remaining consistent per depth.
- Stratification was still apparent during the first three weeks in LLM, again observed through temperature gradients. Turnover was starting to occur during the last two weeks.
- Dissolved oxygen (DO) was below 3 mg/L in Long Lake in the hypolimnion zone resulting in anoxic conditions at depth where Mn-T was observed to be elevated above WQG's.
- Low DO is correlated with lake stratification depleting DO where manganese is released at the sediment / water interface.
- LL displayed slightly acidic conditions during week one (four depths) in the hypolimnion.
- LL displays elevated conductivity, increasing with depth ranging from 6.45 to 6.49.
- The Long Lake Middle Seep stopped flowing mid-August until mid-October, indicating LL had some surface influence from the seeps.
- Average results for dissolved copper were elevated at MQL 1M and at depth in both lakes (LLMB and MQL9)

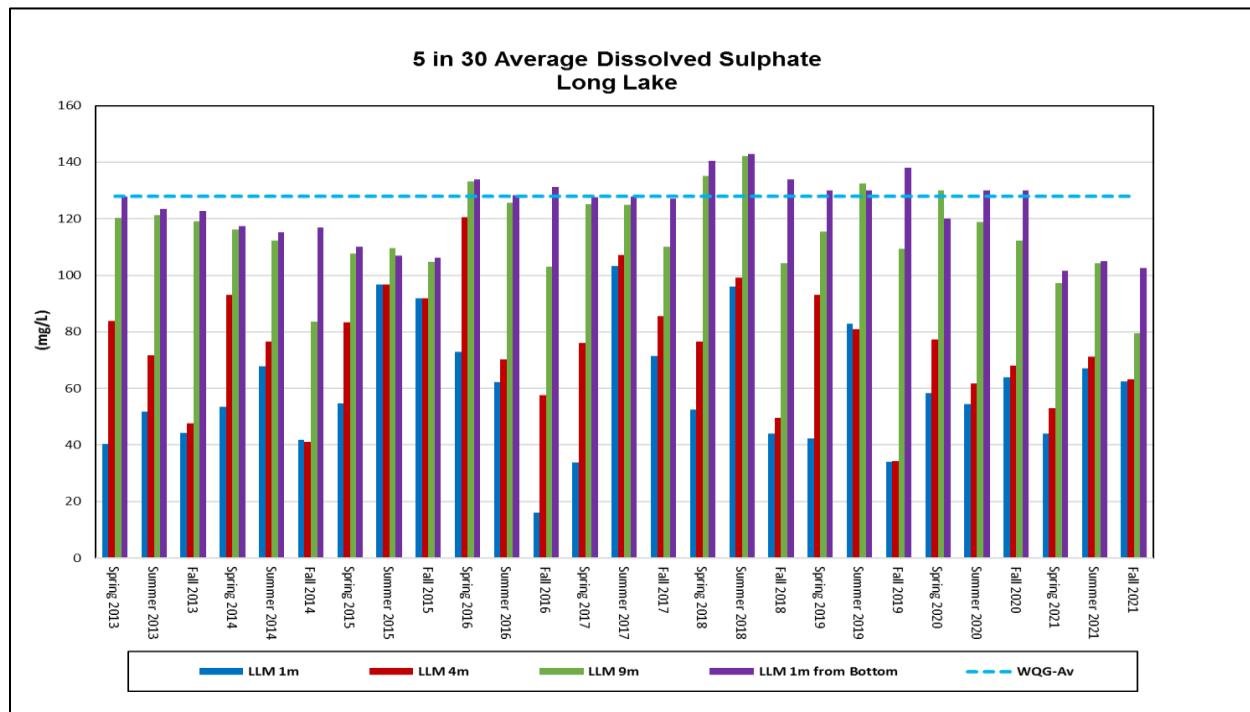


Figure 14: Long Lake Average Dissolved Sulphate

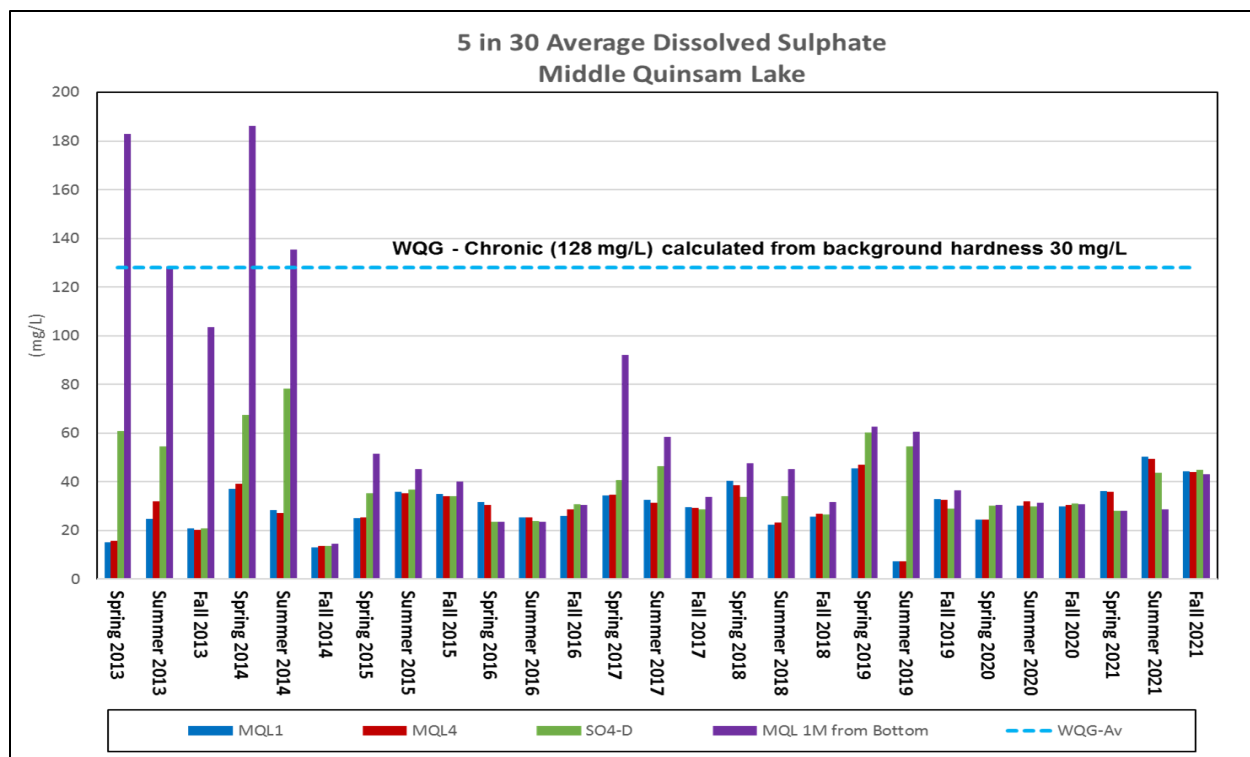


Figure 15: Middle Quinsam Lake Average Dissolved Sulphate

4.2 STREAMS AND RIVERS

The '5 in 30' receiving environment program at river and stream sites commenced October 6th and concluded November 5th.

Appendix I, Tables 3 and 32 display water quality results for this program compared to WQG-FWAL for the receiving environment sites.

Noteworthy observations resulting from the river/stream Q3 monitoring program include:

- Dissolved aluminum was above the acute and chronic guidelines of 0.1 mg/L and 0.05 mg/L, respectively at Iron River locations IR6 and at IR8.
- Aluminum increases with increased flow on the Iron River.
- Arsenic was not elevated in the Iron River during the Q3 monitoring period.
- Average dissolved copper for fall were above the chronic WQG at WA, 7SQR and IRQR
- Dissolved copper was elevated above the acute WQG at Steam 1, 7S for 2 monthly samples

While monitoring location LLE is considered the initial dilution zone (for water quality evaluation purposes) it is important to note, that this location is a wetland and represents the uppermost extent of an initial dilution zone for the South water management system discharge into Long Lake. The Long Lake Seeps (LLSM and LLS) and newly discovered groundwater / surface water flow (S) sites are not considered receiving environment sites with results compared to WQG-FWAL, for assessment purposes only.

LLE and Long Lake Seep Observations:

- Dissolved iron was not elevated at LLE
- The smaller seep (LLS) displayed slightly elevated iron in fall for monthly sampling events.
- The larger seep (LLSM) displayed slightly elevated dissolved iron for one monthly sampling event.
- LLSM started flowing in late October this year possibly due to the pump being off for August and September.
- Samples collected from a potential subsurface seepage (S) were above acute WQG for arsenic

A summary of receiving environment guideline observations for river/stream stations is provided in Table 3.

5.0 BIOLOGICAL MONITORING

Chlorophyll "a", phytoplankton and zooplankton samples were collected during one sampling event concurrent to the "5 in 30" fall turnover period. Samples for zooplankton were collected using a zooplankton net that was deployed to 10 metres and vertically towed to surface. These samples were analyzed for zooplankton count and identification of species. Chlorophyll "a" and phytoplankton were collected at one metre below surface and analyzed for count, total abundance, and identification. During Q3, Middle Quinsam Lake displayed the greatest total abundance for chlorophyll "a" and zooplankton compared to Long Lake, refer to Figures 16 and 17 below and Appendix I, Table 33 for zooplankton results.

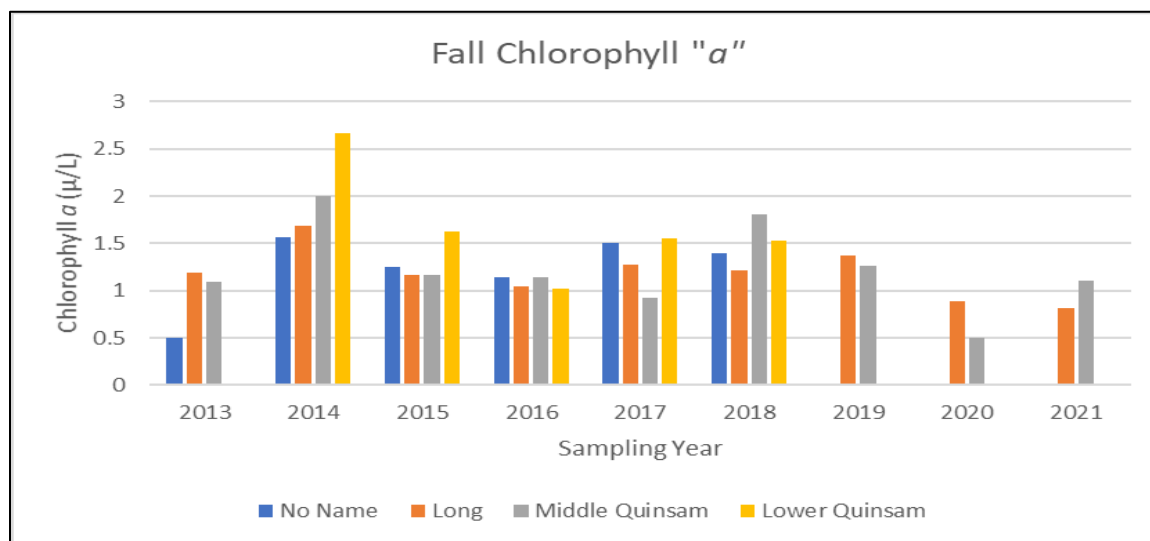


Figure 16: Fall Chlorophyll "a"

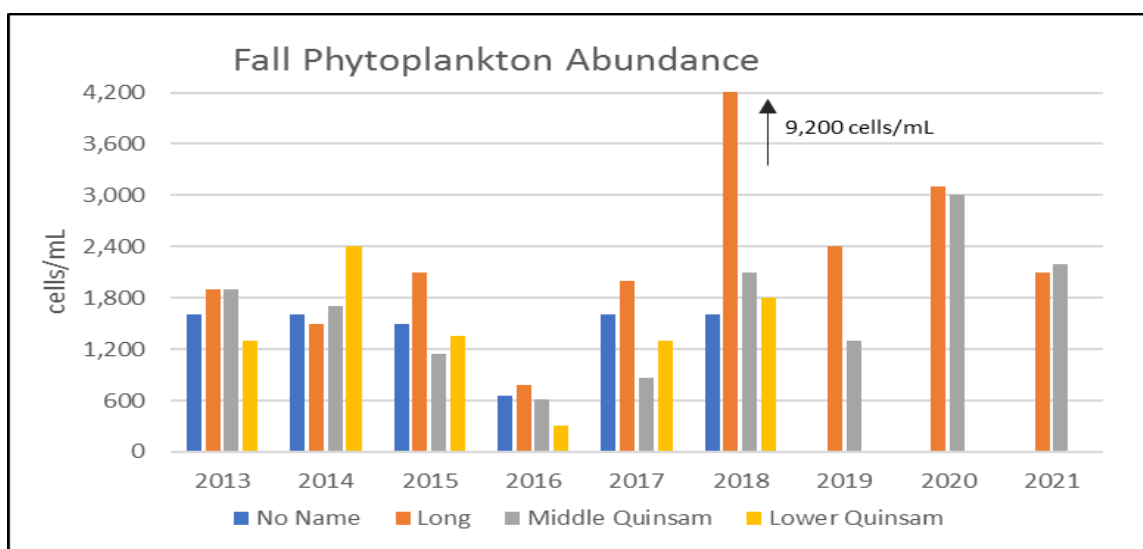


Figure 17: Fall Phytoplankton Abundance

6.0 GROUNDWATER

This quarter, 17 ex-situ groundwater wells, and in-situ mine pools and sumps were monitored. These included 9 flooded mine pools (in-situ) and 8 groundwater wells outside the mine footprint (ex-situ). Ex-situ groundwater is compared to the British Columbia Contaminated Site Regulation (CSR) (BC reg.375/96. O.C. 1480/96), Schedule 6, Aquatic life (CSR-AL). In Q3 both in-situ and ex-situ sites were compared to CSR-AL as all water is eventually reaching the receiving environment. Apart from some slightly elevated parameters of interest (i.e., arsenic, selenium, sulphate, and sulfide calculated as hydrogen sulfide), most concentrations were not elevated above CSR-AL.

Appendix I, Table 34 provides details on the well and sump designations and locations. Appendix 1, Tables 35 and 36 provide the water quality analyses. Certain parameters found in ex-situ groundwater repeatedly exceed the CSR-AL. Those include the following dissolved parameters: arsenic, chloride, and sulphide as H₂S and occasionally selenium. Selenium is observed periodically in the ex-situ deep and shallow groundwater of QU1105 D and S. This ground water well is situated down gradient of underground tailings disposal in 1Mains 2-North and measures water quality and hydraulic head downgradient of 2-North and River Barrier Pillar. Appendix I, Table 4 displays those parameters in ex-situ and in-situ groundwater and flooded mine pools above the CSR-AL. Some of these parameters (Arsenic) are naturally elevated in ex-situ groundwater due to the regional geology of the area. Quinsam monitors trends for arsenic, sulphate and H₂S in in-situ wells and compares them to predictive water quality and source terms developed for certain areas. This is discussed in detail in the Annual Water Quality Monitoring Report due to the frequency of monitoring for groundwater wells and expected travel time of groundwater movement.

7.0 PASSIVE TREATMENT SYSTEM (PTS)

The PTS was operational for Q3. The treatment system was operating at 2.1 to 5.9 L/s, averaging 4.62 L/s. Average amount of treated mine water pumped over the quarter (92 days) was approximately 36723 m³. The mine pool water level was measured at 8.9 m above the pump on October 4th and increased to 15 m by early January. LLSM stopped flowing in 2020 when the mine pool water level was at 8.20 m above the pump with LLS stopping at 7.80 m. The smaller seep (LLS) did not stop flowing in summer or fall of 2021 and LLSM started flowing on September 20 until October 12 at a level of 8.2 m above the pump this quarter. LLSM flow did not reach the lake or the H-Flume where discharge is calculated, until October 24. The pump being turned off from mid-August to mid-September due to fire hazard under the power lines at 2-South, meant that the mine pool was not as depleted of water as it normally would have been in late summer and when the fall rains came it filled up faster. Normally LLSM does not start flowing until mid-November.

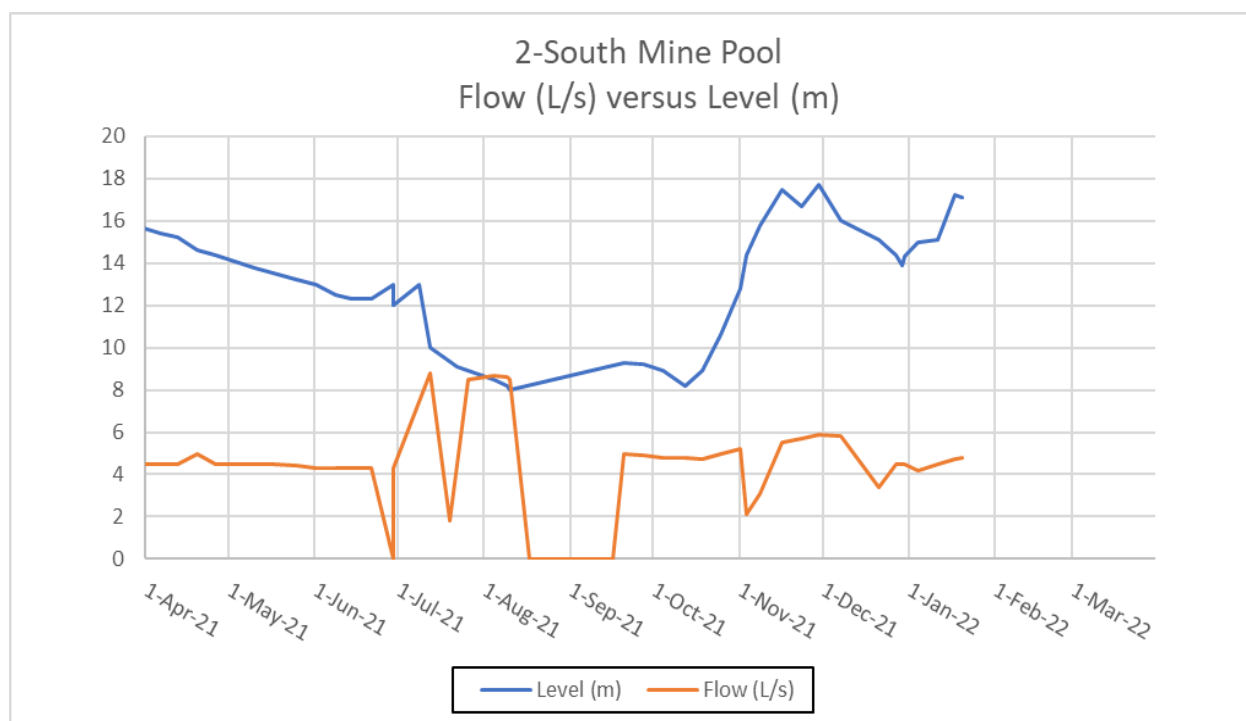


Figure 18: 2-South Mine Pool at INF Flow versus Level.

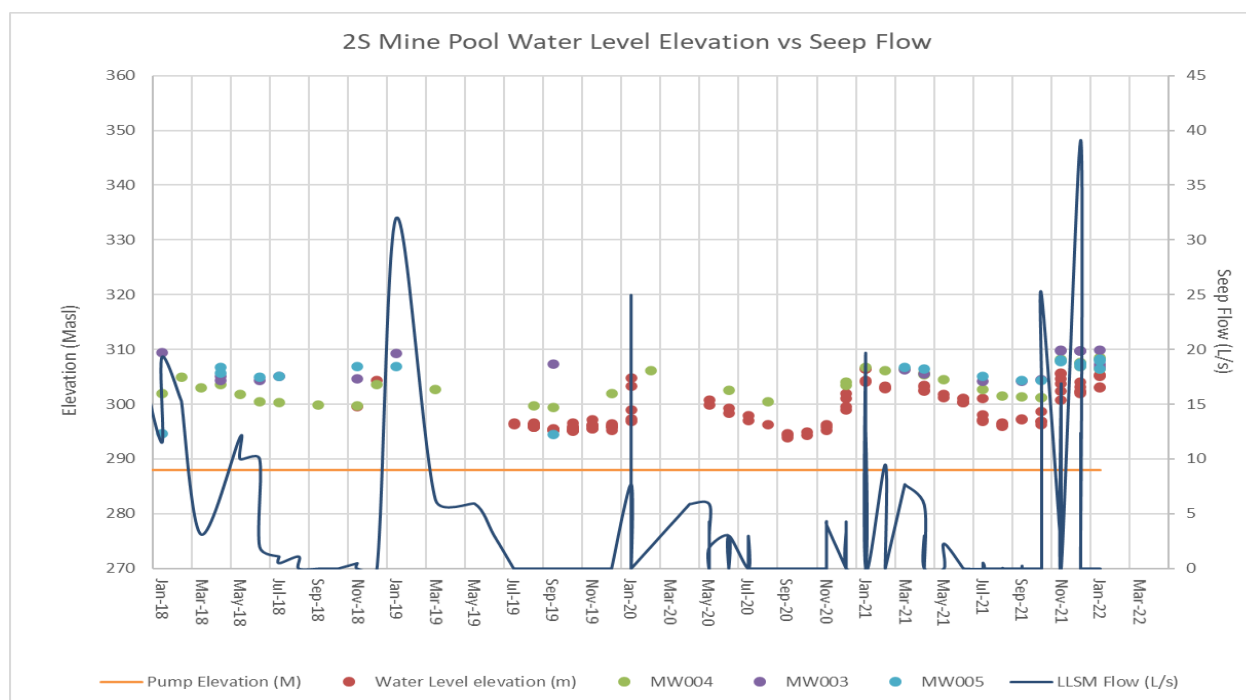


Figure 19: 2-South Mine Pool Versus Long Lake Seep Middle (LLSM) Flow

Figure 19 depicts the 2-South mine pool elevations measured at different locations in the mine area compared to discharge at LLSM. Those include groundwater wells closest to the seeps (MW003, MW004 and MW005) and the 2-South dewatering well (QU11-11). Measurements are compared to the period

where discharge is measured at the Seeps and the period of no flow. The mine pool elevation required for the Seep to stop discharging is 296.3 meters above sea level (MASL).

For Q3 average concentrations of dissolved sulphate entering the PTS from the 2-South mine pool measured at INF were 595 mg/L and leaving the system at the Sulphide Polishing Cell (SPCEFF) resulting in 412 mg/L, (Table 2 and Figure 20). This has led to a reduction in average sulphate concentrations of 183 mg/L, (Figure 21). Sulphate reduction between INF and Biochemical Reactor (BCR) averaged 71 mg/L. The station, 2-South Inflow (2SI), receives discharge from the PTS, had an average sulphate concentration of 342 mg/L and SPD averaged 360 mg/L for Q3, refer to Figures 20 and 21 below.

Table 2: Summary of Site Dissolved Sulphate and Reduction Rates

	INF	BCREFF	SPCEFF	2SI	SPD
Average	595	524	412	342	360
Count	13	13	12	13	3
Minimum	480	420	280	210	240
Maximum	670	692	520	560	540
	INF to BCR	INF to SPCEFF	BCR to SPCEFF	INF to 2SI	INF to SPD
Sulphate Reduction	71	183	112	253	235

Overall, the greatest average sulphate reduction exists between INF to 2SI resulting in 253 mg/L. Warmer ambient temperatures normally increase microbial metabolic activity within the BCR and SPCEFF during summer and early fall. The low average reduction rate between INF and BCR could indicate that the substrate requires replacement in the BCR or the cooler ambient temperatures decreased microbial activities. Overall, a sulphate reduction of 253 mg/L was attained. The original reduction goal for the PTS was to reduce sulphate concentrations to 300 mg/L and has almost been achieved in Q3. Increased pumping from 3 South pit and the 2-South pit may have contributed to higher average concentrations displayed at SPD.

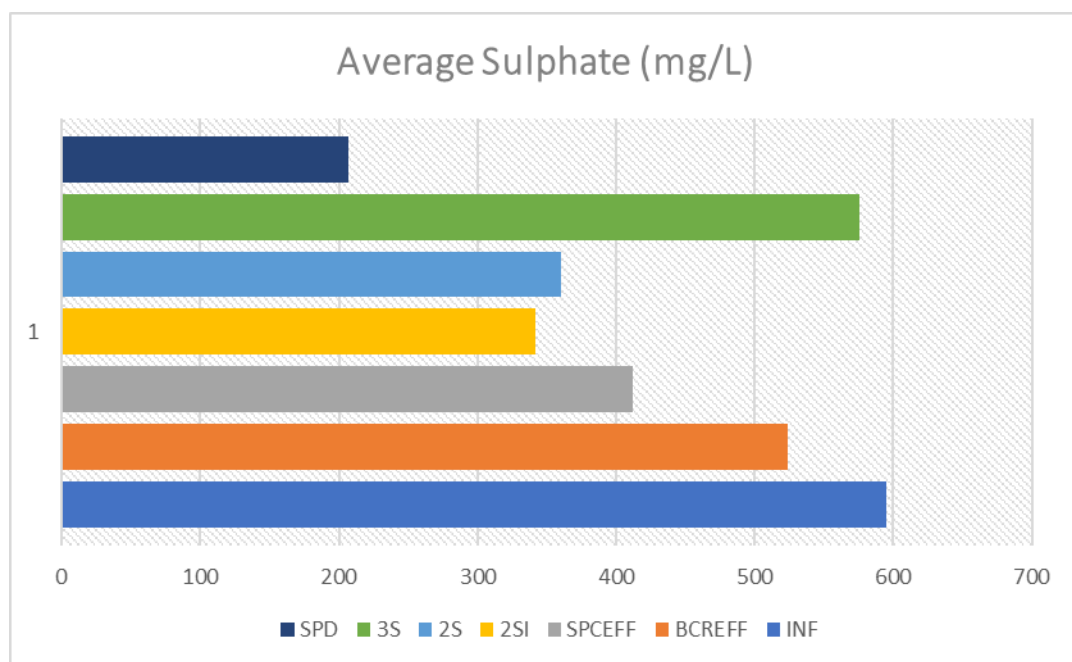


Figure 20: Average Sulphate Concentrations in 2-South Area

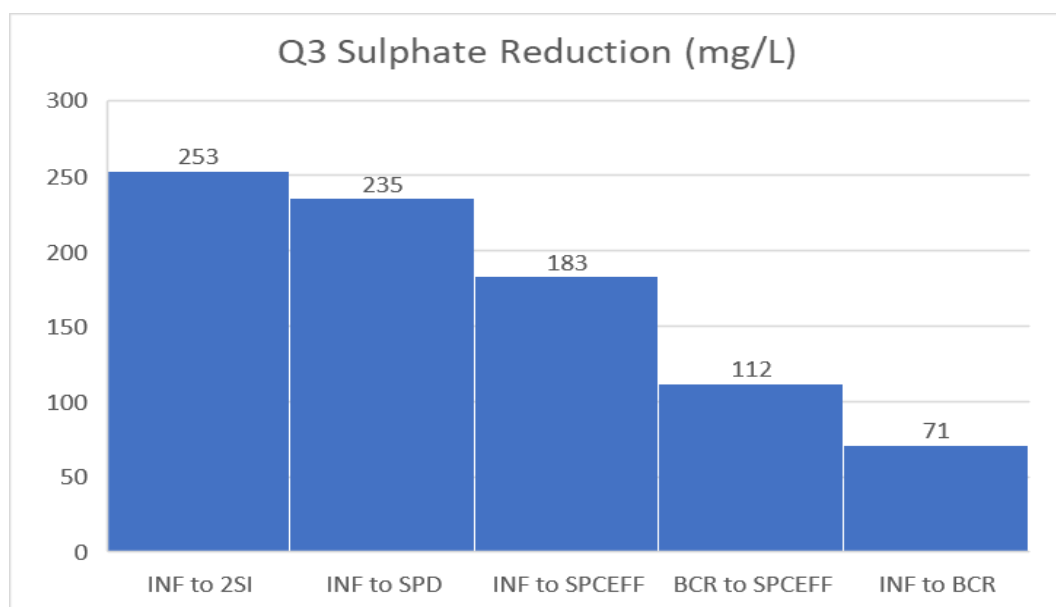


Figure 21: Sulphate Reduction through the Water Management System.

The PTS is effective at maintaining water cover over the PAG-CCR in the 2-South pit and reducing discharge at the Seep into Long Lake during low flow periods. This is accomplished by decreasing the elevation of the mine pool, below the elevation of the seep. The period of “no flow” at the Middle Seep into Long Lake (LLSM) has been observed to be extended by pumping down the mine pool.

Further monitoring of the PTS continues and includes the 2-South Mine pool at (QU11-11 / INF), 2-South and 3-South systems, groundwater wells (MW003, MW004 and MW005) and the Seeps. A relationship between the Seep flows and the elevation of the mine pool at the INF location continues to be developed with observations noted every quarter.

8.0 QUALITY ASSURANCE QUALITY CONTROL

All replicate sampling was performed in compliance with the *British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2013 Edition*.

As per these guidelines and in accordance with the Quinsam Coal Quality Assurance/Quality Control (QA/QC) program, one field replicate sample was collected per sampling event. Relative Percent Difference, RPD values were calculated in accordance with the B.C. field sampling manual.

9.0 CONCLUSION

The surface monitoring program at Quinsam Coal has been established to capture the effects of mine related surface and underground disturbance areas (contact water) with the receiving environment. The comprehensive nature of this program allows Quinsam to generate water quality predictions, strategically manage surplus water generated because of mining activities and create management plans with a focus on mitigating potential receiving environment impacts.

The monitoring period during the fall flush in the receiving environment is meant to capture lake turnover events and increased flow rates on the rivers and streams. This period provides valuable information for water quality during higher flow periods. Most sites were well represented by the fall flush. Due to dry conditions the turnover may have occurred outside of sampling period this year in Long Lake, which may be misleading for trending and data interpretation.

Long Lake remains stratified longer compared to Middle Quinsam Lake and as a result, it turns over slower. Fall sampling in October represented a period when Long Lake was beginning to turnover but was still stratified. Stratification was observed by a broader range of temperature gradients between the epilimnion and hypolimnion, as well as depleted dissolved oxygen levels with increased total manganese in the hypolimnion. Next fall the sampling period may take place mid-October to mid-November. This would demonstrate a true representation for Long Lake turnover.

As demonstrated by the Q3 monitoring program results, water quality in the Middle Quinsam Lake sub basin remains favorable with few parameters trending above WQG's. Many parameters exhibit stable concentrations with some (e.g., sulphate) decreasing in concentration within the lakes. Quinsam is committed to limit impacts placed on the environment through operational procedures. Quinsam strives to prevent adverse environmental impacts and is dedicated to internally investigate those parameters displaying an increasing trend.

In closing, we trust the information presented in this report satisfies the conditions under Effluent Permit PE-7008. Please contact the Quinsam Coal Environmental Department if you have any questions or comments.

Sincerely,

Quinsam Coal Environmental Department



Kathleen Russell B.Sc EP
Environmental Coordinator



Ph: (250) 286-3224 ext. 225

E-mail: kathleen.russell@quinsam.com

Appendix 1 - 2021 Annual Water Quality Report

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Table 1 Description of Effluent, In-Mine Releases Receiving Environment Monitoring Sites 1 Page(s)

Description of Effluent, In-Mine Releases & Receiving Environment Monitoring Sites			
EMS ID #	Monitoring Sites	Abbreviation (Station Code)	*Type of Water (MW, FW or GW)
North Coal Mining Operation			
E207409	Settling Pond #4 Decant	WD	Discharge (MW)
E207411	Culvert, at Middle Quinsam Lake Road	WC	MW & FW
E283433	2-North Portal Sump (Adit Sump)	2NPS	MW
E207412	2-North Pit Sump CCR Cover	WP	PAG-CCR Water Cover - MW
South Coal Mine			
E218582	Settling Pond #1 Decant	SPD	Discharge (MW)
E217014	Culvert, Downstream End at Access Road	SPC	MW & FW
E217015	South Pit Main Sump Water	3S	PAG-CCR Water Cover (MW & FW)
E292127	2-South Pit In Pit Water Cover (2-South Standpipe)	2S	PAG-CCR Water Cover (MW & FW)
7-South Mining Operation			
E292069	7-South Surface Decant	7SSD	Discharge (SW)
E292110	7-South Adit Sump	7SPS	MW
Seep Monitoring Sites			
E292131	Long Lake Seeps	LLS & LLSM	GW / MW
	Culvert that collects groundwater and Coal Main logging road water entering MQL (PDSR)	PDSR	GW / SW
Receiving Environment Monitoring Sites - Near Initial Zone of Dilution (NIDZ)			
Near Initial Dilution Zone (NIDZ) Monitoring Sites			
E292130	Long Lake Entrance (South end water entering Long Lake near the outlet)	LLE	NIDZ
E292109	Road Crossing Bridge on Stream 1 above the Lower Wetland (Downstream of 7SSD).The site name is Stream 1, 7S.	7S	NIDZ
Receiving Water (Rivers & Lakes Monitoring Sites) 5 in 30 Monitoring Locations			
North Coal Mining Operation			
E0126402	Quinsam River at Argonaut Bridge	WA	FW
E206618	Middle Quinsam Lake Centre	MQL (1, 4, 9 & 1m from Bottom)	FW
E0900504	Outflow from Middle Quinsam Lake	WB	FW
South Coal Mine			
E217018	No Name Lake	NNL (1, 4, 9 & 1m from Bottom)	FW
E217017	No Name Lake Outlet	NNO	FW
E206619	Long Lake at Centre	LLM (1, 4, 9 & 1m from Bottom)	FW
E219412	Long Lake Outlet	LLO	FW
7-South Mining Operation (Areas 1 to 4)			
E286930	Quinsam River Upstream of 7-South Mining Operation	QRDS1	FW
E292113	Quinsam River Downstream of 7-South Mining Operation	7SQR	FW
E292118	Lower Quinsam Lake Centre	LQL (1, 4, 9 & 1m from Bottom)	FW
7-South (Proposed) Area 5 Mining Operation			
E297231	Iron River upstream of 7SA5	IR6	FW
E297232	Iron River downstream of 7SA5 and 242 inputs	IR8	FW
E299256	Quinsam River downstream of confluence with Iron River	IRQR	FW
E292118	Lower Quinsam Lake Centre	LQL (1, 4, 9 & 1m from Bottom)	FW
Block 242 Mining Operation (Reclaimed / Not Monitored)			
E225798	Iron River upstream of the 242 influence	Not Monitored	FW
E225808	Iron River downstream of the 242 influence	Not Monitored	FW
N/A	Old portal sump used for collection of water from underground	Reclaimed	FW / GW
Long Lake Seep Passive Treatment System			
N/A	Groundwater well (2-South Mine Pool) influent to the treatment system	QU11-11 (INF-EFF)	MW
N/A	Biochemical Reactor	BCR-EFF	MW
N/A	Sulphide Polishing Cell	SPC-EFF	MW
N/A	2-South Inflow (From Passive Treatment System)	2SI	MW
N/A	2-South Culvert into 3-South Pit (Seepage under liner and overflow from 2S-pit)	2SC	MW
* MW= Mine Water, FW= Freshwater, GW =Groundwater NIDZ = Near Initial Dilution Zone			

Table 2 Summary of Permit Limit Exceedances, Permit Non-Compliances and Unauthorised Discharges 1 Page(s)

Appendix 1 - Q3 (October -December 2021) Water Quality Report Table 2 Summary of Permit Limit Exceedances, Permit Non-Compliances and Unauthorised Discharges 1 Page(s)					
SUMMARY OF PERMIT LIMIT EXCEEDANCES & PERMIT NON-COMPLIANCES					
EMS ID & Site Name	Non-Compliance (PNC)	Result (mg/L)	Date	Non-Compliance Reason	Number of events or period for PNC, P or spill event.
E292131 - Long Lake Seeps	Unauthorized discharge	PNC	Q3	Seepage from mine pool into Long lake. No autoization to discharge.	Q3 - 92 Days
	Missed sample	PNC	October	Missing October monthly sample at LLSM due to dangerous conditions resulting in no access to location. LLSM started flowing Oct 24. Monthly sample collected Nov 1.	(1/3) monthly sampling events

Table 3 Summary of Water Quality Guideline Observations At Receiving Monitoring Locations 1 Page(s)

SUMMARY OF WATER QUALITY GUIDELINE OBSERVATIONS AT RECEIVING MONITORING LOCATIONS Fall 2021						
EMS ID & Site Name	Parameter (mg/L or pH Units)	Guideline Limit	Result	Date	Guideline	Sampling Events Exceeding Guideline
E206619 - Long Lake Middle (LLM) (17m-20m depths)	pH	<6.5	6.45 to 6.49	Week 1	Min	pH <6.5 at 4 depths profiled (17 m to 20 m) during fall for 1 out of 5 weeks
E206619 - Long Lake Middle (LLM) (1MB)	Cu-D (mg/L)	0.0002	0.0003	Fall 5 in 30	Chronic	5 in 30 Average
	Mn-T (mg/L)	0.737	1.221	Fall 5 in 30	Chronic	5 in 30 Average
		0.8706	1.34, 1.71 and 1.97	Weeks 2 through 4	Acute	3/5 sampling events
E206618 - Middle Quinsam Lake (1M)	Cu-D (mg/L)	0.0004	0.00041	Fall 5 in 30	Chronic	5 in 30 Average
E206618 - Middle Quinsam Lake (9M)			0.00042	Fall 5 in 30	Chronic	5 in 30 Average
E0126402 - Quinsam River at Argonaut Road (WA)	Cu-D (mg/L)	0.0005	0.00064	Fall 5 in 30	Chronic	5 in 30 Average
E217017 - No Name Lake Outlet (NNO)	Cu-D (mg/L)	0.0003	0.00045	Fall 5 in 30	Chronic	5 in 30 Average
E292113 - 7 South Quinsam River (7SQR)	Cu-D (mg/L)	0.0005	0.00053	Fall 5 in 30	Chronic	5 in 30 Average
E299256 - Downstream of the confluence of the Iron River and Quinsam River (IRQR)	Cu-D (mg/L)	0.0006	0.00066	Fall 5 in 30	Chronic	5 in 30 Average
E297231 - Iron River upstream of 7SA5 (IR6)	Al-D (mg/L)	0.05	0.0612	Fall 5 in 30	Chronic	5 in 30 Average
		0.1	0.125	Week 4	Acute	1/5 sampling events
E297232 - Iron River Downstream of 7SA5 and 242 inputs (IR8)	Al-D (mg/L)	0.05	0.0564	Fall 5 in 30	Acute	5 in 30 Average
		0.1	0.112	Week 4	Acute	1/5 sampling events
E292131 - Smaller seep into Long Lake (LLS)	Fe-T (mg/L)	1.00	1.82, 2.23 and 1.54	Monthly	Acute	(3/3) Monthly sampling events
	Fe-D (mg/L)	0.35	1.72, 2.09 and 1.03	Monthly	Acute	(3/3) Monthly sampling events
E292131 - Long Lake Seep Middle (LLSM)	Fe-D (mg/L)	0.35	0.57	November 1, 2021	Acute	(3/3) Monthly sampling events
E292109 - Stream 1 (7S)	Cu-D (mg/L)	≤ 0.0002 and ≤ 0.00241	0.00026 and 0.00040	October 4, 2021 and November 1, 2021	Acute	(2/3) Monthly sampling events
Seepage from shallow groundwater	As-T (mg/L)	0.005	0.0138 to 0.0423	Weekly in Oct., monthly in Nov. and Dec.	Acute	(6/6) Sampling events
*SO4 at LLE was calculated using a rolling average.						
Min = Minimum Water Quality Guideline (WQG) Acute = Maximum WQG, Chronic = Average WQG						
For all Middle Quinsam Lake Sub-basin and Iron River results background hardness of 30 mg/L was used to calculate those parameters that are hardness dependent.						

Table 4 Contaminated Sites Regulations - Aquatic Life Standards 1 Page(s)

Appendix 1 - Q3 (October -December 2021) Water Quality Report															
Ex-situ Groundwater		Area Well ID Replicates (R) Units Freshwater Aquatic Life (CSR-AL)	2-North			Shallow GW above RBP		7-South		7-South		4-South		4-South	
			QU1105S	QU1105D	QU1105D QU1105D	QU1109S	QU1109S QU1109S	QU0813A	QU0813B	QU1009S	QU1009D				
Parameter			4-Nov-21	4-Nov-21	4-Nov-21	3-Nov-21	3-Nov-21	30-Nov-21	30-Nov-21	28-Oct-21	28-Oct-21				
S ²⁻ as H ₂ S	mg/L	0.02	0.0606	54.2	52.1	1.81	1.81	0.181	0.0213	0.0223	0.0819				
As-D	mg/L	0.05	0.05890			0.102	0.0953	0.374	0.533	0.0941	0.104				
Se-D	mg/L	0.01		0.0158	0.0132										
In-situ Groundwater		Area Well ID Replicates (R) Units Freshwater Aquatic Life (CSR-AL)	2-North Flooded Mine pool			3-South Pit Groundwater		5-South Mine Pool Pumped to 2-North		RBP Water Cover Over PAG-CCR QU1109M	7-South Water Cover Over PAG-CCR QU1410	1-Mains 7- South Area 5 Water 1M7SA5			
			1M2N	QU1013D	QU1013D R	MW002	MW002 R	5SMW	5SMW						
Parameter			9-Dec-21	8-Dec-21	8-Dec-21	28-Oct-21	28-Oct-21	13-Oct-21	9-Dec-21				3-Nov-21	9-Dec-21	14-Dec-21
SO4-D	mg/L	1280				1300	1300			1300	1800				
S ²⁻ as H ₂ S	mg/L	0.02	0.0542	0.101	0.0914			0.0276	0.0244	0.0234					
As-D	mg/L	0.05									0.110	0.107			

Table 5 Settling Pond # 4 - Authorized Discharge Location for North Mine Water 1 Page(s)

EMS ID	E207409	Stn Std	PL-N														
Settling Pond # 4 - Authorized Discharge Location for North Mine Water																	
Site Description	WD	Std Val	WD-40Oct21-P	WD-12Oct21-P	WD-18Oct21-P	WD-25Oct21-P	WD-1NOV21-P	WD-8NOV21-P	WD-16NOV21-P	WD-23NOV21-R	WD-23NOV21-P	WD-29NOV21-P	WD-7DEC21-P	WD-13DEC21-P	WD-20DEC21-P	WD-20DEC21-R	WD-27Dec21-P
Date		Max	2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-23	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-20	2021-12-20	2021-12-27
pH-F	pH Units		7.48	7.72	7.58	7.34	7.33	7.36	7.92	7.67	7.67	7.39	7.84	7.75	8.34	8.34	7.76
Cond-F	uS/cm		2625	1795.1	1988.5	1167.7	1821.9	1461.7	1391	2180	2180	1626	2110	2040	2110	2110	2130
pH-L	pH Units	8.5	8.11	8.23	8.20	7.91	8.12	8.25	7.92	8.10	8.20	7.87	8.08	8.23	8.16	8.17	8.18
Cond-L	uS/cm		2500	2000	2100	1300	2000	1600	1700	1900	1900	1720	1900	1700	1900	1900	1800
SO4-D	mg/L		920	540	780	340	690	550	570	620	630	624	600	560	580	460	500
TSS	mg/L	25	2.8	1.2	6.4	16	<1.0	3.2	4.8	2.8	4.8	2.4	3.6	2.0	2.0	<1.0	<1.0
Alk-T	mg/L		430				410						440				
Acidity83	mg/L		7.8				1.2						13.4				
Al-T	mg/L		<0.0060										0.0271				
As-T	mg/L		0.00104										0.00152				
Ba-T	mg/L		0.0181										0.0162				
B-T	mg/L		1.01										0.786				
Cd-T	mg/L		<0.000020										<0.000010				
Ca-T	mg/L		219										130				
Cr-T	mg/L		<0.0020										<0.0010				
Co-T	mg/L		<0.00040										0.00059				
Cu-T	mg/L		<0.0010										0.00094				
Hard-T	mg/L		644										384				
Fe-T	mg/L		0.888										0.925				
Pb-T	mg/L		<0.00040										<0.00020				
Mg-T	mg/L		23.4										14.7				
Mn-T	mg/L		0.110										0.220				
Hg-T	mg/L		<0.0000019										<0.0000019				
Mo-T	mg/L		<0.0020										<0.0010				
Ni-T	mg/L		<0.0020										0.0019				
K-T	mg/L		5.00										3.55				
S-T	mg/L		333										194				
Se-T	mg/L		<0.00020										<0.00010				
Si-T	mg/L		3.63										3.50				
Ag-T	mg/L		<0.000040										<0.000020				
Na-T	mg/L		366										276				
Sr-T	mg/L		1.92										1.23				
Zn-T	mg/L		<0.010										<0.0050				
Al-D	mg/L	0.5	<0.0030				0.0139						0.0061				
As-D	mg/L		0.00048				0.00101						0.00098				
Ba-D	mg/L		0.0169				0.0169						0.0159				
B-D	mg/L		0.940				0.855						0.806				
Be-D	mg/L		<0.00010				<0.00010						<0.00010				
Cd-D	mg/L		<0.000010				0.000020						<0.000010				
Ca-D	mg/L		203				142						132				
Cr-D	mg/L		<0.0010				<0.0010						<0.0010				
Co-D	mg/L		<0.00020				0.00059						0.00057				
Cu-D	mg/L	0.02	0.00022				0.00035						<0.00020				
Hard-D	mg/L		598				427						389				
Fe-D	mg/L	0.3	0.0085				0.0081						0.0147				
Pb-D	mg/L	0.05	<0.00020				<0.00020						<0.00020				
Mg-D	mg/L		22.2				17.5						14.6				
Mn-D	mg/L		0.106				0.156						0.215				
Hg-D	mg/L		<0.0000019				<0.0000019						<0.0000019				
Mo-D	mg/L		<0.0010				<0.0010						<0.0010				
Ni-D	mg/L		0.0010				0.0027						0.0018				
K-D	mg/L		4.60				3.83						3.60				
S-D	mg/L		323				237						195				
Se-D	mg/L		<0.00010				<0.00010						<0.00010				
Si-D	mg/L		3.58				3.29						3.43				
Na-D	mg/L		338				313						277				
Sr-D	mg/L		1.89				1.29						1.27				
Zn-D	mg/L	0.1	<0.0050				<0.0050						<0.0050				
O&G	mg/L	10	<1.0										<1.0				

Table 6 2 North Pit Sump CCR Water Cover 1 Page(s)

EMS ID		E207412		
Site Description		2 North Pit Sump CCR Water Cover		
Site Name		WP	WP-4Oct21-M	WP-1NOV21-M
Date			WP-7Dec21-M	
		2021-10-04	2021-11-01	2021-12-07
pH-F	pH Units	7.8	7.85	7.92
Cond-F	uS/cm	1948	1966.7	1731
SO4-D	mg/L	1100	880	660
TSS	mg/L	3.2	<1.0	2.0
Alk-T	mg/L	410	310	160
Acidity83	mg/L	3.9	<1.0	8.6
Al-T	mg/L	0.0230	0.113	0.0335
As-T	mg/L	0.00242	0.00062	0.00019
Ba-T	mg/L	0.0142	0.0138	0.0127
B-T	mg/L	1.13	0.888	0.360
Cd-T	mg/L	<0.000020	0.000026	0.000027
Ca-T	mg/L	194	180	207
Cr-T	mg/L	<0.0020	<0.0010	<0.0010
Co-T	mg/L	0.00047	0.00361	0.00337
Cu-T	mg/L	0.0012	0.00210	0.00134
Hard-T	mg/L	582	547	633
Fe-T	mg/L	2.19	0.613	0.160
Pb-T	mg/L	<0.00040	<0.00020	<0.00020
Mg-T	mg/L	23.8	23.8	28.3
Mn-T	mg/L	0.134	0.171	0.143
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0020	<0.0010	<0.0010
Ni-T	mg/L	<0.0020	0.0066	0.0073
K-T	mg/L	5.95	4.46	1.80
S-T	mg/L	381	320	222
Se-T	mg/L	<0.00020	0.00016	0.00021
Si-T	mg/L	3.74	3.66	3.00
Ag-T	mg/L	<0.000040	<0.000020	<0.000020
Na-T	mg/L	448	304	78.3
Sr-T	mg/L	2.12	1.66	1.28
Zn-T	mg/L	<0.010	0.0110	0.0071
Al-D	mg/L	0.0049	0.0385	0.0156
As-D	mg/L	0.00044	0.00019	0.00013
Ba-D	mg/L	0.0123	0.0127	0.0122
B-D	mg/L	1.07	0.774	0.354
Be-D	mg/L	<0.00010	<0.00010	<0.00010
Cd-D	mg/L	<0.000010	0.000019	0.000028
Ca-D	mg/L	185	172	209
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	0.00039	0.00334	0.00326
Cu-D	mg/L	0.00037	0.00090	0.00088
Hard-D	mg/L	560	525	644
Fe-D	mg/L	0.0071	<0.0050	<0.0050
Pb-D	mg/L	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	23.5	22.8	29.4
Mn-D	mg/L	0.118	0.163	0.137
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	0.0012	0.0061	0.0069
K-D	mg/L	5.71	4.41	1.87
S-D	mg/L	373	309	223
Se-D	mg/L	<0.00010	0.00018	0.00021
Si-D	mg/L	3.66	3.00	2.93
Na-D	mg/L	425	302	80.5
Sr-D	mg/L	2.09	1.52	1.33
Zn-D	mg/L	<0.0050	<0.0050	0.0052

Table 7 2-North Portal Sump Effluent 1 Page(s)

EMS ID		E283433		
Site Description		2-North Portal Sump Effluent		
Site Name	2NPS	2NPS-4Oct21-M	2NPS-1NOV21-M	2NPS-7Dec21-M
Date		2021-10-04	2021-11-01	2021-12-07
pH-F	pH Units	7.32	7.17	7.58
Cond-F	uS/cm	2348	2263.1	2750
SO4-D	mg/L	1100	1200	1200
Alk-T	mg/L	320	330	300
Acidity83	mg/L	8.6	3.0	19.3
Al-T	mg/L	0.0293	0.0697	0.165
As-T	mg/L	0.00102	0.00087	0.00056
Ba-T	mg/L	0.0120	0.0149	0.0149
B-T	mg/L	0.85	0.97	0.83
Cd-T	mg/L	<0.000020	<0.000020	<0.000020
Ca-T	mg/L	284	319	309
Cr-T	mg/L	<0.0020	<0.0020	<0.0020
Co-T	mg/L	0.00142	0.00201	0.00283
Cu-T	mg/L	<0.0010	0.0011	0.0019
Hard-T	mg/L	827	936	909
Fe-T	mg/L	0.310	0.264	0.198
Pb-T	mg/L	<0.00040	<0.00040	<0.00040
Mg-T	mg/L	28.6	34.2	33.5
Mn-T	mg/L	0.328	0.277	0.298
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0020	<0.0020	<0.0020
Ni-T	mg/L	0.0030	0.0053	0.0069
K-T	mg/L	4.03	4.40	4.06
S-T	mg/L	374	427	382
Se-T	mg/L	<0.00020	<0.00020	<0.00020
Si-T	mg/L	3.16	3.92	3.45
Ag-T	mg/L	<0.000040	<0.000040	<0.000040
Na-T	mg/L	283	278	245
Sr-T	mg/L	2.07	2.22	2.25
Zn-T	mg/L	<0.010	0.022	0.011
Al-D	mg/L	0.0087	0.0186	0.0284
As-D	mg/L	0.00077	0.00049	0.00031
Ba-D	mg/L	0.0120	0.0128	0.0164
B-D	mg/L	0.92	0.90	0.78
Be-D	mg/L	<0.00020	<0.00020	<0.00020
Cd-D	mg/L	<0.000020	<0.000020	0.000023
Ca-D	mg/L	279	307	321
Cr-D	mg/L	<0.0020	<0.0020	<0.0020
Co-D	mg/L	0.00138	0.00189	0.00240
Cu-D	mg/L	<0.00040	<0.00040	0.00049
Hard-D	mg/L	814	900	940
Fe-D	mg/L	0.093	0.138	0.048
Pb-D	mg/L	<0.00040	<0.00040	<0.00040
Mg-D	mg/L	28.6	32.6	33.8
Mn-D	mg/L	0.315	0.259	0.317
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0020	<0.0020	<0.0020
Ni-D	mg/L	0.0028	0.0049	0.0058
K-D	mg/L	3.98	4.29	4.20
S-D	mg/L	379	412	392
Se-D	mg/L	<0.00020	<0.00020	<0.00020
Si-D	mg/L	3.17	3.29	3.62
Na-D	mg/L	277	280	253
Sr-D	mg/L	2.04	2.02	2.30
Zn-D	mg/L	<0.010	<0.010	<0.010

Table 8 Road Side Ditch Draining into MQL 1 Page(s)

EMS ID				
Site Description		Road Side Ditch Draining into MQL		
Site Name	PDSR	PDSR-4Oct21-M	PDSR-1NOV21-M	PDSR-7Dec21-M
Date		2021-10-04	2021-11-01	2021-12-07
pH-F	pH Units	7.34	7.31	7.87
Cond-F	uS/cm	2238	1001	1214
SO4-D	mg/L	1100	440	420
TSS	mg/L	2.0	<1.0	<1.0
Al-T	mg/L	0.0111	0.0104	0.0099
As-T	mg/L	0.00021	<0.00010	<0.00010
Ba-T	mg/L	0.0430	0.0166	0.0136
B-T	mg/L	0.42	0.213	0.168
Cd-T	mg/L	0.000307	<0.000010	<0.000010
Ca-T	mg/L	369	161	149
Cr-T	mg/L	<0.0020	<0.0010	<0.0010
Co-T	mg/L	<0.00040	<0.00020	<0.00020
Cu-T	mg/L	0.0013	<0.00050	<0.00050
Hard-T	mg/L	1160	517	475
Fe-T	mg/L	<0.020	<0.010	<0.010
Pb-T	mg/L	<0.00040	<0.00020	<0.00020
Mg-T	mg/L	57.2	28.0	25.2
Mn-T	mg/L	<0.0020	<0.0010	<0.0010
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0020	<0.0010	<0.0010
Ni-T	mg/L	<0.0020	<0.0010	<0.0010
K-T	mg/L	2.42	1.31	0.944
S-T	mg/L	367	164	137
Se-T	mg/L	<0.00020	<0.00010	<0.00010
Si-T	mg/L	4.40	3.62	3.31
Ag-T	mg/L	<0.000040	<0.000020	<0.000020
Na-T	mg/L	94.6	44.6	35.8
Sr-T	mg/L	2.45	0.972	0.869
Zn-T	mg/L	<0.010	<0.0050	<0.0050
Al-D	mg/L	0.0090	0.0075	0.0065
As-D	mg/L	<0.00020	0.00014	<0.00010
Ba-D	mg/L	0.0377	0.0159	0.0134
B-D	mg/L	0.41	0.216	0.159
Be-D	mg/L	<0.00020	<0.00010	<0.00010
Cd-D	mg/L	<0.000020	<0.000010	<0.000010
Ca-D	mg/L	341	163	148
Cr-D	mg/L	<0.0020	<0.0010	<0.0010
Co-D	mg/L	<0.00040	<0.00020	<0.00020
Cu-D	mg/L	0.00067	0.00040	0.00033
Hard-D	mg/L	1080	517	473
Fe-D	mg/L	<0.010	<0.0050	<0.0050
Pb-D	mg/L	<0.00040	<0.00020	<0.00020
Mg-D	mg/L	55.6	26.9	24.9
Mn-D	mg/L	<0.0020	<0.0010	<0.0010
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0020	<0.0010	<0.0010
Ni-D	mg/L	<0.0020	<0.0010	<0.0010
K-D	mg/L	2.17	1.24	0.958
S-D	mg/L	350	157	138
Se-D	mg/L	<0.00020	<0.00010	<0.00010
Si-D	mg/L	3.89	3.62	3.17
Na-D	mg/L	87.3	42.8	35.3
Sr-D	mg/L	2.25	1.01	0.882
Zn-D	mg/L	<0.010	<0.0050	<0.0050

Table 9 Culvert at Middle Quinsam Lake Road 1 Page(s)

EMS ID		E207411			
Site Description		Culvert at Middle Quinsam Lake Road			
Site Name	WC	WC-4Oct21-M	WC-1NOV21-R	WC-1NOV21-M	WC-7Dec21-M
Date		2021-10-04	2021-11-01	2021-11-01	2021-12-07
pH-F	pH Units	8.18	7.96	7.96	8.46
Cond-F	uS/cm	2286	1577.4	1577.4	1956
SO4-D	mg/L	810	530	590	570
TSS	mg/L	<1.0	<1.0	<1.0	<1.0
Al-T	mg/L	<0.0060			0.0157
As-T	mg/L	0.00034			0.00054
Ba-T	mg/L	0.0172			0.0134
B-T	mg/L	0.85			0.710
Cd-T	mg/L	<0.000020			<0.000010
Ca-T	mg/L	162			120
Cr-T	mg/L	<0.0020			<0.0010
Co-T	mg/L	<0.00040			<0.00020
Cu-T	mg/L	<0.0010			<0.00050
Hard-T	mg/L	487			358
Fe-T	mg/L	0.067			0.139
Pb-T	mg/L	<0.00040			<0.00020
Mg-T	mg/L	20.2			13.9
Mn-T	mg/L	0.0224			0.0346
Hg-T	mg/L	<0.0000019			<0.0000019
Mo-T	mg/L	<0.0020			<0.0010
Ni-T	mg/L	<0.0020			0.0011
K-T	mg/L	4.11			3.21
S-T	mg/L	282			183
Se-T	mg/L	<0.00020			<0.00010
Si-T	mg/L	3.19			3.57
Ag-T	mg/L	<0.000040			<0.000020
Na-T	mg/L	314			248
Sr-T	mg/L	1.59			1.14
Zn-T	mg/L	<0.010			<0.0050
Al-D	mg/L	0.0085			0.0117
As-D	mg/L	0.00034			0.00043
Ba-D	mg/L	0.0167			0.0129
B-D	mg/L	0.834			0.682
Be-D	mg/L	<0.00010			<0.00010
Cd-D	mg/L	<0.000010			<0.000010
Ca-D	mg/L	155			118
Cr-D	mg/L	<0.0010			<0.0010
Co-D	mg/L	<0.00020			<0.00020
Cu-D	mg/L	<0.00020			0.00038
Hard-D	mg/L	467			352
Fe-D	mg/L	0.0126			0.0098
Pb-D	mg/L	<0.00020			<0.00020
Mg-D	mg/L	19.6			13.5
Mn-D	mg/L	0.0209			0.0310
Hg-D	mg/L	<0.0000019			<0.0000019
Mo-D	mg/L	<0.0010			<0.0010
Ni-D	mg/L	<0.0010			0.0012
K-D	mg/L	3.88			3.17
S-D	mg/L	275			177
Se-D	mg/L	<0.00010			<0.00010
Si-D	mg/L	3.32			3.36
Na-D	mg/L	297			242
Sr-D	mg/L	1.61			1.11
Zn-D	mg/L	<0.0050			<0.0050

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Table 10 Settling Pond #1 - Authorized Discharge Location for South Mine Water 1 Page(s)

EMS ID	E218582																
		Stn Std														PL-S	
Site Description		Settling Pond #1 - Authorized Discharge Location for South Mine Water															
Site Name	SPD	Std Val	Min	SPD-40Oct21-P	SPD-12Oct21-P	SPD-18Oct21-P	SPD-25Oct21-P	SPD-1NOV21-P	SPD-8NOV21-P	SPD-16NOV21-P	SPD-23NOV21-P	SPD-29NOV21-P	SPD-7Dec21-P	SPD-13DEC21-P	SPD-20DEC21-P	SPD-27Dec21-P	
Date		Max	Min	2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-20	2021-12-27	
pH-F	pH Units			7.64	7.75	7.29	6.95	6.92	6.81	6.75	6.99	6.78	6.88	6.91	6.94	6.73	
Cond-F	uS/cm			963.2	923.8	862.8	459.6	550.4	319.1	343	210	138.2	218	343	236	232	
pH-L	pH Units	8.5	6.0	7.66	7.96	8.11	7.56	7.24	7.62	6.75	6.85	7.2	7.11	7.18	7.29	7.12	
Cond-L	uS/cm			1000	990	930	500	600	430	270	340	157	430	310	380	290	
SO4-D	mg/L			420	460	420	200	210	170	84	120	67.5	180	110	140	110	
TSS	mg/L	25	0	<1.0	2.0	2.4	1.6	<1.0	<1.0	1.2	<1.0	<2.0	1.2	2.4	<1.0	2.0	
Alk-T	mg/L			110				82					49				
Acidity83	mg/L			2.9				2.4					12.2				
Al-T	mg/L			0.0031									0.0526				
As-T	mg/L			0.00103									0.00114				
Ba-T	mg/L			0.0170									0.0096				
B-T	mg/L			0.272									0.093				
Cd-T	mg/L			<0.000010									<0.000010				
Ca-T	mg/L			159									49.6				
Cr-T	mg/L			<0.0010									<0.0010				
Co-T	mg/L			<0.00020									0.00045				
Cu-T	mg/L			<0.00050									0.00051				
Hard-T	mg/L			490									153				
Fe-T	mg/L			0.135									0.517				
Pb-T	mg/L			<0.00020									<0.00020				
Mg-T	mg/L			22.2									7.05				
Mn-T	mg/L			0.0290									0.0662				
Hg-T	mg/L			<0.0000019									<0.0000019				
Mo-T	mg/L			<0.0010									<0.0010				
Ni-T	mg/L			<0.0010									<0.0010				
K-T	mg/L			1.98									0.552				
S-T	mg/L			155									43.9				
Se-T	mg/L			<0.00010									<0.00010				
Si-T	mg/L			4.82									3.83				
Ag-T	mg/L			<0.000020									<0.000020				
Na-T	mg/L			37.0									12.8				
Sr-T	mg/L			1.13									0.290				
Zn-T	mg/L			0.0110									<0.0050				
Al-D	mg/L	0.5	0	<0.0030				0.0421					0.0304				
As-D	mg/L			0.00095				0.00053					0.00094				
Ba-D	mg/L			0.0157				0.0098					0.0125				
B-D	mg/L			0.287				0.130					0.105				
Be-D	mg/L			<0.00010				<0.00010					<0.00010				
Cd-D	mg/L			<0.000010				<0.000010					<0.000010				
Ca-D	mg/L			147				81.7					62.1				
Cr-D	mg/L			<0.0010				<0.0010					<0.0010				
Co-D	mg/L			<0.00020				0.00030					0.00064				
Cu-D	mg/L	0.02	0	<0.00020				0.00054					0.00038				
Hard-D	mg/L			457				249					191				
Fe-D	mg/L	0.5	0	0.0879				0.172					0.343				
Pb-D	mg/L	0.05	0	<0.00020				<0.00020					<0.00020				
Mg-D	mg/L			21.7				10.9					8.77				
Mn-D	mg/L			0.0112				0.0709					0.0730				
Hg-D	mg/L			<0.0000019				<0.0000019					<0.0000019				
Mo-D	mg/L			<0.0010				<0.0010					<0.0010				
Ni-D	mg/L			<0.0010				<0.0010					<0.0010				
K-D	mg/L			1.85				1.05					0.641				
S-D	mg/L			148				74.6					57.9				
Se-D	mg/L			<0.00010				0.00012					<0.00010				
Si-D	mg/L			4.72				3.25					3.43				
Na-D	mg/L			35.7				17.9					15.8				
Sr-D	mg/L			1.03				0.462					0.354				
Zn-D	mg/L	0.2	0	0.0127				<0.0050					0.0633				
O&G	mg/L	10	0	<1.0									<1.0				

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Table 11 Passage Treatment System (PTS) Influent for Biocell 1 Page(s)

Site Description	Passive Treatment System (PTS) Influent from 2-S Mine Pool															
Site Name	INF	INF-40Oct21-M	INF-120Oct21-M	INF-180Oct21-M	INF-250Oct21-M	INF-1NOV21-M	INF-8NOV21-M	INF-16NOV21-M	INF-16NOV21-R	INF-23NOV21-M	INF-29NOV21-M	INF-7Dec21-M	INF-13DEC21-M	INF-20DEC21-M	INF-27DEC21-R	INF-27Dec21-M
Date		2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-16	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-20	2021-12-27	2021-12-27
pH-F	pH Units	6.99	7.13	6.71	6.85	6.87	6.26	7.63	7.50	7.32	7.04	7.32	7.42	7.31	7.26	7.26
Cond-F	uS/cm	1536.4	1462.1	1424.1	1411.4	1421.8	1419.7	1367	1367	1650	1536	1638	1656	1574	1646	1646
H2S	mg/L	<0.0020	<0.0020	<0.0020	0.0039	<0.0020	0.0045	<0.0020	<0.0020	<0.0020	<0.01	<0.0020	<0.0020	<0.0020	0.0031	<0.0020
SO4-D	mg/L	670	620	630	480	540	670	590	590	630	667	580	580	530	550	560
TSS	mg/L	7.2				5.6						7.2				
Alk-T	mg/L	290				280						240				
Acidity83	mg/L	13.2				14.5						20.9				
Al-T	mg/L	<0.0030				0.0365						0.0097				
As-T	mg/L	0.00506				0.00468						0.00319				
Ba-T	mg/L	0.0238				0.0219						0.0200				
B-T	mg/L	0.689				0.759						0.598				
Cd-T	mg/L	<0.000010				<0.000010						<0.000010				
Ca-T	mg/L	261				236						207				
Cr-T	mg/L	<0.0010				<0.0010						<0.0010				
Co-T	mg/L	0.00068				0.00104						0.00098				
Cu-T	mg/L	<0.00050				0.00147						0.00060				
Hard-T	mg/L	714				655						571				
Fe-T	mg/L	4.23				4.03						2.69				
Pb-T	mg/L	<0.00020				<0.00020						<0.00020				
Mg-T	mg/L	15.4				15.9						13.0				
Mn-T	mg/L	0.440				0.437						0.328				
Hg-T	mg/L	<0.0000019				<0.0000019						<0.0000019				
Mo-T	mg/L	<0.0010				<0.0010						<0.0010				
Ni-T	mg/L	0.0011				0.0020						0.0018				
K-T	mg/L	2.04				1.96						1.71				
S-T	mg/L	231				227						185				
Se-T	mg/L	<0.00010				<0.00010						<0.00010				
Si-T	mg/L	3.63				3.86						3.57				
Ag-T	mg/L	<0.000020				<0.000020						<0.000020				
Na-T	mg/L	119				117						99.0				
Sr-T	mg/L	2.48				2.21						1.90				
Zn-T	mg/L	<0.0050				0.0071						<0.0050				
Al-D	mg/L	<0.0030				0.0116						<0.0030				
As-D	mg/L	0.00476				0.00434						0.00270				
Ba-D	mg/L	0.0218				0.0210						0.0194				
B-D	mg/L	0.705				0.670						0.585				
Be-D	mg/L	<0.00010				<0.00010						<0.00010				
Cd-D	mg/L	<0.000010				<0.000010						<0.000010				
Ca-D	mg/L	244				233						204				
Cr-D	mg/L	<0.0010				<0.0010						<0.0010				
Co-D	mg/L	0.00068				0.00106						0.00098				
Cu-D	mg/L	<0.00020				<0.00020						<0.00020				
Hard-D	mg/L	670				645						561				
Fe-D	mg/L	3.92				4.04						2.47				
Pb-D	mg/L	<0.00020				<0.00020						<0.00020				
Mg-D	mg/L	15.0				15.5						12.7				
Mn-D	mg/L	0.425				0.439						0.309				
Hg-D	mg/L	<0.0000019				<0.0000019						<0.0000019				
Mo-D	mg/L	<0.0010				<0.0010						<0.0010				
Ni-D	mg/L	0.0011				0.0019						0.0016				
K-D	mg/L	1.88				1.99						1.67				
S-D	mg/L	216				218						183				
Se-D	mg/L	<0.00010				<0.00010						0.00011				
Si-D	mg/L	3.54				3.39						3.40				
Na-D	mg/L	112				116						98.2				
Sr-D	mg/L	2.26				2.09						1.93				
Zn-D	mg/L	<0.0050				<0.0050						<0.0050				

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Table 12 PTS Biochemical Reactor Cell 1 Page(s)

Site Description	Passive Treatment System Biochemical Reactor Cell																								
Site Name	BCR	BCREFF-40Oct21-M		BCREFF-120Oct21-M		BCREFF-25Oct21-M		BCREFF-1NOV21-M		BCREFF-8NOV21-M		BCREFF-16NOV21-M		BCREFF-23NOV21-M		BCREFF-29NOV21-M		BCREFF-7Dec21-M		BCREFF-13DEC21-M		BCREFF-20DEC21-M		BCREFF-27Dec21-M	
Date		2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-20	2021-12-27											
pH-F	pH Units	6.94	7.02	6.77	6.86	6.85	6.85	7.66	7.87	7	7.27	7.26	7.46	8.36											
Cond-F	uS/cm	1422	1397.5	1415.1	1406.1	1299.2	1348.4	1303	1434	1532	1674	1547	1529	1567											
pH-L	pH Units	7.97	7.89	7.91	7.84	7.97	7.80	7.66	7.77	7.79	7.56	8.16	8.30	8.18											
Cond-L	uS/cm	1500	1500	1500	1500	1400	1500	1400	1400	1470	1400	1400	1400	1400											
H2S	mg/L	90	30	44	35	35	32	32	26	2.89	18	19	17	17											
SO4-D	mg/L	440	420	490	530	550	560	490	530	692	530	540	500	550											
TSS	mg/L	<1.0				<1.0					<1.0														
Alk-T	mg/L	410				330					290														
Acidity83	mg/L	22.1				18.9					32.1														
Al-T	mg/L	0.0070				0.0066					0.0070														
As-T	mg/L	0.00050				0.00028					0.00021														
Ba-T	mg/L	0.0302				0.0265					0.0250														
B-T	mg/L	0.645				0.674					0.585														
Cd-T	mg/L	<0.000010				<0.000010					<0.000010														
Ca-T	mg/L	235				212					204														
Cr-T	mg/L	<0.0010				<0.0010					<0.0010														
Co-T	mg/L	<0.00020				<0.00020					<0.00020														
Cu-T	mg/L	<0.00050				<0.00050					<0.00050														
Hard-T	mg/L	651				593					566														
Fe-T	mg/L	<0.010				0.017					0.012														
Pb-T	mg/L	<0.00020				<0.00020					<0.00020														
Mg-T	mg/L	15.5				15.3					13.6														
Mn-T	mg/L	0.192				0.235					0.240														
Hg-T	mg/L	<0.000019				<0.000038					<0.000038														
Mo-T	mg/L	<0.0010				<0.0010					<0.0010														
Ni-T	mg/L	<0.0010				<0.0010					<0.0010														
K-T	mg/L	2.08				1.81					1.60														
S-T	mg/L	155				170					165														
Se-T	mg/L	<0.00010				<0.00010					<0.00010														
Si-T	mg/L	5.11				4.29					3.78														
Ag-T	mg/L	<0.000020				<0.000020					<0.000020														
Na-T	mg/L	117				108					94.5														
Sr-T	mg/L	2.31				2.00					1.95														
Zn-T	mg/L	<0.0050				<0.0050					<0.0050														
Al-D	mg/L	0.0084				0.0046					<0.0060														
As-D	mg/L	0.00045				0.00019					<0.00020														
Ba-D	mg/L	0.0277				0.0255					0.0234														
B-D	mg/L	0.70				0.600					0.58														
Be-D	mg/L	<0.00020				<0.00010					<0.00020														
Cd-D	mg/L	<0.000020				<0.000010					<0.000020														
Ca-D	mg/L	213				208					196														
Cr-D	mg/L	<0.0020				<0.0010					<0.0020														
Co-D	mg/L	<0.00040				<0.00020					<0.00040														
Cu-D	mg/L	<0.00040				<0.00020					<0.00040														
Hard-D	mg/L	594				579					546														
Fe-D	mg/L	<0.010				0.0095					<0.010														
Pb-D	mg/L	<0.00040				<0.00020					<0.00040														
Mg-D	mg/L	15.4				14.8					13.4														
Mn-D	mg/L	0.173				0.244					0.214														
Hg-D	mg/L	<0.000019				<0.000038					<0.000038														
Mo-D	mg/L	<0.0020				<0.0010					<0.0020														
Ni-D	mg/L	<0.0020				<0.0010					<0.0020														
K-D	mg/L	1.85				1.81					1.51														
S-D	mg/L	189				245					181														
Se-D	mg/L	0.00965				0.00336					0.00685														
Si-D	mg/L	4.91				3.63					3.57														
Na-D	mg/L	112				108					93.7														
Sr-D	mg/L	2.07				1.93					1.82														
Zn-D	mg/L	<0.010				<0.0050					<0.010														

Table 13 PTS Sulphide Polishing Cell 1 Page(s)

Site Description		Passive Treatment System Sulphide Polishing Cell												
Site Name	SPCEFF	SPCEFF-40ct21-M	SPCEFF-120ct21-M	SPCEFF-180ct21-M	SPCEFF-250ct21-M	SPCEFF-1NOV21-M	SPCEFF-8NOV21-M	SPCEFF-16NOV21-M	SPCEFF-23NOV21-M	SPCEFF-29NOV21-M	SPCEFF-7Dec21-M	SPCEFF-13DEC21-M	SPCEFF-20DEC21-M	
Date		2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-20	
pH-F	pH Units	7.51	7.61	7.21	7.58	7.54	7.54	8.12	7.74	8.17	7.53	7.27	7.36	
Cond-F	uS/cm	1381.1	1373.7	1364.4	1191.3	1118.4	1118.4	1098	1555	1047	1344	1560	1563	
H2S	mg/L	0.077		2.0	0.0068	0.0063		0.013	6.2	<0.01	9.4	3.8	16	
SO4-D	mg/L	280	420	460	380	450	410	340	470	345	520	440	440	
TSS	mg/L	1.6				<1.0					<1.0			
Alk-T	mg/L	550				340					300			
Acidity83	mg/L	18.2				1.0					26.1			
Al-T	mg/L	0.0157				0.0055					0.0062			
As-T	mg/L	0.00459				0.00125					0.00067			
Ba-T	mg/L	0.0404				0.0324					0.0294			
B-T	mg/L	0.695				0.575					0.574			
Cd-T	mg/L	<0.000010				<0.000010					<0.000010			
Ca-T	mg/L	229				189					213			
Cr-T	mg/L	<0.0010				<0.0010					<0.0010			
Co-T	mg/L	<0.00020				0.00023					<0.00020			
Cu-T	mg/L	<0.00050				<0.00050					<0.00050			
Hard-T	mg/L	634				530					591			
Fe-T	mg/L	0.543				0.487					0.163			
Pb-T	mg/L	<0.00020				<0.00020					<0.00020			
Mg-T	mg/L	15.3				13.9					14.2			
Mn-T	mg/L	0.0865				0.0347					0.186			
Hg-T	mg/L	<0.0000019				<0.0000019					<0.000038			
Mo-T	mg/L	<0.0010				<0.0010					<0.0010			
Ni-T	mg/L	<0.0010				<0.0010					<0.0010			
K-T	mg/L	2.35				1.79					1.63			
S-T	mg/L	97.1				144					164			
Se-T	mg/L	<0.00010				<0.00010					<0.00010			
Si-T	mg/L	6.11				4.17					4.08			
Ag-T	mg/L	<0.000020				<0.000020					<0.000020			
Na-T	mg/L	123				97.3					96.6			
Sr-T	mg/L	2.30				1.83					2.02			
Zn-T	mg/L	0.0055				<0.0050					<0.0050			
Al-D	mg/L	0.0111				<0.0030					0.0054			
As-D	mg/L	0.00400				0.00057					0.00063			
Ba-D	mg/L	0.0358				0.0310					0.0281			
B-D	mg/L	0.702				0.524					0.551			
Be-D	mg/L	<0.00010				<0.00010					<0.00010			
Cd-D	mg/L	<0.000010				<0.000010					<0.000010			
Ca-D	mg/L	203				190					211			
Cr-D	mg/L	<0.0010				<0.0010					<0.0010			
Co-D	mg/L	<0.00020				0.00022					0.00028			
Cu-D	mg/L	<0.00020				<0.00020					<0.00020			
Hard-D	mg/L	567				531					585			
Fe-D	mg/L	0.0092				0.0279					0.0451			
Pb-D	mg/L	<0.00020				<0.00020					<0.00020			
Mg-D	mg/L	14.3				14.0					14.1			
Mn-D	mg/L	0.0798				0.0345					0.181			
Hg-D	mg/L	<0.0000019				<0.0000019					<0.000038			
Mo-D	mg/L	<0.0010				<0.0010					<0.0010			
Ni-D	mg/L	<0.0010				<0.0010					<0.0010			
K-D	mg/L	2.09				1.80					1.63			
S-D	mg/L	132				144					181			
Se-D	mg/L	0.00454				<0.00010					0.00356			
Si-D	mg/L	5.65				3.70					3.91			
Na-D	mg/L	112				101					98.7			
Sr-D	mg/L	2.04				1.75					2.00			
Zn-D	mg/L	<0.0050				<0.0050					<0.0050			

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 14 2 South Pit Inflow 1 Page(s)

Site Description		2 South Pit Inflow													
Site Name	2SI	2SI-4Oct21-M	2SI-12Oct21-M	2SI-18Oct21-M	2SI-25Oct21-M	2SI-1NOV21-M	2SI-8NOV21-M	2SI-16NOV21-M	2SI-23NOV21-M	2SI-29NOV21-R	2SI-29NOV21-M	2SI-7Dec21-M	2SI-13DEC21-M	2SI-20DEC21-M	2SI-27Dec21-M
Date		2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-16	2021-11-23	2021-11-29	2021-11-29	2021-12-07	2021-12-13	2021-12-20	2021-12-27
pH-F	pH Units	7.34	7.68	7.38	6.94	7.34	7.26	7.65	7.66	7.29	7.29	7.54	7.6	7.75	7.95
Cond-F	uS/cm	1347.6	1327.6	1272.9	533.4	986.5	769	740	1170	788	788	995	1035	1098	1171
H2S	mg/L	<0.0020	0.072	0.027	0.028	0.096	0.039	0.052	0.022	0.01	0.01	0.051	0.056	0.033	0.034
SO4-D	mg/L	560	320	530	210	350	320	270	270	306	308	330	350	330	310
TSS	mg/L	<1.0				<1.0									
Alk-T	mg/L	260				220						130			
Acidity83	mg/L	7.1				3.3						8.3			
Al-T	mg/L	0.0040				0.0108						0.0125			
As-T	mg/L	0.00028				0.00041						0.00019			
Ba-T	mg/L	0.0352				0.0235						0.0172			
B-T	mg/L	0.605				0.399						0.267			
Cd-T	mg/L	<0.000010				<0.000010						<0.000010			
Ca-T	mg/L	206				153						113			
Cr-T	mg/L	<0.0010				<0.0010						<0.0010			
Co-T	mg/L	0.00029				0.00049						0.00029			
Cu-T	mg/L	0.00078				<0.00050						0.00134			
Hard-T	mg/L	577				438						324			
Fe-T	mg/L	0.201				0.306						0.288			
Pb-T	mg/L	<0.00020				<0.00020						<0.00020			
Mg-T	mg/L	15.2				13.3						10.3			
Mn-T	mg/L	0.136				0.159						0.0823			
Hg-T	mg/L	<0.0000019				<0.0000019						<0.0000019			
Mo-T	mg/L	<0.0010				<0.0010						<0.0010			
Ni-T	mg/L	<0.0010				<0.0010						<0.0010			
K-T	mg/L	1.74				1.24						0.796			
S-T	mg/L	184				131						96.5			
Se-T	mg/L	<0.00010				<0.00010						<0.00010			
Si-T	mg/L	4.83				4.86						4.14			
Ag-T	mg/L	<0.000020				<0.000020						<0.000020			
Na-T	mg/L	106				66.9						41.5			
Sr-T	mg/L	1.84				1.24						0.870			
Zn-T	mg/L	<0.0050				<0.0050						<0.0050			
Al-D	mg/L	<0.0030				0.0071						0.0074			
As-D	mg/L	0.00026				0.00034						0.00018			
Ba-D	mg/L	0.0338				0.0237						0.0166			
B-D	mg/L	0.629				0.365						0.254			
Be-D	mg/L	<0.00010				<0.00010						<0.00010			
Cd-D	mg/L	<0.000010				<0.000010						<0.000010			
Ca-D	mg/L	196				150						112			
Cr-D	mg/L	<0.0010				<0.0010						<0.0010			
Co-D	mg/L	0.00031				0.00049						0.00036			
Cu-D	mg/L	0.00073				0.00026						0.00030			
Hard-D	mg/L	554				428						323			
Fe-D	mg/L	0.149				0.229						0.220			
Pb-D	mg/L	<0.00020				<0.00020						<0.00020			
Mg-D	mg/L	15.4				13.2						10.3			
Mn-D	mg/L	0.134				0.157						0.0751			
Hg-D	mg/L	<0.0000019				<0.0000019						<0.0000019			
Mo-D	mg/L	<0.0010				<0.0010						<0.0010			
Ni-D	mg/L	<0.0010				<0.0010						<0.0010			
K-D	mg/L	1.68				1.23						0.762			
S-D	mg/L	186				130						97.3			
Se-D	mg/L	<0.00010				<0.00010						<0.00010			
Si-D	mg/L	4.84				4.17						3.92			
Na-D	mg/L	104				67.6						42.8			
Sr-D	mg/L	1.73				1.20						0.873			
Zn-D	mg/L	<0.0050				<0.0050						<0.0050			

Table 15 2-South Pit in Pit Water Cover Over PAG-CCR 1 Page(s)

EMS ID		E292127		
Site Description		2-South Pit in Pit Water Cover Over PAG-CCR		
Site Name		2S	2S-4Oct21-M	2S-1NOV21-M
Date		2021-10-04	2021-11-01	2021-12-07
pH-F	pH Units	7.88	7.72	8.01
Cond-F	uS/cm	1072.9	804.9	731
SO4-D	mg/L	540	300	240
TSS	mg/L	<1.0	<1.0	
Alk-T	mg/L	69	140	88
Acidity83	mg/L	1.6	4.2	2.6
Al-T	mg/L	0.0034	0.0494	0.0340
As-T	mg/L	0.00107	0.00039	0.00017
Ba-T	mg/L	0.0193	0.0197	0.0133
B-T	mg/L	0.601	0.371	0.180
Cd-T	mg/L	<0.000010	<0.000010	<0.000010
Ca-T	mg/L	124	119	81.7
Cr-T	mg/L	<0.0010	<0.0010	<0.0010
Co-T	mg/L	<0.00020	<0.00020	<0.00020
Cu-T	mg/L	0.00057	0.00088	0.00064
Hard-T	mg/L	368	349	237
Fe-T	mg/L	0.017	0.103	0.096
Pb-T	mg/L	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	14.3	12.3	8.11
Mn-T	mg/L	0.0028	0.0201	0.0338
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	<0.0010	<0.0010	<0.0010
K-T	mg/L	1.73	1.30	0.597
S-T	mg/L	184	122	66.3
Se-T	mg/L	<0.00010	<0.00010	<0.00010
Si-T	mg/L	2.78	4.06	3.65
Ag-T	mg/L	<0.000020	<0.000020	<0.000020
Na-T	mg/L	109	58.5	26.0
Sr-T	mg/L	1.69	1.05	0.597
Zn-T	mg/L	<0.0050	<0.0050	<0.0050
Al-D	mg/L	<0.0030	0.0178	0.0132
As-D	mg/L	0.00106	0.00032	0.00016
Ba-D	mg/L	0.0186	0.0188	0.0130
B-D	mg/L	0.635	0.332	0.176
Be-D	mg/L	<0.00010	<0.00010	<0.00010
Cd-D	mg/L	<0.000010	0.000014	<0.000010
Ca-D	mg/L	121	117	81.8
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	<0.00020	<0.00020	0.00031
Cu-D	mg/L	0.00047	0.00072	0.00047
Hard-D	mg/L	361	339	239
Fe-D	mg/L	0.0113	0.0276	0.0309
Pb-D	mg/L	0.00043	<0.00020	<0.00020
Mg-D	mg/L	14.5	11.7	8.49
Mn-D	mg/L	0.0022	0.0124	0.0314
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	<0.0010	<0.0010	<0.0010
K-D	mg/L	1.70	1.29	0.611
S-D	mg/L	188	116	71.6
Se-D	mg/L	<0.00010	0.00010	<0.00010
Si-D	mg/L	2.89	3.49	3.48
Na-D	mg/L	106	58.4	26.8
Sr-D	mg/L	1.65	0.986	0.609
Zn-D	mg/L	<0.0050	<0.0050	<0.0050

Table 16 2-South Outflow Culvert into 3-South Pit 1 Page(s)

EMS ID						
Site Description 2-South Outflow Culvert into 3-South Pit						
Site Name	2SC	2SC-4Oct21-M	2SC-4OCT21-R	2SC-1NOV21-M	2SC-7Dec21-M	2SC-7DEC21-R
Date		2021-10-04	2021-10-04	2021-11-01	2021-12-07	2021-12-07
pH-F	pH Units	7.64	7.64	7.4	7.95	7.95
Cond-F	uS/cm	1297.2	1297.2	1402.6	1776	1776
SO4-D	mg/L	560	590	730	740	730
Alk-T	mg/L	220	220	200	200	200
Acidity83	mg/L	<1.0	1.8	4.1	7.4	4.7
Al-T	mg/L	<0.0030	<0.0030	0.0079	<0.0060	0.0061
As-T	mg/L	0.00042	0.00041	0.00050	0.00026	0.00026
Ba-T	mg/L	0.0158	0.0154	0.0173	0.0135	0.0140
B-T	mg/L	0.357	0.361	0.37	0.27	0.28
Cd-T	mg/L	<0.000010	<0.000010	<0.000020	<0.000020	<0.000020
Ca-T	mg/L	248	244	283	280	291
Cr-T	mg/L	<0.0010	<0.0010	<0.0020	0.0035	<0.0020
Co-T	mg/L	<0.00020	<0.00020	<0.00040	<0.00040	<0.00040
Cu-T	mg/L	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010
Hard-T	mg/L	728	719	842	838	870
Fe-T	mg/L	<0.010	<0.010	0.026	0.047	<0.020
Pb-T	mg/L	<0.00020	<0.00020	<0.00040	<0.00040	<0.00040
Mg-T	mg/L	26.3	26.8	33.0	33.7	34.8
Mn-T	mg/L	0.0139	0.0140	0.0332	0.0066	0.0065
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020
Ni-T	mg/L	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020
K-T	mg/L	2.63	2.67	2.40	1.91	1.98
S-T	mg/L	205	206	256	230	244
Se-T	mg/L	0.00014	0.00012	0.00035	0.00040	0.00040
Si-T	mg/L	2.94	2.95	2.94	2.59	2.69
Ag-T	mg/L	<0.000020	<0.000020	<0.000040	<0.000040	<0.000040
Na-T	mg/L	56.2	58.0	43.8	26.8	27.8
Sr-T	mg/L	1.54	1.52	1.61	1.52	1.59
Zn-T	mg/L	<0.0050	<0.0050	<0.010	<0.010	<0.010
Al-D	mg/L	<0.0030	<0.0030	0.0032	<0.0060	<0.0060
As-D	mg/L	0.00040	0.00042	0.00035	<0.00020	<0.00020
Ba-D	mg/L	0.0146	0.0149	0.0166	0.0127	0.0129
B-D	mg/L	0.370	0.371	0.305	0.25	0.25
Be-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020
Ca-D	mg/L	228	229	280	280	280
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040
Cu-D	mg/L	<0.00020	<0.00020	0.00026	<0.00040	<0.00040
Hard-D	mg/L	674	681	833	834	830
Fe-D	mg/L	<0.0050	<0.0050	0.0080	<0.010	<0.010
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00040	<0.00040
Mg-D	mg/L	25.6	26.5	32.2	32.7	31.9
Mn-D	mg/L	0.0127	0.0135	0.0326	0.0051	0.0051
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020
Ni-D	mg/L	<0.0010	<0.0010	0.0010	<0.0020	<0.0020
K-D	mg/L	2.43	2.57	2.34	1.90	1.89
S-D	mg/L	193	204	258	229	228
Se-D	mg/L	0.00013	0.00013	0.00045	0.00045	0.00043
Si-D	mg/L	2.95	2.96	2.46	2.48	2.49
Na-D	mg/L	52.0	55.0	44.8	27.0	26.5
Sr-D	mg/L	1.41	1.43	1.60	1.50	1.50
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.010	<0.010

Table 17 3-South Pit Water Cover Over PAG-CCR 1 Page(s)

EMS ID		E217015			
Site Description		3-South Pit Water Cover Over PAG-CCR			
Site Name		3S	3S-4Oct21-M	3S-1NOV21-M	3S-7Dec21-M
Date		2021-10-04		2021-11-01	2021-12-07
pH-F	pH Units	7.61		7.27	7.87
Cond-F	uS/cm	1139.5		1271	1138
SO4-D	mg/L	550		680	500
Alk-T	mg/L	160		180	160
Acidity83	mg/L	2.5		3.8	4.6
Al-T	mg/L	0.0083		0.0118	0.0061
As-T	mg/L	0.00040		0.00050	0.00022
Ba-T	mg/L	0.0147		0.0177	0.0137
B-T	mg/L	0.333		0.354	0.230
Cd-T	mg/L	<0.000010		<0.000010	<0.000010
Ca-T	mg/L	203		260	244
Cr-T	mg/L	<0.0010		<0.0010	<0.0010
Co-T	mg/L	<0.00020		<0.00020	<0.00020
Cu-T	mg/L	<0.00050		<0.00050	<0.00050
Hard-T	mg/L	609		778	728
Fe-T	mg/L	0.026		0.043	0.024
Pb-T	mg/L	<0.00020		<0.00020	<0.00020
Mg-T	mg/L	24.8		31.4	28.8
Mn-T	mg/L	0.0061		0.0131	0.0149
Hg-T	mg/L	<0.0000019		<0.0000019	<0.0000019
Mo-T	mg/L	<0.0010		<0.0010	<0.0010
Ni-T	mg/L	<0.0010		<0.0010	<0.0010
K-T	mg/L	2.47		2.38	1.78
S-T	mg/L	190		243	198
Se-T	mg/L	<0.00010		0.00033	0.00028
Si-T	mg/L	2.47		2.93	2.41
Ag-T	mg/L	<0.000020		<0.000020	<0.000020
Na-T	mg/L	49.6		45.7	25.1
Sr-T	mg/L	1.39		1.58	1.39
Zn-T	mg/L	<0.0050		<0.0050	<0.0050
Al-D	mg/L	<0.0030		0.0033	<0.0060
As-D	mg/L	0.00038		0.00036	<0.00020
Ba-D	mg/L	0.0138		0.0163	0.0129
B-D	mg/L	0.354		0.288	0.23
Be-D	mg/L	<0.00010		<0.00010	<0.00020
Cd-D	mg/L	<0.000010		<0.000010	<0.000020
Ca-D	mg/L	195		243	252
Cr-D	mg/L	<0.0010		<0.0010	<0.0020
Co-D	mg/L	<0.00020		<0.00020	<0.00040
Cu-D	mg/L	<0.00020		0.00027	<0.00040
Hard-D	mg/L	592		725	751
Fe-D	mg/L	0.0092		0.0086	<0.010
Pb-D	mg/L	<0.00020		<0.00020	<0.00040
Mg-D	mg/L	25.1		28.6	29.8
Mn-D	mg/L	0.0033		0.0117	0.0077
Hg-D	mg/L	<0.0000019		<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010		<0.0010	<0.0020
Ni-D	mg/L	<0.0010		<0.0010	<0.0020
K-D	mg/L	2.42		2.25	1.81
S-D	mg/L	189		226	210
Se-D	mg/L	<0.00010		0.00034	0.00034
Si-D	mg/L	2.41		2.38	2.30
Na-D	mg/L	48.5		43.0	26.1
Sr-D	mg/L	1.32		1.46	1.40
Zn-D	mg/L	<0.0050		<0.0050	<0.010

Table 18 South End Mine Water Entering Long Lake Near the Outlet 1 Page(s)

EMS ID	E292130	Stn Std WQG-Max															
Site Description	South End Mine Water Entering Long Lake Near the Outlet																
Site Name	LLE	Std Val	LLE-40Oct21-M	LLE-120Oct21-M	LLE-180Oct21-M	LLE-25Oct21-M	LLE-1NOV21-M	LLE-8NOV21-R	LLE-8NOV21-M	LLE-16NOV21-M	LLE-23NOV21-M	LLE-29NOV21-M	LLE-7Dec21-M	LLE-13DEC21-M	LLE-13DEC21-R	LLE-20DEC21-M	LLE-27Dec21-M
Date	Max		2021-10-04	2021-10-12	2021-10-18	2021-10-25	2021-11-01	2021-11-08	2021-11-08	2021-11-16	2021-11-23	2021-11-29	2021-12-07	2021-12-13	2021-12-13	2021-12-20	2021-12-27
pH-F	pH Units		7.15	6.68	6.5	6.96	6.73	7.16	7.16	7.41	7.34	7.2	7.48	7.37	7.37	7.62	7.14
Cond-F	uS/cm		1150.9	1039.1	626.3	204.7	294.1	324	324	212	287	256	346	259	259	278	349
SO4-D	mg/L		510	430	280	81	140	130	130	74	95	112	86	82	83	73	190
TSS	mg/L	25	2.8				<1.0						<1.0				
Alk-T	mg/L		140				38						29				
Acidity83	mg/L		5.5				2.6						2.9				
N-NH3	mg/L	12.9	0.20				0.062						<0.015				
N-NO23	mg/L		<0.020				<0.020						0.047				
P-T	mg/L		<0.0030				0.0039						0.0035				
Al-T	mg/L		0.0046				0.101						0.0833				
As-T	mg/L	0.005	0.00079				0.00122						0.00084				
Ba-T	mg/L		0.0272				0.0127						0.0078				
B-T	mg/L		0.405				0.081						0.051				
Cd-T	mg/L		<0.000010				<0.000010						<0.000010				
Ca-T	mg/L		186				42.9						26.5				
Cr-T	mg/L		<0.0010				<0.0010						<0.0010				
Co-T	mg/L	0.11	<0.00020				<0.00020						<0.00020				
Cu-T	mg/L		<0.00050				0.00069						0.00050				
Hard-T	mg/L		587				132						81.8				
Fe-T	mg/L	1.0	0.492				0.159						0.317				
Pb-T	mg/L	0.01763	<0.00020				<0.00020						<0.00020				
Mg-T	mg/L		29.7				6.12						3.79				
Mn-T	mg/L	0.8706	0.0833				0.0263						0.0414				
Hg-T	mg/L		<0.0000019				<0.0000019						0.0000019				
Mo-T	mg/L	2.0	<0.0010				<0.0010						<0.0010				
Ni-T	mg/L		<0.0010				<0.0010						<0.0010				
K-T	mg/L		2.94				0.565						0.334				
S-T	mg/L		199				41.1						22.1				
Se-T	mg/L		<0.00010				<0.00010						<0.00010				
Si-T	mg/L		6.20				4.20						3.44				
Ag-T	mg/L	0.0001	<0.000020				<0.000020						<0.000020				
Na-T	mg/L		63.6				9.94						6.47				
Sr-T	mg/L		1.22				0.252						0.155				
Zn-T	mg/L	0.033	<0.0050				<0.0050						<0.0050				
Al-D	mg/L	0.1	<0.0030				0.0563						0.0508				
As-D	mg/L		0.00067				0.00101						0.00077				
Ba-D	mg/L		0.0249				0.0121						0.0078				
B-D	mg/L		0.424				0.072						<0.050				
Be-D	mg/L		<0.00010				<0.00010						<0.00010				
Cd-D	mg/L	0.00017	<0.000010				<0.000010						<0.000010				
Ca-D	mg/L		168				40.4						27.4				
Cr-D	mg/L		<0.0010				<0.0010						<0.0010				
Co-D	mg/L		<0.00020				<0.00020						<0.00020				
Cu-D	mg/L	0.00385	<0.00020				0.00061						0.00045				
Hard-D	mg/L		537				125						84.2				
Fe-D	mg/L	0.35	0.264				0.117						0.271				
Pb-D	mg/L		<0.00020				<0.00020						<0.00020				
Mg-D	mg/L		28.3				5.92						3.84				
Mn-D	mg/L		0.0753				0.0253						0.0378				
Hg-D	mg/L		<0.0000019				0.0000046						0.0000020				
Mo-D	mg/L		<0.0010				<0.0010						<0.0010				
Ni-D	mg/L		<0.0010				<0.0010						<0.0010				
K-D	mg/L		2.74				0.545						0.342				
S-D	mg/L		190				38.1						22.6				
Se-D	mg/L		<0.00010				<0.00010						<0.00010				
Si-D	mg/L		6.04				3.44						3.45				
Na-D	mg/L		57.6				9.71						6.79				
Sr-D	mg/L		1.11				0.238						0.164				
Zn-D	mg/L		<0.0050				<0.0050						<0.0050				

Table 19 Seep into Long Lake 1 Page(s)

EMS ID	E292131	Stn Std	WQG-Max			
Site Description		Seep into Long Lake				
Site Name	LLS	Std Val	LLS-4Oct21-M	LLS-18Oct21-M	LLS-1NOV21-M	LLS-7Dec21-M
Date	Max	2021-10-04	2021-10-18	2021-11-01	2021-12-07	
pH-F	pH Units		6.92		6.86	7.17
Cond-F	uS/cm		1304.5		1322.9	1625
pH-L	pH Units	9.0	7.69		8.03	7.66
Cond-L	uS/cm		1400		1500	1400
SO4-D	mg/L		530		650	660
TSS	mg/L	25	4.8		1.6	4.8
Alk-T	mg/L		260		250	200
Acidity83	mg/L		9.5		4.9	23.0
Al-T	mg/L		<0.0030		0.0210	0.0097
As-T	mg/L	0.005	0.00270		0.00383	0.00398
Ba-T	mg/L		0.0190		0.0182	0.0189
B-T	mg/L		0.508		0.610	0.466
Cd-T	mg/L		<0.000010		<0.000010	<0.000010
Ca-T	mg/L		212		223	204
Cr-T	mg/L		<0.0010		<0.0010	<0.0010
Co-T	mg/L	0.11	0.00096		0.00163	0.00090
Cu-T	mg/L		<0.00050		<0.00050	<0.00050
Hard-T	mg/L		601		640	583
Fe-T	mg/L	1.0	1.82		2.23	1.54
Pb-T	mg/L	0.01763	<0.00020		<0.00020	<0.00020
Mg-T	mg/L		17.2		20.5	18.1
Mn-T	mg/L	0.8706	0.454		0.469	0.328
Hg-T	mg/L		<0.0000019		<0.0000019	<0.0000019
Mo-T	mg/L	2.0	<0.0010		<0.0010	<0.0010
Ni-T	mg/L		0.0018		0.0034	0.0025
K-T	mg/L		2.37		2.52	2.09
S-T	mg/L		184		214	191
Se-T	mg/L		<0.00010		<0.00010	<0.00010
Si-T	mg/L		2.89		3.35	3.01
Ag-T	mg/L	0.0001	<0.000020		<0.000020	<0.000020
Na-T	mg/L		87.7		95.7	74.4
Sr-T	mg/L		2.04		2.02	1.80
Zn-T	mg/L	0.033	<0.0050		<0.0050	<0.0050
Al-D	mg/L	0.1	<0.0030		0.0033	<0.0030
As-D	mg/L		0.00258		0.00339	0.00263
Ba-D	mg/L		0.0178		0.0182	0.0192
B-D	mg/L		0.542		0.552	0.470
Be-D	mg/L		<0.00010		<0.00010	<0.00010
Cd-D	mg/L	0.00017	<0.000010		<0.000010	<0.000010
Ca-D	mg/L		205		220	208
Cr-D	mg/L		<0.0010		<0.0010	<0.0010
Co-D	mg/L		0.00099		0.00161	0.00088
Cu-D	mg/L	0.00385	<0.00020		<0.00020	<0.00020
Hard-D	mg/L		584		631	597
Fe-D	mg/L	0.35	1.72		2.09	1.03
Pb-D	mg/L		<0.00020		<0.00020	<0.00020
Mg-D	mg/L		17.3		19.6	18.7
Mn-D	mg/L		0.447		0.451	0.320
Hg-D	mg/L		<0.0000019		<0.0000019	<0.0000019
Mo-D	mg/L		<0.0010		<0.0010	<0.0010
Ni-D	mg/L		0.0017		0.0032	0.0024
K-D	mg/L		2.31		2.51	2.21
S-D	mg/L		175		207	193
Se-D	mg/L		<0.00010		<0.00010	<0.00010
Si-D	mg/L		2.90		2.95	3.00
Na-D	mg/L		86.8		93.9	78.5
Sr-D	mg/L		1.91		1.94	1.88
Zn-D	mg/L		<0.0050		<0.0050	<0.0050

Table 20 Long Lake Middle Seep 1 Page(s)

EMS ID		WQG-Max			
Site Description		Long Lake Middle Seep			
Site Name	LLSM	Std Val	LLSM-25Oct21-M	LLSM-1NOV21-M	LLSM-7Dec21-M
Date		Max	2021-10-25	2021-11-01	2021-12-07
pH-F	pH Units			7.18	7.66
Cond-F	uS/cm			976.2	1420
SO4-D	mg/L			370	510
TSS	mg/L	25		2.0	<1.0
Alk-T	mg/L			150	170
Acidity83	mg/L			1.8	10.4
Al-T	mg/L			0.154	0.0084
As-T	mg/L	0.005		0.00117	0.00046
Ba-T	mg/L			0.0188	0.0192
B-T	mg/L			0.402	0.410
Cd-T	mg/L			0.000012	<0.000010
Ca-T	mg/L			157	174
Cr-T	mg/L			<0.0010	<0.0010
Co-T	mg/L	0.11		0.00239	0.00046
Cu-T	mg/L			0.00239	<0.00050
Hard-T	mg/L			460	503
Fe-T	mg/L	1.0		0.840	0.167
Pb-T	mg/L	0.01763		<0.00020	<0.00020
Mg-T	mg/L			16.1	16.5
Mn-T	mg/L	0.8706		0.224	0.0836
Hg-T	mg/L			<0.0000019	<0.0000019
Mo-T	mg/L	2.0		<0.0010	<0.0010
Ni-T	mg/L			0.0068	0.0017
K-T	mg/L			1.95	1.98
S-T	mg/L			155	162
Se-T	mg/L			<0.00010	0.00011
Si-T	mg/L			3.35	2.82
Ag-T	mg/L	0.0001		<0.000020	<0.000020
Na-T	mg/L			56.5	66.7
Sr-T	mg/L			1.35	1.56
Zn-T	mg/L	0.033		0.0058	<0.0050
Al-D	mg/L	0.1		0.0190	0.0353
As-D	mg/L			0.00083	0.00063
Ba-D	mg/L			0.0183	0.0191
B-D	mg/L			0.374	0.415
Be-D	mg/L			<0.00010	<0.00010
Cd-D	mg/L	0.00017		<0.000010	<0.000010
Ca-D	mg/L			154	179
Cr-D	mg/L			<0.0010	<0.0010
Co-D	mg/L			0.00238	0.00043
Cu-D	mg/L	0.00385		0.00148	0.00057
Hard-D	mg/L			448	517
Fe-D	mg/L	0.35		0.567	0.384
Pb-D	mg/L			<0.00020	<0.00020
Mg-D	mg/L			15.7	16.7
Mn-D	mg/L			0.223	0.0793
Hg-D	mg/L			<0.0000019	<0.0000019
Mo-D	mg/L			<0.0010	<0.0010
Ni-D	mg/L			0.0067	0.0016
K-D	mg/L			1.96	2.01
S-D	mg/L			150	163
Se-D	mg/L			0.00010	0.00013
Si-D	mg/L			2.84	2.87
Na-D	mg/L			56.0	67.4
Sr-D	mg/L			1.29	1.60
Zn-D	mg/L			0.0057	<0.0050

Table 21 Authorised Discharge Location for 7S South Mine Water 1 Page(s)

EMS ID	E292069	PL-7S
Site Description	Authorised Discharge Location for 7S South Mine Water	
Site Name	7SSD	Std Val
Date	Max	7SSD-4OCT21-P
		2021-10-04
pH-F	pH Units	7.3
Cond-F	uS/cm	436.5
SO4-D	mg/L	500
TSS	mg/L	25
Alk-T	mg/L	200
Acidity83	mg/L	2.2
DOC	mg/L	2.5
Al-T	mg/L	0.0074
As-T	mg/L	0.00423
Ba-T	mg/L	0.0101
B-T	mg/L	<0.050
Cd-T	mg/L	<0.000010
Ca-T	mg/L	69.5
Cr-T	mg/L	<0.0010
Co-T	mg/L	<0.00020
Cu-T	mg/L	0.00247
Hard-T	mg/L	235
Fe-T	mg/L	0.076
Pb-T	mg/L	<0.00020
Mg-T	mg/L	14.9
Mn-T	mg/L	0.115
Hg-T	mg/L	<0.0000019
Mo-T	mg/L	<0.0010
Ni-T	mg/L	<0.0010
K-T	mg/L	0.742
S-T	mg/L	17.4
Se-T	mg/L	<0.00010
Si-T	mg/L	6.80
Ag-T	mg/L	<0.000020
Na-T	mg/L	8.18
Sr-T	mg/L	0.273
Zn-T	mg/L	<0.0050
Al-D	mg/L	0.1
As-D	mg/L	0.00379
Ba-D	mg/L	0.0071
B-D	mg/L	0.050
Be-D	mg/L	<0.00010
Cd-D	mg/L	0.000045
Ca-D	mg/L	64.0
Cr-D	mg/L	<0.0010
Co-D	mg/L	<0.00020
Cu-D	mg/L	0.014
Hard-D	mg/L	219
Fe-D	mg/L	0.35
Pb-D	mg/L	<0.00020
Mg-D	mg/L	14.4
Mn-D	mg/L	0.0950
Hg-D	mg/L	<0.0000019
Mo-D	mg/L	<0.0010
Ni-D	mg/L	<0.0010
K-D	mg/L	0.697
S-D	mg/L	16.8
Se-D	mg/L	0.016
Si-D	mg/L	6.58
Na-D	mg/L	7.50
Sr-D	mg/L	0.243
Zn-D	mg/L	<0.0050

Table 22 7 South Portal Sump 1 Page(s)

EMS ID		E292110		
Site Description		7 South Portal Sump		
Site Name	7SPS	7SPS-4Oct21-M	7SPS-1Nov21-M	7SPS-7Dec21-M
Date		2021-10-04	2021-11-01	2021-12-07
pH-F	pH Units	5.23	6.02	7.1
Cond-F	uS/cm	1273.8	731.9	691
SO4-D	mg/L	790	350	250
TSS	mg/L	14	25	11
Alk-T	mg/L	1.2	5.6	63
Acidity83	mg/L	118	26.5	11.9
Al-T	mg/L	2.21	0.595	0.119
As-T	mg/L	0.00186	0.00077	0.00079
Ba-T	mg/L	0.0386	0.0177	0.0152
B-T	mg/L	0.218	0.120	0.069
Cd-T	mg/L	0.000279	0.000153	0.000023
Ca-T	mg/L	198	105	80.3
Cr-T	mg/L	0.0012	0.0018	<0.0010
Co-T	mg/L	0.0396	0.0217	0.00421
Cu-T	mg/L	0.0813	0.0185	0.00235
Hard-T	mg/L	666	372	279
Fe-T	mg/L	49.2	22.6	4.81
Pb-T	mg/L	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	41.7	26.5	19.0
Mn-T	mg/L	0.881	0.530	0.171
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	0.0635	0.0359	0.0085
K-T	mg/L	2.51	1.09	0.833
S-T	mg/L	251	133	68.7
Se-T	mg/L	0.00040	0.00011	<0.00010
Si-T	mg/L	7.82	7.13	4.76
Ag-T	mg/L	<0.000020	<0.000020	<0.000020
Na-T	mg/L	9.13	5.83	5.12
Sr-T	mg/L	0.758	0.381	0.284
Zn-T	mg/L	0.113	0.0764	0.0183
Al-D	mg/L	1.71	0.0385	0.0055
As-D	mg/L	0.00139	0.00033	0.00061
Ba-D	mg/L	0.0361	0.0171	0.0120
B-D	mg/L	0.227	0.102	0.057
Be-D	mg/L	0.00034	<0.00010	<0.00010
Cd-D	mg/L	0.000297	0.000146	0.000030
Ca-D	mg/L	191	103	75.6
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	0.0442	0.0221	0.00562
Cu-D	mg/L	0.0867	0.0132	0.00125
Hard-D	mg/L	655	366	266
Fe-D	mg/L	49.4	19.4	4.76
Pb-D	mg/L	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	43.1	26.3	18.8
Mn-D	mg/L	0.946	0.542	0.231
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	0.0689	0.0360	0.0105
K-D	mg/L	2.33	1.09	0.716
S-D	mg/L	248	131	70.9
Se-D	mg/L	0.00042	0.00012	<0.00010
Si-D	mg/L	7.93	6.24	5.24
Na-D	mg/L	8.99	5.94	5.89
Sr-D	mg/L	0.730	0.374	0.279
Zn-D	mg/L	0.121	0.0763	0.0231

Table 23 Continuous Discharge at Settling Pond # 4 1 Page(s)

EMS ID E207409						
Discharge From Settling Pond #4 (SP4/WD)						
Date	October Max. (m3/s)	October Daily (m3/s)	November Max. (m3/s)	November Daily (m3/s)	December Max. (m3/s)	December Daily (m3/s)
1	0.0320	0.0140	0.1340	0.0880	0.1790	0.1650
2	0.0430	0.0240	0.1090	0.0950	0.1990	0.1920
3	0.0040	0.0010	0.1110	0.0760	0.1950	0.1700
4	0.0030	0.0010	0.1390	0.1070	0.1720	0.1560
5	0.0350	0.0140	0.1560	0.1530	0.1400	0.1120
6	0.0380	0.0290	0.1510	0.1440	0.1350	0.1230
7	0.0610	0.0330	0.1700	0.1540	0.1300	0.0960
8	0.0690	0.0570	0.1620	0.1250	0.1360	0.1240
9	0.0350	0.0300	0.1460	0.1320	0.1360	0.1020
10	0.0390	0.0330	0.1460	0.1430	0.1300	0.1170
11	0.0520	0.0350	0.1380	0.1290	0.1530	0.1260
12	0.0620	0.0510	0.1550	0.1390	0.1580	0.1440
13	0.0480	0.0440	0.1550	0.1480	0.1450	0.1310
14	0.0430	0.0280	0.1460	0.1270	0.1330	0.0910
15	0.0270	0.0170	0.1500	0.1420	0.1210	0.1060
16	0.0740	0.0480	0.1920	0.1740	0.1240	0.0760
17	0.1010	0.0800	0.1650	0.1460	0.1290	0.1030
18	0.0790	0.0760	0.1480	0.1390	0.1140	0.1000
19	0.0730	0.0670	0.1540	0.1400	0.1370	0.1180
20	0.0710	0.0610	0.1490	0.1380	0.1150	0.0990
21	0.0900	0.0790	0.1430	0.1340	0.1360	0.1110
22	0.1050	0.0930	0.1370	0.1250	0.1200	0.0990
23	0.1320	0.1220	0.1410	0.1350	0.1430	0.1270
24	0.1750	0.1270	0.1630	0.1350	0.1390	0.1340
25	0.2330	0.2150	0.1320	0.1270	0.1480	0.0900
26	0.1930	0.1500	0.1660	0.1500	0.1480	0.1270
27	0.1980	0.1720	0.1620	0.1550	0.1340	0.1080
28	0.1430	0.1320	0.1850	0.1590	0.1300	0.1050
29	0.1400	0.1250	0.1950	0.1750	0.1230	0.1080
30	0.1120	0.1020	0.1960	0.1700	0.1330	0.1030
31	0.1350	0.1140			0.1310	0.1150
Monthly Max	0.2330		0.1960		0.1990	
Monthly Avg		0.0701		0.1368		0.1186
TSS is required weekly when max daily flow > 0.054 m ³ /s						
NF= No Flow All flow data is subject to review						

Table 24 Continuous Discharge at Settling Pond # 1 1 Page(s)

EMS ID E218582						
Discharge From Settling Pond #1 (SP1/SPD)						
Date	October	October	November	November	December	December
	Max. (m3/s)	Daily (m3/s)	Max. (m3/s)	Daily (m3/s)	Max. (m3/s)	Daily (m3/s)
1	0.0091	0.0033	0.0700	0.0325	0.1200	0.1019
2	0.0250	0.0095	0.0700	0.0376	0.1200	0.0864
3	0.0250	0.0109	0.1100	0.0927	0.0900	0.0698
4	0.0091	0.0044	0.1300	0.1092	0.0900	0.0582
5	0.0091	0.0049	0.1100	0.0905	0.0500	0.0215
6	0.0091	0.0032	0.0800	0.0561	0.0600	0.0251
7	0.0091	0.0050	0.1000	0.0808	0.0600	0.0431
8	0.0091	0.0080	0.1000	0.0821	0.0700	0.0462
9	0.0250	0.0157	0.1200	0.0936	0.0600	0.0438
10	0.0160	0.0132	0.1200	0.0994	0.1000	0.0573
11	0.0160	0.0083	0.1100	0.0801	0.1000	0.0707
12	0.0341	0.0241	0.0900	0.0677	0.0600	0.0362
13	0.0160	0.0116	0.1000	0.0753	0.0800	0.0273
14	0.0091	0.0084	0.1000	0.0798	0.0500	0.0212
15	0.0341	0.0120	0.1100	0.0817	0.0500	0.0211
16	0.0341	0.0286	0.1000	0.0623	0.0300	0.0138
17	0.0250	0.0193	0.1000	0.0735	0.0800	0.0338
18	0.0443	0.0271	0.0900	0.0621	0.0800	0.0472
19	0.0160	0.0150	0.0900	0.0712	0.0300	0.0126
20	0.0160	0.0090	0.0800	0.0504	0.0200	0.0092
21	0.0250	0.0173	0.0400	0.0177	0.3000	0.0075
22	0.0443	0.0306	0.0300	0.0152	0.0300	0.0090
23	0.0160	0.0151	0.0300	0.0155	0.0500	0.0178
24	0.1382	0.0606	0.0800	0.0265	0.0600	0.0226
25	0.1970	0.1784	0.1000	0.0796	0.0600	0.0185
26	0.1522	0.1195	0.0900	0.0688	0.0600	0.0220
27	0.1088	0.0920	0.1400	0.0825	0.0400	0.0124
28	0.0877	0.0779	0.1300	0.1184	0.0400	0.0130
29	0.0764	0.0661	0.1300	0.1055	0.0200	0.0071
30	0.0639	0.0596	0.1200	0.1003	0.0500	0.0146
31	0.0534	0.0365			0.0200	0.0057
Monthly Max	0.1970		0.140		0.3000	
Monthly Avg		0.032		0.070		0.032
PNC = Permit Non-compliance						
TSS is required weekly when max daily flow > 0.046m ³ /s						
NF= No Flow						
All flow data is subject to revisions						

Table 25 Continuous Discharge at 7-South 1 Page(s)

EMS ID E292069 Discharge From 7 South Surface Decant Pond (7SSD)									
	April	May	June	July	August	September	October	November	December
Date	Daily Average L/S			Daily Average L/S					
1	NF	NF	NF	NF	NF	NF	NF	NF	NF
2	NF	NF	NF	NF	NF	NF	NF	NF	NF
3	NF	NF	NF	NF	NF	NF	NF	NF	NF
4	NF	NF	NF	NF	NF	NF	NF	NF	NF
5	NF	NF	NF	NF	NF	NF	NF	NF	NF
6	NF	NF	NF	NF	NF	NF	NF	NF	NF
7	NF	NF	NF	NF	NF	NF	NF	NF	NF
8	NF	NF	NF	NF	NF	NF	NF	NF	NF
9	NF	NF	NF	NF	NF	NF	NF	NF	NF
10	NF	NF	NF	NF	NF	NF	NF	NF	NF
11	NF	NF	NF	NF	NF	NF	NF	NF	NF
12	NF	NF	NF	NF	NF	NF	NF	NF	NF
13	NF	NF	NF	NF	NF	NF	NF	NF	NF
14	NF	NF	NF	NF	NF	NF	NF	NF	NF
15	NF	NF	NF	NF	NF	NF	NF	NF	NF
16	NF	NF	NF	NF	NF	NF	NF	NF	NF
17	NF	NF	NF	NF	NF	NF	NF	NF	NF
18	NF	NF	NF	NF	NF	NF	NF	NF	NF
19	NF	NF	NF	NF	NF	NF	NF	NF	NF
20	NF	NF	NF	NF	NF	NF	NF	NF	NF
21	NF	NF	NF	NF	NF	NF	NF	NF	NF
22	NF	NF	NF	NF	NF	NF	NF	NF	NF
23	NF	NF	NF	NF	NF	NF	NF	NF	NF
24	NF	NF	NF	NF	NF	NF	NF	NF	NF
25	NF	NF	NF	NF	NF	NF	NF	NF	NF
26	NF	NF	NF	NF	NF	NF	NF	NF	NF
27	NF	NF	NF	NF	NF	NF	NF	NF	NF
28	NF	NF	NF	NF	NF	NF	NF	NF	NF
29	NF	NF	NF	NF	NF	NF	NF	NF	NF
30	NF	NF	NF	NF	NF	NF	NF	NF	NF
31	NF	NF	NF	NF	NF		NF	NF	NF
Monthly Avg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Annual Avg									
Cummulative Daily Totalizer Value									
For Maximum Decant Flow (5.00 L/s)									

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Table 26 2S Inflow Outflow 1 Page(s)

EMS ID: E292127 2-South Pit Continous Inflow and Outflow										EMS ID: E292127 2-South Pit Continous Inflow and Outflow									
2S Inflow										2S Outflow Culvert into 3S Pit									
Date	April Q (L/s)	May Q (L/s)	June Q (L/s)	July Q (L/s)	August Q (L/s)	September Q (L/s)	October Q (L/s)	November Q (L/s)	December Q (L/s)	Date	April Q (L/s)	May Q (L/s)	June Q (L/s)	July Q (L/s)	August Q (L/s)	September Q (L/s)	October Q (L/s)	November Q (L/s)	December Q (L/s)
1	12.314	11.861	1.94	12.65	20.49	0.00	5.283	19.355	31.169	1	6.421	4.660	3.553	3.57	3.480	2.97	3.805	17.143	26.123
2	12.248	11.286	1.90	11.65	20.08	0.00	5.978	22.879	23.753	2	6.410	4.709	3.718	3.38	3.465	2.89	4.133	18.336	23.998
3	12.694	11.521	1.83	6.15	15.93	0.00	5.944	36.299	19.104	3	6.418	4.989	3.456	3.32	3.433	3.32	3.683	35.920	20.327
4	12.243	11.359	1.86	3.32	8.32	0.00	9.052	40.954	18.087	4	5.846	4.418	3.855	3.29	3.433	3.46	3.989	42.737	16.987
5	11.991	10.550	1.94	2.31	10.95	0.00	17.091	32.765	15.405	5	5.616	4.995	3.704	3.12	3.492	3.14	4.279	39.344	14.283
6	11.810	11.380	1.67	1.51	17.53	0.00	16.249	28.959	14.931	6	5.861	4.936	3.843	3.06	3.835	3.05	4.379	35.096	9.800
7	12.503	11.134	1.70	1.35	18.50	0.00	15.224	26.191	17.193	7	5.718	4.458	3.715	3.13	4.044	2.80	4.511	27.730	10.800
8	12.476	10.663	1.86	1.18	17.12	0.00	15.731	21.716	21.458	8	5.531	4.787	3.811	3.00	3.561	3.36	4.560	18.009	10.242
9	12.728	10.959	2.21	1.04	16.12	0.06	15.198	35.503	19.987	9	5.856	4.510	3.965	3.05	3.486	3.26	4.671	19.194	9.478
10	13.744	10.755	14.73	0.95	17.02	0.10	14.958	26.478	20.558	10	5.480	4.254	3.884	3.00	3.488	2.97	4.445	20.124	9.555
11	13.128	9.974	14.79	0.74	12.71	0.17	13.090	22.528	26.586	11	5.180	4.249	4.154	2.93	3.437	3.44	4.168	18.437	11.216
12	12.704	10.423	11.33	0.41	5.44	0.42	5.451	22.171	22.642	12	5.056	4.271	4.178	2.93	3.286	2.94	4.651	15.976	11.613
13	12.833	9.601	11.49	0.21	4.73	0.30	5.114	21.693	19.626	13	4.933	3.912	3.875	2.93	3.212	2.85	4.473	15.254	11.739
14	12.372	9.478	11.06	0.42	4.53	0.48	6.583	29.459	16.835	14	4.837	3.944	3.788	2.93	3.234	3.41	4.354	16.946	11.033
15	11.907	9.330	11.69	0.35	4.69	0.66	10.106	27.709	18.523	15	4.835	3.941	3.826	3.02	3.583	2.91	4.549	18.348	10.954
16	12.492	9.216	11.18	6.23	4.34	0.40	13.768	22.086	18.340	16	4.775	4.061	3.567	3.39	3.554	3.02	5.079	17.931	10.304
17	12.091	10.774	10.53	11.51	2.39	1.21	13.549	15.863	15.835	17	4.736	4.320	3.559	3.36	3.218	4.66	5.159	16.057	9.831
18	11.968	12.347	10.40	11.73	1.56	1.42	15.568	15.778	16.422	18	4.684	4.182	3.441	3.53	3.332	3.49	5.209	14.411	9.764
19	11.585	10.567	11.09	12.71	1.33	1.37	19.565	15.010	15.908	19	5.386	3.983	3.832	3.49	3.119	3.33	5.364	12.565	9.107
20	10.795	7.102	10.99	12.64	1.00	1.22	17.988	13.856	15.374	20	4.603	3.900	3.349	3.67	3.260	3.44	5.262	11.219	8.661
21	10.553	3.688	6.77	16.25	0.82	4.71	19.212	13.374	13.628	21	4.664	3.783	3.297	3.61	3.205	3.21	6.121	10.357	8.228
22	11.111	2.615	2.41	23.80	0.63	6.89	21.229	14.846	17.011	22	4.486	3.737	3.255	3.54	3.100	3.19	5.954	9.957	8.396
23	10.983	2.268	1.98	33.31	0.37	3.47	19.339	20.484	16.357	23	4.991	3.861	3.271	3.88	3.063	3.33	6.260	9.535	7.903
24	11.313	2.977	1.92	29.13	0.20	2.30	42.081	23.284	16.583	24	5.182	4.437	3.241	3.97	3.035	3.25	11.352	9.249	7.787
25	12.493	4.584	3.07	23.01	0.11	1.73	78.061	34.837	15.752	25	5.289	4.285	3.048	3.71	3.270	3.42	37.142	11.917	7.436
26	11.482	2.566	3.16	16.53	0.14	2.16	44.243	28.520	15.504	26	4.797	4.350	3.038	3.67	3.543	3.47	52.859	13.559	7.126
27	10.705	3.391	3.09	4.96	0.24	2.87	32.928	36.990	14.802	27	5.092	4.245	3.048	3.35	3.079	3.68	42.511	16.262	7.123
28	11.465	2.762	3.02	2.21	0.11	4.87	26.511	43.977	14.166	28	5.208	3.764	3.071	3.07	3.230	3.30	32.836	23.408	6.922
29	11.858	2.267	7.90	5.10	0.04	5.39	23.677	30.721	13.441	29	4.981	3.544	3.086	2.96	2.995	3.69	25.438	23.828	6.672
30	12.301	2.721	13.77	20.72	0.02	7.31	20.284	32.675	14.417	30	4.687	4.212	3.258	2.97	3.453	4.01	20.955	24.352	6.550
31		2.38		20.70	0.01		19.307		14.023	31		3.799		3.45	3.079		18.108		6.239

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

Weekly Flow Requirements (L/s)									
EMS ID:		E292130							
Site		LLE							
Flow (L/S)									
Date	April	May	June	July	August	September	October	November	December
1	18	11	5	NF	NF	NF	NF	71	389
2	18	11	3	NF	NF	NF	1	62	329
3	16	11	3	NF	NF	NF	1	298	166
4	16	9	3	NF	NF	NF	NF	488	123
5	9	9	3	NF	NF	NF	1	411	521
6	10	9	3	NF	NF	NF	1	279	82
7	10	7	3	NF	2.20	NF	2	182	74
8	9	7	3	NF	2.30	NF	2	164	96
9	9	6	6	NF	1.90	NF	2	280	84
10	12	12	23	NF	0.80	NF	2	383	277
11	10	22	40	NF	0.80	NF	2	250	212
12	12	26	14	NF	0.70	NF	2	167	263
13	18	23	12	NF	0.60	NF	3	158	122
14	16	22	11	NF	0.60	NF	3	287	114
15	16	21	10	NF	0.70	NF	2	339	110
16	16	21	6	NF	0.80	NF	3	224	117
17	16	15	7	NF	0.50	NF	39	142	911
18	14	4	7	NF	NF	NF	28	108	118
19	12	4	7	NF	NF	1.80	17	88	474
20	12	4	5	NF	NF	1.80	15	68	23
21	12	4	7	NF	NF	0.60	25	46	23
22	11	3	6	NF	NF	0.40	58	29	31
23	12	3	4	NF	NF	0.10	77	28	35
24	14	3	3	NF	NF	0.20	155	25	45
25	17	5	3	NF	NF	0.20	988	86	37
26	14	7	3	NF	NF	0.20	957	151	27
27	11	7	2	NF	NF	0.50	545	175	27
28	11	6	2	NF	NF	0.80	279	395	27
29	14	2	2	NF	NF	0.60	169	342	26
30	13	1	2	NF	NF	0.70	128	315	26
31		6		NF	NF		94		27
Notes: NF= No flow									

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

Weekly Flow Requirements (L/s)					
EMS ID:		E292131			
Site		LLS			
Flow (L/S)		Estimated Flow	Flow (L/S)		Estimated Flow
Weeks	Level	L/s	Weeks	Level	L/s
06-Apr-21	0.010	0.018	05-Oct-21	0.010	0.018
13-Apr-21	0.010	0.018	12-Oct-21	0.010	0.018
20-Apr-21	0.010	0.018	19-Oct-21	0.010	0.018
27-Apr-21	0.010	0.018	26-Oct-21	0.010	0.018
04-May-21	0.010	0.018	02-Nov-21	0.010	0.018
11-May-21	0.010	0.018	09-Nov-21	0.010	0.018
18-May-21	0.010	0.018	16-Nov-21	0.010	0.018
25-May-21	0.010	0.018	23-Nov-21	0.010	0.018
01-Jun-21	0.010	0.018	30-Nov-21	0.010	0.018
08-Jun-21	0.010	0.018	07-Dec-21	0.010	0.018
15-Jun-21	0.010	0.018	14-Dec-21	0.010	0.018
22-Jun-21	0.010	0.018	21-Dec-21	0.010	0.018
29-Jun-21	0.010	0.018	28-Dec-21	0.010	0.018
06-Jul-21	0.010	0.018	04-Jan-22	0.010	0.018
13-Jul-21	0.010	0.018	11-Jan-22	0.010	0.018
20-Jul-21	0.010	0.018	18-Jan-22	0.010	0.018
27-Jul-21	0.010	0.018			
03-Aug-21	0.010	0.018			
10-Aug-21	0.010	0.018			
17-Aug-21	0.010	0.018			
24-Aug-21	0.010	0.018			
31-Aug-21	0.010	0.018			
07-Sep-21	0.010	0.018			
14-Sep-21	0.010	0.018			
21-Sep-21	0.010	0.018			
28-Sep-21	0.010	0.018			

Notes: NF= No flow

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

Weekly Flow Requirements (L/s)									
EMS ID:		E292131							
Site		LLSM							
Flow (L/S)									
Date	April	May	June	July	August	September	October	November	December
1	5.81	2.62	2.11	0.91	0.3	NF	NF	1.50	27.40
2	4.78	2.62	2.29	0.54	0.3	NF	NF	1.60	39.10
3	4.83	2.62	2.29	0.54	0.3	NF	NF	2.20	49.10
4	4.32	2.62	2.29	0.54	0.3	NF	NF	6.40	49.10
5	4.32	2.62	2.32	0.54	0.3	NF	NF	2.60	49.10
6		2.62	2.26	0.54	0.1	NF	NF	3.20	47.30
7			2.33	0.91	0.1	NF	NF	5.20	30.90
8	3.84	2.62	2.25	0.54	0.1	NF	NF	7.10	21.50
9	3.87		2.29	0.54	0.1	NF	NF	10.50	19.30
10	3.87	2.29	2.29	0.54	0.1	NF	NF	11.40	18.80
11	3.87		2.29	0.54	0.1	NF	NF	13.20	21.20
12	3.87		2.31	0.54	0.1	0.1	NF	14.10	18.60
13	3.87	2.29	2.29	0.54	0.1	0.1	NF	15.70	18.60
14	3.87	2.29	2.29	0.54	0.1	0.1	NF	18.50	18.10
15	3.58	2.29	2.29	0.54	0.1	0.3	NF	22.00	17.20
16	3.02	2.29	2.29	0.54	NF	NF	NF	22.20	16.30
17	3.02	2.29	2.29	0.54	NF	NF	NF	22.20	15.60
18	3.02		2.29	0.54	NF	NF	NF	21.50	15.10
19	3.02	2.29	2.29	0.54	NF	NF	NF	20.20	14.20
20	2.99	2.29	2.29	0.54	NF	NF	NF	18.90	13.00
21	3.02	2.29	2.29	0.54	NF	NF	NF	17.70	12.40
22	3.02	2.29	2.26	0.54	NF	NF	NF	16.30	12.00
23	3.02	2.29	2.29	0.54	NF	NF	NF	15.00	11.30
24			2.29	0.26	NF	NF	15.40	14.10	10.50
25		2.29	2.31	0.26	NF	NF	24.90	16.90	9.90
26		2.29	2.23	0.26	NF	NF	3.50	15.90	9.40
27		2.29	2.29	0.26	NF	NF	0.80	22.10	8.70
28		2.29	2.29	0.26	NF	NF	0.90	27.40	8.60
29		2.29	2.29	0.26	NF	NF	1.10	27.40	8.40
30	2.62	2.29	0.89	0.26	NF	NF	1.20	27.40	8.00
31		2.26		0.26	NF		1.30		7.40
Notes: NF= No flow									

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

Continuous Flow Requirements (L/s)										
EMS ID:		E292109								
Site		7S								
Flow (L/s)		Estimated Flow								
Date	April	May	June	July	August	September	October	November	December	
1	18.24	8.15	1.35	NF	NF	NF	Could not access site to download data for Q3, due to snow.			
2	13.54	7.48	1.07	NF	NF	NF				
3	13.93	7.39	0.79	NF	NF	NF				
4	13.80	6.56	0.72	NF	NF	NF				
5	14.00	5.47	0.76	NF	NF	NF				
6	14.00	5.95	0.67	NF	NF	NF				
7	15.00	5.69	0.83	NF	NF	NF				
8	10.32	5.12	0.70	NF	NF	NF				
9	13.87	4.51	0.94	NF	NF	NF				
10	11.79	4.12	1.00	NF	NF	NF				
11	11.20	3.62	0.68	NF	NF	NF				
12	10.54	4.79	0.63	NF	NF	NF				
13	10.17	4.47	0.95	NF	NF	NF				
14	9.30	3.73	0.73	NF	NF	NF				
15	5.10	3.01	0.84	NF	NF	NF				
16	7.55	2.47	0.74	NF	NF	NF				
17	6.85	2.55	0.59	NF	NF	NF				
18	5.59	2.59	0.58	NF	NF	NF				
19	4.78	2.20	0.60	NF	NF	NF				
20	3.94	1.98	0.51	NF	NF	NF				
21	3.59	1.79	0.44	NF	NF	NF				
22	3.54	1.48	0.48	NF	NF	NF				
23	3.59	1.34	0.54	NF	NF	NF				
24	3.75	1.68	0.49	NF	NF	NF				
25	5.24	2.19	0.41	NF	NF	NF				
26	5.68	1.96	0.38	NF	NF	NF				
27	5.12	2.64	0.34	NF	NF	NF				
28	7.27	2.40	0.33	NF	NF	NF				
29	8.60	2.06	0.35	NF	NF	NF				
30	8.78	2.22	0.45	NF	NF	NF				
31		1.86	0.00	NF	NF					
Notes: NF= No flow										

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

5 in 30 Flow Requirements (Level)									
EMS ID: 126402									
Site WA									
Flow (m ³ /s)									
Date	April	May	June	July	August	September	October	November	December
1	2.15	2.25	1.10	1.3129	1.2319	0.9418	1.1334	1.2178	23.8462
2	2.15	2.26	1.07	1.3053	1.2079	0.9392	1.1206	2.9327	19.1778
3	2.15	2.26	1.07	1.3075	1.1695	0.9359	1.1937	8.5776	13.7587
4	2.15	1.75	1.07	1.2925	1.1476	0.9391	1.1707	14.9649	10.5271
5	2.14	1.27	1.07	1.3139	1.0544	0.9353	1.1333	15.7642	7.8162
6	2.15	1.26	1.08	1.3096	1.0190	0.9347	1.1433	13.0920	6.3943
7	2.16	1.26	1.08	1.2959	1.0140	0.9257	1.0517	10.5698	5.1991
8	2.17	1.26	1.08	1.2993	1.0001	0.9357	1.0525	8.5333	4.3430
9	2.17	1.26	1.08	1.2840	0.9859	0.9323	1.0556	7.6308	3.5986
10	2.17	1.26	1.22	1.3108	0.9801	0.9377	1.0605	7.6174	2.3948
11	2.17	1.26	1.23	1.3127	0.9776	0.9425	1.0653	6.7181	2.1274
12	2.17	1.27	1.23	1.2752	0.9691	0.9409	1.0688	6.3850	2.1144
13	2.17	1.27	1.23	1.2081	0.9571	0.9682	1.0700	6.4924	2.2295
14	2.17	1.27	1.23	1.2018	0.9539	1.0198	1.0699	7.7205	2.2718
15	2.17	1.28	1.22	1.1828	0.9517	1.0182	1.0721	9.6554	2.2047
16	2.17	1.28	1.24	1.1826	0.9517	1.0112	1.0909	9.4302	2.1544
17	2.17	1.24	1.18	1.1803	0.9858	1.0370	1.0991	7.8584	2.1582
18	2.19	1.11	1.09	1.1377	1.0734	1.0602	1.0917	6.5481	2.2108
19	2.21	1.10	1.09	1.1282	1.1970	1.0566	1.0901	5.4169	2.2152
20	2.21	1.08	1.12	1.1830	1.1542	1.0522	1.0900	4.4334	2.2229
21	2.22	1.21	1.09	1.2132	0.9867	1.0470	1.1144	3.7095	2.2286
22	2.22	1.24	1.09	1.2226	0.9658	1.0413	1.1355	3.2972	2.2321
23	2.22	1.25	1.07	1.2309	0.9629	1.0320	1.1333	3.1332	2.2302
24	2.22	1.25	1.22	1.2168	0.9582	1.0332	1.2265	2.8630	2.2702
25	2.23	1.25	1.41	1.1160	0.9566	1.0265	1.5165	5.7524	2.2794
26	2.23	1.25	1.42	1.1069	0.9545	1.0344	2.5051	10.0248	2.2804
27	2.23	1.17	1.43	1.0519	0.9481	1.0487	4.5826	10.2315	2.3016
28	2.24	1.09	1.43	1.1109	0.9461	1.0583	3.7578	15.9201	2.3074
29	2.24	1.09	1.43	1.2103	0.9421	1.0842	2.0084	22.6469	2.3110
30	2.24	1.09	1.36	1.1876	0.9424	1.1588	1.3277	19.6913	2.3087
31		1.09		1.1451	0.9426		1.30		2.32
Notes: Flow curve is being developed as a resultant of high flows removing hydrometric station									

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

5 in 30 Flow Requirements (Level)									
EMS ID: 900504									
Site WB									
Level (m)									
Date	April	May	June	July	August	September	October	November	December
1	0.5815	0.5736	0.4885	0.4989	0.4928	0.4610	0.4780	0.5761	1.2690
2	0.5795	0.5735	0.4846	0.4958	0.4959	0.4590	0.4844	0.5780	1.2981
3	0.5803	0.5723	0.4833	0.4927	0.4945	0.4572	0.4872	0.7241	1.1863
4	0.5809	0.5673	0.4823	0.4892	0.4931	0.4569	0.4961	0.9782	1.0308
5	0.5796	0.5389	0.4802	0.4871	0.4880	0.4551	0.4869	1.1471	0.9185
6	0.5784	0.5150	0.4795	0.4900	0.4837	0.4536	0.4843	1.1149	0.8609
7	0.5754	0.5083	0.4767	0.4845	0.4832	0.4554	0.4919	1.2293	0.7932
8	0.5740	0.5067	0.4796	0.4847	0.4781	0.4589	0.4843	0.9588	0.7409
9	0.5789	0.5058	0.4858	0.4873	0.4766	0.4624	0.4882	0.8908	0.7022
10	0.5730	0.5044	0.4927	0.4874	0.4719	0.4602	0.4816	0.8996	0.6736
11	0.5772	0.5033	0.4965	0.4892	0.4699	0.4626	0.4869	0.8793	0.6490
12	0.5777	0.5049	0.4970	0.4831	0.4664	0.4647	0.4739	0.8374	0.6538
13	0.5759	0.5050	0.4960	0.4791	0.4628	0.4620	0.4886	0.8351	0.6572
14	0.5755	0.5031	0.4975	0.4909	0.4620	0.4639	0.4885	0.8560	0.6420
15	0.5694	0.5016	0.4975	0.4893	0.4645	0.4612	0.4960	0.9192	0.6320
16	0.5734	0.5009	0.5019	0.4891	0.4649	0.4631	0.5065	0.9630	0.6223
17	0.5737	0.5000	0.4987	0.4874	0.4618	0.4774	0.5190	0.9295	0.6225
18	0.5729	0.4920	0.4924	0.4866	0.4694	0.4835	0.5262	0.8618	0.6164
19	0.5702	0.4894	0.4871	0.4845	0.4782	0.4758	0.5352	0.8012	0.6084
20	0.5689	0.4839	0.4857	0.4693	0.4883	0.4774	0.5164	0.7542	0.6046
21	0.5684	0.4828	0.4847	0.4878	0.4824	0.4746	0.5300	0.7205	0.6089
22	0.5659	0.4897	0.4811	0.4903	0.4727	0.4653	0.5372	0.6878	0.6026
23	0.5661	0.4900	0.4779	0.4913	0.4668	0.4662	0.5542	0.6666	0.6035
24	0.5681	0.4923	0.4773	0.4944	0.4680	0.4668	0.5887	0.6611	0.6027
25	0.5692	0.5014	0.4917	0.4925	0.4660	0.4626	0.7411	0.6992	0.6029
26	0.5675	0.5042	0.4985	0.4864	0.4656	0.4667	0.8768	0.8855	0.6001
27	0.5673	0.4998	0.5046	0.4816	0.4664	0.4634	0.8510	0.9687	0.6023
28	0.5712	0.4934	0.5069	0.4810	0.4673	0.4654	0.8169	1.0998	0.5989
29	0.5772	0.4907	0.5078	0.4886	0.4669	0.4706	0.7228	1.2415	0.5985
30	0.5768	0.4875	0.5038	0.4909	0.4638	0.4696	0.6522	1.2250	0.5923
31		0.4875		0.4906	0.4617		0.6055		0.5918
Notes: Flow curve is being developed as a resultant of high flows removing hydrometric station									

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

5 in 30 Flow Requirements (Level)									
EMS ID: E219412									
Site LLO									
Flow (m ³ /s)									
Date	April	May	June	July	August	September	October	November	December
1	0.1404	0.0723	0.0246	0.0000	0.0000	0.0000	0.0000	0.1006	0.9273
2	0.1267	0.0672	0.0167	0.0000	0.0000	0.0000	0.0000	0.0797	0.7496
3	0.1210	0.0598	0.0120	0.0000	0.0000	0.0000	0.0000	0.1543	0.4638
4	0.1216	0.0558	0.0075	0.0000	0.0000	0.0000	0.0000	0.3724	0.2718
5	0.1151	0.0564	0.0023	0.0000	0.0000	0.0000	0.0030	0.5858	0.1937
6	0.1060	0.0448	0.0000	0.0000	0.0000	0.0000	0.0103	0.4758	0.1443
7	0.0989	0.0418	0.0000	0.0000	0.0000	0.0000	0.0286	1.4948	0.1136
8	0.0916	0.0408	0.0000	0.0000	0.0000	0.0000	0.0304	0.3281	0.0846
9	0.0956	0.0394	0.0000	0.0000	0.0000	0.0000	0.0422	0.2732	0.0696
10	0.0858	0.0359	0.0149	0.0000	0.0000	0.0000	0.0409	0.4130	0.0670
11	0.0872	0.0329	0.0208	0.0000	0.0000	0.0000	0.0568	0.3937	0.1218
12	0.0819	0.0347	0.0187	0.0000	0.0000	0.0000	0.0501	0.2757	0.2001
13	0.0924	0.0352	0.0158	0.0000	0.0000	0.0000	0.0695	0.2405	0.1936
14	0.0873	0.0316	0.0138	0.0000	0.0000	0.0000	0.0713	0.2829	0.1533
15	0.0743	0.0278	0.0106	0.0000	0.0000	0.0000	0.0797	0.3701	0.1241
16	0.0748	0.0246	0.0106	0.0000	0.0000	0.0000	0.1019	0.4106	0.1093
17	0.0715	0.0205	0.0054	0.0000	0.0000	0.0000	0.1784	0.3294	0.1022
18	0.0660	0.0162	0.0011	0.0000	0.0000	0.0000	0.2733	0.2229	0.0832
19	0.0584	0.0186	0.0000	0.0000	0.0000	0.0000	0.3052	0.1570	0.0640
20	0.0527	0.0132	0.0000	0.0000	0.0000	0.0000	0.2343	0.1234	0.0443
21	0.0496	0.0097	0.0000	0.0000	0.0000	0.0000	0.2574	0.1026	0.0380
22	0.0439	0.0083	0.0000	0.0000	0.0000	0.0000	0.3578	0.0746	0.0257
23	0.0399	0.0036	0.0000	0.0000	0.0000	0.0000	0.5653	0.0580	0.0315
24	0.0425	0.0031	0.0000	0.0000	0.0000	0.0000	0.7235	0.0610	0.0344
25	0.0488	0.0228	0.0000	0.0000	0.0000	0.0000	7.1918	0.1061	0.0371
26	0.0544	0.0329	0.0000	0.0000	0.0000	0.0000	13.6223	0.3607	0.0285
27	0.0561	0.0301	0.0000	0.0000	0.0000	0.0000	1.8532	0.4502	0.0242
28	0.0633	0.0311	0.0000	0.0000	0.0000	0.0000	0.5416	0.8862	0.0125
29	0.0756	0.0297	0.0000	0.0000	0.0000	0.0000	0.2935	1.1001	0.0064
30	0.0787	0.0236	0.0000	0.0000	0.0000	0.0000	0.2242	0.7871	0.0000
31		0.0230		0.4906	0.0000		0.1525		0.0000

Table 27 Flow Tables LLE, LLS, LLSM, 7S, WA, WB, LLO IR8 1 Page(s)

5 in 30 Flow Requirements (Level)									
EMS ID:		E297232							
Site		IR8							
Flow (m³/s)									
Date	April	May	June	July	August	September	October	November	December
1	0.97	2.22	0.88	0.0131	4.4583	4.2967	Could not access site to download data for Q3, due to snow.		
2	0.94	1.67	0.77	0.0059	4.4453	4.2666			
3	0.91	1.46	0.63	*	4.4535	4.2444			
4	0.92	1.43	0.52	*	4.4132	4.2693			
5	0.88	1.50	0.44	*	4.3873	4.3779			
6	0.86	1.58	0.38	*	4.3505	4.5490			
7	0.85	1.70	0.31	*	4.4211	4.6125			
8	0.85	1.26	0.30	*	4.7278	4.5632			
9	0.85	1.09	0.44	*	5.9445	4.7911			
10	0.79	1.27	0.67	0.1186	5.8119	4.9198			
11	0.74	1.34	0.62	*	5.2428	4.9568			
12	0.69	1.92	0.51	*	5.1186	5.0265			
13	0.68	1.91	0.48	5.8119	4.8711	5.3852			
14	0.72	1.85	0.41	*	4.6758	5.7737			
15	0.87	1.73	0.38	*	4.5662	5.6398			
16	1.39	1.81	0.45	*	4.5499	5.6785			
17	2.13	1.52	0.38	*	4.5702	5.6494			
18	2.74	1.30	0.32	*	4.4350	7.8814			
19	3.20	0.94	0.29	*	4.4388	21.5827			
20	2.66	0.82	0.25	2.1474	4.4094	15.2698			
21	2.68	0.94	0.21	1.0772	4.3658	15.1248			
22	2.43	1.09	0.18	4.8540	4.3219	13.2196			
23	2.04	1.23	0.15	4.8550	4.2651	11.5596			
24	2.33	1.20	0.13	4.8348	4.2182	10.7974			
25	2.24	1.38	0.11	4.8565	4.2423	9.9581			
26	2.11	1.01	0.09	4.8076	4.2080	9.1486			
27	1.81	0.92	0.07	4.7338	4.2630	9.5229			
28	1.69	0.91	0.05	4.6719	4.4380	14.0276			
29	2.26	0.84	0.04	4.6337	4.5168	22.6960			
30	2.88	0.84	0.02	4.5903	4.4675	18.8039			
31		0.86		4.5182	4.3565				
* Level Logger was out of water									

Table 28 Precipitation 1 Page(s)

Daily Precipitation (mm)									
DATE	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	0	1.5	0	0	0	0	1.5	0.0	21.9
2	0	0	0	0	0	0	0.0	4.2	8.3
3	0	0	0	0	0	0	8.3	20.9	0.2
4	4	0.8	0	0	0	0.1	0.2	15.5	0.1
5	0	0	0.3	0	0	3.9	4.1	15.6	0.0
6	0	0	1.5	0	0	0	4.4	12.6	0.0
7	0	1.2	0.2	0	1	0	1.9	3.0	0.1
8	1.4	0	0	0	11.8	0	0.3	8.2	6.1
9	0	0	7	0	0	7.5	4.6	4.3	4.3
10	5.1	0.2	10.7	0	0	3.1	7.0	21.8	1.6
11	0.1	0	3.9	0	0	0	0.3	2.0	19.1
12	0	1.4	0	0	0	9.1	0.0	5.4	4.6
13	0	4	1.8	0	0	0.1	3.4	0.3	0.0
14	0	0	1.3	0	0	0	1.0	18.4	1.2
15	0	0	0.8	0	0	7.5	0.9	7.5	2.6
16	0	0	2.5	0	1.7	0	8.0	8.4	15.1
17	0	0	0	0.7	0.4	0.2	13.6	0.0	2.6
18	0	3.2	0	0	0	40	4.0	0.0	0.0
19	0	0.3	0	0	0	3	0.1	1.6	6.7
20	0	0.1	0.5	0	0	5.8	0.0	4.1	0.1
21	0	0	0	4.9	0	1.3	0.7	3.1	0.1
22	0	0	0	0	0	0	22.9	0.0	0.0
23	0	0	0	0.1	0	2	1.6	4.6	9.2
24	2.1	0	0	0	0	0	2.9	0.4	0.5
25	3.7	12.8	0	0	0	0	66.8	2.5	0.0
26	6.4	7.6	0	0	0	3.3	39.6	23.3	0.0
27	0.2	1.8	0	0	3.4	8.4	9.5	0.1	0.0
28	4.1	2.8	0	0	0.1	6.7	1.8	30.0	0.0
29	4.7	0	0	0	0	1.3	2.9	12.7	0.0
30	1.2	0	0	0	0	12.5	0.1	1.3	0.0
31		3.7		0	0		0		2.90
Monthly Total (mm)	33.00	41.40	30.50	5.70	18.40	115.80	212.40	231.80	107.30
Quarterly Total (mm)	104.90			Quarterly Total (mm)	139.90		Quarterly Total (mm)	551.50	

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Table 29 Long Lake Depth Profiling 1 Page(s)

EMS ID: E206619 Site NAME: LONG LAKE (LLM)																														
LONG LAKE DEPTH PROFILING FALL																														
Sample Date Parameter Sample Depth (m)	06-Oct						13-Oct						19-Oct						27-Oct						02-Nov					
	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV
1	13.36	7.32	249.60	88.70	9.26	99.00	11.51	7.25	246.40	85.20	9.28	70.20	10.62	7.18	231.40	84.80	9.43	161.90	8.71	6.90	67.20	88.50	10.27	143.20	7.38	7.69	113.10	87.00	10.39	152.00
	13.36	7.32	249.60	88.70	9.26	100.20	11.51	7.25	246.50	85.30	9.29	72.50	10.62	7.14	231.30	84.60	9.41	162.20	8.70	6.62	66.60	87.10	10.14	143.50	7.38	6.97	112.90	84.50	10.16	166.00
2	13.37	7.32	249.60	88.70	9.26	102.00	11.51	7.24	246.60	85.20	9.28	73.80	10.62	7.15	231.40	84.50	9.39	161.90	8.67	6.59	64.50	87.00	10.13	142.20	7.38	6.84	112.90	84.40	10.14	168.20
	13.36	7.31	249.50	88.70	9.26	103.30	11.51	7.24	246.60	85.10	9.27	75.20	10.62	7.16	231.50	84.40	9.38	161.80	8.62	6.59	61.50	86.90	10.13	140.70	7.38	6.81	112.90	84.30	10.14	168.70
3	13.36	7.31	249.60	88.70	9.26	104.20	11.51	7.23	246.50	85.10	9.27	76.50	10.62	7.16	231.60	84.30	9.37	161.30	8.58	6.57	62.50	86.50	10.10	139.70	7.38	6.78	112.90	84.20	10.12	168.80
	13.36	7.30	249.60	88.70	9.27	104.80	11.50	7.23	247.10	85.10	9.27	77.90	10.62	7.16	231.40	84.30	9.37	161.20	9.04	6.57	133.40	86.30	9.96	137.10	7.38	6.77	112.90	84.10	10.11	168.40
4	13.34	7.30	249.60	88.40	9.24	105.50	11.49	7.22	246.70	85.10	9.27	79.20	10.61	7.17	232.00	84.20	9.36	161.00	8.78	6.73	123.90	86.30	10.06	132.80	7.38	6.74	116.30	83.90	10.09	169.50
	10.40	6.83	284.80	59.10	6.60	122.70	11.46	7.21	246.80	84.70	9.23	80.60	10.61	7.16	232.10	84.10	9.36	160.50	8.91	6.72	163.30	85.40	9.87	131.90	7.26	6.71	128.70	85.10	10.05	169.60
5	8.48	6.66	284.60	50.40	5.89	125.60	8.52	6.75	284.70	51.90	6.05	96.30	10.61	7.17	233.10	83.90	9.34	160.60	9.01	6.76	201.80	80.60	9.31	129.10	7.26	6.70	142.20	81.30	9.81	169.20
	7.18	6.64	285.60	44.10	5.31	126.50	7.56	6.70	285.20	46.10	5.53	99.20	9.49	6.79	288.70	57.70	6.54	169.60	9.00	6.79	258.30	66.80	7.70	131.20	7.28	6.66	184.70	73.50	8.84	171.20
6	6.67	6.62	285.70	42.10	5.14	126.80	6.86	6.67	286.40	42.30	5.14	100.80	7.46	6.74	285.20	46.20	5.50	170.70	7.72	6.73	285.50	45.90	5.30	134.00	6.95	6.59	287.30	41.80	5.03	172.80
	6.36	6.61	286.10	38.20	4.70	127.40	6.39	6.63	286.60	36.10	4.45	102.50	6.73	6.68	286.20	39.90	4.85	171.50	6.70	6.66	286.60	39.10	4.07	134.80	6.48	6.59	287.80	35.60	4.37	171.40
7	6.09	6.58	286.30	34.10	4.27	127.80	6.05	6.64	286.70	33.20	4.09	102.60	6.39	6.65	286.60	37.10	4.52	172.30	6.29	6.62	287.20	35.90	4.38	135.40	6.11	6.59	289.90	31.70	3.91	170.90
	5.84	6.56	286.60	31.00	3.83	128.80	5.83	6.64	287.20	28.50	3.55	102.10	6.13	6.63	286.90	32.70	4.05	172.70	6.08	6.61	287.40	31.90	3.89	135.70	5.85	6.58	289.00	27.70	3.45	178.20
8	5.62	6.52	287.70	25.40	3.16	129.50	5.60	6.60	287.50	24.70	3.09	101.90	5.92	6.61	287.20	28.70	3.57	172.80	5.73	6.59	288.50	27.40	3.41	135.80	5.76	6.57	289.40	24.10	3.00	170.20
	5.46	6.50	287.60	21.20	2.65	129.90	5.52	6.65	288.10	20.80	2.58	101.80	5.66	6.59	287.60	25.50	3.18	172.70	5.48	6.57	288.90	22.50	2.58	135.80	5.52	6.55	290.10	20.30	2.53	170.10
9	5.38	6.48	288.10	17.00	2.13	129.90	5.42	6.64	288.50	16.40	2.05	102.30	5.54	6.56	288.20	20.60	2.58	172.90	5.41	6.55	289.10	15.60	1.87	136.00	5.48	6.54	290.80	15.30	1.90	170.20
	5.34	6.46	288.20	10.20	1.25	129.60	5.36	6.62	291.00	7.10	0.89	104.80	5.40	6.54	288.40	15.90	2.00	172.90	5.31	6.53	290.90	10.40	1.28	136.20	5.40	6.52	292.90	11.90	1.44	172.00
10	5.32	6.45	290.10	6.70	0.85	130.00	5.35	6.63	292.30	6.10	0.76	105.20	5.36	6.53	288.90	9.80	1.20	173.50	5.37	6.53	292.50	8.40	1.04	135.70	5.39	6.52	295.20	8.60	1.06	173.00
	5.32	6.49	291.80	5.30	0.67	128.40	5.35	6.65	293.30	5.50	0.69	105.00	5.35	6.52	291.70	6.90	0.86	174.60	5.37	6.55	293.70	6.90	0.85	134.90	5.37	6.53	296.10	7.00	0.88	173.00
11	5.31	6.51	294.00	4.70	0.59	128.20	5.35	6.66	294.20	5.10	0.64	104.80	5.34	6.53	293.80	4.80	0.60	173.20	5.36	6.56	295.40	5.80	0.72	133.90	5.36	6.55	297.50	62.00	0.78	172.90
																			5.35	6.57	312.20	5.20	0.66	49.20						
12	1MB=21m						1MB=21m						1MB=21m						1MB=22m						1MB=21m					
WOG-Max / Min pH 6.5 - 9.0																														

WQG-Max / Min pH. 6.5 - 9.0

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Table 30 Middle Quinsam Lake Depth Profiling 1 Page(s)

EMS ID E206618																															
Site NAME: MIDDLE QUINSAM LAKE (MQL)																															
MIDDLE QUINSAM LAKE DEPTH PROFILING FALL																															
Sample Date Parameter		06-Oct						13-Oct						19-Oct						27-Oct						02-Nov					
Sample Depth (m)		TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV	TEMP. Celcius	pH	COND. µS/cm	% Sat.	D.O. mg/L	ORP mV
1		13.64	7.38	174.10	90.60	9.41	37.70	11.52	7.39	164.50	88.70	9.66	45.70	10.63	7.22	159.70	88.10	9.79	153.40	9.52	7.13	164.10	88.80	10.13	71.70	8.25	7.06	161.10	87.70	10.32	160.70
		13.53	7.37	173.80	90.80	9.45	43.30	11.52	7.39	164.50	88.60	9.65	47.20	10.63	7.21	159.70	88.00	9.78	154.20	9.50	7.15	164.60	88.80	10.14	72.70	8.25	7.07	161.00	87.50	10.29	160.10
2		13.52	7.39	173.60	90.80	9.45	46.80	11.51	7.38	164.40	88.50	9.65	48.90	10.63	7.20	159.80	87.80	9.76	154.90	9.50	7.20	164.50	88.70	10.13	73.50	8.25	7.09	161.00	86.80	10.22	158.50
		13.44	7.40	173.10	91.00	9.48	53.40	11.50	7.38	164.20	88.60	9.65	49.90	10.62	7.21	160.10	87.70	9.75	154.90	9.50	7.19	164.50	88.60	10.12	74.70	8.24	7.09	161.00	86.80	10.22	159.10
3		13.42	7.39	173.40	90.60	9.45	59.30	11.49	7.38	164.50	88.40	9.63	51.50	10.62	7.20	160.10	87.40	9.72	154.80	9.49	7.21	164.40	88.60	10.11	74.80	8.24	7.08	161.00	86.70	10.21	159.00
		13.41	7.38	173.00	90.50	9.45	60.50	11.49	7.37	164.50	88.40	9.63	52.40	10.60	7.19	159.90	87.10	9.70	155.20	9.48	7.22	164.30	88.60	10.12	75.70	8.24	7.08	161.00	86.70	10.20	158.70
4		13.40	7.39	172.80	90.50	9.45	61.90	11.48	7.38	164.50	88.30	9.62	54.80	10.58	7.19	159.80	86.90	9.67	155.00	9.48	7.22	163.60	88.60	10.12	76.90	8.24	7.08	161.00	86.60	10.19	158.80
		13.39	7.39	173.60	90.00	9.40	66.10	11.44	7.37	164.50	87.80	9.58	57.80	10.58	7.18	159.80	86.80	9.66	155.80	9.48	7.22	163.50	88.60	10.12	77.20	8.23	7.08	161.10	86.50	10.18	158.80
5		13.34	7.39	173.30	89.70	9.38	68.50	11.43	7.37	164.30	87.60	9.56	59.90	10.58	7.17	160.10	87.00	9.68	156.20	9.48	7.21	163.70	88.60	10.13	78.30	8.23	7.08	161.00	86.40	10.18	158.80
		13.32	7.38	172.40	89.40	9.35	70.20	11.41	7.36	164.60	87.60	9.56	61.20	10.58	7.19	160.10	87.10	9.71	155.20	9.47	7.22	163.70	88.60	10.12	78.00	8.22	7.08	161.00	86.30	10.16	159.00
6		13.29	7.37	172.10	89.70	9.39	71.50	11.40	7.38	164.40	87.70	9.58	61.70	10.57	7.19	160.20	87.20	9.71	155.40	9.47	7.22	164.10	88.60	10.13	78.70	8.22	7.07	161.40	86.30	10.16	159.00
		13.25	7.38	170.60	72.90	9.40	72.90	11.36	7.38	164.40	87.60	9.58	62.50	10.57	7.20	160.30	87.20	9.71	154.70	9.48	7.24	164.30	88.70	10.13	79.50	8.21	7.07	161.00	86.20	10.15	158.70
7		13.18	7.37	168.80	89.90	9.42	75.20	11.34	7.37	164.10	87.70	9.59	63.30	10.54	7.20	160.40	87.00	9.69	154.60	9.47	7.25	164.30	88.60	10.12	80.10	8.18	7.07	161.10	85.90	10.13	158.40
														10.52	7.21	160.70	86.90	9.69	154.30	9.46	7.24	164.60	88.50	10.12	80.90	8.15	7.06	160.90	85.60	10.10	158.60
14																															
14.5																															
1m from Bottom (BS)		1MBS=13m						1MBS=13m						1MBS=14m						1MBS=14.5m						1MBS=14.5m					
WQG-Max / Min		pH 6.5 -9.0																													

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Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206619						Water Quality Guidelines				
StnName	Long Lake Middle 1 Metre										
StnCode	LLM1										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	93	94	71	15	39	5	94	62.4	128	
Turb	NTU	0.19	0.27	0.23	0.73	0.53	5	0.73	0.39		
Alk-T	mg/L	42	43	42	14	21	5	43	32.4		
Al-T	mg/L	0.0060	0.0062	0.0071	0.0585	0.0617	5	0.0617	0.0279		
As-T	mg/L	0.00054	0.00054	0.00046	0.00036	0.00035	5	5	0.00045		0.005
Ba-T	mg/L	0.0062	0.0063	0.0059	0.0024	0.0039	5	0.0063	0.0049	1	5
B-T	mg/L	0.079	0.080	0.070	<0.050	<0.050	5	0.080	0.0558	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	34.2	32.7	30.6	7.72	13.8	5	34.2	23.80		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	0.00060	0.00061	5	0.00061	0.000392		
Hard-T	mg/L	102	98.2	91.4	24.5	42.5	5	102	71.7		
Fe-T	mg/L	0.019	0.019	0.024	0.096	0.093	5	0.096	0.050		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	4.07	4.03	3.66	1.26	1.98	5	4.07	3.00		
Mn-T	mg/L	0.0101	0.0116	0.0095	0.0071	0.0120	5	0.0120	0.0101	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000021	<0.0000019	5	0.0000021	0.00000118	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.374	0.377	0.345	0.173	0.258	5	0.377	0.305		
S-T	mg/L	29.4	27.2	25.9	4.4	9.7	5	29.4	19.3		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	10.6	10.5	9.35	2.37	4.04	5	10.6	7.37		
Sr-T	mg/L	0.229	0.240	0.213	0.0398	0.0803	5	0.240	0.1604		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0047	0.0044	0.0052	0.0458	0.0446	5	0.0458	0.0209	0.05	0.1
As-D	mg/L	0.00051	0.00047	0.00049	0.00034	0.00035	5	0.00051	0.00043		
Ba-D	mg/L	0.0063	0.0060	0.0060	0.0023	0.0038	5	0.0063	0.0049		
B-D	mg/L	0.077	0.085	0.068	<0.050	<0.050	5	0.085	0.0560		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	34.5	30.7	31.7	7.94	13.3	5	34.5	23.63		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00027	0.00028	0.00022	0.00056	0.00058	5	0.00058	0.00038	0.0007	
Hard-D	mg/L	103	93.0	95.2	25.2	41.5	5	103	71.6		
Fe-D	mg/L	0.0093	0.0090	0.0106	0.0674	0.0627	5	0.0674	0.0318		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	4.21	3.97	3.87	1.32	2.01	5	4.21	3.08		
Mn-D	mg/L	0.0026	0.0027	0.0022	0.0051	0.0095	5	0.0095	0.0044		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.377	0.367	0.384	0.182	0.259	5	0.384	0.314		
S-D	mg/L	28.0	26.9	26.0	4.3	10.1	5	28.0	19.1		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	11.0	10.4	9.96	2.44	4.30	5	11.0	7.62		
Sr-D	mg/L	0.246	0.221	0.218	0.0404	0.0797	5	0.246	0.1610		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	<0.020	<0.020	0.067	5	0.067	0.0214	3	32.8
N-NO23	mg/L	<0.020	<0.020	<0.020	<0.020	0.067	5	0.067	0.0214		
P-T	mg/L	<0.0030	<0.0030	<0.0030	0.0052	0.0046	5	0.0052	0.00286	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.1	2.4	2.0	4.5	4.6	5	4.6	3.1		
Chlr-a	ug/L	0.79					1	0.79	0.79		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206619						Water Quality Guidelines				
StnName	Long Lake Middle 4 Metre										
StnCode	LLM4										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	94	90	81	13	38	5	94	63.2	128	
Turb	NTU	0.25	0.35	0.20	0.73	0.63	5	0.73	0.43		
Alk-T	mg/L	46	44	40	13	21	5	46	32.8		
Al-T	mg/L	0.0058	0.0058	0.0074	0.0601	0.0620	5	0.0620	0.0282		
As-T	mg/L	0.00052	0.00051	0.00047	0.00034	0.00038	5	0.00052	0.00044		0.005
Ba-T	mg/L	0.0064	0.0065	0.0058	0.0023	0.0039	5	0.0065	0.0050	1	5
B-T	mg/L	0.079	0.080	0.068	<0.050	<0.050	5	0.080	0.0554	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	35.3	32.4	30.2	7.24	13.7	5	35.3	23.77		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	0.00057	0.00058	5	0.00058	0.000380		
Hard-T	mg/L	105	97.5	90.8	23.0	42.9	5	105	71.8		
Fe-T	mg/L	0.018	0.020	0.024	0.097	0.096	5	0.097	0.051		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	4.07	4.04	3.72	1.19	2.08	5	4.07	3.02		
Mn-T	mg/L	0.0098	0.0118	0.0095	0.0068	0.0123	5	0.0123	0.0100	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000027	<0.0000019	5	0.0000027	0.00000130	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.388	0.374	0.343	0.168	0.261	5	0.388	0.307		
S-T	mg/L	29.7	26.1	25.4	3.8	10.2	5	29.7	19.0		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	10.6	10.6	9.49	2.18	4.10	5	10.6	7.39		
Sr-T	mg/L	0.232	0.245	0.206	0.0355	0.0807	5	0.245	0.1598		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0050	0.0054	0.0052	0.0473	0.0456	5	0.0473	0.0217	0.05	0.1
As-D	mg/L	0.00054	0.00047	0.00047	0.00033	0.00034	5	0.00054	0.00043		
Ba-D	mg/L	0.0062	0.0062	0.0059	0.0022	0.0039	5	0.0062	0.0049		
B-D	mg/L	0.074	0.082	0.067	<0.050	<0.050	5	0.082	0.0546		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	33.9	31.7	31.2	7.11	13.4	5	33.9	23.46		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00026	0.00026	0.00021	0.00057	0.00061	5	0.00061	0.00038	0.0005	
Hard-D	mg/L	101	95.4	93.6	22.8	41.9	5	101	70.9		
Fe-D	mg/L	0.0093	0.0097	0.0109	0.0667	0.0654	5	0.0667	0.0324		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	4.09	3.96	3.80	1.21	2.04	5	4.09	3.02		
Mn-D	mg/L	0.0028	0.0028	0.0020	0.0048	0.0096	5	0.0096	0.0044		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000028	0.0000019	5	0.0000028	0.00000151		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.376	0.366	0.377	0.169	0.260	5	0.377	0.310		
S-D	mg/L	28.1	27.3	25.2	3.7	9.7	5	28.1	18.8		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	11.0	10.2	9.71	2.19	4.27	5	11.0	7.47		
Sr-D	mg/L	0.248	0.221	0.213	0.0350	0.0786	5	0.248	0.1591		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	<0.020	<0.020	0.025	5	0.025	0.0130	3	32.8
N-NO23	mg/L	<0.020	<0.020	<0.020	<0.020	0.025	5	0.025	0.0130		
P-T	mg/L	<0.0030	<0.0030	<0.0030	0.0045	0.0038	5	0.0045	0.00256	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.3	2.2	3.0	4.4	4.6	5	4.6	3.3		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206619							Water Quality Guidelines			
StnName	Long Lake Middle 9 Metre										
StnCode	LLM9										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	110	100	83	71	33	5	110	79.4	128	
Turb	NTU	0.23	0.23	0.31	1.4	0.53	5	1.4	0.54		
Alk-T	mg/L	54	48	42	29	21	5	54	38.8		
Al-T	mg/L	0.0070	0.0072	0.0079	0.0660	0.0681	5	0.0681	0.0312		
As-T	mg/L	0.00022	0.00031	0.00047	0.00044	0.00042	5	0.00047	0.00037		0.005
Ba-T	mg/L	0.0055	0.0061	0.0063	0.0064	0.0043	5	0.0064	0.0057	1	5
B-T	mg/L	0.088	0.090	0.076	0.061	<0.050	5	0.090	0.0680	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	34.9	36.6	31.6	24.1	15.8	5	36.6	28.6		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	0.00053	0.00062	5	0.00062	0.000380		
Hard-T	mg/L	104	109	95.0	73.7	49.0	5	109	86.1		
Fe-T	mg/L	0.020	0.022	0.026	0.108	0.103	5	0.108	0.056		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	4.02	4.24	3.93	3.30	2.35	5	4.24	3.57		
Mn-T	mg/L	0.0804	0.0748	0.0117	0.0212	0.0149	5	0.0804	0.0406	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000021	<0.0000019	5	0.0000021	0.00000118	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.435	0.436	0.365	0.406	0.285	5	0.436	0.385		
S-T	mg/L	30.9	30.2	27.8	21.1	11.8	5	30.9	24.4		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	12.7	12.8	10.1	7.25	4.75	5	12.8	9.52		
Sr-T	mg/L	0.267	0.291	0.225	0.159	0.0973	5	0.291	0.2079		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0067	0.0066	0.0053	0.0375	0.0427	5	0.0427	0.0198	0.05	0.1
As-D	mg/L	0.00026	0.00025	0.00048	0.00039	0.00035	5	0.00048	0.00035		
Ba-D	mg/L	0.0061	0.0058	0.0061	0.0061	0.0039	5	0.0061	0.0056		
B-D	mg/L	0.090	0.096	0.071	0.061	<0.050	5	0.096	0.0686		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	38.8	36.2	32.5	24.3	14.6	5	38.8	29.3		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00030	0.00032	0.00021	0.00050	0.00057	5	0.00057	0.00038	0.0004	
Hard-D	mg/L	115	108	97.1	74.4	45.3	5	115	88.0		
Fe-D	mg/L	0.0152	0.0143	0.0130	0.0633	0.0660	5	0.0660	0.0344		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	4.27	4.19	3.85	3.34	2.17	5	4.27	3.56		
Mn-D	mg/L	0.0795	0.0708	0.0043	0.0169	0.0112	5	0.0795	0.0365		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.433	0.443	0.376	0.412	0.264	5	0.443	0.386		
S-D	mg/L	33.0	31.3	26.4	20.8	11.2	5	33.0	24.5		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	13.4	13.1	9.72	7.32	4.43	5	13.4	9.59		
Sr-D	mg/L	0.296	0.266	0.223	0.162	0.0877	5	0.296	0.2069		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	0.025	0.022	<0.020	<0.020	<0.020	5	0.025	0.0154	3	32.8
N-NO23	mg/L	0.025	0.022	<0.020	<0.020	<0.020	5	0.025	0.0154		
P-T	mg/L	<0.0030	<0.0030	<0.0030	0.0045	<0.0030	5	0.0045	0.00210	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.1	2.6	2.2	4.0	4.6	5	4.6	3.1		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

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Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206619							Water Quality Guidelines			
StnName	Long Lake Middle 1 Metre from Bottom										
StnCode	LLM 1MB										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	100	120	110	110	73	5	120	102.6	128	
Turb	NTU	0.46	1.6	0.64	0.93	0.53	5	1.6	0.83		
Alk-T	mg/L	46	55	52	49	41	5	55	48.6		
Al-T	mg/L	0.0075	0.0063	0.0069	0.0072	0.0341	5	0.0341	0.0124		
As-T	mg/L	0.00030	0.00025	0.00024	0.00024	0.00029	5	0.00030	0.00026		0.005
Ba-T	mg/L	0.0058	0.0076	0.0076	0.0077	0.0060	5	0.0077	0.0069	1	5
B-T	mg/L	0.096	0.097	0.092	0.090	0.069	5	0.097	0.089	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	38.4	38.3	37.6	36.1	25.2	5	38.4	35.1		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	5	<0.00050	0.000250		
Hard-T	mg/L	114	114	112	107	76.0	5	114	104.6		
Fe-T	mg/L	0.020	0.036	0.032	0.052	0.069	5	0.069	0.042		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	4.39	4.40	4.31	3.99	3.15	5	4.40	4.05		
Mn-T	mg/L	0.402	1.97	1.34	1.71	0.683	5	1.97	1.221	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.477	0.484	0.502	0.460	0.368	5	0.502	0.458		
S-T	mg/L	33.2	33.8	34.0	30.8	21.4	5	34.0	30.6		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	13.6	14.2	13.5	12.5	8.70	5	14.2	12.50		
Sr-T	mg/L	0.293	0.321	0.300	0.275	0.182	5	0.321	0.274		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0049	0.0037	0.0045	0.0039	0.0243	5	0.0243	0.0083	0.05	0.1
As-D	mg/L	0.00026	0.00019	0.00022	0.00020	0.00025	5	0.00026	0.00022		
Ba-D	mg/L	0.0051	0.0062	0.0065	0.0073	0.0053	5	0.0073	0.0061		
B-D	mg/L	0.088	0.095	0.087	0.097	0.062	5	0.097	0.086		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	38.4	37.8	40.1	37.6	24.7	5	40.1	35.7		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00028	0.00030	0.00023	0.00030	0.00041	5	0.00041	0.00030	0.0002	
Hard-D	mg/L	114	112	118	111	74.4	5	118	105.9		
Fe-D	mg/L	0.0073	0.0059	0.0058	0.0113	0.0362	5	0.0362	0.0133		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	4.27	4.38	4.28	4.26	3.08	5	4.38	4.05		
Mn-D	mg/L	0.292	1.66	1.15	1.70	0.638	5	1.70	1.088		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.440	0.486	0.514	0.475	0.363	5	0.514	0.456		
S-D	mg/L	32.4	32.7	33.1	32.1	21.3	5	33.1	30.3		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	13.3	13.9	13.7	13.5	8.84	5	13.9	12.65		
Sr-D	mg/L	0.296	0.290	0.306	0.287	0.177	5	0.306	0.271		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	0.066	0.111	0.106	0.108	0.062	5	0.111	0.091	3	32.8
N-NO23	mg/L	0.066	0.111	0.106	0.108	0.062	5	0.111	0.091		
P-T	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	1.9	2.1	1.4	2.0	3.3	5	3.3	2.1		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206618						Water Quality Guidelines				
StnName	Middle Quinsam Lake 1 Metre										
StnCode	MQL1										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	46	49	39	48	39	5	49	44.2	128	
Turb	NTU	0.25	0.29	0.24	0.35	0.47	5	0.47	0.32		
Alk-T	mg/L	45	46	44	38	36	5	46	41.8		
Al-T	mg/L	0.0091	0.0094	0.0094	0.0178	0.0216	5	0.0216	0.0135		
As-T	mg/L	0.00018	0.00016	0.00015	0.00017	0.00010	5	0.00018	0.00015		0.005
Ba-T	mg/L	0.0020	0.0021	0.0020	0.0025	0.0024	5	0.0025	0.0022	1	5
B-T	mg/L	0.064	0.071	0.055	0.058	0.058	5	0.071	0.061	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	13.5	13.2	12.6	12.5	12.9	5	13.5	12.9		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00055	5	0.00055	0.000310		
Hard-T	mg/L	41.3	40.3	38.3	38.3	39.9	5	41.3	39.6		
Fe-T	mg/L	0.042	0.046	0.040	0.054	0.052	5	0.054	0.047		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.84	1.78	1.64	1.73	1.85	5	1.85	1.77		
Mn-T	mg/L	0.0114	0.0087	0.0066	0.0083	0.0075	5	0.0114	0.0085	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.301	0.289	0.259	0.297	0.313	5	0.313	0.292		
S-T	mg/L	14.1	12.9	12.0	13.0	13.3	5	14.1	13.1		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	20.6	19.1	17.0	17.3	17.7	5	20.6	18.3		
Sr-T	mg/L	0.0786	0.0810	0.0769	0.0778	0.0777	5	0.0810	0.0784		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0071	0.0071	0.0069	0.0126	0.0169	5	0.0169	0.0101	0.05	0.1
As-D	mg/L	0.00017	0.00014	0.00017	0.00016	0.00011	5	0.00017	0.00015		
Ba-D	mg/L	0.0020	0.0020	0.0021	0.0023	0.0025	5	0.0025	0.0022		
B-D	mg/L	0.063	0.059	0.053	0.055	0.055	5	0.063	0.057		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.7	12.6	13.3	12.7	12.4	5	13.7	12.9		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00041	0.00041	0.00036	0.00039	0.00046	5	0.00046	0.00041	0.0004	
Hard-D	mg/L	41.6	38.4	40.1	38.9	38.1	5	41.6	39.4		
Fe-D	mg/L	0.0237	0.0266	0.0231	0.0304	0.0297	5	0.0304	0.0267		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.80	1.70	1.68	1.76	1.75	5	1.80	1.74		
Mn-D	mg/L	0.0014	0.0013	0.0016	0.0028	0.0024	5	0.0028	0.0019		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.296	0.274	0.277	0.292	0.304	5	0.304	0.289		
S-D	mg/L	14.6	12.7	12.4	12.7	13.6	5	14.6	13.2		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	20.9	18.2	17.9	17.9	16.4	5	20.9	18.3		
Sr-D	mg/L	0.0846	0.0776	0.0794	0.0745	0.0779	5	0.0846	0.0788		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Chl-a	ug/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.020	<0.020	0.021	<0.020	0.040	5	0.040	0.0182	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	0.021	<0.020	0.040	5	0.040	0.0182	3	32.8
N-NO23	mg/L	0.0086	<0.0030	<0.0030	<0.0030	<0.0030	5	0.0086	0.00292		
P-T	mg/L	<0.0030	0.0046	<0.0030	<0.0030	<0.0030	5	0.0046	0.00212	0.007	
P-D	mg/L	2.5	1.6	1.7	2.4	2.7	5	2.7	2.2		
DOC	mg/L	1.1					1	1.1	1.1		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID	E206618						Water Quality Guidelines				
StnName	Middle Quinsam Lake 4 Metre										
StnCode	MQL4										
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	47	44	43	48	38	5	48	44.0	128	
Turb	NTU	0.25	0.23	0.23	0.38	0.48	5	0.48	0.31		
Alk-T	mg/L	45	46	46	37	37	5	46	42.2		
Al-T	mg/L	0.0089	0.0098	0.0092	0.0178	0.0213	5	0.0213	0.0134		
As-T	mg/L	0.00017	0.00014	0.00015	0.00015	0.00012	5	0.00017	0.00015		0.005
Ba-T	mg/L	0.0020	0.0020	0.0021	0.0023	0.0025	5	0.0025	0.0022	1	5
B-T	mg/L	0.064	0.060	0.056	0.059	0.060	5	0.064	0.060	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	13.6	12.8	12.8	12.6	13.0	5	13.6	13.0		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00053	5	0.00053	0.000306		
Hard-T	mg/L	41.2	39.2	38.7	38.7	40.1	5	41.2	39.6		
Fe-T	mg/L	0.038	0.045	0.041	0.055	0.054	5	0.055	0.047		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.78	1.74	1.64	1.75	1.82	5	1.82	1.75		
Mn-T	mg/L	0.0096	0.0086	0.0068	0.0085	0.0074	5	0.0096	0.0082	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.296	0.277	0.263	0.304	0.314	5	0.314	0.291		
S-T	mg/L	14.5	12.7	12.5	13.3	13.2	5	14.5	13.2		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	20.5	18.6	17.0	17.6	17.6	5	20.5	18.3		
Sr-T	mg/L	0.0779	0.0750	0.0772	0.0788	0.0777	5	0.0788	0.0773		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0065	0.0069	0.0071	0.0127	0.0160	5	0.0160	0.0098	0.05	0.1
As-D	mg/L	0.00018	0.00013	0.00017	0.00016	0.00011	5	0.00018	0.00015		
Ba-D	mg/L	0.0020	0.0020	0.0024	0.0023	0.0024	5	0.0024	0.0022		
B-D	mg/L	0.063	0.060	0.053	0.056	0.055	5	0.063	0.057		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.5	12.8	13.0	12.7	12.3	5	13.5	12.9		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00043	0.00041	0.00035	0.00038	0.00045	5	0.00045	0.00040	0.0004	
Hard-D	mg/L	41.1	39.0	39.3	39.3	38.0	5	41.1	39.3		
Fe-D	mg/L	0.0223	0.0259	0.0223	0.0313	0.0291	5	0.0313	0.0262		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.80	1.73	1.68	1.84	1.75	5	1.84	1.76		
Mn-D	mg/L	<0.0010	0.0011	0.0014	0.0027	0.0023	5	0.0027	0.00160		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	0.0028	0.0011	<0.0010	0.0018	<0.0010	5	0.0028	0.00134		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.289	0.276	0.271	0.300	0.304	5	0.304	0.288		
S-D	mg/L	13.6	13.2	12.3	12.8	13.3	5	13.6	13.0		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	20.6	18.3	17.7	18.2	16.5	5	20.6	18.3		
Sr-D	mg/L	0.0828	0.0773	0.0821	0.0755	0.0770	5	0.0828	0.0789		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	<0.020	<0.020	0.023	5	0.023	0.0126	3	32.8
N-NO23	mg/L	<0.020	<0.020	<0.020	<0.020	0.023	5	0.023	0.0126		
P-T	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.4	1.4	1.7	2.4	2.4	5	2.4	2.1		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID		E206618					Water Quality Guidelines				
StnName		Middle Quinsam Lake 9 Metre									
StnCode		MQL9									
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	50	44	42	47	42	5	50	45.0	128	
Turb	NTU	0.22	0.34	0.25	0.36	0.33	5	0.36	0.30		
Alk-T	mg/L	44	45	43	38	38	5	45	41.6		
Al-T	mg/L	0.0084	0.0090	0.0105	0.0183	0.0218	5	0.0218	0.0136		
As-T	mg/L	0.00018	0.00014	0.00016	0.00016	0.00012	5	0.00018	0.00015		0.005
Ba-T	mg/L	0.0020	0.0020	0.0020	0.0023	0.0025	5	0.0025	0.0022	1	5
B-T	mg/L	0.066	0.058	0.057	0.061	0.061	5	0.066	0.061	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	13.8	12.4	12.9	12.7	13.5	5	13.8	13.1		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00055	5	0.00055	0.000310		
Hard-T	mg/L	41.6	38.0	39.1	38.6	41.3	5	41.6	39.7		
Fe-T	mg/L	0.039	0.045	0.044	0.054	0.058	5	0.058	0.048		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.75	1.72	1.68	1.70	1.86	5	1.86	1.74		
Mn-T	mg/L	0.0103	0.0085	0.0066	0.0083	0.0076	5	0.0103	0.0083	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.295	0.271	0.266	0.304	0.312	5	0.312	0.290		
S-T	mg/L	13.4	12.1	13.1	13.7	12.9	5	13.7	13.0		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	19.7	18.3	17.4	17.7	17.5	5	19.7	18.1		
Sr-T	mg/L	0.0791	0.0752	0.0797	0.0781	0.0776	5	0.0797	0.0779		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0068	0.0070	0.0066	0.0131	0.0163	5	0.0163	0.0100	0.05	0.1
As-D	mg/L	0.00016	0.00015	0.00017	0.00016	<0.00010	5	0.00017	0.000138		
Ba-D	mg/L	0.0021	0.0020	0.0020	0.0023	0.0024	5	0.0024	0.0022		
B-D	mg/L	0.062	0.058	0.053	0.056	0.054	5	0.062	0.057		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.4	12.9	13.2	12.8	12.4	5	13.4	12.9		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00044	0.00042	0.00037	0.00038	0.00048	5	0.00048	0.00042	0.0004	
Hard-D	mg/L	41.1	39.3	39.8	39.2	38.2	5	41.1	39.5		
Fe-D	mg/L	0.0231	0.0267	0.0222	0.0308	0.0302	5	0.0308	0.0266		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.82	1.72	1.64	1.78	1.76	5	1.82	1.74		
Mn-D	mg/L	<0.0010	0.0013	0.0014	0.0026	0.0026	5	0.0026	0.00168		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000020	<0.0000019	5	0.0000020	0.00000116		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.290	0.274	0.265	0.296	0.305	5	0.305	0.286		
S-D	mg/L	13.9	12.9	12.0	13.2	13.3	5	13.9	13.1		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	21.0	18.3	17.5	18.0	16.4	5	21.0	18.2		
Sr-D	mg/L	0.0838	0.0771	0.0804	0.0771	0.0776	5	0.0838	0.0792		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	0.054	<0.020	<0.020	<0.020	5	0.054	0.0188	3	32.8
N-NO23	mg/L	<0.020	0.054	<0.020	<0.020	<0.020	5	0.054	0.0188		
P-T	mg/L	<0.0030	0.0056	<0.0030	<0.0030	<0.0030	5	0.0056	0.00232	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.1	2.0	1.6	2.3	2.5	5	2.5	2.1		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID		E206618					Water Quality Guidelines				
StnName		Middle Quinsam Lake 1 Metre from Bottom									
StnCode		MQL 1MB									
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	44	42	41	46	42	5	46	43.0	128	
Turb	NTU	0.24	0.24	0.22	0.38	0.55	5	0.55	0.33		
Alk-T	mg/L	45	45	47	39	37	5	47	42.6		
Al-T	mg/L	0.0087	0.0091	0.0087	0.0187	0.0224	5	0.0224	0.0135		
As-T	mg/L	0.00015	0.00014	0.00015	0.00015	0.00012	5	0.00015	0.00014		0.005
Ba-T	mg/L	0.0020	0.0020	0.0020	0.0025	0.0024	5	0.0025	0.0022	1	5
B-T	mg/L	0.063	0.057	0.058	0.061	0.060	5	0.063	0.060	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	13.1	12.3	12.8	12.9	12.8	5	13.1	12.8		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	5	0.00054	0.000308		
Hard-T	mg/L	39.7	37.7	38.8	39.7	39.6	5	39.7	39.1		
Fe-T	mg/L	0.040	0.045	0.039	0.055	0.053	5	0.055	0.046		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.71	1.66	1.64	1.80	1.86	5	1.86	1.73		
Mn-T	mg/L	0.0098	0.0087	0.0068	0.0086	0.0076	5	0.0098	0.0083	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.279	0.263	0.259	0.310	0.310	5	0.310	0.284		
S-T	mg/L	12.9	12.2	12.3	14.1	13.6	5	14.1	13.0		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	19.0	17.6	16.9	18.1	17.7	5	19.0	17.9		
Sr-T	mg/L	0.0739	0.0745	0.0773	0.0814	0.0769	5	0.0814	0.0768		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0072	0.0068	0.0066	0.0130	0.0159	5	0.0159	0.0099	0.05	0.1
As-D	mg/L	0.00017	0.00014	0.00017	0.00016	0.00011	5	0.00017	0.00015		
Ba-D	mg/L	0.0020	0.0020	0.0021	0.0024	0.0023	5	0.0024	0.0022		
B-D	mg/L	0.061	0.058	0.053	0.056	0.054	5	0.061	0.056		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.5	12.5	13.2	12.9	12.4	5	13.5	12.9		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00041	0.00039	0.00035	0.00040	0.00047	5	0.00047	0.00040	0.0004	
Hard-D	mg/L	40.9	38.1	39.9	39.7	38.4	5	40.9	39.4		
Fe-D	mg/L	0.0268	0.0265	0.0232	0.0309	0.0298	5	0.0309	0.0274		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.75	1.69	1.69	1.83	1.77	5	1.83	1.75		
Mn-D	mg/L	0.0017	0.0015	0.0017	0.0028	0.0031	5	0.0031	0.0022		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.289	0.268	0.274	0.294	0.305	5	0.305	0.286		
S-D	mg/L	13.5	12.4	12.8	12.7	13.9	5	13.9	13.1		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	20.1	17.9	18.4	18.2	16.4	5	20.1	18.2		
Sr-D	mg/L	0.0823	0.0785	0.0811	0.0756	0.0770	5	0.0823	0.0789		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	<0.020	<0.020	0.033	5	0.033	0.0146	3	32.8
N-NO23	mg/L	<0.020	<0.020	<0.020	<0.020	0.033	5	0.033	0.0146		
P-T	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150	0.007	
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	5	<0.0030	0.00150		
DOC	mg/L	2.2	0.94	1.3	2.6	2.4	5	2.6	1.89		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 31 Q3 - Lakes 3 Page(s)

EMS ID	LLE Zone of Dilution 2									Water Quality Guidelines	
StnName	LLE22										
StnCode											
Date	Unit	6-Oct-21	13-Oct-21	19-Oct-21	27-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Max
SO4-D	mg/L	91	96	85	20	38	5	96	66.0	128	
Turb	NTU	0.20	0.21	0.24	0.67	0.61	5	0.67	0.39		
Alk-T	mg/L	42	45	44	16	18	5	45	33.0		
Al-T	mg/L	0.0055	0.0062	0.0069	0.0531	0.0606	5	0.0606	0.0265		
As-T	mg/L	0.00052	0.00052	0.00048	0.00037	0.00035	5	0.00052	0.00045		0.005
Ba-T	mg/L	0.0063	0.0061	0.0061	0.0026	0.0039	5	0.0063	0.0050	1	5
B-T	mg/L	0.078	0.078	0.074	<0.050	<0.050	5	0.078	0.0560	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	33.5	32.2	31.0	9.16	13.5	5	33.5	23.87		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	0.00054	0.00058	5	0.00058	0.000374		
Hard-T	mg/L	101	97.2	93.3	28.8	41.8	5	101	72.4		
Fe-T	mg/L	0.017	0.020	0.020	0.093	0.095	5	0.095	0.049		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	4.21	4.05	3.88	1.43	2.00	5	4.21	3.11		
Mn-T	mg/L	0.0094	0.0117	0.0089	0.0078	0.0120	5	0.0120	0.0100	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000020	<0.0000019	5	0.0000020	0.00000116	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.397	0.371	0.361	0.187	0.255	5	0.397	0.314		
S-T	mg/L	29.2	26.8	27.5	6.0	9.7	5	29.2	19.8		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	11.1	10.7	10.1	2.83	4.07	5	11.1	7.76		
Sr-T	mg/L	0.239	0.244	0.219	0.0491	0.0799	5	0.244	0.1662		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0046	0.0045	0.0049	0.0396	0.0435	5	0.0435	0.0194	0.05	0.1
As-D	mg/L	0.00055	0.00047	0.00049	0.00037	0.00034	5	0.00055	0.00044		
Ba-D	mg/L	0.0065	0.0061	0.0062	0.0027	0.0038	5	0.0065	0.0051		
B-D	mg/L	0.076	0.078	0.072	<0.050	<0.050	5	0.078	0.0552		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	34.6	32.1	33.0	9.45	13.7	5	34.6	24.57		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00026	0.00028	0.00023	0.00055	0.00056	5	0.00056	0.00038	0.0007	0.0036
Hard-D	mg/L	104	96.7	98.8	29.6	42.6	5	104	74.3		
Fe-D	mg/L	0.0096	0.0088	0.0090	0.0633	0.0651	5	0.0651	0.0312		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	4.15	4.04	3.98	1.47	2.02	5	4.15	3.13		
Mn-D	mg/L	0.0023	0.0022	0.0014	0.0052	0.0095	5	0.0095	0.0041		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000024	0.0000022	5	0.0000024	0.00000149		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.388	0.367	0.402	0.193	0.257	5	0.402	0.321		
S-D	mg/L	28.2	27.7	28.1	5.6	10.4	5	28.2	20.0		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	11.2	10.4	10.2	2.87	4.23	5	11.2	7.78		
Sr-D	mg/L	0.256	0.216	0.231	0.0511	0.0808	5	0.256	0.1670		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
N-NO2	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.02	0.06
N-NO3	mg/L	<0.020	<0.020	<0.020	0.035	<0.020	5	0.035	0.0150	3	32.8
N-NO23	mg/L	<0.020	<0.020	<0.020	0.035	<0.020	5	0.035	0.0150		
P-T	mg/L	<0.0030	<0.0030	<0.0030	0.0048	0.0031	5	0.0048	0.00248		
P-D	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	0.0045	5	0.0045	0.00210		
DOC	mg/L	2.7	2.6	2.2	3.5	4.5	5	4.5	3.1		

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

Q3 (October 1st to December 31st, 2021)											
EMS ID	E217017									Water Quality Guidelines	
StnName	No Name Lake Outlet										
StnCode	NNO										
Date	Unit	5-Oct-21	12-Oct-21	18-Oct-21	25-Oct-21	2-Nov-21	Count	Maximum	5 in 30 Ave	Average	Maximum
pH-F	pH Units	6.94	7.15	7.49	6.85	7.46	5	7.49	7.18		6.5 - 9.0
Cond-F	uS/cm	44.5	60.9	90.4	58.5	68	5	90.4	64.5		
SO4-D	mg/L	2.8	3.3	3.3	2.3	2.0	5	3.3	2.7	128	
TSS	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	0.50	5	25
Alk-T	mg/L	15	15	15	12	10	5	15	13.4		
P-T	mg/L										
Al-T	mg/L	0.0126	0.0124	0.0192	0.0582	0.0703	5	0.0703	0.0345		
As-T	mg/L	0.00034	0.00028	0.00029	0.00027	0.00033	5	0.00034	0.00030		0.005
Ba-T	mg/L	0.0010	0.0011	0.0011	0.0013	0.0013	5	0.0013	0.0012	1	5
B-T	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	4.78	4.50	4.45	3.95	3.53	5	4.78	4.24		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	0.00052	<0.00050	0.00058	0.00068	5	0.00068	0.000456		
Hard-T	mg/L	16.1	15.3	15.1	13.5	11.9	5	16.1	14.4		
Fe-T	mg/L	0.045	0.053	0.055	0.098	0.099	5	0.099	0.070		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.00	0.986	0.974	0.891	0.743	5	1.00	0.919		
Mn-T	mg/L	0.0046	0.0046	0.0047	0.0075	0.0059	5	0.0075	0.0055	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.067	0.106	0.064	0.102	0.106	5	0.106	0.089		
S-T	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	1.29	1.21	1.19	1.18	1.13	5	1.29	1.20		
Sr-T	mg/L	0.0158	0.0140	0.0144	0.0126	0.0114	5	0.0158	0.0136		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0084	0.0101	0.0142	0.0439	0.057	5	0.0570	0.0267	0.05	0.1
As-D	mg/L	0.00030	0.00030	0.00029	0.00024	0.00028	5	0.00030	0.00028		
Ba-D	mg/L	<0.0010	0.0011	0.0012	0.0013	0.0012	5	0.0013	0.00106		
B-D	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	4.47	4.47	4.44	3.82	3.49	5	4.47	4.14		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00032	0.00034	0.00038	0.00054	0.00067	5	0.00067	0.00045	0.0003	
Hard-D	mg/L	15.0	15.2	15.0	13.2	11.9	5	15.2	14.1		
DOC	mg/L	2.5	2.4	2.5	3.4	4.8	5	4.8	3.1		
Fe-D	mg/L	0.0272	0.0323	0.0358	0.0627	0.0758	5	0.0758	0.0468		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	0.932	0.992	0.941	0.881	0.772	5	0.992	0.904		
Mn-D	mg/L	0.0025	0.0020	0.0026	0.0051	0.0039	5	0.0051	0.0032		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.060	0.070	0.067	0.097	0.110	5	0.110	0.081		
S-D	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	1.25	1.22	1.22	1.17	1.20	5	1.25	1.21		
Sr-D	mg/L	0.0140	0.0144	0.0148	0.0127	0.0106	5	0.0148	0.0133		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E219412	Water Quality Guidelines									
StnName	Long Lake Outlet										
StnCode	LLO										
Date	Unit	5-Oct-21	12-Oct-21	18-Oct-21	25-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.09	7.66	7.13	7.00	6.83	5	7.66	7.14		6.5 - 9.0
Cond-F	uS/cm	246.2	304.2	243	208.1	119	5	304.2	224.1		
SO4-D	mg/L	87	85	76	72	36	5	87	71.2	128	
TSS	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	0.5	5	25
Alk-T	mg/L	44	44	46	35	21	5	46	38		
P-T	mg/L									0.007	
Al-T	mg/L	0.0067	0.0066	0.007	0.0384	0.0673	5	0.0673	0.0252		
As-T	mg/L	0.00042	0.00044	0.00048	0.00049	0.00042	5	0.00049	0.00045		0.005
Ba-T	mg/L	0.0066	0.0064	0.0061	0.0062	0.0043	5	0.0066	0.0059	1	5
B-T	mg/L	0.075	0.075	0.076	0.066	<0.050	5	0.076	0.0634	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	34.2	32.8	32.5	26.7	14.2	5	34.2	28.1		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00073	5	0.00073	0.000346	0.002	0.007
Hard-T	mg/L	102	98.5	97.4	81.7	44	5	102	84.7		
Fe-T	mg/L	0.016	0.016	0.019	0.076	0.111	5	0.111	0.048		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0040	0.0176
Mg-T	mg/L	4	4.06	3.97	3.63	2.1	5	4.06	3.55		
Mn-T	mg/L	0.0029	0.0047	0.007	0.0157	0.0106	5	0.0157	0.0082	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.0005	0.025	0.025
K-T	mg/L	0.368	0.366	0.361	0.381	0.254	5	0.381	0.346		
S-T	mg/L	27.6	26.5	27.7	23.6	10.6	5	27.7	23.2		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	10.6	10.6	10.2	8.51	4	5	10.6	8.78		
Sr-T	mg/L	0.243	0.22	0.225	0.181	0.0858	5	0.243	0.191		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0042	0.004	0.0044	0.0175	0.0431	5	0.0431	0.0146	0.05	0.1
As-D	mg/L	0.0004	0.00044	0.0005	0.00036	0.00032	5	0.0005	0.0004		
Ba-D	mg/L	0.006	0.006	0.0064	0.0058	0.0038	5	0.0064	0.0056		
B-D	mg/L	0.07	0.076	0.071	0.063	<0.050	5	0.076	0.0610		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	32.1	32.2	32	26.8	13.8	5	32.2	27.4		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00025	0.00025	0.00069	0.0004	0.00058	5	0.00069	0.00043	0.0006	
Hard-D	mg/L	95.7	96.9	96	81.0	42.9	5	96.9	82.5		
DOC	mg/L	2.4	2	2.6	3.1	4.9	5	4.9	3		
Fe-D	mg/L	0.0087	0.0095	0.0092	0.0314	0.065	5	0.065	0.0248		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	3.81	4.02	3.92	3.44	2.05	5	4.02	3.45		
Mn-D	mg/L	0.0015	0.0013	0.0015	0.0064	0.0069	5	0.0069	0.0035		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.352	0.369	0.373	0.347	0.261	5	0.373	0.34		
S-D	mg/L	27.4	27.4	27	21.9	10.8	5	27.4	22.9		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	10.3	10.5	10.2	8.09	4.23	5	10.5	8.66		
Sr-D	mg/L	0.215	0.219	0.229	0.173	0.0832	5	0.229	0.1838		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E0126402							Water Quality Guidelines			
StnName	Quinsam River at Argonaut Road										
StnCode		WA	WA	WA	WA	WA					
Date	Unit	5-Oct-21	12-Oct-21	18-Oct-21	25-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.56	7.49	7.44	7.05	7.46	5	7.56	7.40		6.5 - 9.0
Cond-F	uS/cm	48	51.2	80.6	70.7	49.9	5	80.6	60.1		
SO4-D	mg/L	1.4	1.7	8.8	<1.0	1.9	5	8.8	2.86	128	
TSS	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	5	<1.0	0.50	5	25
Alk-T	mg/L	21	23	18	12	22	5	23	19.2		
P-T	mg/L										
Al-T	mg/L	0.0259	0.0240	0.0318	0.115	0.0218	5	0.115	0.0437		
As-T	mg/L	0.00016	0.00013	0.00016	0.00025	0.00014	5	0.00025	0.00017		0.005
Ba-T	mg/L	0.0014	0.0010	0.0017	0.0027	<0.0010	5	0.0027	0.00146	1	5
B-T	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	7.02	6.72	6.18	4.65	7.02	5	7.02	6.32		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	0.00058	0.00057	0.00064	0.00100	0.00062	5	0.00100	0.00068	0.002	0.007
Hard-T	mg/L	20.7	20.2	18.7	14.5	20.6	5	20.7	18.9		
Fe-T	mg/L	0.022	0.027	0.025	0.066	0.019	5	0.066	0.032		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	0.772	0.822	0.790	0.706	0.754	5	0.822	0.769		
Mn-T	mg/L	0.0018	0.0020	0.0016	0.0031	0.0018	5	0.0031	0.0021	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000030	<0.0000019	5	0.0000030	0.00000136	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.074	0.061	0.074	0.163	0.065	5	0.163	0.087		
S-T	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	0.869	0.731	0.887	1.09	0.730	5	1.09	0.861		
Sr-T	mg/L	0.0130	0.0117	0.0123	0.0112	0.0123	5	0.0130	0.0121		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0180	0.0134	0.0261	0.0934	0.0161	5	0.0934	0.0334	0.05	0.1
As-D	mg/L	0.00015	0.00012	0.00017	0.00017	<0.00010	5	0.00017	0.000132		
Ba-D	mg/L	0.0014	0.0010	0.0017	0.0026	<0.0010	5	0.0026	0.00144		
B-D	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	6.32	6.93	6.23	4.58	6.78	5	6.93	6.17		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.00010		
Cu-D	mg/L	0.00053	0.00054	0.00064	0.00096	0.00054	5	0.00096	0.000640	0.0005	
Hard-D	mg/L	18.9	20.7	18.6	14.1	20.3	5	20.7	18.5		
DOC	mg/L	1.8	1.1	2.9	5.3	1.9	5	5.3	2.6		
Fe-D	mg/L	0.0121	0.0117	0.0191	0.0395	0.0087	5	0.0395	0.0182		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.0001		
Mg-D	mg/L	0.749	0.823	0.743	0.653	0.807	5	0.823	0.755000		
Mn-D	mg/L	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	5	0.0014	0.00068		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000041	<0.0000019	5	0.0000041	0.00000158		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.0005		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.07	0.075	0.075	0.16	0.066	5	0.16	0.08900		
S-D	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.5		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.00		
Na-D	mg/L	0.835	0.77	0.91	1.07	0.758	5	1.07	0.869000		
Sr-D	mg/L	0.0114	0.012	0.012	0.0118	0.0113	5	0.0121	0.0117		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.0025		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E0900504							Water Quality Guidelines			
StnName	Middle Quinsam Lake Outlet										
StnCode	WB										
Date	Unit	5-Oct-21	12-Oct-21	20-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.41	7.35	7.17	7.44	6.9	5	7.44	7.25		6.5 - 9.0
Cond-F	uS/cm	181.5	182.5	197.5	156.7	141.8	5	197.5	172		
SO4-D	mg/L	42	54	56	41	44	5	56	47.4	128	
TSS	mg/L	<1.0	<1.0	<1.0	<1.0	2.0	5	2.0	0.80	5	25
Alk-T	mg/L	50	47	44	36	34	5	50	42.2		
P-T	mg/L									0.007	
Al-T	mg/L	0.0100	0.0082	0.0091	0.0305	0.0321	5	0.0321	0.0180		
As-T	mg/L	0.00016	0.00017	0.00025	0.00025	0.00026	5	0.00026	0.00022		0.005
Ba-T	mg/L	0.0022	0.0027	0.0041	0.0029	0.0030	5	0.0041	0.0030	1	5
B-T	mg/L	0.063	0.059	0.063	<0.050	<0.050	5	0.063	0.0470	1.2	
Cd-T	mg/L	<0.000010	<0.000010	0.000088	<0.000010	<0.000010	5	0.000088	0.0000216		
Ca-T	mg/L	13.9	14.9	21.2	13.3	13.3	5	21.2	15.3		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	5	0.00051	0.000302	0.002	0.007
Hard-T	mg/L	42.3	45.5	63.7	41.0	40.9	5	63.7	46.7		
Fe-T	mg/L	0.035	0.043	0.033	0.065	0.061	5	0.065	0.047		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.83	1.99	2.63	1.86	1.88	5	2.63	2.04		
Mn-T	mg/L	0.0089	0.0082	0.0066	0.0081	0.0077	5	0.0089	0.0079	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.304	0.286	0.302	0.275	0.281	5	0.304	0.290		
S-T	mg/L	14.5	14.3	18.8	12.3	12.3	5	18.8	14.4		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	20.8	17.9	14.5	13.1	12.5	5	20.8	15.8		
Sr-T	mg/L	0.0869	0.0924	0.135	0.0815	0.0818	5	0.135	0.0955		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0064	0.0058	0.0065	0.0164	0.0223	5	0.0223	0.0115	0.05	0.1
As-D	mg/L	0.00017	0.00017	0.00027	0.00021	0.00019	5	0.00027	0.00020		
Ba-D	mg/L	0.0020	0.0026	0.0041	0.0028	0.0028	5	0.0041	0.0029		
B-D	mg/L	0.059	0.060	0.060	0.053	<0.050	5	0.060	0.0514		
Cd-D	mg/L	<0.000010	<0.000010	0.000041	<0.000010	<0.000010	5	0.000041	0.0000122	0.000087	0.00017
Ca-D	mg/L	12.9	14.6	21.9	13.6	13.0	5	21.9	15.2		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00041	0.00038	0.00032	0.00045	0.00050	5	0.00050	0.00041	0.0005	
Hard-D	mg/L	39.6	44.4	65.5	41.4	40.4	5	65.5	46.3		
DOC	mg/L	1.5	1.6	2.5	2.6	3.3	5	3.3	2.3		
Fe-D	mg/L	0.0206	0.0237	0.0206	0.0352	0.0432	5	0.0432	0.0287		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.76	1.94	2.65	1.81	1.91	5	2.65	2.01		
Mn-D	mg/L	0.0014	0.0026	0.0039	0.0034	0.0036	5	0.0039	0.0030		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	5	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.282	0.287	0.330	0.276	0.291	5	0.330	0.293		
S-D	mg/L	13.5	14.7	18.8	12.5	12.3	5	18.8	14.4		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	19.8	17.7	15.0	13.2	13.3	5	19.8	15.8		
Sr-D	mg/L	0.0787	0.0927	0.145	0.0834	0.0785	5	0.145	0.0957		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	Water Quality Guidelines										
StnName	Quinsam River Downstream of Seepage Area and Groundwater Discharge Zone										
StnCode	QRDS										
Date	Unit	5-Oct-21	12-Oct-21	19-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.5	7.4	7.82	High Flow	High Flow	3	7.82	7.57		6.5 - 9.0
Cond-F	uS/cm	177.1	131.2	206.5			3	206.5	171.6		
SO4-D	mg/L	43	47	54			3	54	48.0	128	
TSS	mg/L	<1.0	<1.0	2.4			3	2.4	1.13	5	25
Alk-T	mg/L	46	44	44			3	46	44.7		
P-T	mg/L									0.007	
Al-T	mg/L	0.0483	0.0098	0.0093			3	0.0483	0.0225		
As-T	mg/L	0.00038	0.00018	0.00021			3	0.00038	0.00026		0.005
Ba-T	mg/L	0.0027	0.0025	0.0030			3	0.0030	0.0027	1	5
B-T	mg/L	<0.10	0.058	0.059			3	0.059	0.056	1.2	
Cd-T	mg/L	<0.000020	<0.000010	<0.000010			3	<0.000020	0.0000067		
Ca-T	mg/L	14.2	14.9	17.3			3	17.3	15.5		
Cr-T	mg/L	<0.0020	<0.0010	<0.0010			3	<0.0020	0.00067		
Co-T	mg/L	<0.00040	<0.00020	<0.00020			3	<0.00040	0.000133	0.004	0.11
Cu-T	mg/L	<0.0010	<0.00050	<0.00050			3	<0.0010	0.000333	0.002	0.007
Hard-T	mg/L	43.2	45.7	51.8			3	51.8	46.9		
Fe-T	mg/L	0.229	0.044	0.032			3	0.229	0.102		1
Pb-T	mg/L	<0.00040	<0.00020	<0.00020			3	<0.00040	0.000133	0.0039978	0.01763
Mg-T	mg/L	1.85	2.04	2.11			3	2.11	2.00		
Mn-T	mg/L	0.0447	0.0073	0.0049			3	0.0447	0.0190	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019			3	<0.0000019	0.00000095	0.00002	0.00001
Mo-T	mg/L	<0.0020	<0.0010	<0.0010			3	<0.0020	0.00067	1	2
Ni-T	mg/L	<0.0020	<0.0010	<0.0010			3	<0.0020	0.00067	0.025	0.025
K-T	mg/L	0.31	0.296	0.298			3	0.31	0.301		
S-T	mg/L	15.5	14.8	15.8			3	15.8	15.4		
Se-T	mg/L	<0.00020	<0.00010	<0.00010			3	<0.00020	0.000067	0.002	
Ag-T	mg/L	<0.000040	<0.000020	<0.000020			3	<0.000040	0.0000133	0.00005	0.0001
Na-T	mg/L	21.8	18.3	14.8			3	21.8	18.3		
Sr-T	mg/L	0.0883	0.0919	0.109			3	0.109	0.0964		
Zn-T	mg/L	<0.010	<0.0050	<0.0050			3	<0.010	0.00333	0.0075	0.033
Al-D	mg/L	0.0057	0.0052	0.0063			3	0.0063	0.0057	0.05	0.1
As-D	mg/L	0.00018	0.00017	0.00023			3	0.00023	0.00019		
Ba-D	mg/L	0.0020	0.0023	0.0031			3	0.0031	0.0025		
B-D	mg/L	0.058	0.058	0.058			3	0.058	0.058		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010			3	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.1	14.6	16.9			3	16.9	14.9		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010			3	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020			3	<0.00020	0.000100		
Cu-D	mg/L	0.00041	0.00042	0.00039			3	0.00042	0.00041	0.0006	
Hard-D	mg/L	39.9	44.6	51.1			3	51.1	45.2		
DOC	mg/L	1.4	1.5	2.6			3	2.6	1.8		
Fe-D	mg/L	0.0187	0.0183	0.0178			3	0.0187	0.0183		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020			3	<0.00020	0.000100		
Mg-D	mg/L	1.76	1.97	2.14			3	2.14	1.96		
Mn-D	mg/L	0.0015	0.0013	0.0018			3	0.0018	0.0015		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019			3	<0.0000019	0.00000095		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010			3	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010			3	<0.0010	0.00050		
K-D	mg/L	0.281	0.293	0.316			3	0.316	0.297		
S-D	mg/L	13.7	14.5	15.0			3	15.0	14.4		
Se-D	mg/L	<0.00010	<0.00010	<0.00010			3	<0.00010	0.000050		
Na-D	mg/L	20.0	17.6	15.6			3	20.0	17.7		
Sr-D	mg/L	0.0789	0.0924	0.111			3	0.111	0.0941		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050			3	<0.0050	0.00250		
Notes: Unable to collect last two samples due to Quinsam River increasing flow rate causing dangerous conditions.											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E286930							Water Quality Guidelines			
StnName	Quinsam River Downstream Site 1										
StnCode	QRDS1										
Date	Unit	5-Oct-21	12-Oct-21	18-Oct-21	25-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.65	7.59	7.37	7.22	7.49	5	7.65	7.46		6.5 - 9.0
Cond-F	uS/cm	178.7	179.1	181.6	118.2	195.2	5	195.2	170.6		
SO4-D	mg/L	42	47	53	32	36	5	53	42	128	
TSS	mg/L	<1.0	<1.0	2.4	2	<1.0	5	2.4	1.18	5	25
Alk-T	mg/L	52	45	46	24	33	5	52	40.0		
P-T	mg/L									0.007	
Al-T	mg/L	0.0172	0.0085	0.0101	0.0849	0.0325	5	0.0849	0.0306		
As-T	mg/L	0.00022	0.00022	0.00025	0.00038	0.00038	5	0.00038	0.00029		0.005
Ba-T	mg/L	0.0024	0.0024	0.0031	0.0037	0.0031	5	0.0037	0.0029	1	5
B-T	mg/L	<0.10	0.059	0.062	<0.050	0.052	5	0.062	0.050	1.2	
Cd-T	mg/L	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000020	0.0000060		
Ca-T	mg/L	14.6	14.7	16.7	11.5	13.2	5	16.7	14.1		
Cr-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0020	0.00060		
Co-T	mg/L	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00040	0.000120	0.004	0.11
Cu-T	mg/L	<0.0010	<0.00050	0.00052	0.00075	0.0007	5	0.00075	0.000544	0.002	0.007
Hard-T	mg/L	43.9	44.8	50.5	36.6	41.1	5	50.5	43.4		
Fe-T	mg/L	0.04	0.036	0.039	0.093	0.071	5	0.093	0.056		1
Pb-T	mg/L	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00040	0.000120	0.0039978	0.01763
Mg-T	mg/L	1.84	1.97	2.16	1.89	1.95	5	2.16	1.96		
Mn-T	mg/L	0.0064	0.0047	0.0052	0.0099	0.0059	5	0.0099	0.0064	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000023	<0.0000019	5	0.0000023	0.00000122	0.00002	0.00001
Mo-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0020	0.00060	1	2
Ni-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0020	0.00060	0.025	0.025
K-T	mg/L	0.300	0.291	0.294	0.26	0.308	5	0.308	0.291		
S-T	mg/L	15.9	14.1	15.5	9.4	12.4	5	15.9	13.5		
Se-T	mg/L	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00020	0.000060	0.002	
Ag-T	mg/L	<0.000040	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000040	0.0000120	0.00005	0.0001
Na-T	mg/L	21.6	18.2	16.6	7.98	15.3	5	21.6	15.9		
Sr-T	mg/L	0.0896	0.0898	0.1050	0.073	0.0806	5	0.105	0.0876		
Zn-T	mg/L	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.010	0.00300	0.0075	0.033
Al-D	mg/L	0.0051	0.0056	0.0058	0.056	0.0227	5	0.056	0.019	0.05	0.1
As-D	mg/L	0.00021	0.00022	0.00025	0.00031	0.00032	5	0.00032	0.00026		
Ba-D	mg/L	0.002	0.0024	0.003	0.0035	0.0029	5	0.0035	0.0028		
B-D	mg/L	0.06	0.058	0.059	<0.050	0.055	5	0.06	0.0514		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13	14.3	17.1	11.5	12.6	5	17.1	13.7		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00038	0.00043	0.00032	0.00066	0.00056	5	0.00066	0.00047	0.0006	
Hard-D	mg/L	39.8	43.5	51.5	36.3	39.3	5	51.5	42.1		
DOC	mg/L	1.5	1.3	1.4	4.3	2.6	5	4.3	2.2		
Fe-D	mg/L	0.0183	0.0183	0.0196	0.0475	0.0449	5	0.0475	0.0297		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.8	1.91	2.14	1.84	1.91	5	2.14	1.92		
Mn-D	mg/L	0.0012	0.0012	0.0015	0.0029	0.0027	5	0.0029	0.0019		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000024	<0.0000019	5	0.0000024	0.00000124		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.283	0.294	0.308	0.255	0.294	5	0.308	0.287		
S-D	mg/L	14	14.1	15.4	9.1	12.2	5	15.4	13		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	20.1	17.8	17.3	7.73	14.8	5	20.1	15.6		
Sr-D	mg/L	0.0803	0.0891	0.11	0.0743	0.0782	5	0.11	0.0864		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E292113							Water Quality Guidelines			
StnName	7 South Quinsam River										
StnCode	75QR										
Date	Unit	5-Oct-21	12-Oct-21	19-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.32	7.39	7.26	6.67	7.18	5	7.39	7.16		6.5 - 9.0
Cond-F	uS/cm	181.1	170.9	172.8	112	115.2	5	181.1	150.4		
SO4-D	mg/L	42	52	46	34	41	5	52	43.0	128	
TSS	mg/L	<1.0	<1.0	9.2	2.8	<1.0	5	9.2	2.70	5	25
Alk-T	mg/L	46	47	44	25	38	5	47	40.0		
P-T	mg/L										
Al-T	mg/L	0.0260	0.0150	0.0245	0.127	0.0371	5	0.127	0.0459		
As-T	mg/L	0.00037	0.00031	0.00034	0.00047	0.00043	5	0.00047	0.00038		0.005
Ba-T	mg/L	0.0027	0.0027	0.0032	0.0040	0.0032	5	0.0040	0.0032	1	5
B-T	mg/L	0.071	0.063	0.060	<0.050	<0.050	5	0.071	0.0488	1.2	
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050		
Ca-T	mg/L	14.3	14.0	15.9	11.7	12.5	5	15.9	13.7		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	<0.00050	<0.00050	0.00053	0.00084	0.00066	5	0.00084	0.000506	0.002	0.007
Hard-T	mg/L	43.8	43.0	48.2	36.5	38.3	5	48.2	42.0		
Fe-T	mg/L	0.112	0.085	0.095	0.188	0.110	5	0.188	0.118		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.91	1.94	2.05	1.78	1.74	5	2.05	1.88		
Mn-T	mg/L	0.0072	0.0066	0.0065	0.0101	0.0082	5	0.0101	0.0077	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000020	<0.0000019	5	0.0000020	0.00000116	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.327	0.298	0.291	0.290	0.283	5	0.327	0.298		
S-T	mg/L	13.7	13.2	14.2	8.9	10.1	5	14.2	12.0		
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	20.4	19.0	15.5	7.59	12.7	5	20.4	15.04		
Sr-T	mg/L	0.0854	0.0849	0.0981	0.0654	0.0759	5	0.0981	0.0819		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	0.0057	<0.0050	5	0.0057	0.00314	0.0075	0.033
Al-D	mg/L	0.0067	0.0065	0.0121	0.0507	0.0268	5	0.0507	0.0206	0.05	0.1
As-D	mg/L	0.00031	0.00030	0.00032	0.00037	0.00035	5	0.00037	0.00033		
Ba-D	mg/L	0.0025	0.0026	0.0032	0.0035	0.0030	5	0.0035	0.0030		
B-D	mg/L	0.060	0.060	0.057	<0.050	<0.050	5	0.060	0.0454		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	5	<0.000010	0.0000050	0.000087	0.00017
Ca-D	mg/L	13.1	13.7	15.2	11.7	11.9	5	15.2	13.1		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00040	0.00041	0.00048	0.00076	0.00061	5	0.00076	0.00053	0.0005	
Hard-D	mg/L	40.2	42.0	46.4	36.2	37.0	5	46.4	40.4		
DOC	mg/L	1.7	1.9	2.6	4.3	3.5	5	4.3	2.8		
Fe-D	mg/L	0.0560	0.0527	0.0586	0.0679	0.0773	5	0.0773	0.0625		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.83	1.86	2.02	1.69	1.79	5	2.02	1.84		
Mn-D	mg/L	0.0053	0.0052	0.0053	0.0060	0.0064	5	0.0064	0.0056		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000033	<0.0000019	5	0.0000033	0.00000142		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.314	0.292	0.293	0.283	0.290	5	0.314	0.294		
S-D	mg/L	13.4	13.5	12.6	9.0	10.9	5	13.5	11.9		
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	5	<0.00010	0.000050		
Na-D	mg/L	19.8	18.3	15.0	7.62	13.4	5	19.8	14.82		
Sr-D	mg/L	0.0778	0.0844	0.0930	0.0661	0.0704	5	0.0930	0.0783		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E299256							Water Quality Guidelines			
StnName	Iron River & Quinsam River										
StnCode	IRQR										
Date	Unit	5-Oct-21	12-Oct-21	19-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.26	7.43	7.2	6.81	7.18	5	7.43	7.18		6.5 - 9.0
Cond-F	uS/cm	140.6	141.8	64.8	80.2	67.2	5	141.8	98.9		
SO4-D	mg/L	28	30	25	17	24	5	30	24.8	128	
TSS	mg/L	<1.0	<1.0	<1.0	3.2	<1.0	5	3.2	1.04	5	25
Alk-T	mg/L	41	41	35	21	35	5	41	34.6		
P-T	mg/L									0.007	
Al-T	mg/L	0.047	0.0199	0.0403	0.261	0.0449	5	0.261	0.0826		
As-T	mg/L	0.00070	0.00064	0.00061	0.00076	0.00063	5	0.00076	0.00067		0.005
Ba-T	mg/L	<0.0050	0.0035	0.0036	0.0050	0.0038	5	0.0050	0.00368	1	5
B-T	mg/L	<0.25	<0.050	<0.050	<0.050	<0.050	5	<0.25	0.0450	1.2	
Cd-T	mg/L	<0.000050	<0.000010	<0.000010	0.000015	<0.000010	5	<0.000050	0.0000110		
Ca-T	mg/L	13.1	13.0	12.5	9.35	11.2	5	13.1	11.83		
Cr-T	mg/L	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0050	0.00090		
Co-T	mg/L	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.0010	0.000180	0.004	0.11
Cu-T	mg/L	<0.0025	0.00056	0.00068	0.00128	0.00070	5	0.00128	0.00089		
Hard-T	mg/L	39.0	38.9	37.3	28.6	34.0	5	39.0	35.6		
Fe-T	mg/L	0.082	0.069	0.076	0.348	0.086	5	0.348	0.132		1
Pb-T	mg/L	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.0010	0.000180	0.0039978	0.01763
Mg-T	mg/L	1.53	1.56	1.45	1.27	1.45	5	1.56	1.45		
Mn-T	mg/L	0.0052	0.0044	0.0042	0.0117	0.0058	5	0.0117	0.0063	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000023	<0.0000019	5	0.0000023	0.00000122	0.00002	0.00001
Mo-T	mg/L	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0050	0.00090	1	2
Ni-T	mg/L	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0050	0.00090	0.025	0.025
K-T	mg/L	0.28	0.243	0.226	0.261	0.246	5	0.28	0.251		
S-T	mg/L	<15	8.9	7.7	4.8	6.2	5	8.9	7.0		
Se-T	mg/L	<0.00050	<0.00010	0.00012	<0.00010	0.00011	5	<0.00050	0.000116	0.002	
Ag-T	mg/L	<0.00010	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.00010	0.0000180	0.00005	0.0001
Na-T	mg/L	13.6	11.6	8.19	4.32	8.23	5	13.6	9.19		
Sr-T	mg/L	0.0677	0.0656	0.0639	0.0436	0.0598	5	0.0677	0.0601		
Zn-T	mg/L	<0.025	<0.0050	<0.0050	0.0083	<0.0050	5	<0.025	0.00566	0.0075	0.033
Al-D	mg/L	0.0138	0.0146	0.0288	0.0868	0.0330	5	0.0868	0.0354	0.05	0.1
As-D	mg/L	0.00063	0.00064	0.00061	0.00035	0.00055	5	0.00064	0.00056		
Ba-D	mg/L	0.0033	0.0036	0.0038	0.0038	0.0037	5	0.0038	0.0036		
B-D	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250		
Cd-D	mg/L	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	5	0.000011	0.0000062	0.000087	0.00017
Ca-D	mg/L	12.1	13.0	13.0	8.85	11.1	5	13.0	11.61		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00056	0.00056	0.00058	0.00091	0.00070	5	0.00091	0.00066	0.0006	
Hard-D	mg/L	36.5	39.0	38.9	26.6	34.0	5	39.0	35.0		
DOC	mg/L	2.5	2.0	3.0	5.3	3.7	5	5.3	3.3		
Fe-D	mg/L	0.0448	0.0471	0.0445	0.0596	0.0601	5	0.0601	0.0512		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	1.51	1.57	1.54	1.09	1.50	5	1.57	1.44		
Mn-D	mg/L	0.0036	0.0036	0.0029	0.0035	0.0045	5	0.0045	0.0036		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000039	<0.0000019	5	0.0000039	0.00000154		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.257	0.245	0.242	0.235	0.260	5	0.260	0.248		
S-D	mg/L	8.4	8.9	8.2	3.3	7.0	5	8.9	7.2		
Se-D	mg/L	<0.00010	<0.00010	0.00010	<0.00010	0.00011	5	0.00011	0.000072		
Na-D	mg/L	12.7	11.6	8.86	3.78	8.93	5	12.7	9.17		
Sr-D	mg/L	0.0622	0.0669	0.0694	0.0419	0.0567	5	0.0694	0.0594		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E297231	Water Quality Guidelines									
StnName	Iron River Site 6										
StnCode	IR6										
Date	Unit	7-Oct-21	12-Oct-21	19-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.38	7.46	7.36	7.22	7.27	5	7.46	7.34		6.5 - 9.0
Cond-F	uS/cm	74.3	72.8	62	52.1	72.5	5	74.3	66.7		
SO4-D	mg/L	5.7	5.8	4.7	1.5	5.8	5	5.8	4.7	128	
TSS	mg/L	<1.0	<1.0	<1.0	6.4	<1.0	5	6.4	1.68	5	25
Alk-T	mg/L	32	32	24	17	32	5	32	27.4		
P-T	mg/L									0.007	
Al-T	mg/L	0.0374	0.0385	0.0697	0.348	0.0665	5	0.348	0.1120		
As-T	mg/L	0.00086	0.00080	0.00066	0.00060	0.00074	5	0.00086	0.00073		0.005
Ba-T	mg/L	0.0046	0.0043	0.0043	0.0053	0.0044	5	0.0053	0.0046	1	5
B-T	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250	1.2	
Cd-T	mg/L	0.000012	0.000010	0.000014	0.000027	0.000013	5	0.000027	0.000015		
Ca-T	mg/L	11.4	10.8	9.41	7.00	10.2	5	11.4	9.76		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	5	0.00023	0.000126	0.004	0.11
Cu-T	mg/L	0.00067	0.00072	0.00078	0.00140	0.00067	5	0.00140	0.00085	0.002	0.007
Hard-T	mg/L	32.3	30.6	27.0	20.7	28.8	5	32.3	27.9		
Fe-T	mg/L	0.018	0.026	0.042	0.429	0.037	5	0.429	0.110		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	0.945	0.914	0.860	0.777	0.799	5	0.945	0.859		
Mn-T	mg/L	<0.0010	0.0010	0.0013	0.0113	0.0014	5	0.0113	0.00310	0.737	0.8706
Hg-T	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000039	<0.0000019	5	0.0000039	0.00000154	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.175	0.171	0.167	0.242	0.175	5	0.242	0.186		
S-T	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-T	mg/L	0.00022	0.00022	0.00020	0.00014	0.00024	5	0.00024	0.00020	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	1.24	1.15	1.10	0.941	1.07	5	1.24	1.100		
Sr-T	mg/L	0.0396	0.0351	0.0322	0.0246	0.0372	5	0.0396	0.0337		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0359	0.0340	0.0543	0.125	0.0567	5	0.125	0.0612	0.05	0.1
As-D	mg/L	0.00088	0.00080	0.00064	0.00035	0.00064	5	0.00088	0.00066		
Ba-D	mg/L	0.0048	0.0043	0.0043	0.0042	0.0043	5	0.0048	0.0044		
B-D	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250		
Cd-D	mg/L	0.000010	<0.000010	0.000013	0.000016	0.000013	5	0.000016	0.0000114	0.000087	0.00017
Ca-D	mg/L	11.6	10.8	9.14	6.55	10.4	5	11.6	9.70		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00072	0.00064	0.00081	0.00091	0.00070	5	0.00091	0.00076	0.001	
Hard-D	mg/L	32.7	30.6	26.1	19.0	29.4	5	32.7	27.6		
DOC	mg/L	4.2	3.2	5.4	6.8	4.5	5	6.8	4.8		
Fe-D	mg/L	0.0164	0.0176	0.0305	0.0536	0.0282	5	0.0536	0.0293		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	0.913	0.914	0.792	0.655	0.847	5	0.914	0.824		
Mn-D	mg/L	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	5	0.0018	0.00076		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000048	0.0000023	5	0.0000048	0.00000199		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.175	0.168	0.168	0.211	0.186	5	0.211	0.182		
S-D	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-D	mg/L	0.00023	0.00021	0.00020	0.00013	0.00027	5	0.00027	0.00021		
Na-D	mg/L	1.24	1.15	1.05	0.855	1.13	5	1.24	1.085		
Sr-D	mg/L	0.0391	0.0353	0.0315	0.0244	0.0356	5	0.0391	0.0332		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Appendix 1 - Q3 (October -December 2021) Water Quality Report

Table 32 Q3 - Rivers 3 Page(s)

EMS ID	E297232							Water Quality Guidelines			
StnName	Iron River Site 8										
StnCode	IR8										
Date	Unit	7-Oct-21	12-Oct-21	19-Oct-21	26-Oct-21	2-Nov-21	Count	Max	5 in 30 Ave	Average	Maximum
pH-F	pH Units	7.51	7.5	7.4	7.04	7.35	5	7.51	7.36		6.5 - 9.0
Cond-F	uS/cm	84	77.5	66.3	46	65.3	5	84	67.8		
SO4-D	mg/L	5.5	6.1	5.0	1.0	5.1	5	6.1	4.5	128	
TSS	mg/L	<1.0	<1.0	<1.0	2.8	<1.0	5	2.8	0.96	5	25
Alk-T	mg/L	32	32	26	16	29	5	32	27.0		
P-T	mg/L									0.007	
Al-T	mg/L	0.0387	0.0383	0.0640	0.264	0.0595	5	0.264	0.0929		
As-T	mg/L	0.00172	0.00150	0.00103	0.00063	0.00112	5	0.00172	0.00120		0.005
Ba-T	mg/L	0.0053	0.0048	0.0046	0.0047	0.0046	5	0.0053	0.0048	1	5
B-T	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250	1.2	
Cd-T	mg/L	0.000021	<0.000010	0.000013	0.000019	0.000012	5	0.000021	0.0000140		
Ca-T	mg/L	11.8	11.1	9.37	7.02	10.3	5	11.8	9.92		
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.004	0.11
Cu-T	mg/L	0.00076	0.00076	0.00077	0.00119	0.00067	5	0.00119	0.00083		
Hard-T	mg/L	33.6	31.7	27.1	20.7	28.9	5	33.6	28.4		
Fe-T	mg/L	0.019	0.026	0.041	0.256	0.034	5	0.256	0.075		1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100	0.0039978	0.01763
Mg-T	mg/L	1.02	0.996	0.895	0.780	0.807	5	1.02	0.900		
Mn-T	mg/L	<0.0010	0.0011	0.0013	0.0088	0.0012	5	0.0088	0.00258	0.737	0.8706
Hg-T	mg/L	0.0000020	<0.0000019	0.0000022	0.0000037	<0.0000019	5	0.0000037	0.00000196	0.00002	0.00001
Mo-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	1	2
Ni-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050	0.025	0.025
K-T	mg/L	0.188	0.174	0.163	0.219	0.168	5	0.219	0.182		
S-T	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-T	mg/L	0.00023	0.00021	0.00021	0.00013	0.00020	5	0.00023	0.00020	0.002	
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	5	<0.000020	0.0000100	0.00005	0.0001
Na-T	mg/L	1.38	1.28	1.12	1.06	1.09	5	1.38	1.19		
Sr-T	mg/L	0.0409	0.0365	0.0326	0.0243	0.0358	5	0.0409	0.0340		
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250	0.0075	0.033
Al-D	mg/L	0.0329	0.0330	0.0522	0.112	0.0519	5	0.112	0.0564	0.05	0.1
As-D	mg/L	0.00165	0.00148	0.00099	0.00039	0.00109	5	0.00165	0.00112		
Ba-D	mg/L	0.0052	0.0046	0.0046	0.0040	0.0047	5	0.0052	0.0046		
B-D	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	5	<0.050	0.0250		
Cd-D	mg/L	0.000066	0.000010	0.000012	0.000012	0.000012	5	0.000066	0.000022	0.000087	0.00017
Ca-D	mg/L	11.4	10.7	9.33	6.65	9.99	5	11.4	9.61		
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Co-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Cu-D	mg/L	0.00082	0.00068	0.00082	0.00084	0.00069	5	0.00084	0.00077	0.0009	
Hard-D	mg/L	32.4	30.6	26.7	19.4	28.6	5	32.4	27.5		
DOC	mg/L	4.1	2.7	4.2	6.0	4.4	5	6.0	4.3		
Fe-D	mg/L	0.0172	0.0177	0.0313	0.0509	0.0261	5	0.0509	0.0286		0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	5	<0.00020	0.000100		
Mg-D	mg/L	0.946	0.954	0.822	0.685	0.886	5	0.954	0.859		
Mn-D	mg/L	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	5	0.0015	0.00070		
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019	0.0000041	<0.0000019	5	0.0000041	0.00000158		
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
Ni-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5	<0.0010	0.00050		
K-D	mg/L	0.179	0.173	0.170	0.197	0.180	5	0.197	0.180		
S-D	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	5	<3.0	1.50		
Se-D	mg/L	0.00023	0.00021	0.00019	0.00012	0.00023	5	0.00023	0.00020		
Na-D	mg/L	1.37	1.25	1.12	0.953	1.23	5	1.37	1.185		
Sr-D	mg/L	0.0393	0.0358	0.0323	0.0239	0.0338	5	0.0393	0.0330		
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	5	<0.0050	0.00250		
Notes:											
Factor applied to less-than results when calculating statistics: 0.5											

Table 33 Q3 - Zooplankton 1 Page(s)

Summer Taxa and Abundance of Zooplankton Samples				
level of id. : lowest/lowest				
Site Name		LLM-6Oct21-M	MQL-6Oct21-R	MQL-6Oct21-M
FES Sample Number		210022	210023	210024
Sampling Date(s)		Oct.6,2021	Oct.6,2021	Oct.6,2021
units = total organisms/sample				
	stage			
Sub-class : Copepoda				
Order : Cyclopoida				
<u>Cryptocyclops bicolor</u>	adult	16	4	
<u>Diacyclops thomasi</u>	adult		4	
<u>Ectocyclops phaleratus</u>	adult	5		
<u>UID</u>	copepodid	7	17	3
<u>Order : Calanoida</u>				
Family : Diaptomidae				
Hesperodiaptomus novemdecimus	adult			3
Skistodiaptomus oregonensis	adult	32	119	136
<u>UID</u>	copepodid		47	22
<u>UID Calanoida / Cyclopoida</u>	nauplii	67	17	34
Order : Cladocera				
Bosmina longirostris	adult	32	28	65
Bosmina longirostris	juvenile		3	6
<u>Ceriodaphnia reticulata</u>	adult	11		
<u>Daphnia longiremis</u>	adult	28	11	
<u>Daphnia rosea</u>	adult	190	240	386
<u>Daphnia sp.</u>	adult	7		6
<u>Daphnia sp.</u>	juvenile	7	17	9
<u>Daphnia sp.</u>	ephippium	4		
<u>Diaphanosoma brachyurum</u>	adult	91	25	19
<u>Leptodora kindtii</u>	adult			3
<u>Phylum : Rotifera</u>				
<u>Conochilus sp.</u>	cells		11	3
Kellicottia longispina		123	17	6
<u>Keratella cochlearis</u>				9
<u>Polyarthra sp.</u>			160	53
<u>UID</u>			6	
<u>Benthic</u>				
Group : Hydracarina				3
TOTAL		620	726	766
UID = unidentified due to lack of size and/or missing morphological characters.				

Table 34 Groundwater Description 1 Page(s)

Groundwater Wells - Description				
Area	Groundwater ID	In-situ / Ex-situ	Screened Interval	Comment
2-North	1 Mains 2-North (1M2N)	In-situ	No. 1 Seam	Flooded Underground Workings in 1-Mains Area, Dewatering well
	5 Mains#2 (5M#2)	In-situ	No. 1 Seam	Flooded Underground Workings in 5-Mains Area, Dewatering well
	QU08-21GD	Ex-situ	No. 1 Seam	Down gradient of u/g tailings disposal, measure water quality and hydraulic gradients downstream of forjan fault
	QU08-21GS	Ex-situ	No. 4 Coal Seam and	
	QU10-10D	Ex-situ	No. 1 Seam / mudstone	Down gradient of u/g tailings disposal, measures water quality and hydraulic head downgradient of 2 North workings
	QU10-10S	Ex-situ	No. 4 Seam /	
	QU10-11S	Ex-situ	Fractured Sandstone	Measure water quality and hydraulic gradient in Forjan Fault
	QU10-11D	Ex-situ	No.1 Seam	Down gradient of u/g tailings disposal, measures water quality and hydraulic head down gradient t of 2 North workings
	QU10-13D	In-situ	Caved Zone	Down gradient of u/g tailings disposal, measures water quality and hydraulic head down gradient t of 2 North workings
5-South Mine Pool	5SMW	In-situ	Mine Pool (1 Seam)	Water pumped from 5-South Flooded Mine Pool into 3-Mains of 2-North Mine
River Barrier Pillar (RBP)	QU11-05S	Ex-situ	Sandstone	Down gradient of u/g tailings disposal, measure water quality and hydraulic head down gradient of 2 North workings
	QU11-05D	Ex-situ	Sandstone	Monitoring water quality and vertical gradients downstream of the RBP and 2-North mine.
	QU11-09S	Ex-situ	Sandstone	Monitor water quality & upward vertical gradients of the RBP and 2-North workings. Mine pool – CCR backfill in River Barrier Pillar
	QU11-09M	In-situ	RBP Mine Pool	Monitor water quality in the RBP and 2-North workings. Mine pool – CCR backfill in River Barrier Pillar.
2-North Plant Site	MW-00-1S	Ex-situ	Till	Shallow Groundwater Below Plant Coal pad
	MW-00-1D	Ex-situ	1-Seam	Groundwater below the coal pad
	MW-00-6D	Ex-situ	Till	Groundwater below the coal pad
	MW-00-6S	Ex-situ	Till	Groundwater below the coal pad
4-South	QU10-08D	Ex-situ	No. 3 Seam	4 South (just outside mine pool) up gradient of existing workings
	QU11-01	In-Situ	Foot print area of 4 South GOB	Assess 4 South Mine Pool water quality
	QU10-09S	Ex-situ	Down gradient of existing workings	Access vertical gradients and water quality adjacent to Long Lake.
	QU10-09D	Ex-situ	Down gradient of existing workings	Access vertical gradients and water quality adjacent to Long Lake.
2-South & 3-South	MW002	Ex-situ	1 Seam	3S seepage to Long Lake
	MW004	In-Situ	Mine Pool (1 Seam)	2-South Mine Pool Gob depillared area
	QU11-11 (INF)	In-Situ	Mine Pool (1 Seam)	2-South mine pool dewatering well for Passive Treatment System
7-South	1M7S	In-Situ	No. 4 Coal Seam	Underground Sump
	QU08-10	Ex-situ	No. 4 Coal Seam	Downgradient of 7S -screened No. 3 Coal -Southern margin of workings
	QU08-13A	Ex-situ	No. 4 Coal Seam	Down Gradient of the CCR backfill towards QR
	QU08-13B	Ex-situ	Till & SST contact	Down Gradient of the CCR backfill towards QR
	QU14-10	In-Situ	Mine Void	PAG-CCR Water Cover in Mine Void
7- South Area 5	1M7SA5	In-Situ	Sump	Underground Sump
	QU1128	Ex-situ	N0. 4 Seam and 4L	Upgradient of 7SA5. Background 7 South Area 5
	QU1118S	Ex-situ	Till	Down Gradient of 7SA5 - Background info for 7S A5 Sub crop
	QU1118D	Ex-situ	Sandstone	Down Gradient of 7SA5 - Background info for 7S A5 Sub crop
	QU11-35	Ex-situ	Sandstone above No. 4 Seam	South end of 7SA5 footprint at 100280m N (mine grid)
242 AREA	QU11-36S	Ex-situ	Sandstone below No. 5 seam	Downgradient of 7SA5
	QU11-36D	Ex-situ	Sandstone below No. 5 seam	Downgradient of 7SA5
	242MW	In-situ	No. 4 Seam	Mine pool

Table 35 In-Situ Groundwater Wells 1 Page(s)

In-situ Groundwater Water Level Below Casing Parameter Date	Area Well ID Replicates (R) m Units	Freshwater Aquatic Life (CSR-AL)	2-North Flooded Mine pool						
			5M#2	5M#2	1M2N	1M2N	3M2N	QU1013D 51.71	QU1013D QA/QC 51.71
			3-Nov-21	9-Dec-21	3-Nov-21	9-Dec-21	14-Dec-21	8-Dec-21	8-Dec-21
SO4-D	mg/L	1280	250	220	680	720	670	690	700
S ²⁻ as H ₂ S	mg/L	0.02	0.00978	0.0128	0.000957	0.0542	0.000957	0.101	0.0914
Cond-F	uS/cm		1327.6	1697	1956	2650	2050	2268	2268
pH-F	pH Units		7.26	7.6	6.98	7.24	7.16	6.88	6.88
Temp-F	C		11.5	8.4	10.4	8.8	9.7	7.7	7.7
DO-F	mg/L							0.47	0.47
ORP-F	mV							-194.6	-194.6
Turb	NTU		2.2	3.0	29	79	2.2	47	50
Alk-T	mg/L		560	510	500	490	370	520	530
Acidity83	mg/L		<1.0	<1.0	19.6	4.7	2.4	<1.0	7.7
N-D	mg/L							0.349	0.349
DOC	mg/L		0.73	1.1	1.2	0.72	0.99	1.0	0.98
Hydrox	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bicarb	mg/L		680	610	610	600	450	630	640
Carb	mg/L		<1.0	6.6	<1.0	<1.0	<1.0	<1.0	<1.0
Cl-D	mg/L	1500	17	11	25	15	4.0	20	20
F-D	mg/L		0.067	0.088	0.14	0.11	0.14	0.11	0.11
Flu-CSR*	mg/L	Flu-CSR	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Br-D	mg/L		0.044	0.039	0.16	0.16	0.017	0.15	0.14
P-D	mg/L		<0.0030	<0.0030	<0.0030	<0.0060	0.0070	0.0032	<0.0060
TSS	mg/L								
Al-D	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	0.0086	<0.0030	<0.0030
Ag-D	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Ag-CSR*	mg/L	Ag-CSR	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150
As-D	mg/L	0.05	0.00804	0.00725	0.00989	0.00590	0.00012	0.00234	0.00240
Ba-D	mg/L	10	0.0264	0.0252	0.0208	0.0176	0.0131	0.0268	0.0266
B-D	mg/L	50	0.961	0.911	1.15	0.966	0.732	1.00	0.999
Be-D	mg/L	0.053	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bi-D	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cd-D	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Ca-D	mg/L		71.4	65.2	143	143	120	130	131
Cr-D	mg/L	0.01	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Co-D	mg/L	0.04	0.00040	0.00056	<0.00020	<0.00020	0.00051	<0.00020	0.00021
Cu-D	mg/L		<0.00020	0.00024	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Cu-CSR*	mg/L	Cu-CSR	0.0900	0.0800	0.0900	0.0900	0.0900	0.0900	0.0900
Fe-D	mg/L		0.644	0.592	4.09	6.41	0.0995	4.38	4.37
Hard-D	mg/L		203	186	416	418	244	378	382
Pb-D	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Pb-CSR*	mg/L	Pb-CSR	0.110	0.0600	0.160	0.160	0.110	0.160	0.160
Mg-D	mg/L		5.98	5.70	14.4	14.8	16.9	13.0	13.0
Mn-D	mg/L		0.198	0.170	0.515	0.587	0.0824	0.645	0.642
Hg-D	mg/L	0.001	<0.0000019	<0.0000019	0.0000022	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Na-D	mg/L		270	258	368	360	294	373	369
Mo-D	mg/L	10	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Ni-D	mg/L		<0.0010	0.0021	<0.0010	<0.0010	0.0022	<0.0010	<0.0010
Ni-CSR*	mg/L	Ni-CSR	1.50	1.50	1.50	1.50	1.50	1.50	1.50
K-D	mg/L		2.79	2.82	5.11	5.13	3.62	4.85	4.91
S-D	mg/L		78.9	68.3	241	237	224	219	221
Sb-D	mg/L	0.2	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Se-D	mg/L	0.01	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00026	<0.00010
Si-D	mg/L		3.57	3.29	4.10	3.85	3.38	3.98	3.96
Sr-D	mg/L		0.768	0.689	1.50	1.47	1.23	1.35	1.35
Tl-D	mg/L	0.003	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Ti-D	mg/L	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
U-D	mg/L	3	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
V-D	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zn-D	mg/L		0.0080	0.0104	0.0068	<0.0050	<0.0050	<0.0050	<0.0050
Zn-CSR*	mg/L	Zn-CSR	1.650	0.900	2.400	2.400	1.650	2.400	2.400
Notes:									
* Calculated Parameter - Results are the standards calculated for that site, used for comparison to the above result.									
Bold Red - indicates result is greater than standard									
Groundwater = GW River Barrier Pillar = RBP									

Table 35 In-Situ Groundwater Wells 1 Page(s)

In-situ Groundwater Water Level Below Casing Parameter Date	Area Well ID Replicates (R) m Units	Freshwater Aquatic Life (CSR-AL)	2-South Flooded Mine Pool			3-South Pit Groundwater		2-South Flooded Mine Pool	
			INF	INF	INF	MW002	MW002 QA/QC	MW004	MW004 QA/QC
			8.9	12.8	0.0058	3.35	3.35	39.575	
			4-Oct-21	1-Nov-21	7-Dec-21	28-Oct-21	28-Oct-21	29-Nov-21	29-Nov-21
SO4-D	mg/L	1280	670	540	580	1300	1300	292	272
S ²⁻ as H ₂ S	mg/L	0.02	0.000957	0.000957	0.000957	0.000957	0.000957	0.0106	0.0106
Cond-F	uS/cm		1536.4	1421.8	1638	2168.6	2168.6	731.1	731.1
pH-F	pH Units		6.99	6.87	7.32	6.77	6.77	7.09	7.09
Temp-F	C			7.835	8.4	11.112	11.112	8.1	8.1
DO-F	mg/L					0.45	0.45	7.72	7.72
ORP-F	mV					-29.2	-29.2	177	177
Turb	NTU					38	51	0.00142	0.00138
Alk-T	mg/L		290	280	240	280	290	90.2	86.7
Acidity83	mg/L		13.2	14.5	20.9	38.2	39.8	5.9	4.6
N-D	mg/L					0.267	0.278		
DOC	mg/L					2.0	0.96	2.61	2.71
Hydrox	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0		
Bicarb	mg/L		350	340	290	340	350		
Carb	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0		
Cl-D	mg/L	1500				1.6	1.7	0.53	0.62
F-D	mg/L					0.13	0.13	0.12	0.11
Flu-CSR*	mg/L	Flu-CSR	3.00	3.00	3.00	3.000	3.000		
Br-D	mg/L					0.26	0.23	<0.10	<0.10
P-D	mg/L					<0.0030	<0.0030	0.0096	0.0102
TSS	mg/L		7.2	5.6	7.2				
Al-D	mg/L		<0.0030	0.0116	<0.0030	<0.0060	<0.0060	0.0144	0.0147
Ag-D	mg/L		<0.000020	<0.000020	<0.000020	<0.000040	<0.000040	<0.00001	<0.00001
Ag-CSR*	mg/L	Ag-CSR	0.0150	0.0150	0.0150	0.01500	0.01500		
As-D	mg/L	0.05	0.00476	0.00434	0.00270	0.00228	0.00222	0.000255	0.000265
Ba-D	mg/L	10	0.0218	0.0210	0.0194	0.0143	0.0136	0.0175	0.0178
B-D	mg/L	50	0.705	0.670	0.585	0.77	0.72	0.171	0.179
Be-D	mg/L	0.053	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00001	<0.00001
Bi-D	mg/L		<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.00001	<0.00001
Cd-D	mg/L		<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	0.0000053	0.0000079
Ca-D	mg/L		244	233	204	482	469	116	120
Cr-D	mg/L	0.01	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	0.00017	0.00016
Co-D	mg/L	0.04	0.00068	0.00106	0.00098	0.00327	0.00332	0.000272	0.000267
Cu-D	mg/L		<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	0.00126	0.00128
Cu-CSR*	mg/L	Cu-CSR	0.0900	0.0900	0.0900	0.09000	0.09000		
Fe-D	mg/L		3.92	4.04	2.47	4.57	4.42	0.0032	0.0029
Hard-D	mg/L		670	645	561	1410	1370		
Pb-D	mg/L		<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00005	<0.00005
Pb-CSR*	mg/L	Pb-CSR	0.160	0.160	0.160	0.1600	0.1600		
Mg-D	mg/L		15.0	15.5	12.7	49.9	48.0	14.6	14.8
Mn-D	mg/L		0.425	0.439	0.309	1.40	1.38	0.0124	0.0116
Hg-D	mg/L	0.001	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.000005	<0.000005
Na-D	mg/L		112	116	98.2	63.8	61.7	26.1	26.3
Mo-D	mg/L	10	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	0.000206	0.000156
Ni-D	mg/L		0.0011	0.0019	0.0016	0.0025	0.0024	0.00211	0.0022
Ni-CSR*	mg/L	Ni-CSR	1.50	1.50	1.50	1.500	1.500		
K-D	mg/L		1.88	1.99	1.67	5.74	5.51	1.27	1.3
S-D	mg/L		216	218	183	417	395	110	112
Sb-D	mg/L	0.2	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.00005	<0.00005
Se-D	mg/L	0.01	<0.00010	<0.00010	0.00011	<0.00020	<0.00020	<0.0001	<0.0001
Si-D	mg/L		3.54	3.39	3.40	4.06	3.83	3.51	3.37
Sr-D	mg/L		2.26	2.09	1.93	4.29	4.15	0.767	0.781
Tl-D	mg/L	0.003	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000004	<0.000004
Ti-D	mg/L	1	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0002	<0.0002
U-D	mg/L	3	<0.00010	<0.00010	<0.00010	0.00039	0.00037	0.0000166	0.0000185
V-D	mg/L		<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0002	<0.0002
Zn-D	mg/L		<0.0050	<0.0050	<0.0050	<0.010	<0.010	0.0039	0.0045
Zn-CSR*	mg/L	Zn-CSR	2.400	2.400	2.400	2.400	2.400		
Notes: * Calculated Parameter - Results are the standards calculated for that site, use Bold Red - indicates result is greater than standard Groundwater = GW River Barrier Pillar = RBP									

Table 35 In-Situ Groundwater Wells 1 Page(s)

In-situ Groundwater	Area Well ID Replicates (R) m Units		5-South Mine Pool Pumped to 2-North SSMW			RBP Water Cover Over PAG-CCR QU1109M	7-South Water Cover Over PAG-CCR QU1410	1-Mains 7-South Area 5 Water 1M7SA5
Water Level Below Casing Parameter			74.3			43.135	10.8	
Date		Freshwater Aquatic Life (CSR-AL)	13-Oct-21	3-Nov-21	9-Dec-21	3-Nov-21	9-Dec-21	14-Dec-21
SO4-D	mg/L	1280	350	330	270	1300	1800	160
S ²⁻ as H ₂ S	mg/L	0.02	0.0276	0.00744	0.0244	0.0234	0.000957	0.000957
Cond-F	uS/cm		1206.6	1023.6	1301	2889.4	2927	644
pH-F	pH Units		7.08	7.32	7.35	6.86	6.75	8.36
Temp-F	C		8.486	8.9	7	8.534	6.7	9.7
DO-F	mg/L		2.35			0.56	0.46	
ORP-F	mV		-92.1			-122	13.2	
Turb	NTU			24	15	160	27	1.1
Alk-T	mg/L		320	350	300	500	310	150
Acidity83	mg/L		4.7	3.5	10.2	13.1	16.2	<1.0
N-D	mg/L					0.366	0.217	
DOC	mg/L		<0.50	2.2	3.1	<0.50	1.2	0.77
Hydrox	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bicarb	mg/L		390	420	360	620	380	180
Carb	mg/L		<1.0	<1.0	6.9	<1.0	<1.0	<1.0
Cl-D	mg/L	1500	4.5	4.8	3.9	3.4	7.1	1.7
F-D	mg/L		0.23	0.16	0.17	0.080	0.17	0.43
Flu-CSR*	mg/L	Flu-CSR	3.00	3.00	3.00	3.00	3.000	3.00
Br-D	mg/L		0.038	0.055	0.054	0.30	0.43	0.13
P-D	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
TSS	mg/L		29					
Al-D	mg/L		0.0052	0.0031	0.0178	<0.0060	<0.0060	0.0050
Ag-D	mg/L		<0.000020	<0.000020	<0.000020	<0.000040	<0.000040	<0.000020
Ag-CSR*	mg/L	Ag-CSR	0.0150	0.0150	0.0150	0.0150	0.01500	0.0150
As-D	mg/L	0.05	0.00136	0.00944	0.00406	0.00481	0.110	0.107
Ba-D	mg/L	10	0.0302	0.0465	0.0261	0.0117	0.0159	0.192
B-D	mg/L	50	0.925	0.833	0.766	1.08	1.01	0.436
Be-D	mg/L	0.053	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00010
Bi-D	mg/L		<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
Cd-D	mg/L		<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000010
Ca-D	mg/L		70.4	68.4	55.1	220	547	72.0
Cr-D	mg/L	0.01	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010
Co-D	mg/L	0.04	0.00612	0.00116	0.00341	<0.00040	0.00042	0.00074
Cu-D	mg/L		0.00034	<0.00020	0.00069	<0.00040	<0.00040	0.00035
Cu-CSR*	mg/L	Cu-CSR	0.0900	0.0900	0.0700	0.0900	0.09000	0.0900
Fe-D	mg/L		14.6	7.36	5.98	18.5	2.48	0.104
Hard-D	mg/L		216	213	172	636	2010	369
Pb-D	mg/L		<0.00020	<0.00020	<0.00020	<0.00040	<0.00040	<0.00020
Pb-CSR*	mg/L	Pb-CSR	0.110	0.110	0.0600	0.160	0.1600	0.160
Mg-D	mg/L		9.73	10.2	8.31	21.0	156	15.5
Mn-D	mg/L		0.362	0.261	0.204	0.666	1.48	0.0388
Hg-D	mg/L	0.001	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Na-D	mg/L		199	167	165	476	64.9	18.7
Mo-D	mg/L	10	0.0019	0.0015	0.0011	<0.0020	<0.0020	<0.0010
Ni-D	mg/L		0.0089	0.0093	0.0057	<0.0020	<0.0020	0.0021
Ni-CSR*	mg/L	Ni-CSR	1.50	1.50	1.10	1.50	1.500	1.50
K-D	mg/L		4.75	4.52	4.64	6.77	7.53	2.19
S-D	mg/L		116	92.8	77.9	415	596	46.2
Sb-D	mg/L	0.2	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.00050
Se-D	mg/L	0.01	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00010
Si-D	mg/L		3.27	3.99	3.06	4.10	3.13	4.38
Sr-D	mg/L		0.874	0.875	0.685	2.62	4.73	0.650
Tl-D	mg/L	0.003	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000010
Ti-D	mg/L	1	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0050
U-D	mg/L	3	<0.00010	<0.00010	<0.00010	<0.00020	0.00088	<0.00010
V-D	mg/L		<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0050
Zn-D	mg/L		<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0050
Zn-CSR*	mg/L	Zn-CSR	1.650	1.650	0.900	2.400	2.400	2.400

Notes:
 * Calculated Parameter - Results are the standards calculated for that site, use
 Bold Red - indicates result is greater than standard
 Groundwater = GW River Barrier Pillar = RBP

Table 36 Ex-Situ Groundwater Wells 1 Page(s)

Ex-situ Groundwater	Area Well ID Replicates (R) m Units	Freshwater Aquatic Life (CSR-AL)	QU1105S 26.81 4-Nov-21	2-North QU1105D 37.33 4-Nov-21	QU1105D R 37.33 4-Nov-21	Shallow GW above RBP QU1109S 3.42 3-Nov-21	QU1109S R 3.42 3-Nov-21	7-South QU0813A 11.5 30-Nov-21	7-South QU0813B 12.533 30-Nov-21	4-South QU1009S 2.8 28-Oct-21	4-South QU1009D 4.2 28-Oct-21
Water Level Below Casing Parameter Date											
SO4-D	mg/L	1280	210	250	240	280	240	76	32	120	73
S ²⁻ as H ₂ S	mg/L	0.02	0.0606	54.2	52.1	1.81	1.81	0.181	0.0213	0.0223	0.0819
Cond-F	uS/cm		992.8	4966.6	4966.6	1388	1388	562.7	311.4	458.1	454.7
pH-F	pH Units		6.98	7.82	7.82	7.77	7.77	7.87	8.12	6.91	7.48
Temp-F	C		9.734	9.695	9.695	8.974	8.974	8.2	8	8.308	8.069
DO-F	mg/L		0.39	0.36	0.36	0.51	0.51	0.46	0.36	0.48	0.44
ORP-F	mV		-235.1	-354.4	-354.4	-181.3	-181.3	-227.1	-181.4	-126.4	-179.3
Turb	NTU		7.1	170	170	3.3	3.2	3.0	6.6	41	7.0
Alk-T	mg/L		330	350	340	470	470	210	130	150	180
Acidity83	mg/L		9.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	18.4	10.0
N-D	mg/L		0.237	0.367	0.372	0.383	0.363	0.20	0.091	0.171	0.203
DOC	mg/L		2.1	<5.0	<5.0	<0.50	<0.50	0.94	0.85	0.89	2.1
Hydrox	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bicarb	mg/L		400	420	420	520	540	250	160	180	220
Carb	mg/L		<1.0	<1.0	<1.0	25	17	<1.0	<1.0	<1.0	<1.0
Cl-D	mg/L	1500	2.1	1300	1400	31	35	17	2.6	<1.0	1.5
F-D	mg/L		0.18	0.050	<0.050	0.60	0.61	0.74	0.43	0.080	0.24
Flu-CSR*	mg/L	Flu-CSR	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Br-D	mg/L		0.035	2.0	2.0	0.089	0.093	0.032	<0.010	0.037	0.018
P-D	mg/L		0.0034	0.28	0.28	0.017	0.017	0.042	0.044	0.011	0.012
Al-D	mg/L		<0.0030	0.0132	0.0125	<0.0030	<0.0060	<0.0030	<0.0030	<0.0030	<0.0030
Ag-D	mg/L		<0.000020	<0.000040	<0.000040	<0.000020	<0.000040	<0.000020	<0.000020	<0.000020	<0.000020
Ag-CSR*	mg/L	Ag-CSR	0.0150	0.0150	0.0150	0.000500	0.000500	0.0150	0.000500	0.0150	0.0150
As-D	mg/L	0.05	0.0589	0.00479	0.00492	0.102	0.0953	0.374	0.533	0.0941	0.104
Ba-D	mg/L	10	0.0983	0.161	0.154	0.0342	0.0341	0.212	0.0567	0.129	0.120
B-D	mg/L	50	1.22	0.51	0.52	1.85	1.80	0.812	0.331	0.062	0.418
Be-D	mg/L	0.053	<0.00010	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010
Bi-D	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010
Cd-D	mg/L		<0.000010	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010
Ca-D	mg/L		58.6	138	135	21.9	22.1	42.3	30.2	73.7	56.0
Cr-D	mg/L	0.01	<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010
Co-D	mg/L	0.04	<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020
Cu-D	mg/L		<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020
Cu-CSR*	mg/L	Cu-CSR	0.0800	0.0900	0.0900	0.0400	0.0400	0.0600	0.0400	0.0900	0.0800
Fe-D	mg/L		1.09	<0.010	<0.010	0.121	0.128	0.289	0.139	4.56	0.679
Hard-D	mg/L		189	362	353	76.8	77.0	149	97.9	229	186
Pb-D	mg/L		<0.00020	<0.00040	<0.00040	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020
Pb-CSR*	mg/L	Pb-CSR	0.0600	0.160	0.160	0.0500	0.0500	0.0600	0.0500	0.110	0.0600
Mg-D	mg/L		10.4	4.35	4.20	5.39	5.28	10.5	5.45	10.9	11.3
Mn-D	mg/L		0.233	0.112	0.108	0.0257	0.0269	0.0601	0.0675	0.359	0.0547
Hg-D	mg/L	0.001	<0.0000019	<0.000019	<0.000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Na-D	mg/L		158	866	831	310	307	64.5	28.4	9.35	31.2
Mo-D	mg/L	10	<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0010	0.0023	<0.0010	<0.0010
Ni-D	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010
Ni-CSR*	mg/L	Ni-CSR	1.50	1.50	1.50	0.650	0.650	1.10	0.650	1.50	1.50
K-D	mg/L		3.42	4.68	4.53	4.07	4.08	2.60	1.47	0.711	1.67
S-D	mg/L		75.1	293	294	102	93.2	24.1	11.7	34.6	26.0
Sb-D	mg/L	0.2	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050
Se-D	mg/L	0.01	<0.00010	0.0158	0.0132	0.00182	0.00136	0.00015	<0.00010	0.00012	0.00068
Si-D	mg/L		3.47	6.26	6.04	5.67	5.85	4.16	4.63	9.20	9.70
Sr-D	mg/L		0.688	1.68	1.61	0.417	0.411	0.619	0.261	0.283	0.919
Tl-D	mg/L	0.003	<0.000010	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010
Ti-D	mg/L	1	<0.0050	<0.010	<0.010	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050
U-D	mg/L	3	<0.00010	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010
V-D	mg/L		<0.0050	<0.010	<0.010	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050
Zn-D	mg/L		<0.0050	<0.010	<0.010	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050
Zn-CSR*	mg/L	Zn-CSR	0.900	2.400	2.400	0.075	0.075	0.900	0.150	1.650	0.900

Notes:

* Calculated Parameter - Results are the standards calculated for that site, used for comparison to the above result.

Bold Red - indicates result is greater than standard

Groundwater = GW River Barrier Pillar = RBP

Table 37 Potential Seepage Near QU1109 1 Page(s)

Site Description		Potential Seepage near QU1109					
Site Name	S	S-5Oct21-M	S-12Oct21-M	S-20Oct21-M	S-26Oct21-M	S-3Nov21-M	S-8Dec21-M
Date		05-Oct-21	12-Oct-21	20-Oct-21	2021-10-26	2021-11-03	2021-12-08
pH-F	pH Units	7.79	8	7.94	7.27	7.74	8.1
Cond-F	uS/cm	962.6	986.1	972	430.3	750	1059
pH-L	pH Units	8.30	8.54	8.53	7.49	8.31	8.40
Cond-L	uS/cm	1100	1100	1100	460	800	870
SO4-D	mg/L	180	150	190	110	160	130
H2S	mg/L	<0.0020	0.0063	<0.0020	0.010	0.0092	0.0093
TSS	mg/L	<1.0	<1.0	<1.0	1.6		
Alk-T	mg/L	340	370	340	110	240	300
Acidity83	mg/L	<1.0	<1.0	<1.0	2.9	1.1	<1.0
Al-T	mg/L	0.0560	0.0247	0.0236	0.170	0.0618	0.0345
As-T	mg/L	0.0156	0.0146	0.0138	0.0147	0.0292	0.0423
Ba-T	mg/L	0.0289	0.0294	0.0305	0.0313	0.0403	0.0409
B-T	mg/L	1.45	1.41	1.46	0.597	1.08	1.14
Cd-T	mg/L	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Ca-T	mg/L	21.6	23.1	23.0	18.4	22.4	25.2
Cr-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Co-T	mg/L	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Cu-T	mg/L	0.0010	0.00068	0.00060	0.00093	0.00059	<0.00050
Hard-T	mg/L	74.5	80.0	79.1	67.8	80.5	89.3
Fe-T	mg/L	0.472	0.438	0.248	0.322	0.26	0.168
Pb-T	mg/L	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	4.97	5.44	5.27	5.32	6	6.41
Mn-T	mg/L	0.0308	0.0494	0.0153	0.0243	0.0283	0.0317
Hg-T	mg/L	0.0000030	<0.0000019	<0.0000019	0.0000020	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
K-T	mg/L	3.29	3.12	3.39	1.78	2.77	2.71
S-T	mg/L	59.8	61.1	63.9	35.3	55.5	43.8
Se-T	mg/L	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Si-T	mg/L	4.10	3.78	4.27	4.57	4.63	4.42
Ag-T	mg/L	<0.000040	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Na-T	mg/L	221	229	210	70.5	145	169
Sr-T	mg/L	0.280	0.283	0.321	0.211	0.319	0.311
Zn-T	mg/L	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Al-D	mg/L	0.0259	0.0105	0.0136	0.0335	0.0155	0.0125
As-D	mg/L	0.0122	0.0117	0.0120	0.0132	0.0279	0.0444
Ba-D	mg/L	0.0264	0.0280	0.0292	0.0301	0.0386	0.0411
B-D	mg/L	1.32	1.37	1.31	0.553	1.12	1.13
Be-D	mg/L	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010
Cd-D	mg/L	0.000011	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010
Ca-D	mg/L	20.7	23.7	23.9	18.5	22.6	25.5
Cr-D	mg/L	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010
Co-D	mg/L	<0.00020	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020
Cu-D	mg/L	0.00138	0.00058	0.00060	0.00062	0.00039	0.00025
Hard-D	mg/L	70.6	79.8	81.5	67.1	79.7	89.7
Fe-D	mg/L	0.191	0.0991	0.096	0.0761	0.0727	0.0841
Pb-D	mg/L	<0.00020	<0.00020	<0.00040	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	4.59	5.03	5.28	5.04	5.63	6.34
Mn-D	mg/L	0.0192	0.0061	0.0068	0.0146	0.0226	0.0292
Hg-D	mg/L	0.0000030	<0.0000019	<0.0000019	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010
K-D	mg/L	3.01	3.04	3.39	1.79	2.66	2.70
S-D	mg/L	53.0	58.3	63.2	34.9	53.5	45.5
Se-D	mg/L	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010
Si-D	mg/L	3.91	3.83	4.38	4.19	4.48	4.69
Na-D	mg/L	205	213	213	67.5	143	166
Sr-D	mg/L	0.250	0.285	0.309	0.221	0.315	0.320
Zn-D	mg/L	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050

Table 38 Culvert Downstream End at Access Road 1 Page(s)

EMS ID		E217014		
Site Description		Culvert Downstream End at Access Road		
Site Name	SPC	SPC-18Oct21-M	SPC-1NOV21-M	SPC-7DEC21-M
Date		18-Oct-21	01-Nov-21	07-Dec-21
pH-F	pH Units	7.17	7.13	7.89
Cond-F	uS/cm	568.5	345.9	37.6
pH-L	pH Units	6.80	6.93	7.46
Cond-L	uS/cm	610	370	270
SO4-D	mg/L	330	170	110
TSS	mg/L	<1.0	<1.0	<1.0
Alk-T	mg/L	49	48	34
Acidity83	mg/L	3.1	1.8	2.2
Al-T	mg/L	0.0363	0.0742	0.0562
As-T	mg/L	0.00042	0.00032	0.00024
Ba-T	mg/L	0.0228	0.0108	0.0069
B-T	mg/L	0.160	0.096	0.061
Cd-T	mg/L	<0.000010	<0.000010	<0.000010
Ca-T	mg/L	89.7	52.9	35.2
Cr-T	mg/L	<0.0010	<0.0010	<0.0010
Co-T	mg/L	<0.00020	<0.00020	<0.00020
Cu-T	mg/L	0.00051	0.00066	<0.00050
Hard-T	mg/L	271	163	107
Fe-T	mg/L	0.048	0.084	0.071
Pb-T	mg/L	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	11.3	7.44	4.63
Mn-T	mg/L	<0.0010	0.0014	0.0014
Hg-T	mg/L	0.0000020	<0.0000019	<0.0000019
Mo-T	mg/L	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	<0.0010	<0.0010	<0.0010
K-T	mg/L	0.871	0.629	0.386
S-T	mg/L	91.3	50.1	29.7
Se-T	mg/L	<0.00010	<0.00010	<0.00010
Si-T	mg/L	5.15	4.05	3.57
Ag-T	mg/L	<0.000020	<0.000020	<0.000020
Na-T	mg/L	16.5	11.8	7.99
Sr-T	mg/L	0.595	0.312	0.202
Zn-T	mg/L	<0.0050	<0.0050	<0.0050
Al-D	mg/L	0.0278	0.0584	0.0489
As-D	mg/L	0.00041	0.00025	0.00023
Ba-D	mg/L	0.0226	0.0105	0.0066
B-D	mg/L	0.155	0.087	0.056
Be-D	mg/L	<0.00010	<0.00010	<0.00010
Cd-D	mg/L	<0.000010	<0.000010	<0.000010
Ca-D	mg/L	93.7	50.1	34.1
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	<0.00020	<0.00020	<0.00020
Cu-D	mg/L	0.00049	0.00056	0.00038
Hard-D	mg/L	281	153	105
Fe-D	mg/L	0.0357	0.0705	0.0500
Pb-D	mg/L	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	11.5	6.89	4.71
Mn-D	mg/L	<0.0010	<0.0010	<0.0010
Hg-D	mg/L	<0.0000019	<0.0000019	<0.0000019
Mo-D	mg/L	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	<0.0010	<0.0010	<0.0010
K-D	mg/L	0.876	0.596	0.385
S-D	mg/L	90.0	47.1	29.4
Se-D	mg/L	<0.00010	<0.00010	<0.00010
Si-D	mg/L	5.06	3.51	3.31
Na-D	mg/L	17.3	11.4	8.20
Sr-D	mg/L	0.572	0.292	0.206
Zn-D	mg/L	<0.0050	<0.0050	<0.0050

Table 39 Stream 1, 7S 1 Page(s)

EMS ID	E292109		WQG-Max			
Site Description	Road Side Crossing Bridge on Stream 1 above the Lower Wetland					
Site Name	7S		Std Val	7S-4Oct21-M	7S-1NOV21-M	7S-7Dec21-M
Date	Max		2021-10-04	2021-11-01	2021-12-07	
pH-F	pH Units		6.6	6.76	7.37	
Cond-F	uS/cm		79.7	71.1	99.2	
SO4-D	mg/L		3.4	5.8	4.2	
TSS	mg/L	25	<1.0	<1.0	<1.0	
Alk-T	mg/L		30	14	11	
Acidity83	mg/L		3.8	<1.0	1.2	
DOC	mg/L		1.5	2.6	1.9	
Al-T	mg/L		0.0148	0.0425	0.0349	
As-T	mg/L	0.005	<0.00010	<0.00010	<0.00010	
Ba-T	mg/L		0.0026	0.0020	0.0013	
B-T	mg/L		<0.050	<0.050	<0.050	
Cd-T	mg/L		<0.000010	<0.000010	<0.000010	
Ca-T	mg/L		7.53	4.94	3.81	
Cr-T	mg/L		<0.0010	<0.0010	<0.0010	
Co-T	mg/L	0.11	<0.00020	<0.00020	<0.00020	
Cu-T	mg/L		<0.00050	<0.00050	<0.00050	
Hard-T	mg/L		26.2	17.3	13.2	
Fe-T	mg/L	1.0	<0.010	0.021	0.013	
Pb-T	mg/L	0.01763	<0.00020	<0.00020	<0.00020	
Mg-T	mg/L		1.80	1.20	0.890	
Mn-T	mg/L	0.8706	<0.0010	<0.0010	<0.0010	
Hg-T	mg/L		<0.0000019	<0.0000019	<0.0000019	
Mo-T	mg/L	2.0	<0.0010	<0.0010	<0.0010	
Ni-T	mg/L		<0.0010	<0.0010	<0.0010	
K-T	mg/L		0.098	0.120	0.080	
S-T	mg/L		<3.0	<3.0	<3.0	
Se-T	mg/L		<0.00010	<0.00010	<0.00010	
Si-T	mg/L		5.41	4.77	4.20	
Ag-T	mg/L	0.0001	<0.000020	<0.000020	<0.000020	
Na-T	mg/L		2.65	1.68	1.42	
Sr-T	mg/L		0.0331	0.0203	0.0153	
Zn-T	mg/L	0.033	<0.0050	<0.0050	<0.0050	
Al-D	mg/L	0.1	0.0139	0.0288	0.0278	
As-D	mg/L		<0.00010	<0.00010	<0.00010	
Ba-D	mg/L		0.0025	0.0016	0.0012	
B-D	mg/L		<0.050	<0.050	<0.050	
Be-D	mg/L		<0.00010	<0.00010	<0.00010	
Cd-D	mg/L	0.00017	<0.000010	<0.000010	<0.000010	
Ca-D	mg/L		7.42	4.93	3.71	
Cr-D	mg/L		<0.0010	<0.0010	<0.0010	
Co-D	mg/L		<0.00020	<0.00020	<0.00020	
Cu-D	mg/L	≤ 0.0002 and ≤ 0.00241	0.00026	0.00040	0.00029	
Hard-D	mg/L		25.9	17.0	12.8	
Fe-D	mg/L	0.35	<0.0050	0.0075	0.0051	
Pb-D	mg/L		<0.00020	<0.00020	<0.00020	
Mg-D	mg/L		1.79	1.13	0.869	
Mn-D	mg/L		<0.0010	<0.0010	<0.0010	
Hg-D	mg/L		<0.0000019	<0.0000019	<0.0000019	
Mo-D	mg/L		<0.0010	<0.0010	<0.0010	
Ni-D	mg/L		<0.0010	<0.0010	<0.0010	
K-D	mg/L		0.092	0.112	0.081	
S-D	mg/L		<3.0	<3.0	<3.0	
Se-D	mg/L		<0.00010	<0.00010	<0.00010	
Si-D	mg/L		5.65	4.21	3.99	
Na-D	mg/L		2.56	1.66	1.42	
Sr-D	mg/L		0.0317	0.0191	0.0152	
Zn-D	mg/L		<0.0050	<0.0050	<0.0050	

Table 40 Copper Guidelines 1 Page(s)

Fall Acute Copper Aquatic Life Guidelines:				Fall Chronic Copper Aquatic Life Guidelines:			
#	Site Code	(mg/L) Copper	(mg/L) Acute Guideline	#	Site Code	Copper (mg/L)	Chronic Guideline (mg/L)
1	LLM1	0.00027	0.0036	1	LLM1	0.00038	0.0007
2	LLM1	0.00028	0.0036	2	LLM4	0.00038	0.0005
3	LLM1	0.00022	0.0028	3	LLM9	0.00038	0.0004
4	LLM1	0.00056	0.0028	4	LLMB	0.0003	0.0002
5	LLM1	0.00058	0.009	5	MQL1	0.00041	0.0004
6	LLM4	0.00026	0.0038	6	MQL4	0.0004	0.0004
7	LLM4	0.00026	0.0033	7	MQL9	0.00042	0.0004
8	LLM4	0.00021	0.004	8	MQLB	0.0004	0.0004
9	LLM4	0.00057	0.0015	9	IR6	0.00076	0.001
10	LLM4	0.00061	0.0029	10	IR8	0.00077	0.0009
11	LLM9	0.0003	0.0014	11	IRQR	0.00066	0.0006
12	LLM9	0.00032	0.002	12	7SQR	0.00053	0.0005
13	LLM9	0.00021	0.003	13	WA	0.00064	0.0005
14	LLM9	0.0005	0.0027	14	WB	0.00041	0.0005
15	LLM9	0.00057	0.0024	15	LLO	0.00043	0.0006
16	LLMB	0.00028	0.0009	16	NNO	0.00045	0.0003
17	LLMB	0.0003	0.0014	17	QRDS	0.00041	0.0006
18	LLMB	0.00023	0.0007	18	QRDS1	0.00044	0.0006
19	LLMB	0.0003	0.0011	*The calculated guideline is below 0.0002 mg/L, however, 0.0002 mg/L is considered to be the lowest			
20	LLMB	0.00041	0.0015				
21	MQL1	0.00041	0.0036				
22	MQL1	0.00041	0.0023				
23	MQL1	0.00036	0.002				
24	MQL1	0.00039	0.0024				
25	MQL1	0.00046	0.0024				
26	MQL4	0.00043	0.0035				
27	MQL4	0.00041	0.002				
28	MQL4	0.00035	0.0019				
29	MQL4	0.00038	0.0026				
30	MQL4	0.00045	0.0023				
31	MQL9	0.00044	0.003				
32	MQL9	0.00042	0.0028				
33	MQL9	0.00037	0.0017				
34	MQL9	0.00038	0.0026				
35	MQL9	0.00048	0.0023				
36	MQLB	0.00041	0.0031				
37	MQLB	0.00039	0.0013				
38	MQLB	0.00035	0.0015				
39	MQLB	0.0004	0.0031				
40	MQLB	0.00047	0.0021				
41	IR6	0.00072	0.0057				
42	IR6	0.00064	0.0046				
43	IR6	0.00081	0.0067				
44	IR6	0.00091	0.0067				
45	IR6	0.0007	0.0051				
46	IR8	0.00082	0.0064				
47	IR8	0.00068	0.0041				
48	IR8	0.00082	0.0055				
49	IR8	0.00084	0.0045				
50	IR8	0.00069	0.0055				
51	IRQR	0.00056	0.003				
52	IRQR	0.00056	0.003				
53	IRQR	0.00058	0.0033				
54	IRQR	0.00091	0.0029				
55	IRQR	0.0007	0.0039				
56	7SQR	0.0004	0.0022				
57	7SQR	0.00041	0.0027				
58	7SQR	0.00048	0.0033				
59	7SQR	0.00076	0.002				
60	7SQR	0.00061	0.0037				
61	WA	0.00053	0.0027				
62	WA	0.00054	0.0015				
63	WA	0.00064	0.0037				
64	WA	0.00096	0.0038				
65	WA	0.00054	0.0025				
66	WB	0.00041	0.0022				
67	WB	0.00038	0.0022				
68	WB	0.00032	0.0031				
69	WB	0.00045	0.004				
70	WB	0.0005	0.0024				
71	LLO	0.00025	0.003				
72	LLO	0.00025	0.0048				
73	LLO	0.00069	0.0034				
74	LLO	0.0004	0.0032				
75	LLO	0.00058	0.0032				
76	NNO	0.00032	0.0015				
77	NNO	0.00034	0.002				
78	NNO	0.00038	0.0033				
79	NNO	0.00054	0.0017				
80	NNO	0.00067	0.0061				
81	QRDS	0.00041	0.0023				
82	QRDS	0.00042	0.0022				
83	QRDS	0.00039	0.0062				
84	QRDS1	0.00038	0.0029				
85	QRDS1	0.00043	0.0024				
86	QRDS1	0.00032	0.0021				
87	QRDS1	0.00066	0.0048				