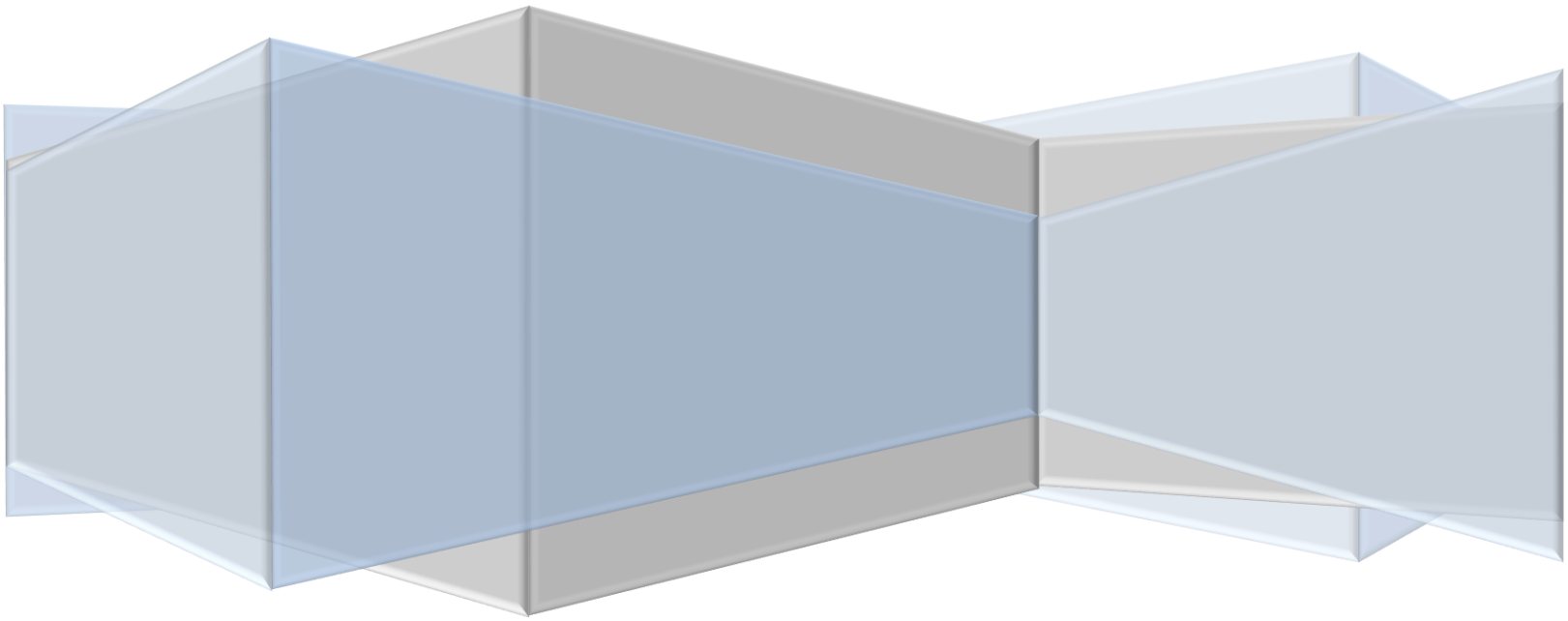
Quinsam Coal Corporations Quarterly Report (April-June 2019)

For Effluent Permit PE: 7008

Environmental Department



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SUMMARY OF EVENTS OCCURRING FROM APRIL 1ST THROUGH AUGUST 1ST, 2019

Coal production activities continued at both 2-North and 7-South mines until May 29th, 2019. On May 29th a mandatory two-week vacation for all employees, except first aid and underground pump checks was issued. On June 6th, Quinsam issued another temporary 4-week layoff to employees, which later resulted in permanent layoff and cessation of all coal production operations.

During June, the company was held in "*care and maintenance*" under Quinsam Coal Corporation (QCC). On July 3, 2019 QCC made an assignment in bankruptcy and PricewaterhouseCoopers Incorporate (PWC) was appointed Trustee of the estate of Quinsam Coal Corporation, in bankruptcy. Further, to this a meeting was held on July 4, 2019, the Trustee engaged key employees as contractors. As such, an employment contract with the Trustee (PWC) was assigned on July 11th, 2019.

Subsequent summary of events that occurred from May 29th through August 1st are outlined below:

- May 29th - temporary one-week shutdown
- June 7th – hourly employees issued a temporary layoff notice and salary employees remain on mandatory vacation, except first aid and shift bosses for underground pump checks.
- June 13th – notice of 4-week shutdown from June 17th to July 12th to all salary employees
- July 3rd - Quinsam Coal Corporation made an assignment in bankruptcy and PricewaterhouseCoopers Incorporate (PWC) was appointed Trustee of the estate of Quinsam Coal Corporation, in bankruptcy.
- July 31st - PWC abandoned the mine site and all remaining employees were informed to leave the site
- August 1st - a new trustee, The Bowra Group, appointed through the Ministry of Energy, Mines and Petroleum Resources (MEMPR) was contracted to ensure the Health, Safety and Environment of the mine site and the remaining employees.

While waiting for closure and remediation, care and maintenance activities must be carried out to maintain the site and protect the health and safety of people and the environment. The Bowra Group retained key employees to meet compliance with regulatory permits and to ensure the mine site remains acquiescent with critical aspects of regulatory requirements those include health, safety and environment.

For Quarter 1 (Q1), most environmental monitoring was completed but as a result of the current situation reporting deadlines have not been met for the *Annual Water Quality Monitoring Report* due June 30th. On July 31st the analytical water chemistry collected for the Effluent permit 7008 from April 1st through June 30, 2019 were submitted. The supplementary letter was not submitted due to the abandonment of the mine site. This letter and accompanying data supplements the previous submission for the Q1 report submitted July 31st.

NORTH END WATER MANAGEMENT SYSTEM:

Stage pumping / dewatering continued from 7-South Area 5 (7SA5) into 1-Mains 7-South (1M7S) sump, where it then pumps into the 5-South Mine (5SMW) and from there is pumped into 3-Mains, 2-North Mine Pool. The 3-Mains 2-North mine pool pump discharges into Brinco Brook through a pipeline. The 2-North Portal Sump (2NPS) collects seepage water from the tailings dam and underground 2-North mine. This water combined with the 3-Mains water discharges into Brinco Brook or by opening a gate valve water discharges into both Brinco Brook and 2-North Pit Sump PAG-CCR pond (WP). This usually occurs during the dry season to maintain a water cover over the PAG-CCR.

During Q1 the 5SMW was pumping into 3-Mains 2-North until May 9th, 2019. No pumping has occurred from the 5SMW into 2-North mine pool since this time. All water from 7-South mine since May 9th, 2019 has remained in the 5-South Mine pool.

The other three major dewatering wells located in the 2-North mine pool include, 1-Mains, 2-North (1M2N) pumps #1 and #2 and 5-Mains #2 (5M#2). These pumps discharge into either Brinco Brook or again by opening gate valves located at the end of the lines, water can be directed into WP. Pumps 1M2N #1 and 5M#2 were operating until May 26th and by May 31st all three dewatering wells (1M2N #1 & #2 and 5M#2) were turned off.

In order to reduce discharge from Settling Pond #4 (WD) the plant processing pump, located in WD, was turned on. This pumped water to the plant which overflowed out of the holding tank down the plant site collection ditch into WP. The water was not coal process water or wash plant effluent as it was only pumped from WD to the plant and gravity fed to WP. This maintained a water cover over the PAG-CCR in WP and reduced discharge from WD from July to present. When water is directed to WP, by turning on the plant processing pump and opening the gate valves, WD will not stop discharging. When the plant pump is not operating, the combined water from 3-Mains and 2NPS flowing into WD results in a continuous discharge at the permitted decant structure. By operating the plant processing pump that circulates water back to WP and stopping the main underground dewatering pumps in 2-North (1M2N and 5M#2) discharge is reduced from WD and in return, results in a reduced load of mine contact water on the receiving environment.

WD is the permitted discharge location for the North water management system where permit limits are applied to water quality and quantity. This quarter all water quality remained within permit limits. Discharge occurred for 86 out of 91 days with 53 of those days requiring a daily composite TSS sample. Water quantity for Q1 discharged at WD was calculated as 863688.7 m^3 compared to 2018 Q1 where 992394.2 m^3 was discharged. It is anticipated that Q2 will result in further reduction of discharge at WD. All water quality remained below effluent permit limits at Settling Pond #4.

SOUTH END WATER MANAGEMENT SYSTEM:

The south end the water management system was managed by directing all water from the Long Lake Seep Passive Treatment System (LLSPTS) into the 2-South Pit to maintain a water cover over the PAG-CCR. Water was pumped at 4 L/s from the 2-South mine pool (INF) into the treatment system cells, Biochemical reactor (BCREFF) where it flows to the Sulphide Polishing Cell (SPCEFF). Once pumped from underground into the LLSPTS, treated water passively flows through each cell from BCREFF into SPCEFF and gravity feed to the 2S pit entering at 2-South Inflow (2SI). At this location there is a V-notch weir coupled with a pressure transducer and a staff gauge (hydrometric station), where continuous flow is monitored. During the spring the 2 gate valves located on the 2-South mine road at the 4km marker are opened. This directs fresh water into the 2-South pit via 2SI.

The 3-South pit maintains a water cover over the contained PAG-CCR via seepage from the 2-South pit, overflow from the water cover at 2-South pit and precipitation. This water flows down a channel from 2-South to 3-South. Continuous discharge is measured at location 2-South Culvert (2SC) into 3-South Pit. Here there is an H-flume and a flow meter measuring continuous inflow to 3-South pit and outflow from 2-South pit. Water pumped from the 3-South pit is pumped to Settling Pond #1 during spring, fall and winter. During summer, a gate valve is opened at a junction on the 3S pipeline located on the 2-South highwall. From here the 3-South water can be directed either into the 2S pit or to Settling Pond #1 (SPD). When water pumped from 3S is directed into 2S this maintains a closed loop circuit and aids in maintaining a water cover over the 2-South Pit. As a result, SPD will stop discharging (normally during mid-May) reducing the load from mine contact water on the receiving environment.

SPD is the permitted discharge location for the South water management system where permit limits are applied to water quality and quantity. This quarter all water quality remained within permit limits. Discharge occurred for 43 out of 91 days with 7 of those days requiring a daily composite TSS sample. Beaver activity has once again obstructed the decant and culvert at SPD and LLE this spring. The flow rate was zero from May 14th onward at SPD. With a cumulative quarterly total of 6474.50m^3 released. All water quality remained below effluent permit limits at Settling Pond #1.

7-SOUTH (7SSD) WATER MANAGEMENT:

Discharge did not occur during Q1 at 7SSD. Sedimentation pond outflow is controlled by pumping water accumulated in the pre-settling pond to the 7-South Portal Sump. This procedure reduces discharge, decreasing the overall parameter loading and the potential for adverse aquatic impact in the receiving environment; as the biological availability for parameters of concern is much lower than under constant discharge conditions.
Monthly samples were obtained from the ponded water (7SSD) and the results are available in Appendix I, Table 22.

This quarter, parameters of interest remained within the specified limits of the Water Quality Guidelines (WQG) during all sampling events at 7S. The water quality results corresponding to Stream 1, 7S are available in Table 23.

QUARTERLY MONITORING:

During the 1st Quarter (Q1) (Spring 2019), the receiving environment monitoring program for both lakes and river/stream stations was completed. Quarterly monitoring was performed for groundwater quality, effluent and in-mine releases. Most other environmental sampling and obligations pertaining to permit PE-7008 were completed with the exception of those missing samples as described in Appendix I, Table 2. The missing samples are a direct result of the bankruptcy and layoffs.

The reader should note that concentrations for most parameters of interest were not elevated above water quality guideline (WQG) levels in the receiving environment throughout the 5 in 30 sampling period, with the exception of 5 parameters occurring at different locations. Those include pH, dissolved aluminum, iron and sulphate, and total suspended solids. The majority of the parameters observed above WQG's were collected from the Lower Wetland Outlet (LWO) (4 out of 6), Appendix I, Table 3.

In addition to the aforementioned monitoring, the Quinsam Environmental Department sampled 10 groundwater wells, 2 underground sumps and 2 dewatering wells and conducted routine inspections and completed any required maintenance of the water management structures.

NON-COMPLIANCE EVENTS:

Refer to Appendix I, Table 2 for a summary of missing samples and explanation.

RECEIVING ENVIRONMENT WATER QUALITY:

Preamble – Water Hardness

For the purposes of this report, the water quality guideline(s) (WQG) for hardness dependent parameters has been derived using site appropriate background values (i.e. monitoring location WA hardness ~30mg/L). Quinsam Coal has adopted this approach for the Iron River to provide a conservative comparison of receiving environment water quality.

PRECIPITATION

The amount of precipitation accumulated this quarter was 70.2 mm, occurring mostly in June (42.3mm). This data is shown in Appendix I, Table 34. The receiving environment monitoring program followed the 5 samples in 30 days schedule with sampling events spanning April 4th through May 9th, indicating the "*spring freshet*" did not occur during this monitoring period.

LAKES

Lake sampling commenced April 11th following the 5 samples in 30 days approach. This program included No Name Lake (NNL), Long Lake (LLM), Middle Quinsam Lake (MQL) and Lower Quinsam Lake (LQL). Appendix I, Table 35 displays the depth profiling and field results with Tables 36 through 51 displaying the water quality results compared to guidelines.

Table 1: Summary of Water Quality Guideline Observation for Lakes

SUMMARY OF WATER QUALITY GUIDELINE OBSERVATIONS AT RECEIVING MONITORING LOCATIONS - Q1						
EMS ID & Site Name	Parameter (mg/L or pH Units)	Guideline Limit	Result	Date	Guideline	Sampling Events Exceeding Guideline
E217018 - No Name Lake (NNL) 6-12 metres	pH	6.5	6.30 - 6.49	Spring 5 in 30	Min	(17) Depths profiled during spring
E206619 - Long Lake Middle (LLM) 1metre from bottom	SO4-D	128	130	Spring 5 in 30	A	Spring 5 in 30
Min = Minimum Water Quality Guidline (WQG) M= Maximum WQG, A= Average						
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.						

Noteworthy observations resulting from the lake monitoring program include:

- Average sulphate concentrations were measured at or below the water quality guideline (128 mg/L) in 3 out of 4 lakes with Long Lake exceeding guideline at depth.
- Average sulphate concentrations resulted in 130 mg/L at 1 metre from bottom (1mb), respectively on Long Lake during spring sampling.
- Sulphate in Middle Quinsam Lake remained well below guideline levels with 5 in 30 average at 1mb resulting in 55.6 mg/L.
- No Name Lake experience reduced pH exceedances where the minimum guideline of 6.5 was not meet.
- No exceedances were observed in Middle and Lower Quinsam Lakes during spring.

STREAMS AND RIVERS

The 5 samples in 30 days receiving environment program at river and stream sites commenced April 4th and concluded May 9th. Appendix I, Tables 52 through 62 display water quality results from this program compared to water quality guidelines for the Middle Quinsam Lake Sub-basin and Iron River.

Monitoring stations captured within the Middle Quinsam Lake sub-basin include:

- Middle Quinsam Lake Inlet (WA),
- Middle Quinsam Lake Outlet (WB),
- No Name Lake Outlet (NNO),
- Long Lake Outlet (LLO),
- Quinsam River Downstream 1 (QRDS1),
- 7-South Quinsam River (7SQR),
- Lower Wetland Outlet (LWO), and
- Quinsam River downstream of the confluence with Iron River (IRQR).

Monitoring stations on the Iron River include:

- Iron River Upstream of Mining Operations (IR1),
- Iron River Upstream of future 7-South Area 5 development (IR6), and
- Iron River above the confluence with Quinsam River (IR8).

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 are not considered receiving environment sites but are provided in this table for comparison purposes only.

Table 2: Summary of Guideline Observations for LLE, LWO, LLS Rivers and Streams

SUMMARY OF WATER QUALITY GUIDELINE OBSERVATIONS AT RECEIVING MONITORING LOCATIONS - Q1						
EMS ID & Site Name	**Parameter (mg/L or pH Units)**	**Guideline Limit**	**Result**	**Date**	**Guideline**	**Sampling Events Exceeding Guideline**
E292112 - Lower Wetland Outlet (LWO)	TSS	5	6.5	Spring 5 in 30	A	Spring 5 in 30
	Al-D	0.05	0.090	Spring 5 in 30	A	Spring 5 in 30
		0.1	0.106, 0.111 and 0.129	Arp. 18 through May 9	M	(3/5) Weekly samples collected in spring
	Fe-D	0.35	0.54	May 1st	M	(1/5) Weekly samples collected in spring
E297232 - Iron River Downstream of 7SA5 (IR8)	As-T	0.005	0.009	June 20th	M	1 Monthly sampling event in June
E292130 - South end water entering Long Lake (LLE)	Fe-D	0.35	0.424 and 0.985	Apr 1st and Jun 11th	M	(2/3) Monthly sampling events
	Fe-T	1.00	1.05	Jun 11th	M	(1/3) Monthly sampling event in June
E292131- Seeps into Long lake (LLS)	Fe-D	0.35	1.10, 1.04 and 1.21	Apr 1st, May 6th and Jun 11th	M	(3/3) Monthly sampling events
E292131- Seeps into Long lake (LLM)			0.401 and 0.783	Apr 1st and Jun 11th	M	(2/3) Monthly sampling events
E292131- Seeps into Long lake (LLS)	Fe-T	1	1.16 and 1.26	May 6th and Jun 11th	M	(2/3) Monthly sampling events
Min = Minimum Water Quality Guidline (WQG) M= Maximum WQG, A= 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.						

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

- The water quality at most stations remained below guideline levels during the spring sampling events; one exceedance occurred on the Iron River at location IR8 for arsenic.

- There were no water quality guideline exceedances on the Quinsam River this quarter.

Noteworthy observations resulting from the wetland monitoring locations included:

- Both LLE and LWO display elevated concentrations of iron
- LWO has naturally elevated concentrations of metals (Al-D and Fe) and TSS
- Peak sulphate concentrations at LLE are observed with decreased flow

GROUNDWATER

Groundwater wells are categorized as either 'in-situ' or 'ex-situ'; the definition for each is as follows:

- In-situ: groundwater wells located within the mine workings (disturbance footprint) and therefore represent water accumulated within the mining void. In the absence of groundwater well samples, underground sump samples are used for comparison.
- Ex-situ: groundwater wells located outside the mine workings (disturbance footprint) which reflect water quality flowing from the mine void towards the receiving environment. This also includes baseline and background (up-gradient of workings) groundwater wells.

The groundwater wells outside the mine footprint (ex-situ) are compared to the British Columbia Contaminated Site Regulation (CSR) (BC reg.37/96. O.C. 1480/96), including the amendments (343/2008 January 1, 2009) describing water quality standards for fresh water Aquatic Life (AW). The aquatic life standard assumes that a minimum 1:10 dilution is available for groundwater discharged to a freshwater system; together, they are referred to as CSR-AW.

Through Q1, 6 ex-situ groundwater wells, 5 in-situ groundwater wells and 2 underground sumps and the 7-South Portal sump were monitored. Appendix 1, Tables 66 and 65 provide the results of the groundwater chemistry.
Exceedances of the CSR-AW in ex-situ groundwater were observed for dissolved concentrations of arsenic, sulphate and sulphide as H_2S as displayed in Table 3 below. Arsenic is naturally elevated in the groundwater and is associated with preached water tables interacting with the Dunsmuir sandstone. This has been observed in baseline groundwater monitoring. Elevated sulphate concentrations observed in MW002 are related to the 3-South pit PAG-CCR storage facility. This groundwater monitoring well is situated next to the 3 South pit.

Table 3: Summary of Parameters above CSR-AW in Ex-Situ Groundwater

Ex-situ								
Area			2-North		4-South		2-South	3-South Pit
Groundwater well			QU0821GS	QU0821GD	QU1009S	QU1009D	MW1224	MW002
Parameter	Units	CSR-AW						
SO4-D	mg/L	1000						1300
As-D	mg/L	0.05	0.186	0.109	0.0722	0.0993		
H2SEquiv	mg/L	0.02				0.106	0.0638	

Long Lake Seep Passive Treatment (LLSPT) System and 2-South Pit

The treatment system was operational from April to present. The gasket at the well head (INF) required repair and was replaced in late March. The treatment system has been operating at 4 liters per second for the quarter. All treated water from the treatment system pond, Sulphide Polishing Cell (SPC-EFF) has been directed into the 2-South PAG-CCR facility in order to maintain a 1.0 metre water cover over the PAG-CCR during times of low precipitation. The water cover in 2S pit overflows to 3S where it is pumped to Settling Pond #1 during fall and winter periods or circulated back to 2S from 3S during the dry periods. The valve to circulate the 3-South water back to 2-South pit was opened on May 9th, 2019. No water was directed to SPD from 3-South after this date during Q1.

Average concentrations of dissolved sulphate have been entering the system from the 2-South mine pool measured at INF resulting in 564 mg/L and leaving the system at SPCEFF resulting in 273 mg/L. This has led to a reduction in average sulphate concentrations of 291 mg/L. The station 2-South Inflow (2SI), receives the treatment system water, had an average sulphate concentration of 224 mg/L for the quarter. Overall average sulphate reduction of 340 mg/L was experienced.

The Treatment system will continue to operate as it aids in maintaining water cover over the PAG-CCR in 2-South pit and reduces discharge at the Middle Seep into Long Lake during low flow periods, 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 LLSTS will continue and includes the 2-South and 3-South systems and groundwater well MW004. A relationship between MW004, Seep flow and the elevation of the mine pool at the INF location is currently being developed. This will be presented in the next quarterly report and should provide further insight on flow rates and mine pool elevations in relationship to seep flow. This relationship was established previously; however, the new pump installation has changed certain conditions in the VFD control room with respect to the water height and pump elevation.

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.

CONCLUSION:

Quinsam Coal is dedicated to reducing the environmental impacts as a result of mining on the environment. Overall, there were no permit limit exceedances and few provincial water quality guideline exceedances on site and in the receiving environment this quarter. This exemplifies that the environmental management practices employed by the environmental department are effective in reducing environmental impacts to the surrounding environment. 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.

Appendix I

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Table 1
Q1 Report 2019

	A	B	C	D
1	**Description of Effluent, In-Mine Releases & Receiving Environment Monitoring Sites**			
2	**EMS ID #**	**Monitoring Sites**	**Abbreviation (Station Code)**	***Type of Water (MW, FW or GW)**
3		**North Coal Mining Operation**		
4	E207409	Settling Pond #4 Decant	WD	**Discharge (MW)**
5	E207411	Culvert, at Middle Quinsam Lake Road	WC	MW & FW
6	E283433	2-North Portal Sump (Adit Sump)	2NPS	MW
7	E207412	2-North Pit Sump CCR Cover	WP	PAG-CCR Water Cover - MW
8	E292126	South Dyke Sump	SDS	MW
9		**South Coal Mine**		
10	E218582	Settling Pond #1 Decant	SPD	**Discharge (MW)**
11	E217014	Culvert, Downstream End at Access Road	SPC	MW & FW
12	E217015	South Pit Main Sump Water	3S	PAG-CCR Water Cover (MW & FW)
13	E292127	2-South Pit In Pit Water Cover (2-South Standpipe)	2S	PAG-CCR Water Cover (MW & FW)
14	E292128	1977 Bulk Sample Pit	3S77	MW & FW
15	E292129	Culvert Downstream of 4 South Access Road	4S-Lo	**MW & FW**
16		**7-South Mining Operation**		
17	E292069	7-South Surface Decant	7SSD	**Discharge (MW & FW)**
18	E292110	7-South Adit Sump	7SPS	MW
19		**Seep Monitoring Sites**		
20	E292131	Long Lake Seeps	LLS & LLSM	MW
21		Groundwater surface near road entering MQL (PDSR)	PDSR	GW & MW
22		**Receiving Environment Monitoring Sites - Initial Zone of Dilution (IDZ)**		
23	**Initial Dilution Zone (IDZ) Monitoring Sites**			
24	E292130	Long Lake Entrance (South end water entering Long Lake)	LLE	IDZ
25	E292109	Road Crossing Bridge on Stream 1 above the Lower Wetland (Downstream of 7SSD).The site name is Stream 1, 7S.	7S	IDZ
26		**Receiving Water (Streams & Lakes Monitoring Sites) 5 in 30 Monitoring Locations**		
27	**North Coal Mining Operation**			
28	E0126402	Quinsam River at Argonaut Road	WA	FW
29	E206618	Middle Quinsam Lake Centre	MQL 1, 4, 9 & 1m from Bottom)	FW
30	E0900504	Outflow from Middle Quinsam Lake	WB	FW
31	**South Coal Mine**			
32	E217018	No Name Lake	NNL(1, 4, 9 & 1m from Bottom)	FW
33	E217017	No Name Lake Outlet	NNO	FW
34	E206619	Long Lake at Centre	LLM (1, 4, 9 & 1m from Bottom)	FW
35	E219412	Long Lake Outlet	LLO	FW
36	**7-South Mining Operation (Areas 1 to 4)**			
37	E286930	Quinsam River Upstream of 7-South Mining Operation	QRDS1	FW
38	E292113	Quinsam River Downstream of 7-South Mining Operation	7SQR	FW
39	E292112	Lower Wetland Outlet at the confluence of the Quinsam River	LWO	FW
40	E292118	Lower Quinsam Lake Centre	LQL (1, 4, 9 & 1m from Bottom)	FW
41	**7-South (Proposed) Area 5 Mining Operation**			
42	E297230	Iron River upstream of mining operations	IR1	FW
43	E297231	Iron River upstream of 7SA5	IR6	FW
44	E297232	Iron River downstream of 7SA5 and 242 inputs	IR8	FW
45	E299256	Quinsam River downstream of confluence with Iron River	IRQR	FW
46	E292118	Lower Quinsam Lake Centre	LQL (1, 4, 9 & 1m from Bottom)	FW
47	**Long Lake Seep Passive Treatment System**			
48	N/A	Groundwater well (2-South Mine Pool) influent to the treatment system	QU11-11 (INF-EFF)	MW
49	N/A	Bio Cell Reactor	BCR-EFF	MW
50	N/A	Sulphide Polishing Cell	SPC-EFF	MW
51	N/A	2-South Inflow From Treatment System	2SI	MW/FW
52	*** MW= Mine Water, FW= Freshwater, GW =Groundwater IDZ = Intial Dilution Zone**			

Table 2
Q1 Report 2019

SUMMARY OF PERMIT NON-COMPLIANCES Q1 2019

EMS ID & Site Name	Permit Limit Exceedance (P) or Non-Compliance (PNC)		Result (mg/L)	Requirement	Date	Non-Compliance Reason	Number of events or period for PNC, P or spill event.
E218582 - Settling Pond #1 (SPD) & E207409 - Settling Pond #4 (WD)	**PNC**	TSS	No Results	Daily composite TSS	April 29, 30 and May 1	Samples were collected and submitted to the analytical labortory but due to bankrupcy the results were not released. Confirmation for reciept of samples report number B933108.	Missing (6) daily composite TSS samples.
E207409 -Settling Pond #4 (WD)	**PNC**	Dissloved Sulphate	No Results	Weekly	June 3rd	Manaditory holidays for all employees	(1/13) required weekly samples.
E292130 - South end water entering Long Lake (LLE)	**PNC**	Dissloved Sulphate	No Results	Weekly	June 3rd	Manaditory holidays for all employees	(1/13) required weekly samples.
E219412 - Long Lake Outlet (LLO)	**PNC**	Dissloved Sulphate	No Results	Weekly	June 3rd	Manaditory holidays for all employees	(1/13) required weekly samples.
Site wide (E207409-WD, E207411-WC, E207412-WP, E283433-2NPS, E218582-SPD, E217015-3S,E292127-2S, E292128-3S77 and E292130-LLE)	**PNC**	Weekly pH/ Conductivity	No Results	Weekly	June 3rd	Manaditory holidays for all employees	(1/13) required weekly results for each site.
Receiving environment sites (E0126402-WA, E0900504 -WB, E286930-QRDS1, E219412 -LLO, E217017-NNO and E292112 -LWO)	**PNC**	Dissloved Sulphate	No Results	Weekly for 5 weeks during spring	April 10th and 11th	Samples were collected and submitted to the analytical labortory. Dissolved sulphate was not reported due to labortory error.	(1/5) required weekly results for each site.
E217018- NNL1, E206619-LLM1, E206618-MQL1 and E292118 -LQL1	**PNC**	Chlorophyll "A" and Species Count and ID	No Results for species count and ID for all lakes. No results for Chlorophyll "A" for MQL1 and LQL1.	One set during Spring	Spring	Samples were collected and submitted to the analytical labortory but due to bankrupcy the results were not released. B932613- No Name Lake: Species count and ID for Phytoplankton, B932610- Long Lake: Species count and ID for Phytoplankton B935003- Middle Quinsam Lake: Chlorophyll, Species count and ID for Phytoplankton B935390- Lower Quinsam Lake: Chlorophyll and Species count and ID for Phytoplankton	(1) Species Count and ID per lake. (1) Chlorophyll "A" sample for MQL1 and LQL1.

Table 3
Q1 Report 2019

SUMMARY OF WATER QUALITY GUIDELINE OBSERVATIONS AT RECEIVING MONITORING LOCATIONS - Q1						
EMS ID & Site Name	**Parameter (mg/L or pH Units)**	**Guideline Limit**	**Result**	**Date**	**Guideline**	**Sampling Events Exceeding Guideline**
E217018 - No Name Lake (NNL) 6-12 metres	pH	6.5	6.30 - 6.49	Spring 5 in 30	Min	(17) Depths profiled during spring
E206619 - Long Lake Middle (LLM) 1metre from bottom	SO4-D	128	130	Spring 5 in 30	A	Spring 5 in 30
E292112 - Lower Wetland Outlet (LWO)	TSS	5	6.5	Spring 5 in 30	A	Spring 5 in 30
	Al-D	0.05	0.090	Spring 5 in 30	A	Spring 5 in 30
		0.1	0.106, 0.111 and 0.129	Arp. 18 through May 9	M	(3/5) Weekly samples collected in spring
	Fe-D	0.35	0.54	May 1st	M	(1/5) Weekly samples collected in spring
E297232 - Iron River Downstream of 7SA5 (IR8)	As-T	0.005	0.009	June 20th	M	1 Monthly sampling event in June
E292130 - South end water entering Long Lake (LLE)	Fe-D	0.35	0.424 and 0.985	Apr 1st and Jun 11th	M	(2/3) Monthly sampling events
	Fe-T	1.00	1.05	Jun 11th	M	(1/3) Monthly sampling event in June
E292131- Seeps into Long lake (LLS)	Fe-D	0.35	1.10, 1.04 and 1.21	Apr 1st, May 6th and Jun 11th	M	(3/3) Monthly sampling events
E292131- Seeps into Long lake (LLM)			0.401 and 0.783	Apr 1st and Jun 11th	M	(2/3) Monthly sampling events
E292131- Seeps into Long lake (LLS)	Fe-T	1	1.16 and 1.26	May 6th and Jun 11th	M	(2/3) Monthly sampling events

Min = Minimum Water Quality Guidline (WQG) M= Maximum WQG, A= 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
Q1 Report 2019

EMS ID		E207409												
Site Description		Settling Pond #4		Permitted Decant for the North Mining Operation										
Site Name		WD												
Date		1-Apr-19	8-Apr-19	15-Apr-19	23-Apr-19	6-May-19	14-May-19	21-May-19	27-May-19	3-Jun-19	11-Jun-19	17-Jun-19	25-Jun-19	Permit Limit
Parameter	Unit													North
SO4-D	mg/L	778	620	531	435	437	486	416	580	PNC	789	856	870	-
TSS	mg/L	<4.0	<4.0	5.1	7.2	2.3	<4.0	1.9	<1.0	5.2	4.8	<4.0	<4.0	25
Alk-T	mg/L	448				479					280			-
Acidity 8.3	mg/L	12.5				1.1					2.4			-
Al-T	mg/L	0.0037				0.0062					0.0094			-
As-T	mg/L	0.00345				0.00271					0.00099			-
Ba-T	mg/L	0.0229				0.0211					0.0213			-
B-T	mg/L	1.04				0.959					0.731			-
Cd-T	mg/L	<0.000010				<0.000010					<0.000010			-
Ca-T	mg/L	153				108					188			-
Cr-T	mg/L	<0.0010				<0.0010					<0.0010			-
Co-T	mg/L	0.00027				<0.00020					<0.00020			-
Cu-T	mg/L	0.00107				<0.00050					0.00085			-
Hard-T	mg/L	449				314					565			-
Fe-T	mg/L	1.74				0.712					0.191			-
Pb-T	mg/L	<0.00020				<0.00020					<0.00020			-
Mg-T	mg/L	15.9				10.5					23.2			-
Mn-T	mg/L	0.354				0.139					0.0257			-
Hg-T	mg/L	<0.0000020				<0.0000020					<0.0000020			-
Mo-T	mg/L	<0.0010				<0.0010					<0.0010			-
Ni-T	mg/L	0.0011				<0.0010					0.0012			-
K-T	mg/L	4.67				3.95					3.60			-
S-T	mg/L	294				179					276			-
Se-T	mg/L	<0.00010				<0.00010					<0.00010			-
Si-T	mg/L	3.51				3.04					2.25			-
Ag-T	mg/L	<0.000020				<0.000020					<0.000020			-
Na-T	mg/L	390				280					251			-
Sr-T	mg/L	1.43				1.09					1.60			-
Zn-T	mg/L	0.0057				<0.0050					<0.0050			-
Al-D	mg/L	<0.0030				0.0098					<0.0030			0.5
As-D	mg/L	0.00164				0.00139					0.00082			-
Ba-D	mg/L	0.0211				0.0196					0.0196			-
B-D	mg/L	1.01				0.954					0.873			-
Be-D	mg/L	<0.00010				<0.00010					<0.00010			-
Cd-D	mg/L	<0.0000050				<0.0000050					<0.0000050			-
Ca-D	mg/L	150				107					204			-
Cr-D	mg/L	<0.0010				<0.0010					<0.0010			-
Co-D	mg/L	0.00029				<0.00020					<0.00020			-
Cu-D	mg/L	<0.00020				<0.00020					0.00048			0.02
Hard-D	mg/L	440				311					609			-
Fe-D	mg/L	0.0139				<0.0050					0.0282			0.3
Pb-D	mg/L	<0.00020				<0.00020					<0.00020			0.05
Mg-D	mg/L	15.5				10.5					24.1			-
Mn-D	mg/L	0.359				0.133					0.0166			-
Hg-D	mg/L	<0.0000020				<0.0000020					<0.0000020			-
Mo-D	mg/L	<0.0010				<0.0010					<0.0010			-
Ni-D	mg/L	0.0010				<0.0010					0.0011			-
K-D	mg/L	4.64				4.06					3.93			-
S-D	mg/L	284				175					311			-
Se-D	mg/L	<0.00010				<0.00010					<0.00010			-
Si-D	mg/L	3.42				2.95					2.56			-
Na-D	mg/L	392				281					271			-
Sr-D	mg/L	1.40				1.05					1.59			-
Zn-D	mg/L	<0.0050				<0.0050					<0.0050			0.1
O&G	mg/L	<1.0									<5.0			10

Table 5
Q1 Report 2019

EMS ID		E207412		
Site Description		2-North Pit Sump (WP) CCR Water Cover		
Site Name		WP		
Date		1-Apr-19	6-May-19	11-Jun-19
Parameter	Unit			
SO4-D	mg/L	697	664	599
TSS	mg/L	<16	<4.0	<4.0
Alk-T	mg/L	300	264	240
Acidity83	mg/L	3.4	<1.0	<1.0
Al-T	mg/L	0.0452	0.0177	0.0368
As-T	mg/L	0.00091	0.00083	0.00079
Ba-T	mg/L	0.0198	0.0175	0.0162
B-T	mg/L	0.806	0.794	0.775
Cd-T	mg/L	<0.000010	<0.000010	<0.000010
Ca-T	mg/L	145	116	87.3
Cr-T	mg/L	<0.0010	<0.0010	<0.0010
Co-T	mg/L	0.00097	<0.00020	<0.00020
Cu-T	mg/L	0.00132	<0.00050	0.00095
Hard-T	mg/L	441	354	285
Fe-T	mg/L	0.207	0.056	0.118
Pb-T	mg/L	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	19.5	15.6	16.3
Mn-T	mg/L	0.0639	0.0131	0.0132
Hg-T	mg/L	<0.0000020	<0.0000020	<0.0000020
Mo-T	mg/L	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	0.0038	0.0015	<0.0010
K-T	mg/L	3.73	3.94	3.69
S-T	mg/L	268	244	210
Se-T	mg/L	<0.00010	<0.00010	<0.00010
Si-T	mg/L	2.94	2.35	1.87
Ag-T	mg/L	<0.000020	<0.000020	<0.000020
Na-T	mg/L	290	255	271
Sr-T	mg/L	1.33	1.28	1.09
Zn-T	mg/L	<0.0050	<0.0050	<0.0050
Al-D	mg/L	0.0038	0.0056	0.0034
As-D	mg/L	0.00065	0.00062	0.00063
Ba-D	mg/L	0.0181	0.0174	0.0168
B-D	mg/L	0.8	0.838	0.97
Be-D	mg/L	<0.00010	<0.00010	<0.00010
Cd-D	mg/L	<0.0000050	<0.0000050	<0.0000050
Ca-D	mg/L	146	115	96.7
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	0.00075	<0.00020	<0.00020
Cu-D	mg/L	0.00032	0.00029	0.00047
Hard-D	mg/L	447	356	315
Fe-D	mg/L	0.0071	0.0066	0.0127
Pb-D	mg/L	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	20	16.5	17.8
Mn-D	mg/L	0.0544	0.0103	0.0032
Hg-D	mg/L	<0.0000020	<0.0000020	<0.0000020
Mo-D	mg/L	<0.0010	<0.0010	<0.0010
Ni-D	mg/L	0.0037	0.0016	<0.0010
K-D	mg/L	3.72	3.95	4.08
S-D	mg/L	260	243	240
Se-D	mg/L	<0.00010	<0.00010	<0.00010
Si-D	mg/L	2.93	2.28	2.11
Na-D	mg/L	285	260	294
Sr-D	mg/L	1.25	1.3	1.14
Zn-D	mg/L	<0.0050	<0.0050	<0.0050

Table 6
Q1 Report 2019

EMS ID		E283433		
Site Description		2-North Portal Sump Effluent		
Site Name		2NPS		
Date		1-Apr-19	6-May-19	11-Jun-19
Parameter	Unit			
SO4-D	mg/L	933	1010	1040
Alk-T	mg/L	293	311	360
Acidity83	mg/L	13.0	7.5	8.8
Al-T	mg/L	0.0488	0.051	0.0171
As-T	mg/L	0.00077	0.00082	0.00053
Ba-T	mg/L	0.012	0.0129	0.011
B-T	mg/L	0.784	0.76	0.79
Cd-T	mg/L	<0.000010	<0.000020	<0.000020
Ca-T	mg/L	273	276	298
Cr-T	mg/L	<0.0010	<0.0020	<0.0020
Co-T	mg/L	0.00112	0.00097	0.00068
Cu-T	mg/L	<0.00050	<0.0010	<0.0010
Hard-T	mg/L	804	798	861
Fe-T	mg/L	0.256	0.262	0.145
Pb-T	mg/L	<0.00020	<0.00040	<0.00040
Mg-T	mg/L	29.6	26.6	28.3
Mn-T	mg/L	0.203	0.188	0.154
Hg-T	mg/L	<0.0000020	<0.0000020	<0.0000020
Mo-T	mg/L	<0.0010	<0.0020	<0.0020
Ni-T	mg/L	0.0032	0.0026	<0.0020
K-T	mg/L	4.02	3.93	4.52
S-T	mg/L	366	357	350
Se-T	mg/L	<0.00010	<0.00020	<0.00020
Si-T	mg/L	3.31	3.29	3.71
Ag-T	mg/L	<0.000020	<0.000040	<0.000040
Na-T	mg/L	242	202	245
Sr-T	mg/L	1.88	2.03	2.1
Zn-T	mg/L	<0.0050	<0.010	<0.010
Al-D	mg/L	0.0085	0.0104	0.0079
As-D	mg/L	0.00055	0.00057	0.00043
Ba-D	mg/L	0.0115	0.0125	0.0116
B-D	mg/L	0.764	0.81	0.95
Be-D	mg/L	<0.00010	<0.00020	<0.00020
Cd-D	mg/L	0.0000070	<0.000010	<0.000010
Ca-D	mg/L	270	266	319
Cr-D	mg/L	<0.0010	<0.0020	<0.0020
Co-D	mg/L	0.0011	0.00086	<0.00040
Cu-D	mg/L	<0.00020	<0.00040	<0.00040
Hard-D	mg/L	788	772	920
Fe-D	mg/L	0.0166	<0.010	0.06
Pb-D	mg/L	<0.00020	<0.00040	<0.00040
Mg-D	mg/L	27.8	26.1	30
Mn-D	mg/L	0.197	0.186	0.126
Hg-D	mg/L	<0.0000020	<0.0000020	<0.0000020
Mo-D	mg/L	<0.0010	<0.0020	<0.0020
Ni-D	mg/L	0.0029	0.0025	<0.0020
K-D	mg/L	3.76	3.94	4.89
S-D	mg/L	338	348	397
Se-D	mg/L	<0.00010	<0.00020	<0.00020
Si-D	mg/L	3.17	3.13	4.33
Na-D	mg/L	226	208	271
Sr-D	mg/L	1.82	2.01	2.16
Zn-D	mg/L	<0.0050	<0.010	<0.010

Table 7
Q1 Report 2019

EMS ID		E207411						
Site Description		Culvert at Middle Quinsam Lake Road						
Site Name		WC						
Date		1-Apr-19	15-Apr-19	6-May-19	14-May-19	27-May-19	11-Jun-19	25-Jun-19
Parameter	Unit							
SO4-D	mg/L	726		468			681	
TSS	mg/L	<16	<4.0	<4.0	<1.0	<1.0	<4.0	1.7
Al-T	mg/L	0.003					0.005	
As-T	mg/L	0.0008					0.00084	
Ba-T	mg/L	0.0209					0.0264	
B-T	mg/L	1.08					0.814	
Cd-T	mg/L	<0.000010					<0.000010	
Ca-T	mg/L	149					123	
Cr-T	mg/L	<0.0010					<0.0010	
Co-T	mg/L	<0.00020					0.00024	
Cu-T	mg/L	0.00053					<0.00050	
Hard-T	mg/L	436					379	
Fe-T	mg/L	0.229					0.137	
Pb-T	mg/L	<0.00020					<0.00020	
Mg-T	mg/L	15.8					17.6	
Mn-T	mg/L	0.0598					0.0276	
Hg-T	mg/L	<0.0000020					<0.0000020	
Mo-T	mg/L	<0.0010					<0.0010	
Ni-T	mg/L	0.0011					0.0012	
K-T	mg/L	4.64					3.67	
S-T	mg/L	285					232	
Se-T	mg/L	<0.00010					<0.00010	
Si-T	mg/L	3.49					3.4	
Ag-T	mg/L	<0.000020					<0.000020	
Na-T	mg/L	387					264	
Sr-T	mg/L	1.43					1.35	
Zn-T	mg/L	<0.0050					<0.0050	
Al-D	mg/L	<0.0030					0.0031	
As-D	mg/L	0.00066					0.00086	
Ba-D	mg/L	0.0203					0.0263	
B-D	mg/L	1.05					0.973	
Be-D	mg/L	<0.00010					<0.00010	
Cd-D	mg/L	<0.0000050					<0.0000050	
Ca-D	mg/L	137					131	
Cr-D	mg/L	<0.0010					<0.0010	
Co-D	mg/L	<0.00020					0.00021	
Cu-D	mg/L	0.00025					0.00036	
Hard-D	mg/L	405					405	
Fe-D	mg/L	0.0155					0.0698	
Pb-D	mg/L	<0.00020					<0.00020	
Mg-D	mg/L	15.2					18.8	
Mn-D	mg/L	0.0605					0.0282	
Hg-D	mg/L	<0.0000020					<0.0000020	
Mo-D	mg/L	<0.0010					<0.0010	
Ni-D	mg/L	0.0012					0.0011	
K-D	mg/L	4.51					3.95	
S-D	mg/L	280					261	
Se-D	mg/L	<0.00010					<0.00010	
Si-D	mg/L	3.16					3.97	
Na-D	mg/L	372					288	
Sr-D	mg/L	1.42					1.4	
Zn-D	mg/L	<0.0050					<0.0050	

Table 8
Q1 Report 2019

EMS ID		E292126
Site Description		South Dyke Sump - Collects seepage from tailings dam
Site Name		SDS
Date		
Parameter	Unit	April through June
SO4-D	mg/L	All water is pumped into 2-North mine pool at 3-Mains
Alk-T	mg/L	
Acidity83	mg/L	
Al-T	mg/L	
As-T	mg/L	
Ba-T	mg/L	
B-T	mg/L	
Cd-T	mg/L	
Ca-T	mg/L	
Cr-T	mg/L	
Co-T	mg/L	
Cu-T	mg/L	
Hard-T	mg/L	
Fe-T	mg/L	
Pb-T	mg/L	
Mg-T	mg/L	
Mn-T	mg/L	
Hg-T	mg/L	
Mo-T	mg/L	
Ni-T	mg/L	
K-T	mg/L	
S-T	mg/L	
Se-T	mg/L	
Si-T	mg/L	
Ag-T	mg/L	
Na-T	mg/L	
Sr-T	mg/L	
Zn-T	mg/L	
Al-D	mg/L	
As-D	mg/L	
Ba-D	mg/L	
B-D	mg/L	
Be-D	mg/L	
Cd-D	mg/L	
Ca-D	mg/L	
Cr-D	mg/L	
Co-D	mg/L	
Cu-D	mg/L	
Hard-D	mg/L	
Fe-D	mg/L	
Pb-D	mg/L	
Mg-D	mg/L	
Mn-D	mg/L	
Hg-D	mg/L	
Mo-D	mg/L	
Ni-D	mg/L	
K-D	mg/L	
S-D	mg/L	
Se-D	mg/L	
Si-D	mg/L	
Na-D	mg/L	
Sr-D	mg/L	
Zn-D	mg/L	

Table 9
Q1 Report 2019

Site Description		Groundwater / Surface Water from 2N Area at Road		
Site Name		PDSR		
Date		1-Apr-19	6-May-19	1-Jun-19
Parameter	Unit			
SO4-D	mg/L	584	635	No Flow
TSS	mg/L	<16	7.6	
Alk-T	mg/L	173	192	
Acidity83	mg/L	5.6	1.2	
Al-T	mg/L	0.088	0.0713	
As-T	mg/L	0.00015	0.0002	
Ba-T	mg/L	0.0251	0.0275	
B-T	mg/L	0.267	0.29	
Cd-T	mg/L	<0.000010	<0.000010	
Ca-T	mg/L	223	223	
Cr-T	mg/L	<0.0010	<0.0010	
Co-T	mg/L	<0.00020	<0.00020	
Cu-T	mg/L	0.00077	0.00053	
Hard-T	mg/L	710	691	
Fe-T	mg/L	0.092	0.08	
Pb-T	mg/L	<0.00020	<0.00020	
Mg-T	mg/L	37.3	32.2	
Mn-T	mg/L	0.0085	0.008	
Hg-T	mg/L	<0.0000020	<0.0000020	
Mo-T	mg/L	<0.0010	<0.0010	
Ni-T	mg/L	<0.0010	<0.0010	
K-T	mg/L	1.58	1.91	
S-T	mg/L	244	232	
Se-T	mg/L	<0.00010	<0.00010	
Si-T	mg/L	3.85	3.65	
Ag-T	mg/L	<0.000020	<0.000020	
Na-T	mg/L	60.9	53	
Sr-T	mg/L	1.43	1.55	
Zn-T	mg/L	<0.0050	<0.0050	
Al-D	mg/L	0.0058	0.0093	
As-D	mg/L	0.00013	0.00016	
Ba-D	mg/L	0.0233	0.0275	
B-D	mg/L	0.246	0.322	
Be-D	mg/L	<0.00010	<0.00010	
Cd-D	mg/L	<0.0000050	<0.0000050	
Ca-D	mg/L	234	231	
Cr-D	mg/L	<0.0010	<0.0010	
Co-D	mg/L	<0.00020	<0.00020	
Cu-D	mg/L	0.00035	0.00036	
Hard-D	mg/L	729	717	
Fe-D	mg/L	<0.0050	0.005	
Pb-D	mg/L	<0.00020	<0.00020	
Mg-D	mg/L	35.1	34.2	
Mn-D	mg/L	0.0022	0.0049	
Hg-D	mg/L	<0.0000020	<0.0000020	
Mo-D	mg/L	<0.0010	<0.0010	
Ni-D	mg/L	<0.0010	<0.0010	
K-D	mg/L	1.61	1.93	
S-D	mg/L	239	238	
Se-D	mg/L	<0.00010	<0.00010	
Si-D	mg/L	3.23	3.73	
Na-D	mg/L	55.7	56	
Sr-D	mg/L	1.39	1.56	
Zn-D	mg/L	<0.0050	<0.0050	

Table 10
Q1 Report 2019

EMS ID		E218582									
Site Description		Settling Pond # 1 - Permitted Decant for South Mining Operation									Permit
Site Name		SPD	(SPD was not discharging from May 13th onward. A beaver dam around the decant obstructed the already low water level)								Limit-South
Date		1-Apr-19	8-Apr-19	15-Apr-19	23-Apr-19	6-May-19	14-May-19	21-May-19	27-May-19	11-Jun-19	
Parameter	Unit										
SO4-D	mg/L	334	193	184	249	269	304	241	320	260	-
TSS	mg/L	<4.0	<4.0	3.8	<4.0	2.0	<4.0	1.9	<4.0	<4.0	**25**
Alk-T	mg/L	90.8				77				58	-
Acidity83	mg/L	2.1				<1.0				1.5	-
Al-T	mg/L	0.0197								0.0092	-
As-T	mg/L	0.0007								0.0016	-
Ba-T	mg/L	0.0128								0.0156	-
B-T	mg/L	0.221								0.174	-
Cd-T	mg/L	<0.000010								<0.000010	-
Ca-T	mg/L	133								108	-
Cr-T	mg/L	<0.0010								<0.0010	-
Co-T	mg/L	0.00022								0.00084	-
Cu-T	mg/L	<0.00050								<0.00050	-
Hard-T	mg/L	407								336	-
Fe-T	mg/L	0.178								0.361	-
Pb-T	mg/L	<0.00020								<0.00020	-
Mg-T	mg/L	18.4								15.9	-
Mn-T	mg/L	0.038								0.165	-
Hg-T	mg/L	<0.0000020								<0.0000020	-
Mo-T	mg/L	<0.0010								<0.0010	-
Ni-T	mg/L	0.0011								0.0024	-
K-T	mg/L	1.34								0.927	-
S-T	mg/L	133								105	-
Se-T	mg/L	<0.00010								<0.00010	-
Si-T	mg/L	2.19								0.69	-
Ag-T	mg/L	<0.000020								<0.000020	-
Na-T	mg/L	19.9								18.3	-
Sr-T	mg/L	0.805								0.691	-
Zn-T	mg/L	<0.0050								<0.0050	-
Al-D	mg/L	0.0057								0.0061	**0.5**
As-D	mg/L	0.00054								0.00147	-
Ba-D	mg/L	0.0121								0.0156	-
B-D	mg/L	0.191								0.224	-
Be-D	mg/L	<0.00010								<0.00010	-
Cd-D	mg/L	<0.0000050								0.000008	-
Ca-D	mg/L	133								118	-
Cr-D	mg/L	<0.0010								<0.0010	-
Co-D	mg/L	<0.00020								0.00076	-
Cu-D	mg/L	0.00031								0.00046	**0.02**
Hard-D	mg/L	399								364	-
Fe-D	mg/L	0.0275								0.205	**0.5**
Pb-D	mg/L	<0.00020								<0.00020	**0.05**
Mg-D	mg/L	16								17	-
Mn-D	mg/L	0.0271								0.152	-
Hg-D	mg/L	<0.0000020								<0.0000020	-
Mo-D	mg/L	<0.0010								<0.0010	-
Ni-D	mg/L	0.0011								0.0021	-
K-D	mg/L	1.19								0.984	-
S-D	mg/L	123								121	-
Se-D	mg/L	<0.00010								<0.00010	-
Si-D	mg/L	2.03								0.81	-
Na-D	mg/L	17.3								20.1	-
Sr-D	mg/L	0.766								0.738	-
Zn-D	mg/L	<0.0050								<0.0050	-
O&G	mg/L	<1.0								<5.0	**0.2**

Table 11
Q1 Report 2019

Site Description		Long Lake Seep Passive Treatment System (LLSPTS) Influent (2-South Mine Pool)			
Site Name	INF	Water is pumped from the underground 2-South Mine Pool into the Biochemical Reactor Cell (BCR)			
Date		April	16-May-19	20-Jun-19	26-Jun-19
Parameter	Unit				
SO4-D	mg/L		<0.0050	<0.0050	600
TSS	mg/L		6.4	8.8	
Alk-T	mg/L		260	250	
Acidity83	mg/L		9.1	8.1	
N-NH3	mg/L		0.061		
N-NO23	mg/L		<0.020	<0.020	
Al-T	mg/L		<0.0030	<0.0060	
As-T	mg/L		0.00325	0.00361	
Ba-T	mg/L		0.0228	0.0236	
B-T	mg/L		0.664	0.77	
Cd-T	mg/L		<0.000010	<0.000020	
Ca-T	mg/L		214	226	
Cr-T	mg/L		<0.0010	<0.0020	
Co-T	mg/L		0.00048	<0.00040	
Cu-T	mg/L		0.00075	0.0017	
Hard-T	mg/L		589	622	
Fe-T	mg/L		3.23	3.64	
P-T	mg/L		<0.0020	<0.0030	
Pb-T	mg/L		<0.00020	<0.00040	
Mg-T	mg/L		13.5	14	
Mn-T	mg/L		0.311	0.384	
Hg-T	mg/L		<0.0000020	0.0000023	
Mo-T	mg/L		<0.0010	<0.0020	
Ni-T	mg/L		<0.0010	<0.0020	
K-T	mg/L		1.82	1.78	
S-T	mg/L		201	210	
Se-T	mg/L		<0.00010	<0.00020	
Si-T	mg/L	LLSPTS was off due to maintenance on the valve at the well head.	3.25	3.35	
Ag-T	mg/L		<0.000020	<0.000040	
Na-T	mg/L		109	113	
Sr-T	mg/L		1.93	2.07	
Zn-T	mg/L		0.0064	<0.010	
Al-D	mg/L		<0.0030	<0.0030	
As-D	mg/L		0.00313	0.00358	
Ba-D	mg/L		0.0222	0.023	
B-D	mg/L		0.733	0.679	
Cd-D	mg/L		<0.0000050	<0.0000050	
Ca-D	mg/L		212	227	
Cr-D	mg/L		<0.0010	<0.0010	
Co-D	mg/L		0.00054	0.00036	
Cu-D	mg/L		<0.00020	<0.00020	
Hard-D	mg/L		584	623	
Fe-D	mg/L		3.23 P	3.53 P	
P-D	mg/L		<0.0020		
Pb-D	mg/L		<0.00020	<0.00020	
Mg-D	mg/L		13.4	13.5	
Mn-D	mg/L		0.318	0.358	
Hg-D	mg/L		<0.0000020	0.0000029	
Mo-D	mg/L		<0.0010	0.0044	
Ni-D	mg/L		<0.0010	<0.0010	
K-D	mg/L		1.76	1.9	
S-D	mg/L		198	217	
Se-D	mg/L		<0.00010	<0.00010	
Si-D	mg/L		3.3	3.43	
Na-D	mg/L		107	104	
Sr-D	mg/L		1.92	2.01	
Zn-D	mg/L		0.0093	<0.0050	

Table 12
Q1 Report 2019

Site Description		Long Lake Seep Passive Treatment System (LLSPTS) Biochemical Reactor			
Site Name		BCREFF	Water is pumped from the underground 2-South Mine Pool into the Biochemical Reactor Cell (BCR)		
Date		April	16-May-19	20-Jun-19	26-Jun-19
Parameter	Unit				
SO4-D	mg/L		212	350	410
TSS	mg/L		7.6	6.9	
Alk-T	mg/L		460	320	
Acidity83	mg/L		14.7	7.5	
N-NH3	mg/L		0.18		
N-NO23	mg/L		0.043	<0.020	
Al-T	mg/L		0.0103	0.0098	
As-T	mg/L		0.00089	0.00045	
Ba-T	mg/L		0.026	0.0289	
B-T	mg/L		0.719	0.81	
Cd-T	mg/L		<0.000010	<0.000020	
Ca-T	mg/L		189	197	
Cr-T	mg/L		<0.0010	<0.0020	
Co-T	mg/L		<0.00020	<0.00040	
Cu-T	mg/L		<0.00050	<0.0010	
Hard-T	mg/L		519	544	
Fe-T	mg/L		<0.010	0.066	
P-T	mg/L		0.0321	<0.030	
Pb-T	mg/L		<0.00020	<0.00040	
Mg-T	mg/L		11.4	12.5	
Mn-T	mg/L		0.202	0.216	
Hg-T	mg/L		<0.000020	<0.0000020	
Mo-T	mg/L		<0.0010	<0.0020	
Ni-T	mg/L		<0.0010	<0.0020	
K-T	mg/L		2.23	2.05	
S-T	mg/L		81.9	134	
Se-T	mg/L		<0.00010	<0.00020	
Si-T	mg/L	LLSPTS was off due to maintenance on the valve at the well head.	5.03	4.46	
Ag-T	mg/L		<0.000020	<0.000040	
Na-T	mg/L		101	106	
Sr-T	mg/L		1.71	1.91	
Zn-T	mg/L		<0.0050	<0.010	
Al-D	mg/L		0.0099	0.0075	
As-D	mg/L		0.00083	0.00037	
Ba-D	mg/L		0.0246	0.0282	
B-D	mg/L		0.73	0.752	
Cd-D	mg/L		<0.000010	<0.0000050	
Ca-D	mg/L		177	192	
Cr-D	mg/L		<0.0020	<0.0010	
Co-D	mg/L		<0.00040	<0.00020	
Cu-D	mg/L		<0.00040	<0.00020	
Hard-D	mg/L		490	529	
Fe-D	mg/L		<0.010	0.0051	
P-D	mg/L		<0.020		
Pb-D	mg/L		<0.00040	<0.00020	
Mg-D	mg/L		11.7	12.2	
Mn-D	mg/L		0.199	0.22	
Hg-D	mg/L		<0.0000020	<0.000040	
Mo-D	mg/L		<0.0020	<0.0010	
Ni-D	mg/L		<0.0020	<0.0010	
K-D	mg/L		2.11	2.09	
S-D	mg/L		283	406	
Se-D	mg/L		0.00214	0.00106	
Si-D	mg/L		4.79	4.35	
Na-D	mg/L		101	106	
Sr-D	mg/L		1.59	1.83	
Zn-D	mg/L		<0.010	<0.0050	

Table 13
Q1 Report 2019

Site Description		Long Lake Seep Passive Treatment System (LLSPTS) Sulphide Polishing Cell			
Site Name	SPCEFF	Water is pumped from the underground 2-South Mine Pool into the Biochemical Reactor Cell (BCR) then passivley flows to SPCEFF			
Date		April	16-May-19	20-Jun-19	26-Jun-19
Parameter	Unit				
SO4-D	mg/L		229	250	340
TSS	mg/L		13.6	13	
Alk-T	mg/L		440	380	
Acidity83	mg/L		10.4	5	
N-NH3	mg/L		0.22		
N-NO23	mg/L		<0.020	<0.020	
Al-T	mg/L		0.0039	0.0062	
As-T	mg/L		0.00402	0.00608	
Ba-T	mg/L		0.0385	0.0568	
B-T	mg/L		0.629	0.8	
Cd-T	mg/L		<0.000010	<0.000020	
Ca-T	mg/L		194	189	
Cr-T	mg/L		<0.0010	<0.0020	
Co-T	mg/L		0.00472	0.00124	
Cu-T	mg/L		0.00198	0.0029	
Hard-T	mg/L		536	519	
Fe-T	mg/L		4.62	4.86	
P-T	mg/L		0.0059	0.011	
Pb-T	mg/L		<0.00020	<0.00040	
Mg-T	mg/L		12.6	11.7	
Mn-T	mg/L		0.936	0.403	
Hg-T	mg/L		<0.0000020	0.0000026	
Mo-T	mg/L		0.0039	0.0027	
Ni-T	mg/L		<0.0010	<0.0020	
K-T	mg/L		1.92	2.14	
S-T	mg/L		91.3	110	
Se-T	mg/L		<0.00010	<0.00020	
Si-T	mg/L	LLSPTS was off due to maintenance on the valve at the well head.	5.97	5.83	
Ag-T	mg/L		<0.000020	<0.000040	
Na-T	mg/L		107	106	
Sr-T	mg/L		1.73	1.77	
Zn-T	mg/L		<0.0050	<0.010	
Al-D	mg/L		0.0036	0.0035	
As-D	mg/L		0.00199	0.00445	
Ba-D	mg/L		0.0348	0.0538	
B-D	mg/L		0.656	0.725	
Cd-D	mg/L		0.000005	<0.0000050	
Ca-D	mg/L		187	189	
Cr-D	mg/L		<0.0010	<0.0010	
Co-D	mg/L		0.00437	0.00111	
Cu-D	mg/L		<0.00020	<0.00020	
Hard-D	mg/L		516	518	
Fe-D	mg/L		0.0775	2.49 P	
P-D	mg/L		<0.0020		
Pb-D	mg/L		<0.00020	<0.00020	
Mg-D	mg/L		12.3	11.2	
Mn-D	mg/L		0.917	0.379	
Hg-D	mg/L		<0.0000020	0.0000027	
Mo-D	mg/L		0.004	0.007	
Ni-D	mg/L		<0.0010	<0.0010	
K-D	mg/L		1.86	2.24	
S-D	mg/L		90	118	
Se-D	mg/L		<0.00010	<0.00010	
Si-D	mg/L		5.61	5.76	
Na-D	mg/L		103	99.5	
Sr-D	mg/L		1.74	1.69	
Zn-D	mg/L		<0.0050	<0.0050	

Table 14
Q1 Report 2019

Site Description		2-South Inflow				
Site Name		2SI	Water from SPCEFF flows into 2-South Pit at the 2-South Inflow			
Date		April	6-May-19	16-May-19	20-Jun-19	26-Jun-19
Parameter	Unit					
SO4-D	mg/L	No Flow	120	201	250	330
TSS	mg/L		<4.0	4.4		
Alk-T	mg/L		70	340		
Acidity83	mg/L		<1.0	1.8		
N-NH3	mg/L			0.11		
N-NO23	mg/L		<0.020	<0.020		
Al-T	mg/L		0.0066	0.0062		
As-T	mg/L		0.00019	0.00109		
Ba-T	mg/L		0.0096	0.0262		
B-T	mg/L		0.097	0.496		
Cd-T	mg/L		<0.000010	<0.000010		
Ca-T	mg/L		54.2	156		
Cr-T	mg/L		<0.0010	<0.0010		
Co-T	mg/L		0.00079	0.00259		
Cu-T	mg/L		0.00062	0.0007		
Hard-T	mg/L		161	437		
Fe-T	mg/L		0.214	1.1		
P-T	mg/L		<0.0030	<0.0020		
Pb-T	mg/L		<0.00020	<0.00020		
Mg-T	mg/L		6.22	11.5		
Mn-T	mg/L		0.213	0.596		
Hg-T	mg/L		<0.0000020	<0.0000020		
Mo-T	mg/L		<0.0010	0.0018		
Ni-T	mg/L		<0.0010	<0.0010		
K-T	mg/L		0.47	1.56		
S-T	mg/L		41.7	84.5		
Se-T	mg/L		<0.00010	<0.00010		
Si-T	mg/L		3.82	5.18		
Ag-T	mg/L		<0.000020	<0.000020		
Na-T	mg/L		10.5	84		
Sr-T	mg/L		0.325	1.25		
Zn-T	mg/L		<0.0050	<0.0050		
Al-D	mg/L		0.0089	0.0042		
As-D	mg/L		0.00016	0.00084		
Ba-D	mg/L		0.0099	0.0252		
B-D	mg/L		0.099	0.56		
Cd-D	mg/L		<0.0000050	0.000005		
Ca-D	mg/L		56.7	155		
Cr-D	mg/L		<0.0010	<0.0010		
Co-D	mg/L		0.00081	0.00253		
Cu-D	mg/L		0.00071	0.00024		
Hard-D	mg/L		168	439		
Fe-D	mg/L		0.319	0.0292		
P-D	mg/L		<0.0030	<0.0020		
Pb-D	mg/L		<0.00020	<0.00020		
Mg-D	mg/L		6.51	12.4		
Mn-D	mg/L		0.214	0.632		
Hg-D	mg/L		<0.0000020	<0.0000020		
Mo-D	mg/L		<0.0010	0.0021		
Ni-D	mg/L		<0.0010	<0.0010		
K-D	mg/L		0.473	1.59		
S-D	mg/L		43.9	87.3		
Se-D	mg/L		<0.00010	<0.00010		
Si-D	mg/L		3.98	5.38		
Na-D	mg/L		10.8	86.2		
Sr-D	mg/L		0.327	1.29		
Zn-D	mg/L		<0.0050	<0.0050		

Table 15
Q1 Report 2019

EMS ID		E292127		
Site Description		2 South Pit in Pit Water Cover (CCR Water Cover)		
Site Name		2S		
Date		1-Apr-19	6-May-19	11-Jun-19
Parameter	Unit			
SO4-D	mg/L	210	248	230
Alk-T	mg/L	95.5	102	82
Acidity83	mg/L	<1.0	<1.0	<1.0
Al-T	mg/L	0.0155	0.0333	0.0133
As-T	mg/L	0.00128	0.00125	0.00111
Ba-T	mg/L	0.0129	0.0158	0.017
B-T	mg/L	0.212	0.216	0.203
Cd-T	mg/L	<0.000010	<0.000010	<0.000010
Ca-T	mg/L	84.7	93	79.9
Cr-T	mg/L	<0.0010	<0.0010	<0.0010
Co-T	mg/L	<0.00020	<0.00020	<0.00020
Cu-T	mg/L	0.00058	0.00079	0.00119
Hard-T	mg/L	255	272	243
Fe-T	mg/L	0.023	0.064	0.015
Pb-T	mg/L	<0.00020	<0.00020	<0.00020
Mg-T	mg/L	10.5	9.76	10.4
Mn-T	mg/L	0.0202	0.0078	0.0164
Hg-T	mg/L	<0.0000020	<0.0000020	<0.0000020
Mo-T	mg/L	<0.0010	<0.0010	<0.0010
Ni-T	mg/L	<0.0010	<0.0010	<0.0010
K-T	mg/L	1.08	1.26	1.33
S-T	mg/L	76.1	80.5	72
Se-T	mg/L	<0.00010	<0.00010	<0.00010
Si-T	mg/L	1.21	1.24	0.7
Ag-T	mg/L	<0.000020	<0.000020	<0.000020
Na-T	mg/L	24	23.1	24.4
Sr-T	mg/L	0.514	0.583	0.514
Zn-T	mg/L	<0.0050	<0.0050	<0.0050
Al-D	mg/L	<0.0030	0.0095	0.0086
As-D	mg/L	0.00115	0.00110	0.00115
Ba-D	mg/L	0.0125	0.0147	0.0168
B-D	mg/L	0.196	0.203	0.249
Cd-D	mg/L	<0.0000050	<0.0000050	<0.0000050
Ca-D	mg/L	84.6	85.8	82.8
Cr-D	mg/L	<0.0010	<0.0010	<0.0010
Co-D	mg/L	<0.00020	<0.00020	<0.00020
Cu-D	mg/L	0.00047	0.00058	0.001
Hard-D	mg/L	250	254	252
Fe-D	mg/L	<0.0050	<0.0050	0.005
Pb-D	mg/L	<0.00020	<0.00020	<0.00020
Mg-D	mg/L	9.52	9.76	11
Mn-D	mg/L	0.0109	0.0011	<0.0010
Hg-D	mg/L	<0.0000020	<0.0000020	<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	1.01	1.2	1.39
S-D	mg/L	75.1	78	78.3
Se-D	mg/L	<0.00010	<0.00010	<0.00010
Si-D	mg/L	1.16	1.14	0.81
Na-D	mg/L	23.1	22.4	26.1
Sr-D	mg/L	0.492	0.558	0.553
Zn-D	mg/L	<0.0050	<0.0050	<0.0050

Table 16
Q1 Report 2019

EMS ID		E217015		
Site Description		3 South Pit Main Water Sump (CCR Water Cover)		
Site Name		3S		
Date		1-Apr-19	6-May-19	11-Jun-19
Parameter	Unit			
SO4-D	mg/L	490	478	502
Alk-T	mg/L	164	154	140
Acidity83	mg/L	2.1	<1.0	1
Al-T	mg/L	0.0185		0.0378
As-T	mg/L	0.00031		0.00049
Ba-T	mg/L	0.0147		0.0161
B-T	mg/L	0.346		0.299
Cd-T	mg/L	<0.000010		<0.000010
Ca-T	mg/L	221		195
Cr-T	mg/L	<0.0010		<0.0010
Co-T	mg/L	<0.00020		<0.00020
Cu-T	mg/L	<0.00050		0.00073
Hard-T	mg/L	667		597
Fe-T	mg/L	0.035		0.091
Pb-T	mg/L	<0.00020		<0.00020
Mg-T	mg/L	27.8		27
Mn-T	mg/L	0.0116		0.0243
Hg-T	mg/L	<0.0000020		<0.0000020
Mo-T	mg/L	<0.0010		<0.0010
Ni-T	mg/L	<0.0010		<0.0010
K-T	mg/L	2.35		2.38
S-T	mg/L	206		176
Se-T	mg/L	0.00012		<0.00010
Si-T	mg/L	1.94		0.37
Ag-T	mg/L	<0.000020		<0.000020
Na-T	mg/L	32.3		32.9
Sr-T	mg/L	1.27		1.24
Zn-T	mg/L	<0.0050		<0.0050
Al-D	mg/L	0.0052		0.0056
As-D	mg/L	0.00031		0.00045
Ba-D	mg/L	0.0145		0.0152
B-D	mg/L	0.335		0.354
Cd-D	mg/L	<0.0000050		0.000009
Ca-D	mg/L	216		202
Cr-D	mg/L	<0.0010		<0.0010
Co-D	mg/L	<0.00020		<0.00020
Cu-D	mg/L	0.0003		0.00064
Hard-D	mg/L	644		621
Fe-D	mg/L	0.0061		0.0176
Pb-D	mg/L	<0.00020		<0.00020
Mg-D	mg/L	25.6		28
Mn-D	mg/L	0.003		0.0073
Hg-D	mg/L	<0.0000020		<0.0000020
Mo-D	mg/L	<0.0010		<0.0010
Ni-D	mg/L	<0.0010		<0.0010
K-D	mg/L	2.37		2.55
S-D	mg/L	195		195
Se-D	mg/L	0.00011		<0.00010
Si-D	mg/L	1.76		0.38
Na-D	mg/L	29		33.4
Sr-D	mg/L	1.27		1.29
Zn-D	mg/L	<0.0050		<0.0050

Table 17
Q1 Report 2019

EMS ID		E292128
Site Description		3 South 77 Adit Pit- Exploration pit from 1977
Site Name		3S77
Date		Apr- Jun
Parameter	Unit	
SO4-D	mg/L	No Discharge
Alk-T	mg/L	
Acidity 8.3	mg/L	
Al-T	mg/L	
As-T	mg/L	
Ba-T	mg/L	
B-T	mg/L	
Cd-T	mg/L	
Ca-T	mg/L	
Cr-T	mg/L	
Co-T	mg/L	
Cu-T	mg/L	
Hard-T	mg/L	
Fe-T	mg/L	
Pb-T	mg/L	
Mg-T	mg/L	
Mn-T	mg/L	
Hg-T	mg/L	
Mo-T	mg/L	
Ni-T	mg/L	
K-T	mg/L	
S-T	mg/L	
Se-T	mg/L	
Si-T	mg/L	
Ag-T	mg/L	
Na-T	mg/L	
Sr-T	mg/L	
Zn-T	mg/L	
Al-D	mg/L	
As-D	mg/L	
Ba-D	mg/L	
B-D	mg/L	
Cd-D	mg/L	
Ca-D	mg/L	
Cr-D	mg/L	
Co-D	mg/L	
Cu-D	mg/L	
Hard-D	mg/L	
Fe-D	mg/L	
Pb-D	mg/L	
Mg-D	mg/L	
Mn-D	mg/L	
Hg-D	mg/L	
Mo-D	mg/L	
Ni-D	mg/L	
K-D	mg/L	
S-D	mg/L	
Se-D	mg/L	
Si-D	mg/L	
Na-D	mg/L	
Sr-D	mg/L	
Zn-D	mg/L	

Table 18
Q1 Report 2019

EMS ID		E292129		
Site Description		4 South Lower- Culvert Dowstream of Access Road		
Site Name		4S-LO		
Date		1-Apr-19	6-May-19	June
Parameter	Unit			
SO4-D	mg/L	134	147	No Flow
Alk-T	mg/L	46.6	51.4	
Acidity83	mg/L	2.3	<1.0	
Al-T	mg/L	0.2140	0.23	
As-T	mg/L	0.00021	0.00025	
Ba-T	mg/L	0.0111	0.0123	
B-T	mg/L	0.137	0.122	
Cd-T	mg/L	0.000013	0.000011	
Ca-T	mg/L	54.3	56.9	
Cr-T	mg/L	<0.0010	<0.0010	
Co-T	mg/L	0.00144	0.00167	
Cu-T	mg/L	<0.00050	<0.00050	
Hard-T	mg/L	165	169	
Fe-T	mg/L	0.953	0.564	
Pb-T	mg/L	<0.00020	<0.00020	
Mg-T	mg/L	7.16	6.64	
Mn-T	mg/L	0.439	0.244	
Hg-T	mg/L	<0.0000020	<0.0000020	
Mo-T	mg/L	<0.0010	<0.0010	
Ni-T	mg/L	0.002	0.002	
K-T	mg/L	0.489	0.589	
S-T	mg/L	52.5	53.9	
Se-T	mg/L	<0.00010	<0.00010	
Si-T	mg/L	3.52	3.48	
Ag-T	mg/L	<0.000020	<0.000020	
Na-T	mg/L	13.4	12.5	
Sr-T	mg/L	0.268	0.312	
Zn-T	mg/L	<0.0050	<0.0050	
Al-D	mg/L	0.0943	0.136	
As-D	mg/L	0.00017	0.00016	
Ba-D	mg/L	0.0104	0.0116	
B-D	mg/L	0.123	0.127	
Cd-D	mg/L	0.000011	0.00001	
Ca-D	mg/L	51.4	56.3	
Cr-D	mg/L	<0.0010	<0.0010	
Co-D	mg/L	0.00134	0.00153	
Cu-D	mg/L	0.00027	0.00025	
Hard-D	mg/L	157	169	
Fe-D	mg/L	0.761	0.322	
Pb-D	mg/L	<0.00020	<0.00020	
Mg-D	mg/L	7.02	6.81	
Mn-D	mg/L	0.424	0.191	
Hg-D	mg/L	<0.0000020	<0.0000020	
Mo-D	mg/L	<0.0010	<0.0010	
Ni-D	mg/L	0.0015	0.0019	
K-D	mg/L	0.469	0.564	
S-D	mg/L	48.9	51.3	
Se-D	mg/L	<0.00010	<0.00010	
Si-D	mg/L	3.1	3.45	
Na-D	mg/L	12.7	12.2	
Sr-D	mg/L	0.258	0.299	
Zn-D	mg/L	<0.0050	<0.0050	

Table 19
Q1 Report 2019

EMS ID		E217014					
Site Description		South Pit Culvert- Culvert, downstream of Settling Pond #1 discharge					
Site Name		SPC					
Date		1-Apr-19	15-Apr-19	6-May-19	14-May-19	27-May-19	1-Jun-18
Parameter	Unit						
SO4-D	mg/L	84.6		138			No Flow
TSS	mg/L	<16	<4.0	14.8	1.1	1.7	
Alk-T	mg/L	29.8		45.5			
Acidity83	mg/L	<1.0		<1.0			
Al-T	mg/L	0.0625					
As-T	mg/L	0.00032					
Ba-T	mg/L	0.0075					
B-T	mg/L	0.062					
Cd-T	mg/L	<0.000010					
Ca-T	mg/L	31.2					
Cr-T	mg/L	<0.0010					
Co-T	mg/L	<0.00020					
Cu-T	mg/L	0.00053					
Hard-T	mg/L	95.8					
Fe-T	mg/L	0.1					
Pb-T	mg/L	<0.00020					
Mg-T	mg/L	4.35					
Mn-T	mg/L	0.0019					
Hg-T	mg/L	0.0000021					
Mo-T	mg/L	<0.0010					
Ni-T	mg/L	<0.0010					
K-T	mg/L	0.335					
S-T	mg/L	27.2					
Se-T	mg/L	<0.00010					
Si-T	mg/L	2.07					
Ag-T	mg/L	<0.000020					
Na-T	mg/L	5.85					
Sr-T	mg/L	0.188					
Zn-T	mg/L	<0.0050					
Al-D	mg/L	0.0507					
As-D	mg/L	0.00027					
Ba-D	mg/L	0.0073					
B-D	mg/L	0.057					
Cd-D	mg/L	<0.0000050					
Ca-D	mg/L	31.1					
Cr-D	mg/L	<0.0010					
Co-D	mg/L	<0.00020					
Cu-D	mg/L	0.00048					
Hard-D	mg/L	95.1					
Fe-D	mg/L	0.0778					
Pb-D	mg/L	<0.00020					
Mg-D	mg/L	4.21					
Mn-D	mg/L	<0.0010					
Hg-D	mg/L	0.0000025					
Mo-D	mg/L	<0.0010					
Ni-D	mg/L	<0.0010					
K-D	mg/L	0.33					
S-D	mg/L	26.8					
Se-D	mg/L	<0.00010					
Si-D	mg/L	1.97					
Na-D	mg/L	5.6					
Sr-D	mg/L	0.177					
Zn-D	mg/L	<0.0050					

Table 20
Q1 Report 2019

EMS ID		E292130												
Site Description		Long Lake Entrance- Last wetland prior to entering Long Lake near the outlet - IDZ												
Site Name		LLE												WQG-Max
Date		01-Apr-2019	08-Apr-2019	15-Apr-2019	23-Apr-2019	06-May-2019	14-May-2019	21-May-2019	27-May-2019	03-Jun-2019	11-Jun-2019	17-Jun-2019	25-Jun-2019	
Parameter	Unit													
SO4-D	mg/L	117	90.2	73.1	77.4	133	138	153	180	PNC	241	419	550	
TSS	mg/L	<16				<4.0					<4.0			25
Alk-T	mg/L	35.3				41.5					80			
Acidity83	mg/L	2.70				<1.0					<1.0			
N-NH3	mg/L	<0.015				<0.015					<0.015			12.9
N-NO23	mg/L	0.039				<0.020					<0.020			
Al-T	mg/L	0.0506				0.0269					0.0092			
As-T	mg/L	0.00068				0.00081					0.00084			0.005
Ba-T	mg/L	0.0146				0.0183					0.0344			5
B-T	mg/L	0.082				0.091					0.200			
Cd-T	mg/L	<0.000010				<0.000010					<0.000010			
Ca-T	mg/L	41				46.6					100			
Cr-T	mg/L	<0.0010				<0.0010					<0.0010			
Co-T	mg/L	<0.00020				<0.00020					0.00021			0.11
Cu-T	mg/L	0.00060				<0.00050					<0.00050			0.00482
Hard-T	mg/L	128				142					315			
Fe-T	mg/L	0.556				0.351					1.05			1
P-T	mg/L	0.0079				0.0031					0.0030			
Pb-T	mg/L	<0.00020				<0.00020					<0.00020			0.01763
Mg-T	mg/L	6.1				6.26					15.8			
Mn-T	mg/L	0.0752				0.0383					0.112			0.8706
Hg-T	mg/L	<0.0000020				<0.0000020					<0.0000020			0.00001
Mo-T	mg/L	<0.0010				<0.0010					<0.0010			2
Ni-T	mg/L	<0.0010				<0.0010					<0.0010			0.025
K-T	mg/L	0.483				0.595					0.898			
S-T	mg/L	39.5				43.5					101			
Se-T	mg/L	<0.00010				<0.00010					<0.00010			
Si-T	mg/L	2.72				2.64					1.2			
Ag-T	mg/L	<0.000020				<0.000020					<0.000020			0.0001
Na-T	mg/L	9.33				9.36					29			
Sr-T	mg/L	0.244				0.29					0.595			
Zn-T	mg/L	<0.0050				<0.0050					<0.0050			0.033
Al-D	mg/L	0.0214				0.0127					0.0030			0.1
As-D	mg/L	0.0005				0.00065					0.00084			
Ba-D	mg/L	0.0143				0.0181					0.0358			
B-D	mg/L	0.079				0.099					0.249			
Cd-D	mg/L	<0.0000050				<0.0000050					<0.0000050			0.0001702
Ca-D	mg/L	39.1				46.9					110			
Cr-D	mg/L	<0.0010				<0.0010					<0.0010			
Co-D	mg/L	<0.00020				<0.00020					<0.00020			
Cu-D	mg/L	0.00045				0.00032					0.00028			
Hard-D	mg/L	122				143					344			
Fe-D	mg/L	0.424				0.203					0.985			0.35
Pb-D	mg/L	<0.00020				<0.00020					<0.00020			
Mg-D	mg/L	6.02				6.27					16.9			
Mn-D	mg/L	0.0727				0.0371					0.117			
Hg-D	mg/L	<0.0000020				<0.0000020					0.0000022			
Mo-D	mg/L	<0.0010				<0.0010					<0.0010			
Ni-D	mg/L	<0.0010				<0.0010					<0.0010			
K-D	mg/L	0.469				0.581					0.975			
S-D	mg/L	37.5				43.3					114			
Se-D	mg/L	<0.00010				<0.00010					<0.00010			
Si-D	mg/L	2.49				2.62					1.46			
Na-D	mg/L	9.46				9.96					31			
Sr-D	mg/L	0.239				0.288					0.639			
Zn-D	mg/L	<0.0050				<0.0050					<0.0050			

Table 21
Q1 Report 2019

EMS ID.		E292131						
Site Description		Seeps into Long Lake						
Site Name		LLS			LLSM			WQO-Max
Date		01-Apr-19	06-May-19	11-Jun-19	01-Apr-19	06-May-19	11-Jun-19	
Parameter	Unit							
SO4-D	mg/L	477	538	512	462	389	421	-
TSS	mg/L	<16	4.4	<4.0	<16	<4.0	<4.0	25
Alk-T	mg/L	249	246	260	221	198	240	-
Acidity 8.3	mg/L	16.6	4.1	7.7	13.3	1.6	3.5	-
Al-T	mg/L	<0.0030	0.0047	<0.0030	0.0034	0.0111	<0.0030	-
As-T	mg/L	0.00256	0.00311	0.00289	0.00074	0.00080	0.00122	0.005
Ba-T	mg/L	0.0194	0.0189	0.0199	0.0184	0.0185	0.0188	-
B-T	mg/L	0.662	0.585	0.585	0.575	0.472	0.497	-
Cd-T	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Ca-T	mg/L	223	218	207	191	166	184	-
Cr-T	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-
Co-T	mg/L	0.00156	0.00153	0.00138	0.00159	0.00104	0.00129	0.11
Cu-T	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0051
Hard-T	mg/L	634	610	587	542	469	521	-
Fe-T	mg/L	0.988	1.16	1.26	0.502	0.492	0.787	1
Pb-T	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00131	0.005
Mg-T	mg/L	19.0	16.2	16.9	15.9	13.4	15.1	-
Mn-T	mg/L	0.454	0.418	0.389	0.338	0.218	0.312	0.8
Hg-T	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0001
Mo-T	mg/L	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-
Ni-T	mg/L	0.0029	0.0023	0.0022	0.0030	0.0020	0.0022	0.025
K-T	mg/L	2.46	2.50	2.36	2.21	2.10	2.15	-
S-T	mg/L	220	214	184	181	157	161	-
Se-T	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-
Si-T	mg/L	3.28	3.14	2.61	3.08	2.69	2.42	-
Ag-T	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.0001
Na-T	mg/L	110	87.0	98.1	91.4	67.6	87.3	-
Sr-T	mg/L	1.97	2.11	1.90	1.68	1.59	1.64	-
Zn-T	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.03
Al-D	mg/L	0.0038	<0.0030	<0.0030	<0.0030	0.0031	0.0037	0.1
As-D	mg/L	0.00259	0.00277	0.00298	0.00073	0.00063	0.00133	-
Ba-D	mg/L	0.0188	0.0191	0.0198	0.0178	0.0184	0.0188	-
B-D	mg/L	0.630	0.614	0.669	0.565	0.474	0.608	-
Cd-D	mg/L	0.0000050	<0.0000050	0.0000050	0.0000060	<0.0000050	0.0000060	0.000017
Ca-D	mg/L	209	215	224	186	161	202	-
Cr-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-
Co-D	mg/L	0.00161	0.00144	0.00132	0.00170	0.00099	0.00134	-
Cu-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	-
Hard-D	mg/L	593	605	635	524	457	575	-
Fe-D	mg/L	1.10	1.04	1.21	0.401	0.337	0.783	0.35
Pb-D	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-
Mg-D	mg/L	17.2	16.5	18.2	14.7	13.2	17.3	-
Mn-D	mg/L	0.436	0.410	0.382	0.336	0.207	0.316	-
Hg-D	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	-
Mo-D	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	-
Ni-D	mg/L	0.0028	0.0024	0.0021	0.0030	0.0019	0.0022	-
K-D	mg/L	2.28	2.47	2.46	2.11	2.09	2.44	-
S-D	mg/L	211	213	210	178	156	195	-
Se-D	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-
Si-D	mg/L	3.00	3.09	3.08	3.02	2.66	2.89	-
Na-D	mg/L	97.3	93.0	104	87.7	69.3	99.9	-
Sr-D	mg/L	1.96	2.08	1.95	1.58	1.53	1.80	-
Zn-D	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-

WQO are displayed for comparison purposes only.

Table 22
Q1 Report 2019

EMS ID		E292069			
Site Description		Settling Pond at 7S - Permitted discharge location for the 7-South Mining Operation			
Site Name		7SSD	No discharge occurred from this pond		Permit Limits
Date		01-Apr-2019	06-May-2019	June	7SSD
Parameter	Unit				
SO4-D	mg/L	97.3	29.6	Dry	500
TSS	mg/L	<16	<4.0		25
Alk-T	mg/L	146	118		-
Acidity 8.3	mg/L	<1.0	<1.0		-
Al-T	mg/L	0.0128	0.0199		-
As-T	mg/L	0.00163	0.00265		-
Ba-T	mg/L	0.0111	0.0058		-
B-T	mg/L	<0.050	<0.050		-
Cd-T	mg/L	<0.000010	<0.000010		-
Ca-T	mg/L	63.4	34.2		-
Cr-T	mg/L	<0.0010	<0.0010		-
Co-T	mg/L	<0.00020	<0.00020		-
Cu-T	mg/L	0.00075	0.00088		-
Hard-T	mg/L	225	127		-
Fe-T	mg/L	0.057	0.046		-
Pb-T	mg/L	<0.00020	<0.00020		-
Mg-T	mg/L	16.1	10.1		-
Mn-T	mg/L	0.0440	0.0388		-
Hg-T	mg/L	<0.0000020	<0.0000020		-
Mo-T	mg/L	<0.0010	<0.0010		-
Ni-T	mg/L	<0.0010	<0.0010		-
K-T	mg/L	0.672	0.464		-
S-T	mg/L	34.5	9.0		-
Se-T	mg/L	<0.00010	<0.00010		-
Si-T	mg/L	4.80	3.57		-
Ag-T	mg/L	<0.000020	<0.000020		-
Na-T	mg/L	9.62	5.78		-
Sr-T	mg/L	0.246	0.164		-
Zn-T	mg/L	<0.0050	<0.0050		-
Al-D	mg/L	<0.0030	0.0033		0.1
As-D	mg/L	0.00142	0.00259		-
Ba-D	mg/L	0.0103	0.0055		-
B-D	mg/L	<0.050	<0.050		-
Cd-D	mg/L	<0.0000050	<0.0000050		0.000045
Ca-D	mg/L	65.4	34.1		-
Cr-D	mg/L	<0.0010	<0.0010		-
Co-D	mg/L	<0.00020	<0.00020		-
Cu-D	mg/L	0.00059	0.00083		0.014
DOC	mg/L	2.9	3.0		-
Hard-D	mg/L	224	128		-
Fe-D	mg/L	0.0149	0.0140		0.35
Pb-D	mg/L	<0.00020	<0.00020		-
Mg-D	mg/L	14.8	10.4		-
Mn-D	mg/L	0.0285	0.0064		-
Hg-D	mg/L	0.0000041	<0.0000020		-
Mo-D	mg/L	<0.0010	<0.0010		-
Ni-D	mg/L	<0.0010	<0.0010		-
K-D	mg/L	0.624	0.465		-
S-D	mg/L	30.5	8.9		-
Se-D	mg/L	<0.00010	<0.00010		0.016
Si-D	mg/L	4.68	3.52		-
Na-D	mg/L	8.55	5.72		-
Sr-D	mg/L	0.239	0.154		-
Zn-D	mg/L	<0.0050	<0.0050		-

Table 23
Q1 Report 2019

EMS ID		E292109			
Site Description		Stream 1 - Downstream of the 7SSD discharge, prior to entering the Lower Wetland Outlet			
Site Name		7S			
Date		01-Apr-2019	06-May-2019	June	WQG-Max
Parameter	Unit				
SO4-D	mg/L	7.3	5.7	NF	-
TSS	mg/L	<16	<4.0		25
Alk-T	mg/L	14.9	17.7		-
Acidity83	mg/L	1.1	<1.0		-
Al-T	mg/L	0.0301	0.0196		-
As-T	mg/L	<0.00010	0.00011		0.005
Ba-T	mg/L	0.0017	0.0018		-
B-T	mg/L	<0.050	<0.050		-
Cd-T	mg/L	<0.000010	<0.000010		-
Ca-T	mg/L	5.48	5.99		-
Cr-T	mg/L	<0.0010	<0.0010		-
Co-T	mg/L	<0.00020	<0.00020		0.11
Cu-T	mg/L	<0.00050	0.00051		0.0051
Hard-T	mg/L	19.2	20.1		-
Fe-T	mg/L	0.017	<0.010		1
Pb-T	mg/L	<0.00020	<0.00020		0.005
Mg-T	mg/L	1.34	1.25		-
Mn-T	mg/L	<0.0010	<0.0010		0.8
Hg-T	mg/L	<0.0000020	<0.0000020		0.0001
Mo-T	mg/L	<0.0010	<0.0010		-
Ni-T	mg/L	<0.0010	<0.0010		0.025
K-T	mg/L	0.112	0.120		-
S-T	mg/L	<3.0	<3.0		-
Se-T	mg/L	<0.00010	<0.00010		-
Si-T	mg/L	4.40	4.56		-
Ag-T	mg/L	<0.000020	<0.000020		0.0001
Na-T	mg/L	1.75	1.74		-
Sr-T	mg/L	0.0227	0.0243		-
Zn-T	mg/L	<0.0050	<0.0050		0.03
Al-D	mg/L	0.0167	0.0211		0.1
As-D	mg/L	<0.00010	<0.00010		-
Ba-D	mg/L	0.0014	0.0017		-
B-D	mg/L	<0.050	<0.050		-
Cd-D	mg/L	<0.0000050	<0.0000050		0.000017
Ca-D	mg/L	5.16	6.13		-
Cr-D	mg/L	<0.0010	<0.0010		-
Co-D	mg/L	<0.00020	<0.00020		-
Cu-D	mg/L	0.00023	0.00023		-
DOC	mg/L	1.3	1.2		-
Hard-D	mg/L	17.8	20.7		-
Fe-D	mg/L	<0.0050	<0.0050		0.35
Pb-D	mg/L	<0.00020	<0.00020		-
Mg-D	mg/L	1.20	1.30		-
Mn-D	mg/L	<0.0010	<0.0010		-
Hg-D	mg/L	<0.0000020	<0.0000020		-
Mo-D	mg/L	<0.0010	<0.0010		-
Ni-D	mg/L	<0.0010	<0.0010		-
K-D	mg/L	0.105	0.125		-
S-D	mg/L	<3.0	<3.0		-
Se-D	mg/L	<0.00010	<0.00010		-
Si-D	mg/L	4.01	4.78		-
Na-D	mg/L	1.66	1.74		-
Sr-D	mg/L	0.0224	0.0236		-
Zn-D	mg/L	<0.0050	<0.0050		-

Table 24
Q1 Report 2019

Daily Total Suspended Solid Results

EMS ID E207409

Site Description Settling Pond #4 (WD)

TSS Permit Limit: 25.0 mg/L

Date	April	May	June
1	<4.0	Samples submitted no results	
2	<4.0	<4.0	
3	4.0	5.2	
4	6.4	4.4	
5	4.8	<4.0	<4.0
6	4.8	2.3	4.4
7	12.8	1.1	<4.0
8	<4.0	<4.3	<4.0
9	<4.0	3.3	<4.0
10	6.4	1.6	<4.0
11	<4.0	1.3	4.8
12	<4.0	2.1	8.8
13	<4.0	3.5	<4.0
14	<4.0	<4.0	<4.0
15	5.1	<4.0	<4.0
16	5.7	<4.0	<4.0
17	5.9	<4.0	<4.0
18	<4.0	<4.0	<4.0
19	<4.0	<4.0	<4.0
20	6	<4.0	4.4
21	5.6	1.9	<4.0
22	5.2	1.7	<4.0
23	7.2	<1.0	<4.0
24	<4.0	1.4	<4.0
25	<4.0	2.7	
26	<4.0	<1.0	<4.0
27	4.4	<1.0	
28	<4.0	<1.0	
29	Samples submitted but no results were received.	1.5	
30			
31			

Notes: TSS composite sample is required: monthly - no decant flow, weekly when max daily flow < 0.054m^3/s & daily when max daily flow > 0.054m^3/s

Values highlighted in **bold red** indicate a permit limit exceedance

PNC (Permit Non-Compliance) indicates a required TSS sample was not collected

A dash (-) indicates that a sample was not required

Table 25
Q1 Report 2019

Total Suspended Solid Results

EMS ID E218582

Site Description Settling Pond #1 (SPD)

TSS Permit Limit: 25.0 mg/L

Date	TSS mg/L	Date	TSS mg/L
1-Apr-19	<4.0	1-May-19	Samples submitted, no results.
2-Apr-19	<4.0	2-May-19	4.4
3-Apr-19	<4.0	3-May-19	<4.0
4-Apr-19	<4.0	4-May-19	<4.0
5-Apr-19	<4.0	5-May-19	<4.0
6-Apr-19	<4.0	6-May-19	2
7-Apr-19	<4.0	7-May-19	<1.0
8-Apr-19	<4.0	8-May-19	<6.0
9-Apr-19	<4.0	9-May-19	<1.0
10-Apr-19	<4.0	10-May-19	<1.0
11-Apr-19	<4.0	11-May-19	1.9
12-Apr-19	<4.0	12-May-19	**1.5**
13-Apr-19	<4.0	13-May-19	2.3
14-Apr-19	<4.0	14-May-19	<4.0
15-Apr-19	3.8	15-May-19	<4.0
16-Apr-19	2.2	16-May-19	<4.0
17-Apr-19	1.6	17-May-19	<4.0
18-Apr-19	<4.0	18-May-19	<4.0
19-Apr-19	<4.0	19-May-19	<4.0
20-Apr-19	<4.0	20-May-19	<4.0
21-Apr-19	<4.0	21-May-19	1.90
22-Apr-19	<4.0	22-May-19	1.60
23-Apr-19	<4.0	23-May-19	1.20
24-Apr-19	<4.0	24-May-19	<1.0
25-Apr-19	<4.0	25-May-19	<1.0
26-Apr-19	<4.0	26-May-19	1.30
27-Apr-19	<4.0	11-Jun-19	<4.0
28-Apr-19	<4.0		
29-Apr-19			
30-Apr-19	Samples submitted but no results were received.		

Notes: TSS composite sample is required: monthly - no decant flow, weekly when max daily flow < 0.046m^3/s & daily when max daily flow > 0.046m^3/s

Values highlighted in **bold red** indicate a permit limit exceedance

PNC (Permit Non-Compliance) indicates a required TSS sample was not collected.

Table 26
Q1 Report 2019

Total Suspended Solid Results

EMS ID **E292069**

Site Description **7 South Surface Decant (7SSD)**

TSS Permit Limit: 25.0 mg/L

Date	TSS mg/L
01-Apr-2019	<16
06-May-2019	<4.0
01-Jun-2019	DRY

Notes:

Values highlighted in **bold red** indicate a permit limit exceedance

PNC (Permit Non-Compliance) indicates a required TSS sample was not collected.

Table 27
Q1 Report 2019

EMS ID	E207409					
DISCHARGE FROM SETTLING POND # 4 (WD)						
Date	**April** Max. (m3/s)	**April** Daily (m3/s)	**May** Max. (m3/s)	**May** Daily (m3/s)	**June** Max. (m3/s)	**June** Daily (m3/s)
1	0.1960	0.1586	0.1960	0.1671	0.0000	0.0000
2	0.1810	0.1628	0.1770	0.1563	0.0000	0.0000
3	0.1800	0.1605	0.1960	0.1816	0.0000	0.0000
4	0.1840	0.1709	0.2140	0.2027	0.0260	0.0075
5	0.1940	0.1857	0.2160	0.2062	0.0260	0.0204
6	0.2010	0.1891	0.2160	0.1828	0.0280	0.0206
7	0.2050	0.1984	0.2180	0.2061	0.0270	0.0177
8	0.2050	0.1928	0.2180	0.1954	0.0260	0.0173
9	0.2030	0.1848	0.2120	0.1889	0.0290	0.0208
10	0.1860	0.1800	0.2070	0.2011	0.0290	0.0208
11	0.1910	0.1673	0.2120	0.2078	0.0260	0.0169
12	0.1950	0.1854	0.2110	0.1981	0.0280	0.0189
13	0.2040	0.1996	0.1990	0.1718	0.0280	0.0184
14	0.1910	0.1634	0.1860	0.1721	0.0300	0.0175
15	0.1610	0.1279	0.1770	0.1712	0.0270	0.0175
16	0.1680	0.1518	0.1920	0.1720	0.0270	0.0180
17	0.1710	0.1466	0.1920	0.1804	0.0280	0.0193
18	0.1850	0.1639	0.1920	0.1822	0.0260	0.0172
19	0.2150	0.1988	0.1960	0.1894	0.0280	0.0178
20	0.2190	0.2065	0.2020	0.1974	0.0270	0.0167
21	0.2190	0.2045	0.2000	0.1453	0.0250	0.0166
22	0.2090	0.2027	0.1440	0.0654	0.0250	0.0162
23	0.2160	0.2075	0.1690	0.1033	0.0270	0.0186
24	0.2120	0.2009	0.0450	0.0322	0.0260	0.0162
25	0.1910	0.1678	0.0420	0.0313	0.0260	0.0131
26	0.2150	0.1968	0.0410	0.0296	0.0110	0.0019
27	0.2090	0.2035	0.0420	0.0099	0.0000	0.0000
28	0.2080	0.1989	0.0160	0.0016	0.0120	0.0007
29	0.2050	0.1751	0.0370	0.0152	0.0210	0.0134
30	0.1830	0.1597	0.0370	0.0083	0.0190	0.0114
31			0.0000	0.0000		
Monthly Max	0.2190		0.2180		0.0300	
Monthly Avg		0.1804		0.1346		0.0137

P = Permit Limit Exceedance

Highlighted Red Requires Daily TSS composite sample (Max daily flow > 0.054m^3/s)

For Decant Flow > 0.054 m^3/s
TSS composite sample is required monthly - no decant flow, weekly when max daily flow < 0.054m3/s & daily when max daily flow > 0.054m3/s

Table 28
Q1 Report 2019

EMS ID	E218582					
DISCHARGE FROM SETTLING POND # 1 (SPD)						
Date	**April**	**April**	**May**	**May**	**June**	**June**
	Max. (m3/s)	Daily (m3/s)	Max. (m3/s)	Daily (m3/s)	Max. (m3/s)	Daily (m3/s)
1	0.0410	0.0306	0.0840	0.0679	**NF**	**NF**
2	0.0440	0.0316	0.0580	0.0323	**NF**	**NF**
3	0.0480	0.0252	0.0340	0.0221	**NF**	**NF**
4	0.0040	0.0020	0.0310	0.0214	**NF**	**NF**
5	0.0350	0.0107	0.0320	0.0192	**NF**	**NF**
6	0.0620	0.0490	0.0280	0.0178	**NF**	**NF**
7	0.0460	0.0322	0.0290	0.0172	**NF**	**NF**
8	0.0280	0.0193	0.0270	0.0164	**NF**	**NF**
9	0.0180	0.0082	0.0280	0.0173	**NF**	**NF**
10	0.0120	0.0079	0.0270	0.0155	**NF**	**NF**
11	0.0110	0.0086	0.0250	0.0143	**NF**	**NF**
12	0.0090	0.0047	0.0300	0.0166	**NF**	**NF**
13	0.0080	0.0054	0.0300	0.0229	**NF**	**NF**
14	0.0210	0.0098	**NF**	**NF**	**NF**	**NF**
15	0.0140	0.0057	**NF**	**NF**	**NF**	**NF**
16	0.0050	0.0034	**NF**	**NF**	**NF**	**NF**
17	0.0060	0.0027	**NF**	**NF**	**NF**	**NF**
18	0.0470	0.0188	**NF**	**NF**	**NF**	**NF**
19	0.0470	0.0229	**NF**	**NF**	**NF**	**NF**
20	0.0320	0.0142	**NF**	**NF**	**NF**	**NF**
21	0.0260	0.0123	**NF**	**NF**	**NF**	**NF**
22	0.0410	0.0219	**NF**	**NF**	**NF**	**NF**
23	0.0420	0.0245	**NF**	**NF**	**NF**	**NF**
24	0.0130	0.0041	**NF**	**NF**	**NF**	**NF**
25	0.0050	0.0020	**NF**	**NF**	**NF**	**NF**
26	0.0050	0.0015	**NF**	**NF**	**NF**	**NF**
27	0.0030	0.0013	**NF**	**NF**	**NF**	**NF**
28	0.0260	0.0055	**NF**	**NF**	**NF**	**NF**
29	0.0440	0.0184	**NF**	**NF**	**NF**	**NF**
30	0.0800	0.0439	**NF**	**NF**	**NF**	**NF**
31			**NF**	**NF**	**NF**	**NF**
Monthly Max	0.0800		0.0840		0.0000	
Monthly Avg		0.0149		0.0232		0.0000

PNC = Permit Non-compliance

Highlighted Red = Daily Composite TSS sample required

TSS composite sample is required **monthly** - no decant flow, **weekly** when max daily flow $< 0.046 m^3/s$ & **daily** when max daily flow $> 0.046 m^3/s$

NF= No Flow

Table 29
Q1 Report 2019

EMS ID E292069 DISCHARGE FROM 7-SOUTH SURFACE DECANT (7SSD)	April	May	June
Date	Daily Average L/S		
1	NF	NF	NF
2	NF	NF	NF
3	NF	NF	NF
4	NF	NF	NF
5	NF	NF	NF
6	NF	NF	NF
7	NF	NF	NF
8	NF	NF	NF
9	NF	NF	NF
10	NF	NF	NF
11	NF	NF	NF
12	NF	NF	NF
13	NF	NF	NF
14	NF	NF	NF
15	NF	NF	NF
16	NF	NF	NF
17	NF	NF	NF
18	NF	NF	NF
19	NF	NF	NF
20	NF	NF	NF
21	NF	NF	NF
22	NF	NF	NF
23	NF	NF	NF
24	NF	NF	NF
25	NF	NF	NF
26	NF	NF	NF
27	NF	NF	NF
28	NF	NF	NF
29	NF	NF	NF
30	NF	NF	NF
31	NF	NF	NF
Monthly Avg	0.000	0.000	0.000
Annual Avg			
Cummulative Daily Totalizer Value			
For Maximum Decant Flow (5.00 L/s)			

Table 30
Q1 Report 2019

Weekly / Monthly Sulphate (SO4-D) and Total Suspended Solids (TSS)												
EMS ID:			**E207409**	**E207411**	**E218582**	**E217014**					**E292130**	**E219412**
	From	**To**	**WD**	**WC**	**SPD**	**SPC**	**INF**	**BCREFF**	**SPCEFF**	**2SI**	**LLE**	**LLO**
SO4-D												
	1-Apr-19	**7-Apr-19**	778	726	334	84.6					117	76.9
	8-Apr-19	**14-Apr-19**	620		193						90.2	
	15-Apr-19	**21-Apr-19**	531		184						73.1	2.9
	22-Apr-19	**28-Apr-19**	435		249						77.4	40.6
	29-Apr-19	**5-May-19**										34.4
	6-May-19	**12-May-19**	437	468	269	138				120	133	42.1
	13-May-19	**19-May-19**	486		304		542	212	229	201	138	50.6
	20-May-19	**26-May-19**	416		241						153	56.5
	27-May-19	**2-Jun-19**	580		320						180	59
	10-Jun-19	**16-Jun-19**	789	681	260					221	241	65.5
	17-Jun-19	**23-Jun-19**	856				550	350	250	250	419	69.1
	24-Jun-19	**30-Jun-19**	870				600	410	340	330	550	75
Average			**618**	**625**	**261**	**111.3**	**564.0**	**324**	**273**	**224**	**197.4**	**52.05**
Minimum			**416**	**468**	**184**	**84.6**	**542**	**212**	**229**	**120**	**73.1**	**2.9**
Maximum			**870**	**726**	**334**	**138**	**600**	**410**	**340**	**330**	**550**	**76.9**

TSS	**From**	**To**		**WC**	**SPD**	**SPC**	**INF**	**BCREFF**	**SPCEFF**	**2SI**	**LLE**	**LLO**
	1-Apr-19	**7-Apr-19**		<16		<16					<16	<4.0
	8-Apr-19	**14-Apr-19**										<4.0
	15-Apr-19	**21-Apr-19**		<4.0		<4.0						<4.0
	22-Apr-19	**28-Apr-19**										<4.0
	29-Apr-19	**5-May-19**										<4.0
	6-May-19	**12-May-19**		<4.0	<4.0	14.8				<4.0	<4.0	
	13-May-19	**19-May-19**		<1.0		1.1	6.4	7.6	13.6	4.4		
	27-May-19	**2-Jun-19**		<1.0		1.7						
	10-Jun-19	**16-Jun-19**		<4.0	<4.0					4.4	<4.0	
	17-Jun-19	**23-Jun-19**					8.8	6.9	13			
	24-Jun-19	**30-Jun-19**		1.7								
Average				**4.53**	**4.00**	**7.52**	**7.6**	**7.2**	**13.3**	**4.27**	**8.00**	**4.00**
Minimum				**<1.0**	**<4.0**	**1.1**	**6.4**	**6.9**	**13**	**<4.0**	**<4.0**	**<4.0**
Maximum				**<16**	**<4.0**	**<16**	**8.8**	**7.6**	**13.6**	**4.4**	**<16**	**<4.0**

Table 31
Q1 Report 2019

Field Conductivity (uS/cm) & pH (North Mine Area & 7-South)

EMS ID	E283433		E207409		E207412		E207411						E292069		E292109		GW and SW from 2N Area at Road		E292126	
Site Name	2-N-Portal Sump		Settling Pond #4		2 North Pit Sump		North Pit Culvert		7 South Portal Sump		7-South Area 5		Settling Pond at 7S		Stream 1 -7S				South Dyke Sump	
Site Code	2NPS		WD		WP		WC		7SPS		7SA5		7SSD		7S		PDSR		SDS	
	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH
April 2019	1478.00	7.49	1616.00	7.55	1308.00	8.03	1581.00	8.15	717.00	6.29	300	7.80	335.00	7.68	30.80	7.14	1078	7.57	472.0	7.26
	1373.00	7.51	1567.00	7.57			1316.00	8.12	332.00	6.75	317	8.00	239.00	8.05	49.00	6.72			489.0	7.30
	1525.00	7.39	1334.00	7.58	1329.00	8.02	1272.00	7.99	447.00	6.76	320	8.03	201.00	8.30	50.79	6.76			685.0	7.57
	1524.00	7.33	1127.00	7.50	1296.00	8.01	1182.00	8.15	436.00	6.71	303	7.94	266.00	7.90	77.20	6.80			284.0	7.62
	1548.00	7.57	1273.00	7.82	1295.00	8.13	1336.00	8.24	505.00	7.05	310	8.06	242.00	8.26	109.80	7.39			420.0	7.77
May 2019	2.23	7.27	1756.00	7.69	1832.00	7.84	1684.00	8.06	771.00	7.08	503	7.75	dry	dry	118.30	7.42	1103	7.66	221.0	7.42
	1548.00	7.57	1771.00	7.64	1789.00	7.88	1638.00	7.94	815.00	7.26	416	7.93	dry	dry	dry	dry	dry	dry	dry	dry
	2.23	7.27	1273.00	7.82	1819.00	7.60	1684.00	8.06	771.00	7.08	394	7.85	dry	dry	dry	dry	dry	dry	dry	dry
	1557.00	7.58	1756.00	7.69	1832.00	7.84	1638.00	7.94	815.00	7.26	402	7.91	dry	dry	dry	dry	dry	dry	dry	dry
June 2019	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	**PNC**	dry	dry	dry	dry	dry	dry	dry	dry
	2.01	8.01	1771.00	7.64	1789.00	7.88	1175.00	8.25	557.00	7.51	421	8.02	dry	dry	dry	dry	dry	dry	dry	dry
	2.04	7.70	1309.00	7.97	1238.00	8.16	1198.00	8.05	1082.00	8.03	361	7.99	dry	dry	dry	dry	dry	dry	dry	dry
	2.1	7.93	2.21	7.85	1994.00	8.22	1957.00	8.34	830.00	6.91	379.00	8.04	dry	dry	dry	dry	dry	dry	dry	dry

Table 32
Q1 Report 2019

Field Conductivity (uS/cm) & pH (South Mine Area)

EMS ID	E292127		E217015				E218582		E292128		E292129		E217014		E292130		E292131		E292131	
Site Name	2 South Pit CCR Water Cover		3 South Pit CCR Water Cover		LLSTS Settling Pond Effluent		Settling Pond # 1		3S77		4 South Lower		South Pit Culvert		Long Lake Entry		Seep into Long Lake		Long Lake Middle Seep	
Site Code	2S (2SS)		3S		SPCEFF		SPD		3S77		4SLO		SPC		LLE		LLS		LLSM	
	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH
April 2019	430.00	8.10	885.00	8.03	1243.30	7.31	598.00	7.69	357.00	7.23	273.00	7.30	170.10	7.42	253.00	7.06	1073.00	7.12	961.00	7.26
	321.00	7.76	833.00	7.96			207.00	7.33	354.00	7.56	262.00	7.62	205.00	7.90	221.00	7.72				
	320.00	7.59	812.00	7.82			345.00	7.52	389.00	7.69	260.00	7.36	172.10	7.48	157.70	7.36				
	269.00	7.40	766.00	7.80			381.00	7.51	333.00	7.19	272.00	7.25	170.10	7.45	184.10	7.47				
	2.74	7.51	850.00	8.06			545.00	7.92	398.00	7.31	293.00	7.52	262.00	7.71	244.00	7.26				
May 2019	408.00	8.21	1222.00	7.75	1267.00	7.40	742.00	7.51	580.00	7.11	425.00	7.18	267.00	7.29	426.00	7.27	1042.00	7.26	794.00	7.28
	525.00	8.19	1231.00	7.85			733.00	7.55	570.00	7.17	421.00	7.28	213.00	7.59	455.00	7.35				
	690.00	8.06	867.00	8.09			630.00	7.49	480.00	7.28	380.00	7.30	178.00	7.46	560.00	7.40				
	740.00	7.91	875.00	7.90			580.00	7.50	445.00	7.30	326.00	7.35	165.00	7.48	598.00	7.38				
June 2019	**PNC**	**PNC**	**PNC**	**PNC**			**PNC**	**PNC**	NF	NF	dry	dry	dry	dry	**PNC**	**PNC**				
	751.00	7.95	986.00	7.94	1258.00	7.48	530.00	7.90	448.00	7.39	dry	dry	dry	dry	1153.00	7.16	1436.00	7.17	1336.00	7.16
	851.00	8.07	1306.00	7.96	1080.00	7.49	873.00	7.67	756.00	7.73	dry	dry	dry	dry	835.00	6.92				
	750.00	7.90	1287.00	8.09	1498.00	7.41	dry	dry	630.00	7.68	dry	dry	dry	dry	dry	dry				

Table 33
Q1 Report 2019

Field Conductivity (uS/cm) & pH (Rivers & Wetland)

EMS ID	E297230		E297231		E297232		E0126402		E0900504		E217017		E219412		E292112		E286930		E292113		E299256	
Site Name	Iron River Upstream Site 1		Iron River Site 6		Iron River Site 8		Mid Quinsam Lake Inlet		Mid Quinsam Lake Outlet		No Name Lake Outlet		Long Lake Outlet		Lower Wetland Outlet (7S)		Quinsam River Downstream 1		7 South Quinsam River		Iron River & Quinsam River	
Site Code	IR1		IR6		IR8		WA		WB		NNO		LLO		LWO		QRDS1		7SQR		IRQR	
	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH	Cond	pH
April 2019	73.90	7.63	43.10	7.67	47.80	7.60	47.50	7.39	126.00	7.76	31.80	6.96	170.10	7.55	82.00	7.08	243.00	7.70	173.00	7.72	137.00	7.78
	47.10	7.73	48.20	7.73	46.50	7.69	49.90	7.51	156.00	7.76	20.10	7.72	105.10	7.41	81.00	6.52	127.00	7.50	134.00	7.90	95.70	7.56
	58.10	58.10	42.10	7.32	66.00	7.90	78.00	7.51	144.40	7.70	31.00	7.07	121.00	7.66	60.00	7.50	180.00	7.80	140.00	7.50	113.00	8.10
	48.70	8.00	66.00	8.00	41.40	7.43	51.00	7.28	138.20	7.81	42.30	7.42	115.80	7.65	54.80	7.45	210.00	7.73	194.80	7.48	142.00	7.38
	65.40	7.31	39.30	7.24	50.00	7.37	82.00	7.51	140.00	8.14	33.00	7.90	232.00	7.37	70.10	6.50	172.00	7.51	128.30	7.34	138.00	7.61
May 2019	48.70	7.44	52.50	7.26	55.40	7.46	35.30	6.88	137.30	7.61	21.90	7.32	196.00	7.40	50.00	6.72	135.10	7.33	167.60	7.15	136.00	7.70
													232.00	7.37								
													196.00	7.40								
													203.00	7.36								
June 2019													155.10	7.70								
	160.00	8.01	114.70	8.11	123.90	8.03	34.00	7.05	141.00	7.54	26.00	7.48	160.00	7.38					121.50	7.51	122.00	7.70
													148.00	7.48								

Table 34
Q1 Report 2019

Daily Precipitation (mm)			
DATE	**APRIL**	**MAY**	**JUNE**
1	0.0	0.0	0.0
2	0.0	0.3	0.2
3	0.0	0.0	0.0
4	0.8	0.0	1.1
5	0.4	0.0	2.3
6	1.7	0.0	7.4
7	0.5	0.0	0.0
8	0.0	0.0	0.3
9	1.2	0.0	6.8
10	0.0	0.0	1.3
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.2	0.0
14	0.0	3.4	0.0
15	0.0	0.1	0.0
16	3.6	3.8	0.0
17	0.0	0.0	0.0
18	0.0	0.1	0.0
19	0.0	0.0	0.0
20	0.3	10.2	0.0
21	0.0	0.0	0.0
22	0.0	0.0	0.0
23	0.0	0.0	1.2
24	0.0	0.0	0.1
25	0.8	0.0	0.0
26	0.0	0.0	1.4
27	0.5	0.0	8.9
28	0.0	0.0	11.3
29	0.0	0.0	0.0
30	0.0	0.0	0.0
31		0.0	
Monthly Total (mm)	**9.80**	**18.10**	**42.30**
2019 Q1 Total (mm)		**70.20**	

TABLE 35 DEPTH PROFILING - LAKES

STATION NAME: NO NAME LAKE (NNL) — **NO NAME LAKE DEPTH PROFILING**

Sample Date	09-Apr						18-Apr						24-Apr						01-May						08-May					
Parameter	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP
Sample Depth (m)	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV
1	7.90	7.10	31.30	92.60	110.50	10.99	9.02	6.84	31.00	94.70	10.94	217.80	10.28	7.50	30.80	93.20	10.48	200.80	12.21	6.98	26.60	2.00	0.20	197.50	15.00	7.62	32.60	98.80	8.81	221.00
2	7.10	7.05	31.90	90.60	114.80	10.96	8.38	6.72	31.00	92.70	10.91	221.20	9.55	7.11	30.80	91.20	10.44	194.20	11.03	6.98	26.60	2.50	0.29	206.60	14.00	7.33	33.10	97.30	10.32	221.90
3	6.60	7.04	31.20	88.70	115.30	10.87	7.94	6.70	31.00	91.30	10.84	220.20	8.91	7.01	31.50	90.30	10.45	192.50	9.57	6.93	26.20	3.30	0.37	206.70	11.00	7.17	32.20	98.00	10.78	222.80
4	6.50	7.00	33.00	85.30	116.00	10.58	7.58	6.66	31.00	90.60	10.85	220.40	7.47	6.83	31.70	86.40	10.43	193.20	8.68	6.92	26.80	4.00	0.47	209.70	9.50	7.04	31.70	95.00	10.93	224.00
5	5.86	6.91	34.60	82.10	121.30	10.25	7.66	6.69	31.00	90.80	10.84	220.00	6.75	6.73	35.50	82.70	10.17	195.00	7.37	6.90	28.10	5.00	0.60	211.30	7.10	6.74	34.40	86.30	10.43	228.30
6	5.32	6.80	37.20	78.60	126.30	9.97	6.26	*6.46*	34.00	83.90	10.57	222.90	5.78	6.61	36.70	77.50	9.20	194.10	6.23	6.86	30.30	6.40	0.79	213.00	6.20	6.63	36.80	80.80	10.01	230.70
7	5.00	6.77	38.20	77.20	129.70	9.83	5.27	*6.44*	38.00	77.30	10.13	226.80	5.10	6.52	38.00	74.50	9.44	194.90	6.23	6.84	30.50	6.40	0.80	212.50	5.80	6.53	37.30	77.40	9.86	231.90
8	4.83	6.71	39.70	74.50	131.90	9.57	5.22	*6.36*	38.00	76.20	9.71	227.10	5.30	*6.46*	38.50	73.30	9.29	195.50	5.60	6.80	31.70	7.40	0.93	213.90	5.40	*6.45*	37.90	74.20	9.33	233.30
9	4.80	6.67	40.10	74.00	135.40	9.50	5.21	*6.39*	38.00	75.90	9.65	225.70	5.20	*6.42*	38.70	72.70	9.24	196.40	5.39	6.75	32.20	7.80	0.98	214.80	5.30	*6.38*	38.30	72.80	9.21	235.30
10	4.67	6.64	41.10	75.00	136.60	9.42	5.17	*6.33*	39.00	75.70	9.61	227.50	5.00	*6.40*	39.70	71.10	9.09	195.80	5.24	6.73	32.60	8.00	1.02	215.40	5.30	*6.37*	38.40	71.90	9.10	235.30
11	4.59	6.57	41.90	71.90	152.00	9.28	4.97	*6.36*	39.06	74.50	9.50	226.70	5.00	*6.40*	39.76	70.73	9.00	196.00	5.15	6.70	33.00	8.20	1.04	216.10	5.35	*6.34*	38.45	71.50	9.08	235.00
1m from Bottom (BS)	4.46	6.51	44.30	70.00	153.20	9.08	4.94	*6.35*	40.00	74.10	9.46	227.60	5.00	*6.39*	39.70	70.70	9.03	196.20	5.05	6.65	33.40	8.30	1.06	216.80	5.20	*6.30*	38.50	71.40	9.06	236.80
	BS=12						**BS=12**						**BS=12**						**BS=12**						**BS=12**					

STATION NAME: LONG LAKE (LLM) — **LONG LAKE DEPTH PROFILING**

Sample Date	09-Apr						18-Apr						24-Apr						01-May						08-May					
Parameter	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP
Sample Depth (m)	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV
1	8.59	7.48	215.30	93.30	10.90	145.00	9.60	7.39	174.40	93.60	10.65	133.50	10.00	7.57	130.30	93.30	10.25	214.00	12.39	7.15	119.10	93.30	10.25	187.40	14.40	7.68	159.60	99.70	9.96	22.60
2	5.93	7.18	404.40	75.10	9.44	157.60	9.50	7.30	174.00	93.60	10.67	133.70	10.00	7.27	184.00	91.50	10.32	212.60	11.41	7.15	130.70	91.50	10.32	189.20	14.40	7.40	180.80	99.30	10.13	223.30
3	7.28	7.14	361.80	82.70	9.65	157.30	8.00	7.13	314.50	87.10	10.37	139.00	8.60	7.17	298.80	87.00	10.14	212.00	9.80	7.04	236.80	87.00	10.14	198.50	11.36	7.27	228.30	96.30	10.55	224.30
4	8.37	7.29	214.00	91.40	10.64	151.80	5.90	7.08	408.70	76.30	9.77	143.10	6.60	7.16	399.20	79.00	9.96	214.90	7.33	6.97	316.20	79.00	9.96	203.80	8.19	7.10	369.30	87.30	10.24	227.40
5	5.50	7.14	419.00	73.00	9.38	160.00	5.20	6.98	420.80	71.00	9.14	144.40	5.90	7.08	415.70	72.80	9.20	215.60	6.06	6.92	337.90	72.80	9.20	205.40	5.98	7.00	410.80	74.70	9.23	220.00
6	4.90	7.06	432.00	68.20	8.85	162.40	5.00	6.93	427.90	68.30	8.87	145.20	5.20	7.04	425.70	67.00	8.56	215.80	5.31	6.89	343.90	67.00	8.56	206.20	5.40	6.92	415.00	68.80	8.68	229.80
7	4.70	7.05	437.80	65.40	8.42	163.40	4.80	6.88	435.50	65.20	8.42	146.60	5.00	7.02	428.10	65.30	8.39	216.50	5.22	6.88	347.40	65.30	8.39	206.90	5.07	6.86	420.20	64.40	8.16	230.00
8	4.60	7.02	440.60	64.00	8.27	164.90	4.70	6.86	438.40	62.60	8.09	147.00	4.80	7.00	433.40	62.80	8.10	216.40	4.97	6.85	350.60	62.80	8.10	207.60	4.19	6.85	423.40	61.60	7.87	230.00
9	4.60	7.01	444.10	62.00	8.03	165.80	4.60	6.85	440.50	60.70	7.82	147.90	4.70	6.98	437.50	60.40	7.83	216.70	4.85	6.84	352.60	60.40	7.83	207.60	4.80	6.83	424.80	59.50	7.71	229.90
10	4.50	7.00	445.50	60.70	7.86	166.80	4.60	6.83	441.60	59.80	7.77	149.40	4.60	6.96	439.60	59.30	7.66	217.00	4.75	6.84	353.90	59.30	7.66	216.70	4.76	6.83	425.50	58.30	7.63	230.10
11	4.50	6.98	449.80	58.90	7.57	168.10	4.50	6.81	445.20	58.00	7.51	149.80	4.60	6.94	441.30	57.70	7.50	217.10	4.72	6.83	355.10	57.70	7.50	208.60	4.76	6.84	426.60	57.30	7.47	230.00
12	4.50	7.97	451.30	57.00	7.38	168.40	4.50	6.81	445.60	57.10	7.42	150.20	4.50	6.93	443.00	56.60	7.33	217.00	4.66	6.82	356.90	56.60	7.33	209.20	4.74	6.81	427.70	56.80	7.36	230.00
13	4.50	6.96	451.80	56.10	7.27	169.30	4.50	6.80	446.00	56.30	7.29	150.70	4.50	6.92	443.10	56.00	7.26	216.70	4.64	6.81	357.70	56.00	7.26	209.70	4.74	6.80	425.80	56.20	7.36	230.10
14	4.40	6.95	452.50	55.80	7.23	169.90	4.50	6.80	446.70	56.00	7.24	150.70	4.50	6.91	444.40	54.80	7.14	216.90	4.63	6.81	358.20	54.80	7.14	210.00	4.70	6.79	427.80	55.70	7.29	230.20
15	4.40	6.95	452.90	55.60	7.20	170.40	4.50	6.79	446.70	55.30	7.18	151.30	4.50	6.91	444.70	53.90	6.99	216.80	4.61	6.80	358.40	53.90	6.99	210.30	4.69	6.79	428.90	55.20	7.21	230.20
16	4.40	6.95	453.60	55.10	7.14	170.60	4.50	6.78	447.00	54.70	7.08	151.40	4.50	6.89	444.80	53.60	6.92	216.90	4.60	6.80	358.20	53.60	6.92	210.40	4.68	6.78	428.70	54.40	7.19	230.20
17	4.40	6.95	454.00	54.60	7.09	171.00	4.50	6.78	448.00	54.00	7.00	151.70	4.50	6.90	445.60	53.00	6.87	216.90	4.59	6.79	358.40	53.00	6.87	218.80	4.68	6.77	429.30	53.20	7.09	230.60
18	4.40	6.94	454.10	54.00	7.01	171.80	4.50	6.79	447.70	53.80	6.96	152.20	4.50	6.88	445.10	52.10	6.79	2169.00	4.59	6.79	358.50	52.10	6.79	218.70	4.62	6.77	429.50	53.10	6.97	230.40
1m from Bottom (BS)	4.40	6.94	454.40	53.90	7.00	17.10	4.50	6.78	448.60	53.30	6.91	152.80	4.50	6.88	445.80	51.50	6.66	216.00	4.58	6.78	358.40	51.50	6.66	218.20	4.61	6.76	430.40	53.10	6.85	230.50
	BS= 19						**BS=19**						**BS=19**						**BS=19**						**BS=19**					

STATION NAME: MIDDLE QUINSAM LAKE (MQL) — **MIDDLE QUINSAM LAKE DEPTH PROFILING**

Sample Date	10-Apr						18-Apr						24-Apr						02-May						08-May					
Parameter	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP
Sample Depth (m)	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV
1	9.24	7.60	205.6	99.1	11.38	156.6	10.0	7.53	219	97.6	10.99	236.8	12.1	7.83	212.70	97.7	10.49	230.3	13.49	7.69	198	102.1	10.62	218.4	15.40	7.88	212	102.1	10.20	2.1
2	9.24	7.60	156.4	99.1	11.39	156.4	9.96	7.55	219	97.6	11.02	235.4	11.87	7.75	212.20	97.4	10.52	221.6	12.43	7.57	201	102.0	10.85	212.9	15.30	7.79	213	102.0	10.19	211.7
3	9	7.60	208.5	98.6	11.4	156.8	9.42	7.6	220	96.6	11.01	234.8	11.21	7.74	212.60	96.2	10.54	219.6	11.82	7.58	201	102.2	11.02	209.6	14.00	7.76	213	101.5	10.15	206.7
4	8.4	7.60	210	98.5	11.52	157.4	8.78	7.56	209	96.5	11.11	235.2	10.98	7.73	212.60	95.9	10.57	217.4	11.61	7.57	201	101.7	11.06	209.4	12.11	7.74	213	101.6	10.50	206.3
5	7.8	7.60	213	98.3	11.67	158.4	8.49	7.57	241	97.1	11.35	234.9	9.27	7.72	227.90	95.6	10.88	216.2	11.02	7.55	202	100.8	11.09	208.3	10.70	7.71	204	102.4	11.17	206.7
6	7.5	7.60	214	97.4	11.73	159.3	7.85	7.55	247	97.9	11.6	235.7	8.51	7.7	244.60	95.8	11.08	217.9	10.95	7.58	203	100.8	11.11	206.3	9.47	7.68	213	101.9	11.47	208.1
7	6.8	7.60	216	97.8	11.97	159.9	6.72	7.55	253	96.6	11.75	236.6	7.55	7.67	258.00	96	11.44	217.4	7.83	7.51	250	102.2	12.07	208.4	7.49	7.64	240	102.8	10.02	210.1
8	6.4	7.50	218	96.7	11.94	161.2	6.37	7.51	254	95.9	11.82	237.5	7.01	7.67	260.30	95.3	11.51	218.6	7.22	7.46	252	101.0	12.16	209.7	6.90	7.59	251	102.4	12.33	212.8
9	5.9	7.50	219	96.3	12	161.1	6.12	7.48	255	95.2	11.8	238	6.43	7.63	261.50	93.7	11.52	218.9	6.66	7.42	255	98.4	12.10	209.5	6.74	7.53	254	100.2	12.20	215.9
10	5.7	7.50	219	95.8	12	163.1	5.83	7.45	256	94	11.75	238.3	6.02	7.6	263.10	91.6	11.46	219.8	6.32	7.35	258	96.4	11.93	210.5	6.42	7.48	254	98.5	12.06	216.7
11	5.6	7.50	219	95.1	12	164	5.75	7.41	257	92.9	11.61	238.5	5.99	7.54	264.30	90.6	11.3	220.1	6.22	7.29	258	94.8	11.74	210.9	6.27	7.41	251	95.7	11.79	218.9
12	5.3	7.48	222	94.2	11.96	165.3	5.71	7.38	258	92.2	11.57	238.5	5.88	7.50	265.90	89.1	11.19	220.7	6.12	7.25	259	93.2	11.59	211.5	6.26	7.53	256	93.4	11.57	221.8
1m from Bottom (BS)	5.1	7.40	224	92	11.79	165.7	5.64	7.38	258	91.4	11.51	238.6	5.88	7.48	265.80	88.5	11.06	220.3	6.06	7.22	259	92.3	11.48	212.0	6.23	7.34	257	92.5	11.54	220.0
	BS=		13.50				**BS=**		13.50				**BS=**		13.50				**BS=**		13.50				**BS=**		13.50			

STATION NAME: LOWER QUINSAM LAKE (LQL) — **LOWER QUINSAM LAKE DEPTH PROFILING**

Sample Date	09-Apr						18-Apr						24-Apr						02-May						09-May					
Parameter	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP	TEMP.	pH	C	% Sat.	D.O.	ORP
Sample Depth (m)	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV	9.11	7.44	136	96.7	11.15	168.2	°C		µS/cm		mg/L	mV	°C		µS/cm		mg/L	mV
1	7.04	7.52	140.10	93.90	11.37	148.70	8.30	7.66	142.00	96.20	11.32	218.30	8.98	7.44	135.00	96.40	11.14	170.80	11.68	7.36	137.00	100.70	10.94	172.50	13.00	8.16	133.40	104.50	10.71	197.50
2	7.03	7.51	140.10	93.70	11.36	150.10	8.29	7.51	141.70	96.20	11.30	212.50	8.80	7.42	135.00	96.10	11.15	174.70	10.93	7.33	140.00	98.20	10.91	174.00	12.70	7.81	129.00	190.30	10.94	192.30
3	6.96	7.48	139.90	93.60	11.36	151.30	8.30	7.48	141.90	96.10	11.30	209.70	8.75	7.42	135.00	95.90	11.15	177.40	10.87	7.30	140.00	98.00	10.99	173.10	12.20	7.63	132.60	102.40	10.98	186.70
4	6.97	7.48	140.10	93.00	11.36	153.10	8.25	7.43	142.90	95.90	11.28	207.20	8.71	7.42	134.00	95.60	11.13	179.60	10.27	7.30	141.00	97.30	10.99	173.60	11.70	7.56	125.00	101.40	10.96	183.40
5	6.88	7.51	140.60	93.40	11.36	152.60	8.23	7.42	143.00	95.80	11.27	206.40	8.63	7.42	135.00	95.20	11.11	181.50	9.55	7.28	139.00	97.00	11.01	172.70	11.30	7.55	125.70	100.60	11.03	181.80
6	6.84	7.49	140.70	93.30	11.36	154.10	8.14	7.41	143.00	95.40	11.26	206.10	8.40	7.41	134.00	94.70	11.10	184.00	9.14	7.26	139.00	95.90	11.08	173.60	11.00	7.55	126.60	100.50	11.07	179.50
7	6.80	7.49	141.00	93.20	11.36	154.90	7.75	7.38	143.10	94.40	11.25	205.30	8.36	7.40	135.00	94.50	11.09	186.70	8.80	7.24	137.00	95.20	11.04	173.80	10.70	7.51	125.60	99.80	11.08	187.70
8	6.82	7.47	141.10	93.20	11.36	155.90	7.65	7.37	142.10	94.20	11.25	205.70	8.34	7.41	135.00	94.30	11.08	189.10	8.67	7.22	136.00	94.80	11.04	174.00	11.12	7.48	128.10	97.40	11.05	179.00
9	6.78	7.47	140.00	93.20	11.37	155.90	7.45	7.34	143.00	93.70	11.25	205.70	8.08	7.41	136.00	93.80	11.09	190.60	8.62	7.20	136.00	94.50	11.03	174.60	11.05	7.45	131.00	96.50	11.05	178.90
10	6.77	7.47	141.60	93.20	11.38	156.50	7.37	7.32	142.20	93.70	11.26	205.70	7.93	7.39	137.00	93.40	11.08	192.70	8.58	7.18	136.00	94.40	11.01	174.70	11.02	7.41	132.60	95.60	11.02	179.00
11	6.74	7.47	142.90	93.20	11.38	156.80	7.34	7.31	141.90	93.70	11.27	205.50	7.92	7.39	138.00	93.20	11.07	194.20	8.52	7.18	136.00	94.40	11.01	174.00	10.93	7.37	133.90	93.90	8.70	179.00
12	6.73	7.47	143.30	93.20	11.38	158.00	7.04	7.30	142.10	93.00	11.28	206.10	7.82	7.39	138.00	92.90	11.05	195.80	8.42	7.17	137.00	93.80	11.00	175.00	10.87	7.34	134.20	93.10	8.60	178.50
13	6.70	7.46	143.20	93.10	11.38	158.90	6.91	7.27	142.40	92.40	11.24	206.20	7.74	7.37	139.00	92.50	11.04	197.30	8.31	7.15	137.00	92.90	10.96	175.30	10.79	7.32	134.40	92.20	8.40	179.30
14	6.61	7.45	146.50	92.80	11.36	159.30	6.80	7.26	142.70	92.10	11.21	206.50	7.51	7.36	143.00	90.80	10.89	199.50	8.15	7.14	137.00	91.50	10.84	175.90	10.67	7.29	134.60	90.90	8.30	179.10
15	6.32	7.45	148.10	91.90	11.35	159.70	6.76	7.24	143.00	91.00	11.14	206.90	7.42	7.35	143.00	90.00	10.84	201.70	7.99	7.11	137.00	89.70	10.70	176.80	10.60	7.26	135.00	90.10	8.30	179.30
16	6.11	7.42	156.20	91.10	11.32	161.20	6.60	7.20	143.50	90.00	11.01	207.40	7.29	7.31	144.00	88.10	10.63	204.40	7.87	7.08	138.00	88.00	10.52	177.20	10.47	7.23	135.30	88.50	8.20	179.80
1m from Bottom (BS)	**BS= 16**						**BS= 16**						**BS=16**						**BS=16**						**BS=16**					

Table 36
Q1 Report 2019

EMS ID	E217018								
		No Name Lake 1 Metre Depth							
Site Name	NNL1	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	24-Apr-19	1-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Units								
SO4-D	mg/L	1.8	1.2	1.2	2	2	1.6	**128**	
Chlr-a	ug/L				0.92		0.92		
Turb	NTU	0.37	0.48	0.39	0.38	0.31	0.39		
Alk-T	mg/L	10.2	12	11	10.3	9	10.5		
P-T	mg/L	0.0029	0.0015	0.0048	0.0038	0.0015	0.0029		
Al-T	mg/L	0.0463	0.0408	0.0443	0.0348	0.0335	0.0399		
As-T	mg/L	0.00019	0.00028	0.0002	0.00022	0.00024	0.00023		**0.005**
Ba-T	mg/L	0.0012	0.001	0.0013	0.0011	0.0011	0.0011		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	3.53	3.41	3.67	3.4	3.86	3.57		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	11.8	11.6	12.5	11.5	13.1	12.1		
Fe-T	mg/L	0.068	0.049	0.062	0.049	0.055	0.057		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	0.716	0.76	0.799	0.727	0.831	0.767		
Mn-T	mg/L	0.0065	0.0045	0.0042	0.0037	0.0044	0.0047	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.07	0.067	0.068	0.06	0.074	0.068		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	0.979	1.02	1.05	0.974	1.10	1.025		
Sr-T	mg/L	0.0107	0.0106	0.0107	0.0106	0.0121	0.0109		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0343	0.0277	0.033	0.0306	0.0294	0.031	**0.05**	**0.1**
As-D	mg/L	0.00018	0.00019	0.00018	0.00018	0.00021	0.00019		
Ba-D	mg/L	0.0011	0.0005	0.0011	0.001	0.0011	0.00096		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-D	mg/L	0.0000025	0.000008	0.0000025	0.0000025	0.0000025	0.00000360	**0.000088**	**0.00017**
Ca-D	mg/L	3.39	3.21	3.6	3.64	3.87	3.54		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00032	0.00041	0.00040	0.00041	0.00041	0.00039		
Hard-D	mg/L	11.3	10.8	12.2	12.4	13	11.9		
Fe-D	mg/L	0.0374	0.0313	0.0369	0.0397	0.0419	0.0374		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	0.695	0.669	0.77	0.802	0.801	0.747		
Mn-D	mg/L	0.0057	0.0036	0.0037	0.0037	0.0042	0.0042		
Hg-D	mg/L	0.0000010	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.064	0.056	0.069	0.065	0.07	0.065		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	0.952	0.896	1.08	1.11	1.1	1.028		
Sr-D	mg/L	0.0106	0.0097	0.0107	0.0112	0.0118	0.0108		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 37
Q1 Report 2019

EMS ID	E217018	No Name Lake 4 Metre Depth							
Site Name	NNL4	5 in 30 Weekly Samples					5 in 30 Ave	Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	24-Apr-19	1-May-19	8-May-19		Average	Max
Parameter	Units								
SO4-D	mg/L	1.8	1.5	0.5	2.1	2.1	1.6	**128**	
Turb	NTU	0.41	0.57	0.52	0.31	0.39	0.44		
Alk-T	mg/L	10.7	11.8	10.4	9.9	11.5	10.9		
P-T	mg/L	0.004	0.0031	0.0071	0.0069	0.0031	0.0048		
Al-T	mg/L	0.0506	0.0439	0.0436	0.0371	0.0356	0.0422		
As-T	mg/L	0.00019	0.00027	0.00020	0.00022	0.00022	0.00022		**0.005**
Ba-T	mg/L	0.0012	0.0011	0.0012	0.0011	0.0011	0.0011		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	3.52	3.59	4.12	3.52	3.76	3.7		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	11.8	12.2	13.7	11.8	12.7	12.4		
Fe-T	mg/L	0.077	0.067	0.08	0.053	0.054	0.066		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	0.726	0.776	0.823	0.73	0.792	0.769		
Mn-T	mg/L	0.0073	0.0055	0.0088	0.0035	0.0037	0.0058	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.073	0.064	0.073	0.063	0.058	0.066		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	0.96	1.01	1.06	0.921	1.03	0.996		
Sr-T	mg/L	0.0109	0.0109	0.0128	0.0106	0.0116	0.0114		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0352	0.0277	0.0346	0.0321	0.0304	0.032	**0.05**	**0.1**
As-D	mg/L	0.00019	0.00018	0.00018	0.00019	0.00021	0.00019		
Ba-D	mg/L	0.001	0.0005	0.0011	0.0011	0.0011	0.00096		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-D	mg/L	0.0000025	0.000007	0.0000025	0.0000025	0.0000025	0.00000340	**0.000088**	**0.000170**
Ca-D	mg/L	3.44	3.21	3.58	3.61	3.74	3.52		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.0003	0.00037	0.00041	0.00042	0.0004	0.00038		
Hard-D	mg/L	11.5	10.8	12.2	12.3	12.6	11.9		
Fe-D	mg/L	0.0436	0.0359	0.0362	0.037	0.0399	0.0385		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	0.702	0.679	0.782	0.792	0.785	0.748		
Mn-D	mg/L	0.0057	0.0035	0.003	0.0029	0.0034	0.0037		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.068	0.055	0.071	0.066	0.065	0.065		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	0.985	0.897	1.03	1.08	1.07	1.012		
Sr-D	mg/L	0.0107	0.01	0.0111	0.0114	0.0116	0.011		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0475	0.01150		

Table 38
Q1 Report 2019

EMS ID	E217018								
		No Name Lake 9 Metre Depth							
Site Name	NNL9	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	24-Apr-19	1-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	4.7	3.7	3.4	3.9	4.8	4.1	**128**	
Turb	NTU	0.5	0.47	0.37	0.48	0.35	0.43		
Alk-T	mg/L	11.1	11.3	10.7	11.7	10.9	11.1		
P-T	mg/L	0.001	0.0015	0.0059	0.0037	0.0032	0.00306		
Al-T	mg/L	0.05	0.152	0.0439	0.042	0.0375	0.0651		
As-T	mg/L	0.0002	0.00025	0.00019	0.00023	0.0002	0.00021		**0.005**
Ba-T	mg/L	0.0014	0.0013	0.0013	0.0014	0.0014	0.0014		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	4.48	4.28	4.34	4.29	4.46	4.37		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	14.7	14.3	14.5	14.2	14.5	14.4		
Fe-T	mg/L	0.105	0.099	0.1	0.1	0.093	0.099		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	0.857	0.883	0.886	0.851	0.827	0.861		
Mn-T	mg/L	0.0146	0.013	0.0117	0.011	0.0099	0.012	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.084	0.077	0.075	0.078	0.082	0.079		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	1.06	1.06	1.06	1.02	1.01	1.04		
Sr-T	mg/L	0.0161	0.015	0.0144	0.0147	0.0152	0.0151		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0377	0.031	0.0356	0.0337	0.0346	0.0345	**0.05**	**0.1**
As-D	mg/L	0.00019	0.00017	0.00017	0.00018	0.00017	0.00018		
Ba-D	mg/L	0.0013	0.0012	0.0012	0.0013	0.0013	0.0013		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-D	mg/L	0.0000025	0.000008	0.0000025	0.0000025	0.0000025	0.0000036	**0.000088**	**0.000170**
Ca-D	mg/L	4.32	3.74	4.24	4.17	4.39	4.17		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00031	0.00041	0.00042	0.0004	0.00039	0.00039		
Hard-D	mg/L	14.2	12.5	14	13.9	14.5	13.8		
Fe-D	mg/L	0.0604	0.0491	0.0494	0.0541	0.0479	0.0522		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	0.817	0.759	0.831	0.846	0.860	0.823		
Mn-D	mg/L	0.0114	0.0078	0.0057	0.0063	0.0055	0.0073		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.073	0.072	0.078	0.074	0.081	0.076		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	1.02	0.946	1.11	1.06	1.06	1.039		
Sr-D	mg/L	0.0151	0.0137	0.0143	0.0144	0.015	0.0145		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 39
Q1 Report 2019

EMS ID	E217018	No Name Lake 1 Metre From Bottom Depth							
Site Name	NNLB	5 in 30 Weekly Samples					5 in 30 Ave	Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	24-Apr-19	1-May-19	8-May-19		Average	Max
Parameter	Units								
SO4-D	mg/L	4.8	4.2	3.8	4.1	5.7	4.5	**128**	
Turb	NTU	0.54	0.52	0.49	0.33	0.52	0.48		
Alk-T	mg/L	13.1	9.8	10.9	10	10.9	10.9		
P-T	mg/L	0.0034	0.0015	0.0034	0.0066	0.0032	0.00362		
Al-T	mg/L	0.0491	0.051	0.0446	0.0424	0.0395	0.0453		
As-T	mg/L	0.0002	0.00025	0.00046	0.00023	0.00021	0.00027		**0.005**
Ba-T	mg/L	0.0014	0.0013	0.0036	0.0015	0.0013	0.0018		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	4.58	4.53	11.4	4.34	4.58	5.89		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.050**
Cu-T	mg/L	0.00025	0.00025	0.00074	0.00025	0.00065	0.000428	**0.0020**	**0.0070**
Hard-T	mg/L	15	15	33.6	14.3	15.1	18.6		
Fe-T	mg/L	0.117	0.111	0.08	0.111	0.114	0.107		**1.0**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	0.864	0.893	1.26	0.836	0.888	0.948		
Mn-T	mg/L	0.016	0.014	0.0049	0.0125	0.0119	0.0119	**0.70**	**0.80**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.084	0.077	0.247	0.072	0.084	0.113		
S-T	mg/L	1.5	1.5	8.8	1.5	1.5	2.96		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	1.07	0.998	10.3	0.969	1.06	2.879		
Sr-T	mg/L	0.0164	0.0157	0.0583	0.0153	0.0157	0.0243		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0387	0.0322	0.0362	0.0349	0.0341	0.0352	**0.05**	**0.1**
As-D	mg/L	0.00018	0.00017	0.00017	0.00017	0.00017	0.00017		
Ba-D	mg/L	0.0013	0.0012	0.0013	0.0013	0.0013	0.0013		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.0250		
Cd-D	mg/L	0.0000025	0.000008	0.0000025	0.0000025	0.0000025	0.00000360	**0.000088**	**0.000170**
Ca-D	mg/L	4.74	3.91	4.49	4.43	4.48	4.41		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00032	0.00034	0.00039	0.00038	0.00037	0.00036		
Hard-D	mg/L	15.3	12.9	14.9	14.8	14.7	14.5		
Fe-D	mg/L	0.0691	0.0539	0.0562	0.0564	0.0498	0.0571		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	0.849	0.767	0.895	0.896	0.862	0.854		
Mn-D	mg/L	0.0133	0.0086	0.0075	0.0078	0.0066	0.0088		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.0000021	0.000001	0.00000122		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.074	0.066	0.08	0.075	0.082	0.075		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.50		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	1.08	0.921	1.1	1.07	1.04	1.042		
Sr-D	mg/L	0.0164	0.014	0.0154	0.0159	0.0155	0.0154		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 40
Q1 Report 2019

EMS ID	E206619								
		Long Lake Middle 1 Metre Depth							
Site Name	LLM1	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	17-Apr-19	24-Apr-19	1-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	56.9	46.5	32.2	36.4	40.1	42.4	**128**	
Chloro-a	ug/L				1.03		1.030		
Turb	NTU	0.36	0.43	0.62	0.3	0.3	0.40		
Alk-T	mg/L	30.2	23.3	22.2	25	24.4	25.0		
P-T	mg/L	0.0034	0.0015	0.0047	0.007	0.0045	0.0042		
Al-T	mg/L	0.0349	0.0347	0.0314	0.0299	0.025	0.0312		
As-T	mg/L	0.00029	0.00030	0.00031	0.00032	0.00035	0.00031		**0.005**
Ba-T	mg/L	0.0047	0.0041	0.0033	0.0035	0.004	0.0039		
B-T	mg/L	0.059	0.025	0.025	0.025	0.025	0.0318		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	24.6	19.7	14.1	15.9	18.8	18.6		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	73.3	58.5	42.9	47.8	57.2	55.9		
Fe-T	mg/L	0.07	0.07	0.062	0.062	0.058	0.064		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	2.86	2.24	1.86	1.99	2.46	2.28		
Mn-T	mg/L	0.0148	0.0119	0.0076	0.0077	0.0086	0.0101	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.307	0.245	0.177	0.2	0.217	0.229		
S-T	mg/L	21.5	16.4	11.2	12.4	15.4	15.4		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	8.72	6.12	4.21	4.86	5.89	5.96		
Sr-T	mg/L	0.167	0.131	0.0844	0.098	0.118	0.120		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0223	0.0236	0.0252	0.0238	0.0211	0.0232	**0.05**	**0.1**
As-D	mg/L	0.00026	0.00029	0.00029	0.00029	0.00034	0.00029		
Ba-D	mg/L	0.0042	0.004	0.0033	0.0035	0.0041	0.0038		
B-D	mg/L	0.052	0.025	0.025	0.025	0.025	0.0304		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.00000250	**0.000088**	**0.000170**
Ca-D	mg/L	23.6	19.9	14.9	15.9	18.4	18.5		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.0003	0.00032	0.00037	0.00041	0.00035	0.000350		
Hard-D	mg/L	70.1	58.9	44.8	48.4	55.2	55.5		
Fe-D	mg/L	0.0447	0.0467	0.0409	0.0424	0.0401	0.043		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	2.73	2.25	1.86	2.14	2.22	2.24		
Mn-D	mg/L	0.0121	0.0093	0.006	0.0064	0.0069	0.0081		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.274	0.225	0.181	0.211	0.222	0.223		
S-D	mg/L	19.6	14.6	11.8	13	14.2	14.6		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	8.2	5.99	4.48	5.29	5.88	5.97		
Sr-D	mg/L	0.161	0.128	0.0904	0.102	0.116	0.1195		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 41
Q1 Report 2019

EMS ID	E206619								
		Long Lake Middle 4 Metre Depth							
Site Name	LLM4	5 in 30 Weekly Samples					5 in 30 Ave	Water Quality Guidelines	
Date		9-Apr-19	17-Apr-19	24-Apr-19	1-May-19	8-May-19		Average	Max
Parameter	Units								
SO4-D	mg/L	107	74.8	106	82.1	95	93	**128**	
Turb	NTU	0.71	0.5	0.71	0.33	0.24	0.5		
Alk-T	mg/L	46.9	35.3	44.7	38.5	39.4	41		
P-T	mg/L	0.001	0.0015	0.0034	0.0064	0.0034	0.00314		
Al-T	mg/L	0.0467	0.0406	0.0262	0.0267	0.0213	0.0323		
As-T	mg/L	0.00031	0.0003	0.00029	0.00032	0.00031	0.00031		**0.005**
Ba-T	mg/L	0.0069	0.005	0.0064	0.0058	0.0061	0.006		
B-T	mg/L	0.102	0.064	0.101	0.077	0.089	0.087		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	40	28.2	38.2	32.4	38.3	35.4		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00105	0.00025	0.00025	0.00025	0.00041	**0.002**	**0.007**
Hard-T	mg/L	118	83.4	112	95.7	112	104.2		
Fe-T	mg/L	0.118	0.076	0.065	0.057	0.050	0.073		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	4.37	3.14	4.13	3.6	4.00	3.85		
Mn-T	mg/L	0.0258	0.0164	0.0191	0.0128	0.0103	0.0169	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.478	0.351	0.461	0.389	0.433	0.422		
S-T	mg/L	36.7	25.5	35.9	30.6	31.7	32.1		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	14.3	10.1	13.6	11	13.2	12.4		
Sr-T	mg/L	0.288	0.206	0.284	0.225	0.264	0.253		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0195	0.017	0.0176	0.0184	0.0148	0.0175	**0.05**	**0.1**
As-D	mg/L	0.00027	0.00026	0.00026	0.00029	0.00028	0.00027		
Ba-D	mg/L	0.0067	0.0051	0.0065	0.0056	0.0063	0.006		
B-D	mg/L	0.086	0.074	0.102	0.079	0.079	0.084		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.00000250	**0.000088**	**0.000170**
Ca-D	mg/L	40	30.7	41.9	34	38.3	37		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00026	0.00035	0.00034	0.00034	0.00031	0.00032		
Hard-D	mg/L	117	90.6	123	101	112	108.7		
Fe-D	mg/L	0.062	0.0274	0.0359	0.0368	0.0293	0.0383		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	4.1	3.37	4.57	3.87	3.93	3.97		
Mn-D	mg/L	0.0227	0.0005	0.012	0.0073	0.0033	0.00916		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.459	0.373	0.511	0.4	0.441	0.437		
S-D	mg/L	36.2	26.8	39.3	30.4	33.6	33.3		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	14.2	11	16.2	11.8	12.7	13.2		
Sr-D	mg/L	0.295	0.213	0.312	0.243	0.266	0.266		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 42
Q1 Report 2019

EMS ID	E206619								
		Long Lake Middle 9 Metre Depth							
Site Name	LLM9	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	17-Apr-19	24-Apr-19	1-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	135	56	135	122	129	115.4	**128**	
Turb	NTU	0.33	0.39	0.31	0.34	0.30	0.33		
Alk-T	mg/L	54.1	31.4	53.3	49	49.9	47.5		
P-T	mg/L	0.0021	0.0015	0.0032	0.0035	0.0033	0.00272		
Al-T	mg/L	0.025	0.0325	0.018	0.0233	0.0197	0.0237		
As-T	mg/L	0.00028	0.00028	0.00025	0.00028	0.00023	0.00026		**0.005**
Ba-T	mg/L	0.0076	0.0047	0.0072	0.0069	0.0073	0.0067		
B-T	mg/L	0.128	0.052	0.138	0.115	0.12	0.111		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	50.9	22.0	47.3	44.3	49.6	42.8		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	148	65.2	139	130	145	125.4		
Fe-T	mg/L	0.073	0.07	0.034	0.063	0.064	0.061		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	5.16	2.49	5.08	4.76	5	4.5		
Mn-T	mg/L	0.0555	0.0142	0.0363	0.0435	0.0541	0.0407	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.576	0.283	0.581	0.541	0.59	0.514		
S-T	mg/L	48.6	17.8	45.7	43.2	43.6	39.8		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	19.1	7.23	17.7	16	17.8	15.57		
Sr-T	mg/L	0.376	0.152	0.356	0.323	0.358	0.313		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0165	0.0226	0.0215	0.0157	0.0161	0.0185	**0.05**	**0.1**
As-D	mg/L	0.00026	0.00027	0.00027	0.00025	0.00024	0.00026		
Ba-D	mg/L	0.0075	0.0043	0.0075	0.0068	0.0072	0.0067		
B-D	mg/L	0.13	0.057	0.121	0.106	0.106	0.104		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.00000250	**0.000088**	**0.000170**
Ca-D	mg/L	49.7	23.3	51.3	44.7	47.7	43.3		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00025	0.00031	0.00034	0.00032	0.00033	0.00031		
Hard-D	mg/L	145	68.8	151	131	139	127		
Fe-D	mg/L	0.0399	0.0441	0.0681	0.0308	0.0286	0.0423		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	5.2	2.55	5.61	4.82	4.85	4.61		
Mn-D	mg/L	0.0486	0.012	0.0528	0.0289	0.0362	0.0357		
Hg-D	mg/L	0.0000010	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.563	0.289	0.607	0.542	0.566	0.513		
S-D	mg/L	45.6	18.1	46.6	42.2	45.2	39.5		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	18.5	7.24	19.5	17.5	17.9	16.13		
Sr-D	mg/L	0.381	0.155	0.379	0.338	0.352	0.321		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 43
Q1 Report 2019

EMS ID	E206619								
		Long Lake Middle 1 Metre From Bottom Depth							
Site Name	LLMB	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	17-Apr-19	24-Apr-19	1-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	102	131	142	141	134	130	**128**	
Turb	NTU	0.41	0.52	0.52	0.54	0.29	0.46		
Alk-T	mg/L	44.5	53.5	52.2	55.1	54.5	52		
P-T	mg/L	0.0023	0.0015	0.0015	0.004	0.0015	0.00216		
Al-T	mg/L	0.0274	0.0216	0.0204	0.0237	0.0189	0.0224		
As-T	mg/L	0.00029	0.00027	0.00028	0.00029	0.00027	0.00028		**0.005**
Ba-T	mg/L	0.0073	0.0092	0.0083	0.0077	0.0079	0.0081		
B-T	mg/L	0.106	0.129	0.131	0.127	0.123	0.123		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	42.9	54.5	47.5	48.6	52.6	49.2		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	126	158	140	143	154	144.2		
Fe-T	mg/L	0.075	0.085	0.069	0.071	0.071	0.074		**1.0**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	4.63	5.24	5.24	5.32	5.59	5.2		
Mn-T	mg/L	0.0834	0.1220	0.102	0.0897	0.0867	0.0968	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.5	0.607	0.59	0.608	0.625	0.586		
S-T	mg/L	41	46.9	46.8	49	49.9	46.7		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	15.9	17.2	18.1	18.2	20.0	17.9		
Sr-T	mg/L	0.318	0.38	0.363	0.361	0.374	0.359		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0183	0.0141	0.0141	0.0136	0.0123	0.0145	**0.05**	**0.1**
As-D	mg/L	0.00025	0.00023	0.00023	0.00023	0.00022	0.00023		
Ba-D	mg/L	0.0062	0.0083	0.0081	0.0078	0.0079	0.0077		
B-D	mg/L	0.084	0.119	0.119	0.114	0.115	0.11		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.00000250	**0.000088**	**0.000170**
Ca-D	mg/L	37.4	53.8	51.8	52	52.8	49.6		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00026	0.00029	0.00036	0.00031	0.00033	0.00031		
Hard-D	mg/L	110	156	152	153	153	144.8		
Fe-D	mg/L	0.0412	0.0366	0.0313	0.0309	0.0276	0.0335		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	4.03	5.3	5.51	5.53	5.19	5.11		
Mn-D	mg/L	0.0547	0.104	0.0882	0.0755	0.0677	0.078		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.435	0.63	0.615	0.603	0.609	0.578		
S-D	mg/L	34	47.5	49.6	47.5	47.4	45.2		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	13.4	18.5	19.2	19.7	18.6	17.9		
Sr-D	mg/L	0.276	0.381	0.383	0.386	0.384	0.362		
Zn-D	mg/L	0.0025	0.0025	0.0051	0.0025	0.0025	0.00302		

Table 44
Q1 Report 2019

EMS ID	E206618								
Site Description		Middle Quinsam Lake 1 Metre Depth							
Site Name	MQL1	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		10-Apr-19	18-Apr-19	24-Apr-19	2-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	57.1	40.9	45.8	27.1	43.4	42.9	**128**	
Chloro-a	ug/L								
Turb	NTU	0.31	0.3	0.36	0.52	0.28	0.35		
Alk-T	mg/L	48.6	45.1	45	32.4	46	43.4		
P-T	mg/L	0.005	0.0015	0.0015	0.0053	0.0015	0.00296		
Al-T	mg/L	0.0232	0.021	0.0197	0.0345	0.0183	0.0233		
As-T	mg/L	0.00013	0.00013	0.00013	0.00047	0.00014	0.0002		**0.005**
Ba-T	mg/L	0.0024	0.0024	0.0022	0.0033	0.0023	0.0025		
B-T	mg/L	0.078	0.079	0.075	0.025	0.086	0.0686		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	15.2	15	14.2	12.2	14.6	14.2		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00677	0.00025	0.00054	0.00059	0.00069	0.001768	**0.002**	**0.007**
Hard-T	mg/L	45.4	44.5	42.1	36.3	43.4	42.3		
Fe-T	mg/L	0.050	0.035	0.033	0.076	0.035	0.046		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.78	1.69	1.63	1.43	1.69	1.64		
Mn-T	mg/L	0.005	0.0049	0.0044	0.0049	0.0058	0.0050	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0025	0.0005	0.0005	0.0005	0.0005	0.00090		**0.025**
K-T	mg/L	0.375	0.377	0.339	0.271	0.366	0.346		
S-T	mg/L	18.6	19	15.9	9.8	16.7	16.0		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	25.6	22	21.4	12.1	25.5	21.3		
Sr-T	mg/L	0.1000	0.0954	0.084	0.0634	0.0874	0.086		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0176	0.0192	0.0173	0.026	0.017	0.0194	**0.05**	**0.1**
As-D	mg/L	0.00015	0.00013	0.00014	0.00044	0.00013	0.0002		
Ba-D	mg/L	0.0026	0.0029	0.0023	0.0033	0.0021	0.0026		
B-D	mg/L	0.078	0.074	0.069	0.025	0.085	0.0662		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.000005	0.0000025	0.00000300	**0.000088**	**0.000170**
Ca-D	mg/L	15.8	14.6	13.8	11.4	13.9	13.9		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00054	0.00051	0.00049	0.00059	0.00057	0.00054		
Hard-D	mg/L	47.2	43.5	41.5	33.9	41.3	41.5		
Fe-D	mg/L	0.0229	0.0199	0.0214	0.0489	0.0213	0.0269		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.87	1.7	1.69	1.29	1.6	1.63		
Mn-D	mg/L	0.004	0.0033	0.0037	0.0028	0.0042	0.0036		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.419	0.367	0.353	0.254	0.385	0.356		
S-D	mg/L	20.3	16.1	15.6	8.8	15.5	15.3		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	27	22	23.3	10.8	23.4	21.3		
Sr-D	mg/L	0.108	0.0939	0.0885	0.0595	0.0853	0.087		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 45
Q1 Report 2019

EMS ID	E206618								
Site Description		Middle Quinsam Lake 4 Metre Depth							
Site Name	MQL4	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		10-Apr-19	18-Apr-19	24-Apr-19	2-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	57.4	49.2	43.7	25.3	42.8	43.7	**128**	
Turb	NTU	0.26	0.32	0.38	0.45	0.25	0.33		
Alk-T	mg/L	46.3	45.2	44.6	36.1	47.6	44		
P-T	mg/L	0.004	0.0015	0.0015	0.0074	0.0034	0.00356		
Al-T	mg/L	0.0219	0.0187	0.0159	0.0352	0.0183	0.022		
As-T	mg/L	0.00014	0.00014	0.00013	0.00048	0.00016	0.00021		**0.005**
Ba-T	mg/L	0.0026	0.0024	0.0026	0.0032	0.0023	0.0026		
B-T	mg/L	0.079	0.072	0.084	0.025	0.085	0.0690		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	15.8	14.3	16.3	12.1	14	14.5		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00333	0.00025	0.00053	0.00062	0.00058	0.001062	**0.002**	**0.007**
Hard-T	mg/L	47.3	42	48.6	35.7	41.9	43.1		
Fe-T	mg/L	0.034	0.03	0.025	0.075	0.033	0.039		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.92	1.53	1.93	1.34	1.67	1.68		
Mn-T	mg/L	0.0052	0.0044	0.0048	0.0048	0.0055	0.0049	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0015	0.0005	0.0005	0.0005	0.0005	0.00070		**0.025**
K-T	mg/L	0.396	0.341	0.403	0.254	0.391	0.357		
S-T	mg/L	20.1	15.6	21.3	8	15.8	16.2		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	28.1	20.1	27.2	12.4	24.6	22.5		
Sr-T	mg/L	0.105	0.0896	0.106	0.0596	0.0847	0.089		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0175	0.019	0.0179	0.0257	0.0162	0.0193	**0.05**	**0.1**
As-D	mg/L	0.00014	0.00011	0.00013	0.00046	0.00015	0.0002		
Ba-D	mg/L	0.0026	0.0024	0.0023	0.0033	0.0022	0.0026		
B-D	mg/L	0.081	0.074	0.075	0.025	0.085	0.068		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.000006	0.0000025	0.00000320	**0.000088**	**0.000170**
Ca-D	mg/L	16.7	15.3	14	11.6	14.2	14.4		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00052	0.00047	0.00049	0.00057	0.00054	0.00052		
Hard-D	mg/L	49.6	45	41.8	34.1	42.3	42.6		
Fe-D	mg/L	0.0225	0.0213	0.0209	0.0480	0.0221	0.027		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.9	1.65	1.68	1.26	1.67	1.63		
Mn-D	mg/L	0.0034	0.0033	0.0037	0.0028	0.0032	0.0033		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0038	0.0005	0.00116		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.42	0.356	0.344	0.249	0.373	0.348		
S-D	mg/L	19.4	16.3	15.3	9	15.7	15.1		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	27.3	23	23.3	11	24.2	21.8		
Sr-D	mg/L	0.1080	0.0905	0.0921	0.0612	0.0865	0.0877		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 46
Q1 Report 2019

EMS ID	E206618								
Site Description		Middle Quinsam Lake 9 Metre Depth							
Site Name	MQL9	5 in 30 Weekly Samples					5 in 30 Ave	Water Quality Guidelines	
Date		10-Apr-19	18-Apr-19	24-Apr-19	2-May-19	8-May-19		Average	Max
Parameter	Unit								
SO4-D	mg/L	64.9	60.1	62.5	24.5	55.8	53.6	**128**	
Turb	NTU	0.26	0.27	0.37	0.51	0.23	0.33		
Alk-T	mg/L	47.1	47.9	48.6	35.5	46.4	45.1		
P-T	mg/L	0.0041	0.0015	0.0015	0.0057	0.0015	0.00286		
Al-T	mg/L	0.0193	0.0178	0.0158	0.0439	0.0138	0.0221		
As-T	mg/L	0.00012	0.00014	0.00012	0.0005	0.00013	0.0002		**0.005**
Ba-T	mg/L	0.0025	0.0025	0.0026	0.0034	0.0025	0.0027		
B-T	mg/L	0.081	0.079	0.08	0.025	0.078	0.0686		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	16.5	17	16.5	12.2	17.3	15.9		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00054	0.00025	0.00054	0.00072	0.00055	0.00052	**0.002**	**0.007**
Hard-T	mg/L	49.3	50.7	49.9	36.1	51.6	47.5		
Fe-T	mg/L	0.029	0.027	0.029	0.084	0.024	0.039		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.94	2.03	2.11	1.36	2.03	1.89		
Mn-T	mg/L	0.0064	0.006	0.0079	0.0063	0.0044	0.0062	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.00000100		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.355	0.403	0.388	0.252	0.403	0.36		
S-T	mg/L	21.2	21.2	21.7	8.7	20.9	18.7		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	26.7	27	26.2	12	27.6	23.9		
Sr-T	mg/L	0.105	0.109	0.104	0.0604	0.102	0.0961		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0161	0.0162	0.015	0.0287	0.0128	0.0178	**0.05**	**0.1**
As-D	mg/L	0.00012	0.00012	0.00011	0.00046	0.00013	0.00019		
Ba-D	mg/L	0.0029	0.0027	0.0026	0.0035	0.0025	0.0028		
B-D	mg/L	0.079	0.08	0.082	0.025	0.09	0.0712		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.00000250	**0.000088**	**0.000170**
Ca-D	mg/L	17.6	17.1	17.2	12.2	17.2	16.3		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00051	0.00052	0.0005	0.00057	0.00124	0.00067		
Hard-D	mg/L	52.1	50.6	51.3	35.5	51.1	48.1		
Fe-D	mg/L	0.0177	0.0152	0.0148	0.0489	0.0128	0.0219		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.97	1.94	2.01	1.23	1.98	1.83		
Mn-D	mg/L	0.0037	0.0025	0.0021	0.0031	0.0015	0.00260		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.427	0.409	0.405	0.252	0.42	0.383		
S-D	mg/L	23.2	21.9	21.8	8.6	23.2	19.7		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	27.2	26	28.5	10.6	27.5	24		
Sr-D	mg/L	0.111	0.109	0.1110	0.0598	0.104	0.099		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 47
Q1 Report 2019

EMS ID	E206618								
Site Description		Middle Quinsam Lake 1 Metre from Bottom Depth							
Site Name	MQLB	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		10-Apr-19	18-Apr-19	24-Apr-19	2-May-19	8-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	68.1	62.1	63.5	25.2	59.1	55.6	**128**	
Turb	NTU	0.3	0.32	0.41	0.48	0.3	0.36		
Alk-T	mg/L	47.2	47.1	48.8	34.4	46.4	44.8		
P-T	mg/L	0.0039	0.0015	0.0032	0.0052	0.0031	0.00338		
Al-T	mg/L	0.0191	0.018	0.0169	0.0410	0.0139	0.0218		
As-T	mg/L	0.00011	0.00014	0.00012	0.00058	0.00012	0.00021		**0.005**
Ba-T	mg/L	0.0026	0.0026	0.0028	0.0035	0.0027	0.0028		
B-T	mg/L	0.083	0.079	0.082	0.025	0.082	0.0702		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	17.9	17.3	16.6	11.8	17.6	16.2		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00051	0.00025	0.00061	0.00093	0.00055	0.00057	**0.002**	**0.007**
Hard-T	mg/L	53.1	51.9	49.7	35.1	52.7	48.5		
Fe-T	mg/L	0.032	0.029	0.029	0.134	0.027	0.05		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	2.06	2.13	2	1.36	2.08	1.93		
Mn-T	mg/L	0.0104	0.0086	0.0086	0.0153	0.0064	0.0099	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.381	0.399	0.379	0.247	0.397	0.361		
S-T	mg/L	22.4	21.7	21.1	8.4	21.9	19.1		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	27	26.9	27.2	11.5	27.3	24.0		
Sr-T	mg/L	0.113	0.111	0.117	0.0608	0.105	0.1014		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.017	0.0144	0.0152	0.0275	0.0121	0.0172	**0.05**	**0.1**
As-D	mg/L	0.00013	0.00011	0.00012	0.00046	0.00012	0.000190		
Ba-D	mg/L	0.0027	0.0027	0.0027	0.0035	0.0025	0.0028		
B-D	mg/L	0.079	0.078	0.082	0.025	0.086	0.07		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.000006	0.0000025	0.00000320	**0.000088**	**0.000170**
Ca-D	mg/L	18.2	17.4	16.7	11.4	17.6	16.3		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00054	0.0005	0.0005	0.00101	0.00046	0.0006		
Hard-D	mg/L	54	51.9	50.3	33.3	52.1	48.3		
Fe-D	mg/L	0.0182	0.0157	0.0146	0.0821	0.0154	0.0292		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	2.05	2.08	2.1	1.2	1.98	1.88		
Mn-D	mg/L	0.0064	0.0041	0.0034	0.0129	0.0021	0.0058		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.416	0.404	0.402	0.242	0.397	0.372		
S-D	mg/L	21.2	21.6	22	8.8	23.1	19.3		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Na-D	mg/L	27.2	25.3	27.8	10.3	26.8	23.5		
Sr-D	mg/L	0.113	0.109	0.115	0.06	0.106	0.1006		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 48
Q1 Report 2019

EMS ID	E292118								
Site Description		Lower Quinsam Lake 1 Metre Depth							
Site Name	LQL1	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	25-Apr-19	2-May-19	9-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	25.1	29.7	25.2	40	24.2	28.8	**128**	
Chloro-a	ug/L								
Turb	NTU	0.72	0.49	0.63	0.26	0.42	0.5		
Alk-T	mg/L	31.1	33.1	33	46.3	36.1	35.9		
P-T	mg/L	0.0036	0.0015	0.0047	0.0076	0.0015	0.00378		
Al-T	mg/L	0.0646	0.0478	0.045	0.0192	0.0371	0.0427		
As-T	mg/L	0.0005	0.00052	0.00046	0.00014	0.00047	0.00042		**0.0050**
Ba-T	mg/L	0.0037	0.0033	0.0035	0.0021	0.0033	0.0032		
B-T	mg/L	0.025	0.025	0.025	0.07	0.025	0.0340		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	11.7	12.1	11.6	13.7	11.2	12.1		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00062	0.00057	0.00061	0.00054	0.00062	0.00059	**0.002**	**0.007**
Hard-T	mg/L	34.6	36	34.6	40.8	33.6	35.9		
Fe-T	mg/L	0.1	0.077	0.084	0.031	0.07	0.072		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.33	1.42	1.34	1.62	1.4	1.42		
Mn-T	mg/L	0.0058	0.0044	0.0048	0.0043	0.0041	0.0047	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.0000044	0.00000168		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.254	0.255	0.248	0.321	0.278	0.271		
S-T	mg/L	9.7	10.1	9.2	12.5	8.3	10		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	11.1	12.1	10.6	22.4	11.3	13.5		
Sr-T	mg/L	0.0604	0.0645	0.0597	0.0813	0.056	0.0644		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0358	0.0242	0.032	0.0176	0.0232	0.0266	**0.05**	**0.1**
As-D	mg/L	0.00042	0.0004	0.00043	0.00013	0.00044	0.00036		
Ba-D	mg/L	0.0032	0.0032	0.0033	0.0022	0.0032	0.003		
B-D	mg/L	0.025	0.025	0.025	0.064	0.025	0.0328		
Cd-D	mg/L	0.0000050	0.000013	0.0000025	0.0000025	0.0000025	0.0000051	**0.000088**	**0.000170**
Ca-D	mg/L	11.3	10.7	11.5	13.3	11.8	11.70		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00049	0.00076	0.00056	0.00052	0.0006	0.00059		
Hard-D	mg/L	33.1	31.6	33.9	39.4	34.9	34.6		
Fe-D	mg/L	0.0544	0.0471	0.0488	0.021	0.045	0.0433		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.18	1.21	1.27	1.5	1.32	1.3		
Mn-D	mg/L	0.0037	0.0029	0.0031	0.0032	0.0016	0.0029		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.000004	0.00000160		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.227	0.302	0.25	0.321	0.266	0.273		
S-D	mg/L	8.8	8.1	8.9	14.8	8.2	9.8		
Se-D	mg/L	0.00011	0.00005	0.00005	0.00005	0.00005	0.000062		
Na-D	mg/L	10.40	10.30	10.7	20	11.1	12.5		
Sr-D	mg/L	0.0617	0.0584	0.0623	0.0797	0.0589	0.0642		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0084	0.0025	0.00368		

Table 49
Q1 Report 2019

EMS ID	E292118								
Site Description		Lower Quinsam Lake 4 Metre Depth							
Site Name	LQL4	5 in 30 Weekly Samples					5 in 30 Ave	Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	25-Apr-19	2-May-19	9-May-19		Average	Max
Parameter	Unit								
SO4-D	mg/L	25.3	28.8	25.7	41.9	22.3	28.8	**128**	
Turb	NTU	0.71	0.67	0.74	0.38	0.58	0.62		
Alk-T	mg/L	30.9	34.2	32.6	46.1	32.7	35.3		
P-T	mg/L	0.0057	0.0015	0.0043	0.0034	0.0037	0.00372		
Al-T	mg/L	0.0687	0.0423	0.0433	0.0204	0.0439	0.0437		
As-T	mg/L	0.00052	0.00051	0.00046	0.00015	0.00052	0.00043		**0.005**
Ba-T	mg/L	0.0038	0.0033	0.0033	0.0021	0.0033	0.0032		
B-T	mg/L	0.025	0.025	0.025	0.075	0.025	0.0350		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	11.8	11.9	11.6	13.5	13.4	12.4		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.0006	0.00052	0.00064	0.00059	0.00057	0.00058	**0.002**	**0.007**
Hard-T	mg/L	35.1	35.3	34.5	40.6	38.7	36.8		
Fe-T	mg/L	0.104	0.077	0.081	0.032	0.082	0.075		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.38	1.39	1.33	1.65	1.31	1.41		
Mn-T	mg/L	0.0058	0.0043	0.0049	0.0042	0.0044	0.0047	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.0000034	0.00000148		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.257	0.257	0.245	0.338	0.262	0.272		
S-T	mg/L	9.6	10	8.7	14.2	8.0	10.1		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.0001	0.000060		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	11.2	11.9	10.6	23.60	11.1	13.7		
Sr-T	mg/L	0.0627	0.065	0.0589	0.0826	0.0585	0.0655		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0364	0.025	0.0315	0.0174	0.0262	0.0273	**0.05**	**0.1**
As-D	mg/L	0.00044	0.00039	0.00044	0.00013	0.00044	0.00037		
Ba-D	mg/L	0.0034	0.0031	0.0032	0.0022	0.0033	0.003		
B-D	mg/L	0.025	0.025	0.025	0.07	0.025	0.0340		
Cd-D	mg/L	0.0000050	0.000009	0.0000025	0.0000025	0.0000025	0.0000043	**0.000088**	**0.000170**
Ca-D	mg/L	11.4	10.3	11.7	15.2	11.6	12.00		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00051	0.00063	0.00057	0.00051	0.00063	0.00057		
Hard-D	mg/L	33.7	30.8	34.5	44.2	34.2	35.5		
Fe-D	mg/L	0.0547	0.043	0.0475	0.0226	0.0463	0.0428		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.26	1.21	1.29	1.53	1.24	1.31		
Mn-D	mg/L	0.0038	0.0027	0.0031	0.0021	0.0018	0.0027		
Hg-D	mg/L	0.0000010	0.000001	0.000001	0.000001	0.0000051	0.00000182		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.237	0.268	0.251	0.337	0.249	0.268		
S-D	mg/L	8.4	8.2	8.9	14.6	7.9	9.6		
Se-D	mg/L	0.00011	0.00005	0.00005	0.00005	0.00005	0.000062		
Na-D	mg/L	10.9	10.4	10.9	20.2	10.5	12.6		
Sr-D	mg/L	0.0612	0.0575	0.0606	0.0804	0.0558	0.0631		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 50
Q1 Report 2019

EMS ID	E292118								
Site Description		Lower Quinsam Lake 9 Metre Depth						Water Quality Guidelines	
Site Name	LQL9	5 in 30 Weekly Samples							
Date		9-Apr-19	18-Apr-19	25-Apr-19	2-May-19	9-May-19	5 in 30 Ave	Average	Max
Parameter	Unit								
SO4-D	mg/L	26	29.1	25.1	57.3	23.2	32.1	**128**	
Turb	NTU	0.7	0.34	0.65	0.27	0.47	0.49		
Alk-T	mg/L	32.6	32.9	31.5	48.9	32.9	35.8		
P-T	mg/L	0.0041	0.0015	0.0033	0.0033	0.0015	0.00274		
Al-T	mg/L	0.0748	0.046	0.0437	0.0172	0.0457	0.0455		
As-T	mg/L	0.00048	0.00046	0.00046	0.00012	0.00051	0.00041		**0.005**
Ba-T	mg/L	0.0038	0.0034	0.0033	0.0024	0.0034	0.0033		
B-T	mg/L	0.025	0.025	0.025	0.08	0.025	0.0360		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	12	12.1	11.3	16.5	11.9	12.8		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00061	0.00059	0.00077	0.00055	0.00058	0.00062	**0.002**	**0.007**
Hard-T	mg/L	35.3	35.8	33.5	49.3	35.5	37.9		
Fe-T	mg/L	0.111	0.079	0.123	0.024	0.076	0.083		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.31	1.36	1.31	1.98	1.42	1.48		
Mn-T	mg/L	0.0061	0.0047	0.0048	0.0046	0.0059	0.0052	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.0000042	0.00000164		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.254	0.259	0.239	0.402	0.267	0.284		
S-T	mg/L	9.6	10.1	8.9	21.5	8.4	11.7		
Se-T	mg/L	0.00012	0.00005	0.00005	0.00005	0.00005	0.000064		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	11.10	11.8	10.4	28.8	11.6	14.7		
Sr-T	mg/L	0.0619	0.0645	0.0595	0.108	0.0612	0.071		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0356	0.0244	0.0318	0.0138	0.0265	0.0264	**0.05**	**0.1**
As-D	mg/L	0.00041	0.00038	0.00041	0.00015	0.00046	0.00036		
Ba-D	mg/L	0.0033	0.003	0.0033	0.0025	0.0032	0.0031		
B-D	mg/L	0.025	0.025	0.025	0.077	0.025	0.0354		
Cd-D	mg/L	0.0000050	0.000011	0.0000025	0.0000025	0.0000025	0.00000470	**0.000088**	**0.000170**
Ca-D	mg/L	11.4	10.1	11.8	15.7	11.5	12.1		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00049	0.00053	0.00063	0.00051	0.00058	0.00055		
Hard-D	mg/L	33.4	29.9	34.9	46.8	33.9	35.8		
Fe-D	mg/L	0.0531	0.0403	0.048	0.0134	0.0465	0.0403		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.21	1.16	1.33	1.81	1.25	1.35		
Mn-D	mg/L	0.0037	0.0024	0.003	0.0015	0.0027	0.0027		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.000001	0.0000046	0.00000172		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.235	0.241	0.266	0.396	0.248	0.277		
S-D	mg/L	8.9	7.8	9	20.6	8.9	11		
Se-D	mg/L	0.0001	0.00005	0.00005	0.00005	0.00005	0.000060		
Na-D	mg/L	10.8	9.91	11	24.6	10.7	13.4		
Sr-D	mg/L	0.0626	0.0563	0.0625	0.104	0.0568	0.0684		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250		

Table 51
Q1 Report 2019

EMS ID	E292118								
Site Description		Lower Quinsam Lake 1 Metre from Bottom							
Site Name	LQLB	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		9-Apr-19	18-Apr-19	25-Apr-19	2-May-19	9-May-19	5 in 30 Ave	Average	Max
Parameters	Units								
SO4-D	mg/L	27.8	29.6	25.8	60.1	25	33.7	**128**	
Turb	NTU	0.71	0.63	0.86	0.39	0.79	0.68		
Alk-T	mg/L	31.7	34.2	32.5	50.7	33.5	36.5		
P-T	mg/L	0.0039	0.0015	0.0038	0.0043	0.0055	0.0038		
Al-T	mg/L	0.0601	0.0499	0.0469	0.0266	0.0427	0.0452		
As-T	mg/L	0.0005	0.00049	0.00047	0.00014	0.00053	0.00043		**0.005**
Ba-T	mg/L	0.0037	0.0034	0.0034	0.0027	0.0036	0.0034		
B-T	mg/L	0.025	0.025	0.025	0.08	0.025	0.0360		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050		
Ca-T	mg/L	12.2	11.8	11.7	17.8	11.9	13.1		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		**0.05**
Cu-T	mg/L	0.00057	0.00057	0.00066	0.00057	0.00057	0.00059	**0.002**	**0.007**
Hard-T	mg/L	36.4	35.1	34.6	53.2	35.6	39		
Fe-T	mg/L	0.107	0.095	0.092	0.077	0.126	0.099		**1**
Pb-T	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100	**0.003**	**0.005**
Mg-T	mg/L	1.41	1.36	1.34	2.11	1.45	1.53		
Mn-T	mg/L	0.0065	0.0075	0.0068	0.0094	0.0187	0.0098	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.000001	0.000001	0.0000035	0.00000150		**0.00010**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		**0.025**
K-T	mg/L	0.256	0.251	0.257	0.4	0.272	0.287		
S-T	mg/L	10.3	10.2	10.8	21.7	8.5	12.3		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050		
Ag-T	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000100		**0.0001**
Na-T	mg/L	11.8	11.6	11.2	27.9	11.9	14.9		
Sr-T	mg/L	0.0641	0.0636	0.061	0.106	0.0626	0.0715		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.00250	**0.0075**	**0.03**
Al-D	mg/L	0.0278	0.0292	0.0307	0.0128	0.0236	0.0248	**0.05**	**0.1**
As-D	mg/L	0.00039	0.00042	0.00043	0.00011	0.00053	0.00038		
Ba-D	mg/L	0.0034	0.0033	0.0033	0.0029	0.0035	0.0033		
B-D	mg/L	0.025	0.025	0.025	0.079	0.025	0.0358		
Cd-D	mg/L	0.0000025	0.000014	0.0000025	0.0000025	0.0000050	0.00000530	**0.000088**	**0.000170**
Ca-D	mg/L	12	10.7	11.9	17.2	12.2	12.8		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Co-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Cu-D	mg/L	0.00052	0.00066	0.00055	0.00049	0.00062	0.00057		
Hard-D	mg/L	35.4	31.8	35.2	51.2	35.7	37.9		
Fe-D	mg/L	0.0577	0.0558	0.0552	0.015	0.0808	0.0529		**0.35**
Pb-D	mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.000100		
Mg-D	mg/L	1.29	1.22	1.33	1.97	1.29	1.42		
Mn-D	mg/L	0.0041	0.0048	0.0047	0.0026	0.0154	0.0063		
Hg-D	mg/L	0.0000010	0.000001	0.000001	0.000001	0.0000058	0.00000196		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.00050		
K-D	mg/L	0.249	0.249	0.261	0.406	0.257	0.284		
S-D	mg/L	9.6	8.9	8.7	22.6	8.6	11.7		
Se-D	mg/L	0.0001	0.00005	0.00005	0.00005	0.00005	0.000060		
Na-D	mg/L	12	10.9	11.4	25.5	11	14.2		
Sr-D	mg/L	0.0646	0.061	0.0608	0.109	0.0593	0.0709		
Zn-D	mg/L	0.0025	0.0086	0.0025	0.0025	0.0025	0.00372		

Table 52
Q1 Report 2019

EMS ID	E0126402								
Site Description		Middle Quinsam Lake Inlet							
Site Name	WA	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		4-Apr-19	11-Apr-19	18-Apr-19	23-Apr-19	30-Apr-19	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L	0.5		0.5	1.1	1.4	0.9	**128**	
Alk-T	mg/L	21.1	17.9	20.2	17.4	14	18.1		
Acidity 8.3	mg/L	0.50	0.50	0.50	0.50	0.50	0.50		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2	**5**	**25**
Al-T	mg/L	0.0253	0.0312	0.0308	0.0253	0.0247	0.0275		
As-T	mg/L	0.00005	0.00011	0.00010	0.00005	0.00005	0.000072		**0.005**
Ba-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.000005	0.0000050	0.0000050	0.000005	0.000005	0.000005		
Ca-T	mg/L	6.49	6.58	6.48	6.31	6.55	6.48		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		**0.05**
Cu-T	mg/L	0.00058	0.00067	0.00067	0.00075	0.0006	0.00065	**0.002**	**0.007**
Hard-T	mg/L	19	19.4	19.1	18.6	19.2	19.1		
Fe-T	mg/L	0.013	0.018	0.022	0.015	0.013	0.016		**1**
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	0.667	0.71	0.703	0.687	0.695	0.692		
Mn-T	mg/L	0.0005	0.0014	0.0013	0.0010	0.0011	0.001	**0.7**	**0.8**
Hg-T	mg/L	0.0000010	0.000001	0.0000010	0.000001	0.000001	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.068	0.059	0.06	0.064	0.059	0.062		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00012	0.00005	0.00005	0.00005	0.00005	0.000064		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.00001		**0.0001**
Na-T	mg/L	0.62	0.692	0.636	0.638	0.62	0.641		
Sr-T	mg/L	0.0105	0.0114	0.0111	0.0104	0.0106	0.0108		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.0207	0.0222	0.0204	0.0217	0.0191	0.0208	**0.05**	**0.1**
As-D	mg/L	0.00005	0.00010	0.00005	0.00010	0.00005	0.00007		
Ba-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	5.94	6.66	6.36	6.31	6.48	6.35		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Cu-D	mg/L	0.00052	0.00056	0.00052	0.00056	0.0006	0.00055		
Hard-D	mg/L	17.6	19.5	18.6	18.5	19.2	18.7		
Fe-D	mg/L	0.0092	0.0095	0.0098	0.0099	0.0085	0.0094		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	0.664	0.692	0.668	0.672	0.721	0.683		
Mn-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Hg-D	mg/L	0.0000010	0.000001	0.0000010	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.064	0.065	0.06	0.063	0.060	0.062		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	0.64	0.662	0.595	0.623	0.661	0.6		
Sr-D	mg/L	0.0108	0.0111	0.0109	0.01	0.0109	0.0107		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 53
Q1 Report 2019

EMS ID	E0900504								
Site Description		Middle Quinsam Lake Outlet						Water Quality Guidelines	
Site Name	WB	5 in 30 Weekly Samples							
Date		4-Apr-19	11-Apr-19	18-Apr-19	23-Apr-19	30-Apr-19	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L	57.9		50.3	42.2	39.4	47	**128**	
Alk-T	mg/L	47.5	45.6	45.3	38.5	40.7	43.5		
Acidity 8.3	mg/L	0.50	0.50	0.50	0.50	0.50	0.50		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2	**5**	**25**
Al-T	mg/L	0.0205	0.0224	0.0869	0.0321	0.0231	0.037		
As-T	mg/L	0.00014	0.00016	0.00018	0.0002	0.00019	0.00017		**0.005**
Ba-T	mg/L	0.0026	0.0028	0.0029	0.0028	0.0026	0.0027		
B-T	mg/L	0.082	0.081	0.071	0.063	0.065	0.072		
Cd-T	mg/L	0.000005	0.000005	0.0000050	0.000005	0.000005	0.000005		
Ca-T	mg/L	15.1	17.2	15.8	14.8	14	15.40		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		**0.05**
Cu-T	mg/L	0.00054	0.00073	0.00084	0.00051	0.0005	0.00062	**0.002**	**0.007**
Hard-T	mg/L	45.5	51	46.9	44.6	42.1	46		
Fe-T	mg/L	0.03	0.042	0.166	0.058	0.038	0.067		**1**
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	1.88	1.94	1.79	1.87	1.72	1.84		
Mn-T	mg/L	0.0039	0.0054	0.01	0.0058	0.0053	0.006	**0.7**	**0.8**
Hg-T	mg/L	0.0000010	0.000001	0.0000010	0.000001	0.000001	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.395	0.371	0.366	0.306	0.312	0.35		
S-T	mg/L	21.2	19	17.3	15.1	14.6	17.4		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.00001		**0.0001**
Na-T	mg/L	26.9	25.1	24.1	16.5	17.6	22		
Sr-T	mg/L	0.112	0.109	0.101	0.0902	0.0868	0.0998		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.0178	0.018	0.0166	0.0189	0.0185	0.0180	**0.05**	**0.1**
As-D	mg/L	0.00013	0.00015	0.00013	0.00019	0.0002	0.00016		
Ba-D	mg/L	0.0024	0.0029	0.0025	0.0026	0.0026	0.0026		
B-D	mg/L	0.080	0.075	0.071	0.057	0.063	0.069		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	15.4	17.4	15.6	14.2	13.8	15.3		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Cu-D	mg/L	0.00048	0.00048	0.00046	0.00051	0.0005	0.00049		
Hard-D	mg/L	46.7	51.2	46.2	42.7	41.9	45.7		
Fe-D	mg/L	0.0205	0.0242	0.022	0.0289	0.0263	0.0244		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	1.97	1.91	1.73	1.76	1.8	1.83		
Mn-D	mg/L	0.0027	0.0038	0.0035	0.0038	0.0036	0.0035		
Hg-D	mg/L	0.0000010	0.000001	0.0000010	0.000001	0.000001	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.409	0.429	0.371	0.272	0.307	0.358		
S-D	mg/L	20.5	20.7	16.7	14.9	14.4	17.4		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	27.6	25	22.1	16.2	18.6	21.9		
Sr-D	mg/L	0.115	0.1040	0.0977	0.0896	0.0917	0.0996		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 54
Q1 Report 2019

EMS ID	E219412								
Site Description		Long Lake Outlet						Water Quality Guidelines	
Site Name	LLO	5 in 30 Weekly Samples							
Date		4-Apr-19	11-Apr-19	18-Apr-19	25-Apr-19	30-Apr-19	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L	1.1		1.4	1.8	1.5	1	**128**	
Alk-T	mg/L	11.3	10.7	11.4	11.6	9.7	10.9		
Acidity 8.3	mg/L	0.5	0.50	0.50	0.5	0.5	0.50		
TSS	mg/L	2.0	2.0	4.0	2.0	2.0	2	**5**	**25**
Al-T	mg/L	0.0389	0.0448	0.0393	0.0386	0.039	0.0401		
As-T	mg/L	0.00016	0.00019	0.00020	0.00019	0.00019	0.00019		**0.005**
Ba-T	mg/L	0.0005	0.0011	0.0011	0.0011	0.0012	0.0010		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	3.11	3.49	3.6	3.4	3.62	3.44		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00079	0.00025	0.00036	**0.002**	**0.007**
Hard-T	mg/L	10.5	11.6	11.9	11.7	12.3	11.6		
Fe-T	mg/L	0.062	0.065	0.053	0.053	0.053	0.057		**1**
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	0.66	0.706	0.716	0.772	0.782	0.728		
Mn-T	mg/L	0.0059	0.0062	0.0046	0.0042	0.0041	0.005	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.069	0.057	0.071	0.069	0.07	0.067		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.00001		**0.0001**
Na-T	mg/L	0.9	0.97	1.02	1.0	1.01	0.978		
Sr-T	mg/L	0.0103	0.0109	0.011	0.0105	0.0109	0.0107		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.032	0.0345	0.0330	0.033	0.0312	0.0327	**0.05**	**0.1**
As-D	mg/L	0.00017	0.00019	0.00019	0.00020	0.0002	0.00019		
Ba-D	mg/L	0.0005	0.0011	0.0011	0.0012	0.0011	0.001		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	3.06	3.66	3.56	3.59	3.56	3.49		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Cu-D	mg/L	0.00037	0.00043	0.00041	0.00044	0.00043	0.00042		
Hard-D	mg/L	10.7	12.1	12.1	12	12.3	11.8		
Fe-D	mg/L	0.0371	0.0372	0.038	0.0377	0.0384	0.0377		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	0.752	0.72	0.77	0.742	0.827	0.762		
Mn-D	mg/L	0.0051	0.0049	0.0041	0.0033	0.0034	0.0042		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.061	0.062	0.07	0.067	0.064	0.065		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	1.01	1.0	1.01	1.02	1.11	1.0		
Sr-D	mg/L	0.0102	0.0109	0.011	0.0107	0.0113	0.0107		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 55
Q1 Report 2019

EMS ID	E217017								
Site Description		No Name Lake Outlet						Water Quality Guidelines	
Site Name	NNO	5 in 30 Weekly Samples							
Date		04-Apr-2019	11-Apr-2019	18-Apr-2019	23-Apr-2019	30-Apr-2019	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L	65.1		2.9	40.6	34.4	36	**128**	
Alk-T	mg/L	33	27.3	22.2	24.1	21.3	25.6		
Acidity 8.3	mg/L	0.5	2.7	1.80	0.5	0.5	1.20		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2	**5**	**25**
Al-T	mg/L	0.0275	0.0395	0.0338	0.0358	0.0315	0.0336		
As-T	mg/L	0.00026	0.00036	0.00029	0.00034	0.00033	0.00032		**0.005**
Ba-T	mg/L	0.0052	0.0046	0.004	0.0042	0.0036	0.0043		
B-T	mg/L	0.066	0.025	0.025	0.025	0.025	0.033		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	27.4	22	18.3	17.2	15.8	20.10		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		**0.05**
Cu-T	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	**0.002**	**0.007**
Hard-T	mg/L	81.3	65.1	55.3	52.2	48	60.4		
Fe-T	mg/L	0.079	0.091	0.069	0.085	0.066	0.078		**1**
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	3.15	2.5	2.34	2.26	2.100	2.47		
Mn-T	mg/L	0.0132	0.0121	0.0107	0.01	0.0096	0.011	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.327	0.242	0.250	0.228	0.197	0.249		
S-T	mg/L	22.4	17.1	16.2	13.5	12.9	16.4		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.00001		**0.0001**
Na-T	mg/L	9.59	6.62	6.51	5.06	4.93	6.54		
Sr-T	mg/L	0.195	0.135	0.1250	0.106	0.0999	0.1322		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.0192	0.0274	0.0227	0.0261	0.0233	0.0237	**0.05**	**0.1**
As-D	mg/L	0.00028	0.00033	0.00025	0.0003	0.0003	0.00029		
Ba-D	mg/L	0.0046	0.0049	0.0041	0.0038	0.0037	0.0042		
B-D	mg/L	0.066	0.025	0.025	0.025	0.025	0.0332		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	26	22.3	19.90	17.2	16.5	20.4		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Cu-D	mg/L	0.00031	0.00036	0.00033	0.0004	0.00037	0.00035		
Hard-D	mg/L	77.5	66.3	58.9	52.4	50.1	61		
Fe-D	mg/L	0.0458	0.0592	0.0496	0.0523	0.0452	0.0504		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	3.07	2.61	2.24	2.27	2.16	2.47		
Mn-D	mg/L	0.0093	0.0088	0.0066	0.0067	0.0051	0.0073		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.334	0.282	0.244	0.213	0.203	0.255		
S-D	mg/L	23.3	17.0	16.2	14.6	12.5	16.7		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	9.77	6.83	5.88	5.22	5.25	6.6		
Sr-D	mg/L	0.189	0.137	0.126	0.104	0.103	0.132		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 56
Q1 Report 2019

EMS ID	E286930								
Site Description		Quinsam River Upstream of 7 South Mining Operation							
Site Name	QRDS1	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		4-Apr-19	11-Apr-19	18-Apr-19	23-Apr-19	30-Apr-19	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L	60.3		46.8	40.9	37	46	**128**	
Alk-T	mg/L	46.7	43.5	43	38.6	44.7	43.3		
Acidity 8.3	mg/L	0.50	0.50	1.00	0.50	0.5	0.60		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2	**5**	**25**
Al-T	mg/L	0.0316	0.0293	0.0341	0.0299	0.0271	0.0304		
As-T	mg/L	0.00019	0.00024	0.00023	0.00025	0.00028	0.00024		**0.005**
Ba-T	mg/L	0.0031	0.003	0.0029	0.0029	0.0028	0.0029		
B-T	mg/L	0.078	0.074	0.069	0.066	0.072	0.072		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	15.4	16.3	14.7	13.7	13.4	14.70		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		**0.05**
Cu-T	mg/L	0.00056	0.00025	0.00066	0.00061	0.00056	0.00053	**0.002**	**0.007**
Hard-T	mg/L	46.1	48.4	44.2	41.6	40.4	44.1		
Fe-T	mg/L	0.053	0.05	0.054	0.05	0.042	0.05		**1**
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	1.85	1.88	1.81	1.8	1.71	1.81		
Mn-T	mg/L	0.0047	0.004	0.0049	0.0045	0.0046	0.005	**0.7**	**0.8**
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.38	0.323	0.347	0.333	0.337	0.344		
S-T	mg/L	19.5	17.8	14.6	14.5	15.3	16.3		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.00001		**0.0001**
Na-T	mg/L	26.5	22.3	22.7	18.1	20.3	22		
Sr-T	mg/L	0.111	0.103	0.0979	0.088	0.0844	0.0969		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.016	0.0196	0.0179	0.0184	0.0184	0.0181	**0.05**	**0.1**
As-D	mg/L	0.0002	0.00023	0.00019	0.00023	0.0002	0.00021		
Ba-D	mg/L	0.0028	0.0032	0.0027	0.0025	0.0026	0.0028		
B-D	mg/L	0.078	0.075	0.067	0.062	0.067	0.07		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	15.6	16.6	15.3	13.7	13.3	14.9		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Cu-D	mg/L	0.00047	0.00055	0.00043	0.00054	0.0005	0.0005		
Hard-D	mg/L	47	49.4	45.2	41.2	40.4	44.6		
Fe-D	mg/L	0.0215	0.0281	0.0257	0.0267	0.0234	0.0251		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	1.99	1.95	1.69	1.69	1.73	1.81		
Mn-D	mg/L	0.0015	0.0021	0.0020	0.0019	0.0019	0.0019		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.391	0.405	0.351	0.331	0.339	0.363		
S-D	mg/L	19.6	18.6	16.4	15.5	15.5	17.1		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	26.4	21.7	20.2	18.7	21.4	21.7		
Sr-D	mg/L	0.113	0.1090	0.096	0.0878	0.0868	0.0985		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 57
Q1 Report 2019

EMS ID	E292112								
Site Description		Lower Wetland Outlet at the Confluence of the Quinsam River							
Site Name	LWO	5 in 30 Weekly Samples						Water Quality Guidelines	
Date		10-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	5 in 30 Average	Average	Max
Parameter	Unit								
SO4-D	mg/L		0.50	0.50	0.50	0.50	1	**128**	
Alk-T	mg/L	17.8	14.3	20.5	24.9	16.3	18.8		
Acidity 8.3	mg/L	1.5	4	1.8	5.4	1.2	2.80		
TSS	mg/L	2.0	2.0	5.2	5.6	16.8	6.3	**5**	**25**
Al-T	mg/L	0.107	0.119	0.162	0.204	0.095	0.1375		
As-T	mg/L	0.00034	0.00033	0.00052	0.00074	0.00005	0.000396		**0.005**
Ba-T	mg/L	0.0015	0.0012	0.0019	0.002	0.0005	0.0014		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	5.74	4.85	6.31	7.67	4.21	5.76		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00021	0.00034	0.00010	0.00017		**0.05**
Cu-T	mg/L	0.00165	0.00101	0.00206	0.00198	0.00025	0.00139	**0.002**	**0.007**
Hard-T	mg/L	18.2	15.2	20.1	23.9	14.5	18.4		
Fe-T	mg/L	0.228	0.261	0.564	0.931	0.107	0.418		**1**
Pb-T	mg/L	0.0001	0.00010	0.0001	0.00010	0.00010	0.00010	**0.003**	**0.005**
Mg-T	mg/L	0.947	0.737	1.05	1.15	0.971	0.971		
Mn-T	mg/L	0.0077	0.0097	0.021	0.0289	0.002	0.014	**0.7**	**0.8**
Hg-T	mg/L	0.0000010	0.000001	0.0000010	0.0000010	0.0000010	0.000001		**0.0001**
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		**0.025**
K-T	mg/L	0.025	0.025	0.025	0.057	0.113	0.049		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00011	0.00005	0.000062		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.00001	0.00001		**0.0001**
Na-T	mg/L	1.85	1.48	1.86	2.15	2.23	1.91		
Sr-T	mg/L	0.0207	0.0164	0.021	0.0251	0.0174	0.0201		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	**0.0075**	**0.03**
Al-D	mg/L	0.0871	0.106	0.111	0.129	0.020	0.0907	**0.05**	**0.1**
As-D	mg/L	0.00029	0.00031	0.00037	0.0006	0.00005	0.000324		
Ba-D	mg/L	0.0015	0.0011	0.0014	0.0018	0.0005	0.00126		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000003	**0.000088**	**0.000170**
Ca-D	mg/L	5.84	4.88	6.24	7.32	3.97	5.65		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00024	0.00010	0.000128		
Cu-D	mg/L	0.00131	0.00081	0.00126	0.00129	0.0001	0.000954		
Hard-D	mg/L	18.5	15.2	19.5	22.9	13.7	18		
Fe-D	mg/L	0.166	0.224	0.323	0.54	0.0287	0.2563		**0.35**
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		
Mg-D	mg/L	0.947	0.735	0.96	1.12	0.924	0.937		
Mn-D	mg/L	0.0067	0.0099	0.0117	0.0218	0.0013	0.0103		
Hg-D	mg/L	0.000001	0.000001	0.000001	0.0000031		0.00000153		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.025	0.025	0.025	0.025	0.054	0.0308		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	1.83	1.42	1.86	1.88	2.03	1.8		
Sr-D	mg/L	0.0215	0.0168	0.0212	0.0255	0.0163	0.0203		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 58
Q1 Report 2019

EMS ID	E292113	Quinsam River Downstream of 7 South Mine Operation								
Site Description		5 in 30 Weekly Samples					Monthly		Water Quality Guidelines	
Site Name	7SQR									
Date		11-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	20-Jun-19	5x30 Average	Average	Max
Parameter	Unit									
SO4-D	mg/L	49	46.3	40.8	39.6	41.1	22.8	43.36	128	
Alk-T	mg/L	42.5	41.5	37.2	43.6	45.3	39.7	42.02		
Acidity 8.3	mg/L	0.50	1.30	0.50	0.5	0.5	0.50	0.66		
TSS	mg/L	2.0	2.0	2.0	2.0	7.2	2.0	3.0	5	25
Al-T	mg/L	0.036	0.0314	0.0328	0.0301	0.0454	0.0163	0.03514		
As-T	mg/L	0.00024	0.00027	0.00031	0.00031	0.00032	0.0004	0.00029		0.005
Ba-T	mg/L	0.0031	0.0029	0.0029	0.0032	0.0031	0.0023	0.00304		
B-T	mg/L	0.068	0.067	0.068	0.070	0.08	0.054	0.071		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	15	14.5	13.6	13.7	14	10.9	14.16		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		0.05
Cu-T	mg/L	0.00077	0.00051	0.00058	0.00056	0.00067	0.00025	0.000618	0.002	0.007
Hard-T	mg/L	44.6	43.4	40.8	40.6	42.1	32.6	42.3		
Fe-T	mg/L	0.087	0.082	0.087	0.093	0.092	0.076	0.088		1
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.003	0.005
Mg-T	mg/L	1.73	1.78	1.7	1.58	1.72	1.34	1.702		
Mn-T	mg/L	0.0052	0.0049	0.0053	0.0068	0.0052	0.0053	0.00548	0.7	0.8
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010		0.0001
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.025
K-T	mg/L	0.322	0.344	0.308	0.327	0.376	0.207	0.3354		
S-T	mg/L	15.1	16.4	13.7	14.8	16.3	8	15.26		
Se-T	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010		0.0001
Na-T	mg/L	20.2	21.4	18	18.7	22.5	13	20.16		
Sr-T	mg/L	0.0977	0.0939	0.0826	0.0848	0.0878	0.0552	0.08936		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0075	0.033
Al-D	mg/L	0.0205	0.0155	0.0171	0.0167	0.0154	0.0116	0.01704	0.05	0.1
As-D	mg/L	0.00027	0.00021	0.00023	0.00024	0.00029	0.00041	0.000248		
Ba-D	mg/L	0.003	0.0026	0.0026	0.0029	0.003	0.0021	0.00282		
B-D	mg/L	0.071	0.061	0.062	0.065	0.077	0.025	0.067		
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000088	0.00017
Ca-D	mg/L	16.5	12.4	13.2	13.2	13.7	11.2	13.8		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Cu-D	mg/L	0.00046	0.0004	0.00046	0.00062	0.00055	0.00038	0.000498		
Hard-D	mg/L	48.9	37.1	39.6	39.8	41.2	33.5	41.32		
Fe-D	mg/L	0.0478	0.0459	0.0461	0.0544	0.0489	0.0471	0.04862		0.35
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Mg-D	mg/L	1.86	1.51	1.6	1.63	1.68	1.33	1.656		
Mn-D	mg/L	0.0038	0.0033	0.0035	0.0046	0.0044	0.0044	0.0039		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.355	0.289	0.268	0.353	0.371	0.235	0.3272		
S-D	mg/L	17.7	13.9	12.8	14.2	15	8.4	14.7		
Se-D	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005		
Na-D	mg/L	21.7	17.6	17.7	18.9	21.7	12.8	19.52		
Sr-D	mg/L	0.0996	0.0847	0.0823	0.0833	0.0869	0.0572	0.08736		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0053	0.0025	0.0025	0.0031		

Table 59
Q1 Report 2019

EMS ID	E297230	Iron River Upstream of Mining Operations					Monthly		Water Quality Guidelines	
Site Description		5 in 30 Weekly Samples								
Site Name	IR1									
Date		10-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	20-Jun-19	5x30 Average	Average	Max
Parameter	Unit									
SO4-D	mg/L	3.30	2.60	1.60	0.5	0.5	6.7	1.7	128	
Alk-T	mg/L	29.2	32.8	28.6	29.3	23.6	60.3	28.7		
Acidity 8.3	mg/L	0.5	0.50	0.50	0.50	0.5	0.50	0.50		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5	25
Al-T	mg/L	0.0524	0.0513	0.0579	0.0507	0.0785	0.0221	0.05816		
As-T	mg/L	0.00034	0.00044	0.00031	0.00039	0.00028	0.00052	0.000352		0.005
Ba-T	mg/L	0.002	0.0021	0.002	0.0019	0.0015	0.0041	0.0019		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.000018	0.000024	0.000017	0.000024	0.000028	0.000018	0.000022		
Ca-T	mg/L	10.8	12.5	10.5	10.70	8.74	22.5	10.648		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.004	0.11
Cu-T	mg/L	0.00054	0.00025	0.00079	0.00061	0.0008	0.00025	0.000598	0.002	0.0070
Hard-T	mg/L	29.1	33.6	28.6	28.9	23.9	61	28.82		
Fe-T	mg/L	0.022	0.018	0.02	0.014	0.021	0.005	0.019		1
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		0.005
Mg-T	mg/L	0.543	0.618	0.587	0.544	0.493	1.16	0.557		
Mn-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.7	0.8
Hg-T	mg/L	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010		0.0001
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.025
K-T	mg/L	0.145	0.144	0.139	0.138	0.135	0.199	0.140		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00026	0.00027	0.0002	0.00016	0.00014	0.00042	0.000206		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00005	0.0001
Na-T	mg/L	0.721	0.716	0.695	0.642	0.563	1.29	0.6674		
Sr-T	mg/L	0.0355	0.0423	0.0335	0.034	0.0248	0.0676	0.03402		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.008	0.03
Al-D	mg/L	0.0517	0.0361	0.0496	0.0467	0.0690	0.0212	0.05062	0.05	0.1
As-D	mg/L	0.00037	0.00036	0.0003	0.00037	0.00026	0.00054	0.000332		
Ba-D	mg/L	0.002	0.0019	0.0018	0.002	0.0014	0.004	0.00182		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000160	0.000021	0.0000210	0.000024	0.0000260	0.000015	0.0000216	0.00008	0.00017
Ca-D	mg/L	11.5	10.6	10.5	10.8	8.16	24.3	10.312		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Cu-D	mg/L	0.00047	0.00043	0.00056	0.00059	0.00073	0.00048	0.000556		
Hard-D	mg/L	31.1	28.9	28.6	29.2	22.4	65.6	28.04		
Fe-D	mg/L	0.0121	0.007	0.0106	0.0102	0.0124	0.0055	0.01046		0.35
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Mg-D	mg/L	0.612	0.566	0.573	0.534	0.492	1.17	0.5554		
Mn-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.000002	0.0000010	0.0000010	0.0000012		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0034	0.0005	0.0011		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.137	0.125	0.132	0.143	0.138	0.219	0.135		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00023	0.00025	0.00022	0.00018	0.00013	0.00035	0.00020		
Na-D	mg/L	0.806	0.666	0.683	0.62	0.578	1.29	0.6706		
Sr-D	mg/L	0.0374	0.0373	0.0323	0.0346	0.0243	0.0691	0.03318		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 60
Q1 Report 2019

EMS ID	E297231	Iron River Upstream of 7SA5 & Upstream of Reclaimed 242 Mine					Monthly		Water Quality Guidelines	
Site Description		5 in 30 Weekly Samples								
Site Name	IR6									
Date		11-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	20-Jun-19	5x30 Average	Average	Max
Parameter	Unit									
SO4-D	mg/L	1.70	1.60	1.9	1.50	0.50	6.5	1.44	128	
Alk-T	mg/L	23.1	26.7	23.5	25.0	22.6	52.8	24.18		
Acidity 8.3	mg/L	0.5	0.50	0.50	0.50	0.5	0.50	0.50		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5	25
Al-T	mg/L	0.0722	0.0713	0.0845	0.0579	0.0841	0.0217	0.074		
As-T	mg/L	0.00053	0.00064	0.00088	0.00061	0.00029	0.00458	0.00059		0.005
Ba-T	mg/L	0.0033	0.0034	0.0039	0.0032	0.0016	0.0085	0.00308		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.000011	0.000014	0.000005	0.000015	0.000029	0.000013	0.000015		
Ca-T	mg/L	8.48	10.2	8.76	9.17	8.74	19.7	9.07		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.004	0.11
Cu-T	mg/L	0.00087	0.0005	0.00066	0.00069	0.00082	0.00066	0.000716	0.002	0.0070
Hard-T	mg/L	23.8	28.3	24.6	25.4	24	55.3	25.22		
Fe-T	mg/L	0.046	0.031	0.095	0.021	0.036	0.005	0.0458		1
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		0.005
Mg-T	mg/L	0.634	0.679	0.656	0.601	0.516	1.49	0.6172		
Mn-T	mg/L	0.0013	0.0005	0.0028	0.0005	0.0005	0.0005	0.0011	0.7	0.8
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010		0.0001
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.025
K-T	mg/L	0.162	0.167	0.165	0.19	0.15	0.309	0.1668		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00022	0.00020	0.00016	0.00015	0.00013	0.00022	0.000172		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00005	0.0001
Na-T	mg/L	0.853	0.835	0.786	0.718	0.58	2	0.7544		
Sr-T	mg/L	0.03	0.0357	0.0288	0.0306	0.0249	0.0629	0.0300		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0075	0.03
Al-D	mg/L	0.0709	0.0514	0.0616	0.0527	0.0719	0.0203	0.0617	0.05	0.1
As-D	mg/L	0.00056	0.00052	0.0005	0.00062	0.00027	0.00464	0.000494		
Ba-D	mg/L	0.0033	0.003	0.0029	0.0032	0.0015	0.0084	0.00278		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000090	0.000013	0.0000160	0.000015	0.0000280	0.000009	0.0000162	0.000080	0.000170
Ca-D	mg/L	9.07	8.51	8.48	9.21	8.19	20.9	8.692		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Cu-D	mg/L	0.0006	0.00055	0.00066	0.00062	0.0008	0.00043	0.000646		
Hard-D	mg/L	25.3	23.7	23.8	25.4	22.5	58.2	24.14		
Fe-D	mg/L	0.0231	0.0154	0.019	0.0134	0.0149	0.0025	0.01716		0.35
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Mg-D	mg/L	0.633	0.594	0.628	0.59	0.492	1.45	0.5874		
Mn-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.000001	0.0000010	0.0000010	0.0000010		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.159	0.143	0.162	0.157	0.151	0.282	0.1544		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00019	0.00018	0.00013	0.00016	0.00013	0.00021	0.000158		
Na-D	mg/L	0.887	0.743	0.812	0.718	0.569	1.96	0.7458		
Sr-D	mg/L	0.0303	0.0317	0.0277	0.0301	0.0246	0.0634	0.02888		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 61
Q1 Report 2019

EMS ID	E297232	Iron River Downstream of 7SA5 & Reclaimed 242 Mine					Monthly		Water Quality Guidelines	
Site Description		5 in 30 Weekly Samples								
Site Name	IR8									
Date		11-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	20-Jun-19	5x30 Average	Average	Max
Parameter	Unit									
SO4-D	mg/L	1.70	1.70	1.8	0.50	0.50	6.6	1.24	128	
Alk-T	mg/L	24.8	26.4	24	25.8	17.8	57.0	23.8		
Acidity 8.3	mg/L	0.50	0.50	0.50	0.5	0.5	0.50	0.50		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5	25
Al-T	mg/L	0.0755	0.0655	0.0691	0.0579	0.0884	0.0193	0.0713		
As-T	mg/L	0.00079	0.00089	0.00077	0.00106	0.00078	0.00924	0.000858		0.005
Ba-T	mg/L	0.0034	0.0036	0.0031	0.0036	0.0027	0.0091	0.00328		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-T	mg/L	0.00001	0.000012	0.000005	0.000013	0.000017	0.000013	0.000011		
Ca-T	mg/L	8.31	9.58	9.01	9.47	7.34	19.9	8.742		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.004	0.11
Cu-T	mg/L	0.00064	0.00060	0.00069	0.00067	0.00101	0.00061	0.000722	0.0020	0.0070
Hard-T	mg/L	23.4	26.8	25.3	26.3	20.7	56.3	24.5		
Fe-T	mg/L	0.047	0.031	0.03	0.021	0.035	0.01	0.0328		1
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		0.005
Mg-T	mg/L	0.644	0.704	0.679	0.639	0.573	1.61	0.6478		
Mn-T	mg/L	0.0011	0.0005	0.0005	0.0005	0.0011	0.0010	0.0007	0.7	0.8
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010		0.0001
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.025
K-T	mg/L	0.161	0.163	0.154	0.162	0.344	0.269	0.1968		
S-T	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-T	mg/L	0.00017	0.00019	0.00016	0.00015	0.00011	0.00019	0.000156		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00005	0.0001
Na-T	mg/L	0.877	0.89	0.837	0.796	0.826	2.81	0.8452		
Sr-T	mg/L	0.0292	0.0333	0.029	0.0326	0.0234	0.0649	0.0295		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0075	0.03
Al-D	mg/L	0.0672	0.0434	0.0589	0.0518	0.0713	0.0177	0.05852	0.05	0.1
As-D	mg/L	0.00082	0.00076	0.00075	0.00102	0.00076	0.00922	0.000822		
Ba-D	mg/L	0.0034	0.0033	0.0028	0.0035	0.0026	0.0087	0.00312		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000080	0.000011	0.0000140	0.0000120	0.0000150	0.0000090	0.0000120	0.000088	0.000170
Ca-D	mg/L	8.69	8.72	8.57	9.19	7.38	21.5	8.51		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Cu-D	mg/L	0.00054	0.00049	0.00058	0.00066	0.00082	0.00057	0.000618		
Hard-D	mg/L	24.6	24.3	24	25.4	20.7	60.1	23.8		
Fe-D	mg/L	0.0226	0.0149	0.0172	0.0144	0.018	0.0076	0.0174		0.35
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Mg-D	mg/L	0.71	0.602	0.629	0.603	0.551	1.59	0.619		
Mn-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000024	0.0000010	0.0000010	0.0000013		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.153	0.133	0.133	0.154	0.147	0.299	0.144		
S-D	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Se-D	mg/L	0.00019	0.00019	0.00016	0.00014	0.00005	0.00017	0.00015		
Na-D	mg/L	0.956	0.763	0.82	0.771	0.697	2.77	0.8014		
Sr-D	mg/L	0.0293	0.0315	0.0272	0.0308	0.0227	0.0663	0.0283		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 62
Q1 Report 2019

EMS ID	E299256	Quinsam River Downstream of the Confluence with Iron River								
Site Description		5 in 30 Weekly Samples					Monthly		Water Quality Guidelines	
Site Name	IRQR									
Date		11-Apr-19	18-Apr-19	25-Apr-19	2-May-19	7-May-19	20-Jun-19	5x30 Average	Average	Max
Parameter										
SO4-D	mg/L	29.6	29.0	24.6	22.2	18.9	22.3	24.9	128	
Alk-T	mg/L	33.7	35.9	34.2	36.8	32.3	37.7	34.58		
Acidity 8.3	mg/L	0.5	1.00	0.50	0.5	0.5	0.50	0.60		
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5	25
Al-T	mg/L	0.0467	0.0472	0.0423	0.0436	0.0572	0.0173	0.0474		
As-T	mg/L	0.00047	0.00055	0.00047	0.00061	0.00059	0.00043	0.000538		0.005
Ba-T	mg/L	0.0034	0.0033	0.003	0.0035	0.0029	0.0026	0.0032		
B-T	mg/L	0.025	0.025	0.025	0.025	0.025	0.053	0.025		
Cd-T	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		
Ca-T	mg/L	11.8	12.4	10.8	12	10.3	11.1	11.46		
Cr-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.0001		0.05
Cu-T	mg/L	0.00087	0.00051	0.00057	0.0009	0.00073	0.00051	0.0007	0.0020	0.0070
Hard-T	mg/L	34.6	36.7	32	34.9	30.2	33.5	34		
Fe-T	mg/L	0.07	0.064	0.059	0.068	0.065	0.079	0.0652		1
Pb-T	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.003	0.005
Mg-T	mg/L	1.27	1.38	1.25	1.21	1.08	1.38	1.238		
Mn-T	mg/L	0.0034	0.0031	0.0031	0.0043	0.0034	0.0055	0.0035	0.7	0.8
Hg-T	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.000001		0.0001
Mo-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-T	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.025
K-T	mg/L	0.271	0.268	0.232	0.255	0.228	0.212	0.2508		
S-T	mg/L	9.1	9.8	8.3	8.2	6.7	7.4	8.4		
Se-T	mg/L	0.00011	0.00010	0.00005	0.00011	0.00005	0.00005	0.00008		
Ag-T	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010		0.0001
Na-T	mg/L	11.5	12.10	10.2	11	9.48	12.7	10.856		
Sr-T	mg/L	0.0665	0.0662	0.0565	0.0614	0.0533	0.0553	0.0608		
Zn-T	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0075	0.03
Al-D	mg/L	0.0386	0.0247	0.0339	0.0254	0.0428	0.0118	0.0331	0.05	0.1
As-D	mg/L	0.0005	0.00046	0.00043	0.00055	0.00053	0.00044	0.000494		
Ba-D	mg/L	0.0034	0.003	0.0028	0.0033	0.003	0.0025	0.0031		
B-D	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Cd-D	mg/L	0.0000025	0.000008	0.0000050	0.0000025	0.0000070	0.0000025	0.000005	0.000088	0.000170
Ca-D	mg/L	13	10.7	10.9	11.7	9.8	11.9	11.22		
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Co-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Cu-D	mg/L	0.00054	0.00046	0.00058	0.00053	0.00069	0.00045	0.00056		
Hard-D	mg/L	38	31.7	32.3	34.1	28.9	35.2	33		
Fe-D	mg/L	0.0374	0.0329	0.0358	0.0363	0.0364	0.0476	0.03576		0.35
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010		
Mg-D	mg/L	1.36	1.19	1.21	1.17	1.07	1.32	1.2		
Mn-D	mg/L	0.0024	0.0021	0.0022	0.003	0.0026	0.0043	0.0025		
Hg-D	mg/L	0.000001	0.000001	0.0000010	0.0000010	0.0000010	0.0000010	0.000001		
Mo-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
K-D	mg/L	0.269	0.237	0.237	0.244	0.229	0.237	0.243		
S-D	mg/L	10.3	8.4	7.9	8.4	7	8	8.4		
Se-D	mg/L	0.00005	0.00011	0.00005	0.00005	0.00005	0.00005	0.00006		
Na-D	mg/L	12.6	11.2	10.7	10.7	9.46	12.1	10.932		
Sr-D	mg/L	0.068	0.0595	0.0586	0.0616	0.0533	0.0552	0.0602		
Zn-D	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		

Table 63
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Taxa and Abundance of Zooplankton Samples - Spring 2019

level of id. : lowest/lowest

Site Name		**NNL**	**NNL**	**LLM**	**LLM**	**MQL**	**MQL**	**LQL**	**LQL**
Sampling Date(s)		**30-Apr-19**	**07-May-19**	**30-Apr-19**	**07-May-19**	**01-May-19**	**08-May-19**	**01-May-19**	**08-May-19**
units = total organisms/sample									
	stage								
Sub-class : Copepoda									
Order : Cyclopoida									
Cryptocyclops bicolor	adult	29	55	60			5		
Diacyclops thomasi	adult	7			228	9	10	30	7
Ectocyclops phaleratus	adult	22		40		9			3
Microcyclops varicans	adult		9						
UID	copepodid	99	81	50	127	4	13	12	107
Order : Calanoida									
Family : Diaptomidae									
Hesperodiapomus novemdecimus	adult	39	59			25	21		
Skistodiaptomus oregonensis	adult			8	26				10
Diaptomus sp.	adult							1	
UID	copepodid	90	89	32	26	2	4	1	33
UID Calanoida / Cyclopoida	nauplii	281	260	446	1,495	613	889	675	918
Order : Cladocera									
Bosmina longirostris	adult	85	44	21	52	7	18	45	74
Bosmina longirostris	juvenile		34	5			1		14
Daphnia longiremis	adult			32	163		22		
Daphnia rosea	adult	41	47	29	124	67	80	26	6
Daphnia sp.	juvenile	29	9	50	202	155	21	10	82
Diaphanosoma brachyurum	adult				16				23
Holopedium gibberum	adult	148	319		3			5	21
Holopedium gibberum	juvenile	99		8					
Polyphemus pediculus	adult						1		
Phylum : Rotifera									
Asplanchna sp.					306				
Conochilus sp.	colonies		20	48					12
Kellicottia longispina		230	257	87	75	4	7	9	4
Keratella cochlearis		2	61	187	659	9	41	13	12
Keratella quadrata			2	42	107	5	1	1	2
Polyarthra sp.		128	223	209	646	25	22	4	160
UID				3					
TOTAL		**1,329**	**1,569**	**1,357**	**4,255**	**934**	**1,156**	**832**	**1,488**

UID = unidentified due to lack of size and/or missing morphological characters.

Table 64
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			Ex-situ					
			2-North		4-South		2-South	3-South Pit
Stn.Code			QU0821GS	QU0821GD	QU1009S	QU1009D	MW1224	MW002
Date		Freshwater Aquatic Life (C)	23-May-19	23-May-19	27-May-19	27-May-19	16-May-19	15-May-19
Parameter	Units							
SO4-D	mg/L	1000	0.5	0.5	120	69	128	1300
S2-T	mg/L		0.0035	0.0021	0.0087	0.10	0.060	0.00095
Turb	NTU		2.84	5.44	67.0	3.49	1930	51.6
Alk-T	mg/L		204	202	137	177	431	258
Acidity83	mg/L		0.5	2.0	3.0	0.5	0.5	10.3
N-D	mg/L		0.299	0.466	0.108	0.136	0.513	0.196
DOC	mg/L		1.25	1.25	1.2	0.97		0.57
Hydrox	mg/L		0.5	0.5	0.5	0.5	0.5	0.5
Bicarb	mg/L		240	247	167	215	496	315
Carb	mg/L		4.3	0.5	0.5	0.5	14.9	0.5
Cl-D	mg/L	1500	170	1000	1.4	2.3	12	2.2
F-D	mg/L		1.80	1.10	0.055	0.260	0.280	0.120
Br-D	mg/L		0.26	1.5	0.044	0.023	0.05	0.30
P-D	mg/L		0.12	0.035	0.014	0.020	0.0040	0.0015
TSS	mg/L							
Al-D	mg/L		0.0035	0.0030	0.0015	0.0015	0.0211	0.0030
Ag-D	mg/L		0.000010	0.000020	0.000010	0.000010	0.000010	0.000020
As-D	mg/L	0.05	0.186	0.109	0.0722	0.0993	0.00297	0.00188
Ba-D	mg/L	10	0.547	2.27	0.130	0.109	0.0193	0.0130
B-D	mg/L	50	1.93	2.79	0.025	0.539	0.343	0.83
Be-D	mg/L	0.053	0.00005	0.00010	0.00005	0.00005	0.00005	0.00010
Bi-D	mg/L		0.0005	0.0010	0.0005	0.0005	0.0005	0.0010
Cd-D	mg/L		0.0000025	0.000005	0.0000025	0.0000025	0.0000110	0.000005
Ca-D	mg/L		22.4	95.8	68.6	48.6	7.47	465
Cr-D	mg/L	0.010	0.0005	0.0010	0.0005	0.0005	0.0005	0.0010
Co-D	mg/L	0.04	0.00010	0.00020	0.00010	0.00010	0.00010	0.00349
Cu-D	mg/L		0.00010	0.00020	0.00010	0.00010	0.00140	0.00020
Fe-D	mg/L		0.485	0.743	4.75	0.477	0.0305	4.27
Hard-D	mg/L		78.5	300	213	160	19.8	1350
Pb-D	mg/L		0.00010	0.00020	0.00010	0.00010	0.00010	0.00020
Mg-D	mg/L		5.47	14.7	10.2	9.49	0.267	46.7
Mn-D	mg/L		0.0837	0.108	0.377	0.0581	0.0475	1.37
Hg-D	mg/L	0.001	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000068
Na-D	mg/L		155	493	8.39	33.1	213	78.7
Mo-D	mg/L	10	0.0005	0.0010	0.0005	0.0005	0.0151	0.0010
Ni-D	mg/L		0.0005	0.0010	0.0005	0.0005	0.0027	0.0029
K-D	mg/L		4.56	8.94	0.660	1.65	1.00	4.28
S-D	mg/L		1.5	3.0	34.3	22.7	26.6	430
Sb-D	mg/L	0.2	0.00025	0.0005	0.00025	0.00025	0.00025	0.0005
Se-D	mg/L	0.01	0.00005	0.00010	0.00005	0.00005	0.00023	0.00010
Si-D	mg/L		2.94	3.37	7.84	9.10	1.86	3.31
Sr-D	mg/L		0.555	2.05	0.267	0.906	0.0959	3.77
Tl-D	mg/L	0.003	0.000005	0.000010	0.000005	0.000005	0.000005	0.000010
Ti-D	mg/L	1.00	0.0025	0.005	0.0025	0.0025	0.0025	0.005
U-D	mg/L	3	0.00005	0.00010	0.00005	0.00005	0.00637	0.00078
V-D	mg/L		0.0025	0.005	0.0025	0.0025	0.0025	0.005
Zn-D	mg/L		0.0025	0.005	0.0025	0.0025	0.0025	0.005
H2SEquiv	mg/L	0.02	0.00372	0.00223	0.00925	0.106	0.0638	0.00101

Table 65
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In-situ																
		2-South Mine Pool			7-South PAG-CCR	7-South Area 5	Underground Sump		Portal Sump collects mine and surface water				2-North mine pool pumped to Brinko Brook			
Stn.Code		INF	INF	MW004	QU1410	7SA5BRD	1M7S	1M7S	7SPS				1M2N	1M2N	5M#2	5M#2
Date		16-May-19	20-Jun-19	15-May-19	30-Apr-19	6-May-19	3-Apr-19	21-May-19	1-Apr-19	6-May-19	21-May-19	11-Jun-19	3-Apr-19	21-May-19	3-Apr-19	21-May-19
Parameter	Units															
SO4-D	mg/L	542	550	280	1770	8.0	285	107	335	249	237	257	994	444	214	187
S2-T	mg/L	0.00095		0.00095	0.00095		0.00095						0.13		0.0049	
Turb	NTU	40.6		0.44	20.1	0.70	3.48						32.6		1.57	
Alk-T	mg/L	260	250	110	308	184	144	155	120	108	116	150	484	491	520	518
Acidity83	mg/L	9.1	8.1	1.8		0.5	3.2	0.5	17.4	2.4	1.1	0.5	36.5	0.5	1.1	0.5
N-D	mg/L			0.165	0.28	0.40	0.147	0.238			0.164		0.42	0.296	0.075	0.120
DOC	mg/L			1.8	1.2	1.2	1.1	0.86	2.2	2.6	3.5		1.1	0.25	1.2	0.92
Hydrox	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Bicarb	mg/L	320	300	134	376	225	176	189	146	132	141	180	590	585	607	609
Carb	mg/L	0.5	3.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6.6	13.8	11.5
Cl-D	mg/L			0.5	5.7	0.5	17	7.1			7.2		20	51	10	12
F-D	mg/L			0.080	0.180	0.440	0.370	0.500			0.057		0.130	0.160	0.078	0.070
Br-D	mg/L			0.042	0.39	0.005	0.042	0.025			0.13		0.21	0.16	0.038	0.034
P-D	mg/L	0.0010		0.0015	0.022	0.017	0.0026	0.0015	0.0026		0.0015		0.0047	0.0015	0.0034	0.0015
TSS	mg/L	6.4	8.8			2.0	14.8	8.4	20	9.6	22.4	2.0	19.2	6.8	2.0	2.0
Al-D	mg/L	0.0015	0.0015	0.0040	0.0030	0.0015	0.0015	0.0015	0.0015	0.0040	0.0047	0.0055	0.0075	0.0015	0.0015	0.0015
Ag-D	mg/L	0.000010	0.000010	0.000010	0.000020	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00005	0.000010	0.000010	0.000010
As-D	mg/L	0.00313	0.00358	0.00020	0.0894	0.295	0.00199	0.0104	0.00125	0.00038	0.00048	0.00036	0.00997	0.00752	0.00681	0.00585
Ba-D	mg/L	0.0222	0.0230	0.0219	0.0162	0.538	0.0654	0.124	0.0530	0.0177	0.0254	0.0306	0.0285	0.0214	0.0279	0.0275
B-D	mg/L	0.733	0.679	0.240	1.26	0.492	0.474	0.497	0.375	0.056	0.065	0.083	1.30	1.12	0.955	0.813
Be-D	mg/L	0.00005	0.00005	0.00005	0.00010	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00025	0.00005	0.00005	0.00005
Bi-D	mg/L	0.0005	0.0005	0.0005	0.0010	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0025	0.0005	0.0005	0.0005
Cd-D	mg/L	0.0000025	0.0000025	0.0000025	0.000005	0.0000025	0.0000058	0.0000025	0.0000270	0.0000190	0.0000160	0.0000025	0.0000125	0.0000025	0.0000025	0.0000025
Ca-D	mg/L	212	227	97.1	520	40.0	118	62.4	137	100	107	135	172	85.5	52.3	53.6
Cr-D	mg/L	0.0005	0.0005	0.0005	0.0010	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0025	0.0005	0.0005	0.0005
Co-D	mg/L	0.00054	0.00036	0.00010	0.00048	0.00010	0.00393	0.00126	0.00765	0.00506	0.00240	0.00146	0.0005	0.00010	0.00023	0.00010
Cu-D	mg/L	0.00010	0.00010	0.00069	0.00020	0.00010	0.00010	0.00034	0.00010	0.00024	0.00057	0.00059	0.0005	0.00010	0.00010	0.00010
Fe-D	mg/L	3.23	3.53	0.0025	1.60	0.0571	0.330	0.0390	4.44	0.787	0.0232	0.0553	6.93	2.68	0.436	0.462
Hard-D	mg/L	584	623	289	2050	130	399	208	467	348	357	460	500	247	149	151
Pb-D	mg/L	0.00010	0.00010	0.00010	0.00020	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.0005	0.00010	0.00010	0.00010
Mg-D	mg/L	13.4	13.5	11.2	182	7.29	25.3	12.7	30.2	23.7	21.8	29.9	17.2	8.12	4.47	4.08
Mn-D	mg/L	0.318	0.358	0.0005	1.35	0.0324	0.287	0.0869	0.492	0.444	0.246	0.170	0.749	0.294	0.0981	0.0947
Hg-D	mg/L	0.0000010	0.0000029	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010	0.0000010
Na-D	mg/L	107	104	28.1	55.0	21.5	26.3	24.4	21.3	10.4	14.5	19.9	434	323	255	233
Mo-D	mg/L	0.0005	0.0044	0.0005	0.0010	0.0005	0.0045	0.0054	0.0027	0.0005	0.0005	0.0005	0.0025	0.0016	0.0005	0.0005
Ni-D	mg/L	0.0005	0.0005	0.0005	0.0031	0.0005	0.0104	0.0096	0.0151	0.0094	0.0046	0.0047	0.0025	0.0005	0.0005	0.0005
K-D	mg/L	1.76	1.90	1.30	7.61	2.48	2.96	2.65	2.55	1.13	1.63	1.90	6.32	4.22	2.54	2.30
S-D	mg/L	198	217	85.6	671	1.5	107	36.2	134	95.7	89.2	120	336	145	74.6	57.0
Sb-D	mg/L	0.00025	0.00025	0.00025	0.0005	0.00025	0.00082	0.00075	0.00055	0.00025	0.00025	0.00025	0.00125	0.00025	0.00025	0.00025
Se-D	mg/L	0.00005	0.00005	0.00005	0.00010	0.00005	0.00005	0.00005	0.00005	0.00005	0.00017	0.00005	0.00025	0.00005	0.00005	0.00005
Si-D	mg/L	3.30	3.43	2.45	3.26	4.28	3.58	3.52	4.90	5.33	3.93	5.21	4.04	3.04	3.06	2.88
Sr-D	mg/L	1.92	2.01	0.816	4.34	0.509	0.855	0.543	0.775	0.406	0.393	0.496	1.86	0.839	0.600	0.536
Tl-D	mg/L	0.000005	0.000005	0.000005	0.000010	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000025	0.000005	0.000005	0.000005
Ti-D	mg/L	0.0025	0.0025	0.0025	0.005	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0125	0.0025	0.0025	0.0025
U-D	mg/L	0.00005	0.00005	0.00005	0.00095	0.00005	0.00023	0.00014	0.00025	0.00028	0.00030	0.00040	0.00025	0.00005	0.00005	0.00005
V-D	mg/L	0.0025	0.0025	0.0025	0.005	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0125	0.0025	0.0025	0.0025
Zn-D	mg/L	0.0093	0.0025	0.0025	0.005	0.0025	0.0025	0.0117	0.0112	0.0082	0.0025	0.0025	0.0125	0.0025	0.0025	0.0025
H2SEquiv	mg/L	0.00101		0.00101	0.00101		0.00101						0.138		0.00521	

Table 66
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2S Inflow					
Date	L/s	Date	L/s	Date	L/s
01-Apr-19	3.6401	01-May-19	29.3351	01-Jun-19	33.8128
02-Apr-19	3.5765	02-May-19	27.8137	02-Jun-19	32.7877
03-Apr-19	6.5441	03-May-19	27.0568	03-Jun-19	31.2519
04-Apr-19	15.4103	04-May-19	27.0613	04-Jun-19	28.9374
05-Apr-19	39.9617	05-May-19	27.1943	05-Jun-19	27.9932
06-Apr-19	75.2490	06-May-19	25.7102	06-Jun-19	27.9063
07-Apr-19	91.2843	07-May-19	24.6688	07-Jun-19	25.4449
08-Apr-19	74.0745	08-May-19	23.9598	08-Jun-19	19.7779
09-Apr-19	61.2507	09-May-19	24.5069	09-Jun-19	19.6992
10-Apr-19	55.3658	10-May-19	24.0528	10-Jun-19	20.4915
11-Apr-19	52.2093	11-May-19	22.8004	11-Jun-19	17.6681
12-Apr-19	48.5809	12-May-19	20.4117	12-Jun-19	16.0256
13-Apr-19	50.6170	13-May-19	27.7288	13-Jun-19	15.6901
14-Apr-19	44.2550	14-May-19	50.3681	14-Jun-19	14.9517
15-Apr-19	41.7120	15-May-19	46.7548	15-Jun-19	14.3558
16-Apr-19	38.9144	16-May-19	38.8696	16-Jun-19	14.4351
17-Apr-19	37.9881	17-May-19	28.7560	17-Jun-19	14.7838
18-Apr-19	51.2494	18-May-19	34.6233	18-Jun-19	35.4358
19-Apr-19	70.8015	19-May-19	35.6482	19-Jun-19	36.0430
20-Apr-19	63.6606	20-May-19	38.1344	20-Jun-19	36.4685
21-Apr-19	53.9978	21-May-19	45.6039	21-Jun-19	36.5827
22-Apr-19	53.4626	22-May-19	47.2240	22-Jun-19	36.0249
23-Apr-19	49.3346	23-May-19	35.3596	23-Jun-19	36.2066
24-Apr-19	43.2171	24-May-19	38.9397	24-Jun-19	36.0523
25-Apr-19	39.2056	25-May-19	37.9124	25-Jun-19	36.0281
26-Apr-19	37.4736	26-May-19	37.7604	26-Jun-19	36.4575
27-Apr-19	34.6033	27-May-19	37.6427	27-Jun-19	38.3873
28-Apr-19	31.8605	28-May-19	36.9612	28-Jun-19	39.5118
29-Apr-19	30.9852	29-May-19	39.0776	29-Jun-19	38.4347
30-Apr-19	29.7601	30-May-19	38.7815	30-Jun-19	37.0940
		31-May-19	34.2149		

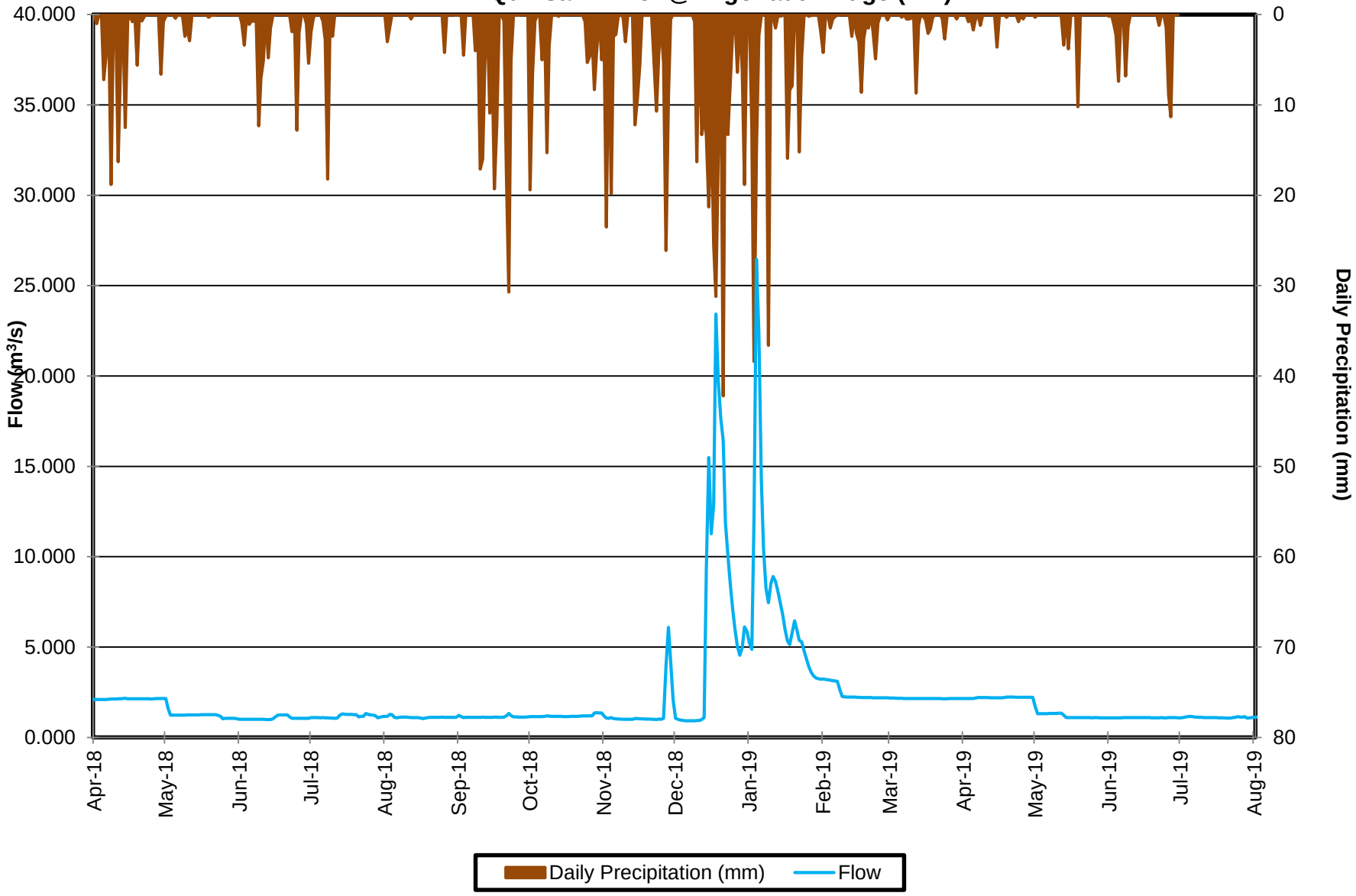
Table 67
Q1 Report 2019

2S Outflow Culvert into 3S Pit								
Date	Level	Q (l/s)	Date	Level	Q (l/s)	Date	Level	Q (l/s)
1-Apr-2019	0.12913628	9.07324698	1-May-2019	0.138896418	10.5784766	1-Jun-2019	0.121885359	8.040336202
2-Apr-2019	0.130399539	9.2605815	2-May-2019	0.13854624	10.52215466	2-Jun-2019	0.124739549	8.438359688
3-Apr-2019	0.136434351	10.18616396	3-May-2019	0.135139951	9.983341592	3-Jun-2019	0.123916413	8.32243669
4-Apr-2019	0.132668838	9.602665177	4-May-2019	0.13509899	9.976961815	4-Jun-2019	0.123237165	8.227471124
5-Apr-2019	0.135535032	10.0449977	5-May-2019	0.133737847	9.766297923	5-Jun-2019	0.125246448	8.510206016
6-Apr-2019	0.15064403	12.56986254	6-May-2019	0.132960928	9.64721681	6-Jun-2019	0.128171594	8.931673186
7-Apr-2019	0.156965004	13.72462552	7-May-2019	0.132209261	9.532808079	7-Jun-2019	0.124208089	8.363408227
8-Apr-2019	0.154792922	13.32115133	8-May-2019	0.130161236	9.22507339	8-Jun-2019	0.12380203	8.306400928
9-Apr-2019	0.151544988	12.73085646	9-May-2019	0.129067332	9.063085889	9-Jun-2019	0.126939025	8.75264958
10-Apr-2019	0.158270741	13.97055108	10-May-2019	0.128377561	8.961792544	10-Jun-2019	0.125058824	8.483571824
11-Apr-2019	0.177607829	17.91522075	11-May-2019	0.130149738	9.22336212	11-Jun-2019	0.119955512	7.777456221
12-Apr-2019	0.170142302	16.324367	12-May-2019	0.129259595	9.091436791	12-Jun-2019	0.120574528	7.861231073
13-Apr-2019	0.171053427	16.51389817	13-May-2019	0.131586888	9.438674424	13-Jun-2019	0.120160177	7.805097618
14-Apr-2019	0.164851684	15.2489668	14-May-2019	0.133239962	9.68988829	14-Jun-2019	0.119860483	7.764640901
15-Apr-2019	0.158806264	14.07214887	15-May-2019	0.131093374	9.364413527	15-Jun-2019	0.118920022	7.63846725
16-Apr-2019	0.153319478	13.05143239	16-May-2019	0.133901098	9.79142716	16-Jun-2019	0.119378324	7.69980564
17-Apr-2019	0.14909376	12.29562398	17-May-2019	0.130345928	9.25258637	17-Jun-2019	0.121100359	7.932799679
18-Apr-2019	0.168271519	15.93920884	18-May-2019	0.127697864	8.862619605	18-Jun-2019	0.120296043	7.823478426
19-Apr-2019	0.20722352	25.10001647	19-May-2019	0.126705364	8.718946755	19-Jun-2019	0.12068928	7.876817806
20-Apr-2019	0.205861633	24.73819798	20-May-2019	0.133140792	9.674710149	20-Jun-2019	0.120424068	7.840821148
21-Apr-2019	0.195470039	22.07841964	21-May-2019	0.125580081	8.557685347	21-Jun-2019	0.119534586	7.720783788
22-Apr-2019	0.191779745	21.1763854	22-May-2019	0.125209898	8.505013715	22-Jun-2019	0.121832145	8.033020277
23-Apr-2019	0.177787547	17.95458679	23-May-2019	0.125885865	8.601335017	23-Jun-2019	0.1247241	8.436175528
24-Apr-2019	0.165596434	15.39776537	24-May-2019	0.124942458	8.467077321	24-Jun-2019	0.123027694	8.198311399
25-Apr-2019	0.157149715	13.75926017	25-May-2019	0.124383769	8.388141687	25-Jun-2019	0.120208698	7.811659021
26-Apr-2019	0.150184575	12.48821959	26-May-2019	0.122988839	8.192909092	26-Jun-2019	0.119532042	7.720442026
27-Apr-2019	0.148090051	12.11994178	27-May-2019	0.123370789	8.246103623	27-Jun-2019	0.1273042	8.80547159
28-Apr-2019	0.142916239	11.23752574	28-May-2019	0.123201067	8.222441873	28-Jun-2019	0.128719324	9.011898603
29-Apr-2019	0.141011319	10.92233875	29-May-2019	0.122836589	8.171760101	29-Jun-2019	0.123652144	8.28541484
30-Apr-2019	0.139942131	10.74770337	30-May-2019	0.123771271	8.302091739	30-Jun-2019	0.119882463	7.767603935
			31-May-2019	0.123577324	8.274950426			

GRAPH 1

FLOW & PRECIPITATION

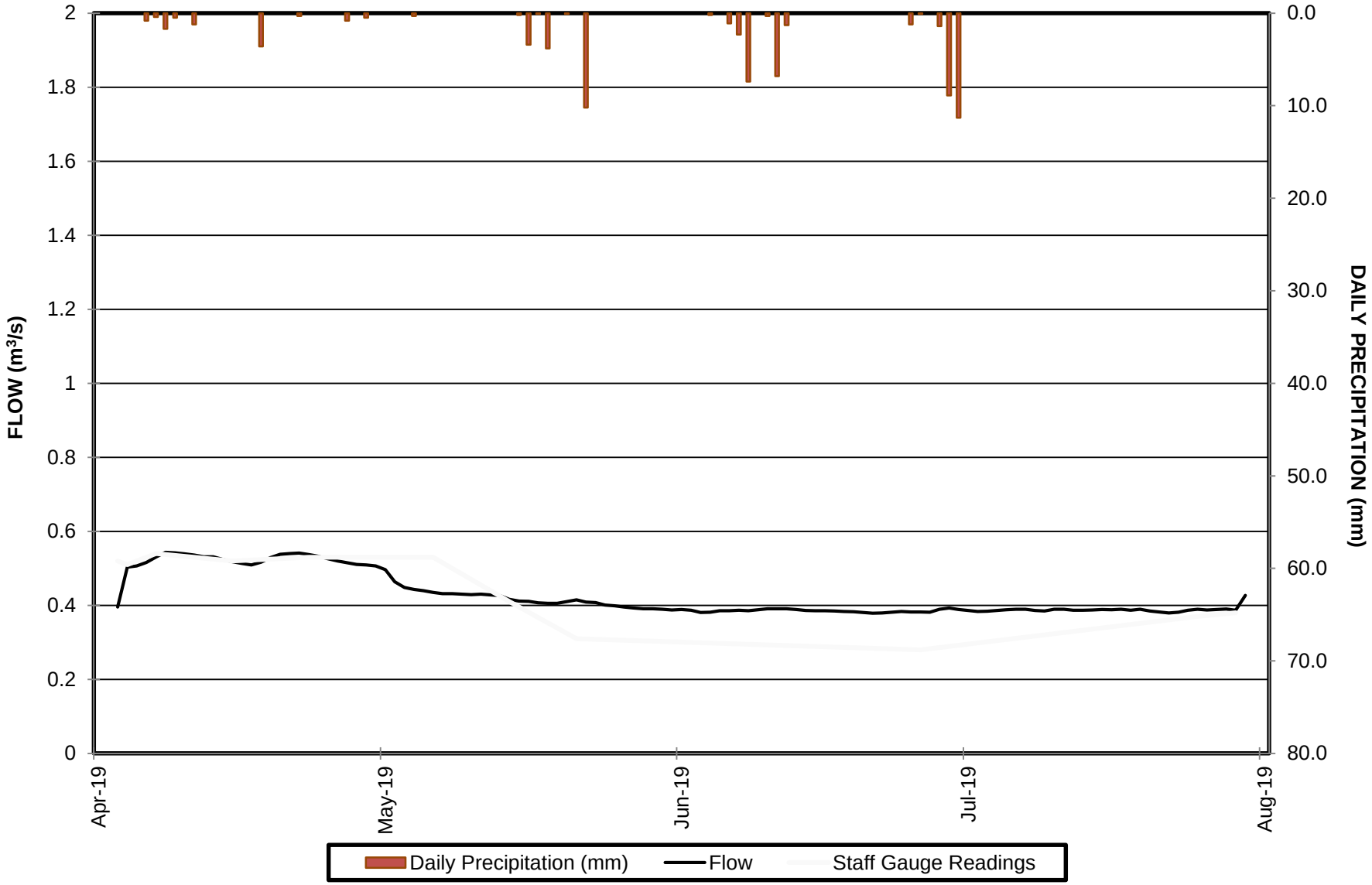
Quinsam River @ Argonaut Bridge (WA)



GRAPH 2

FLOW VS PRECIPITATION

WB

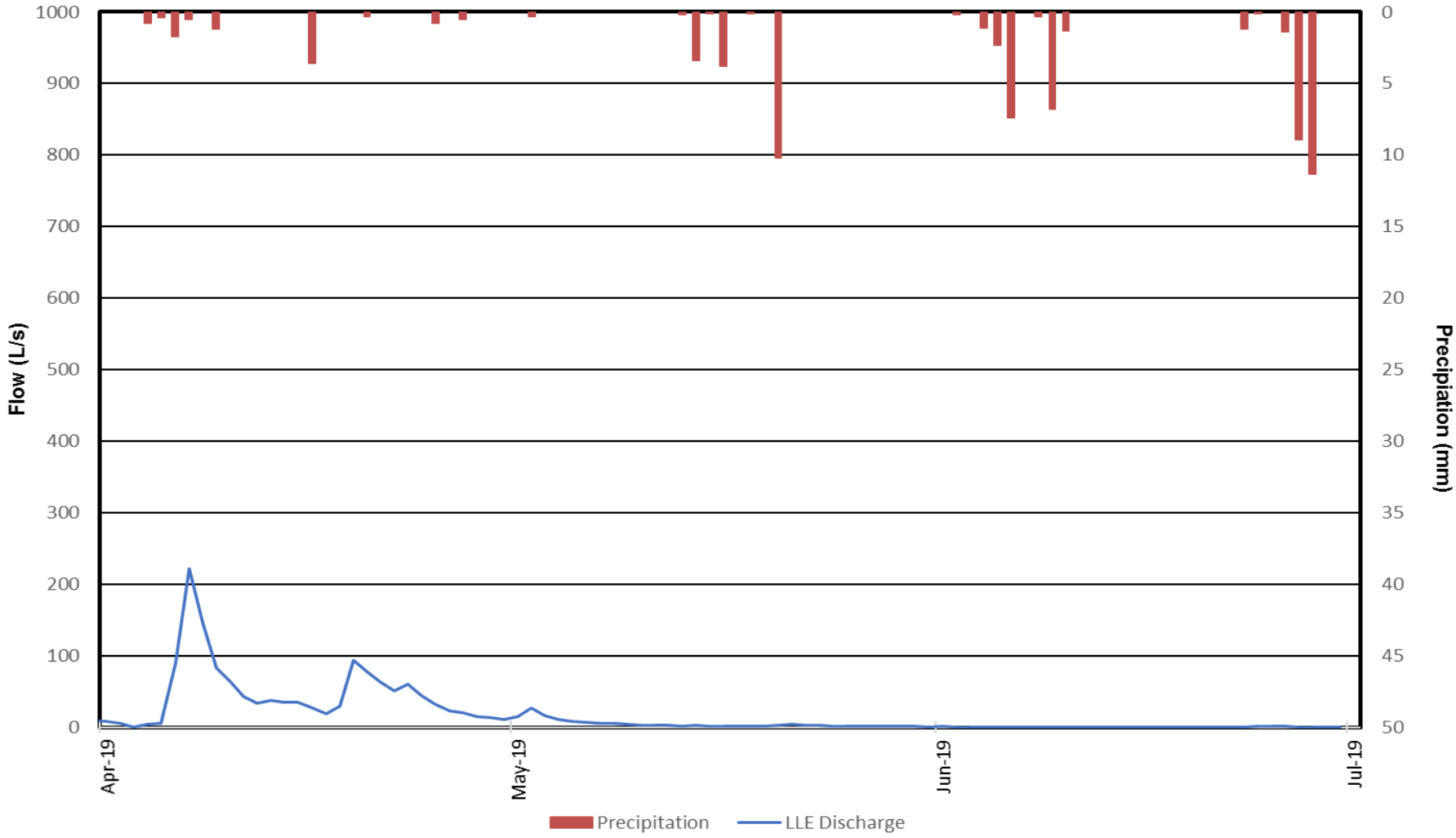


QUINSAM COAL

GRAPH 3

DISCHARGE vs PRECIPITATION

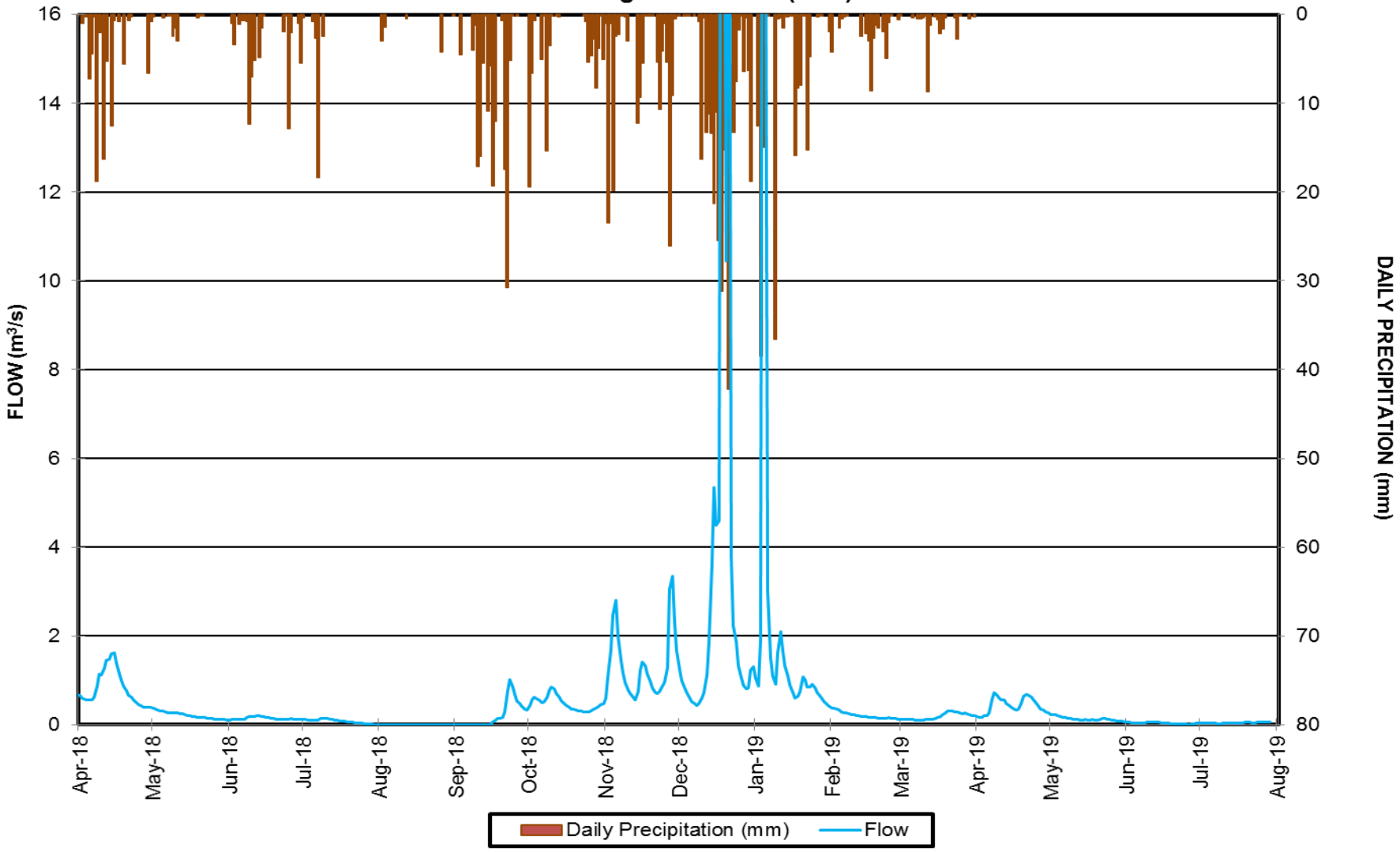
Long Lake Entry - LLE



GRAPH 4

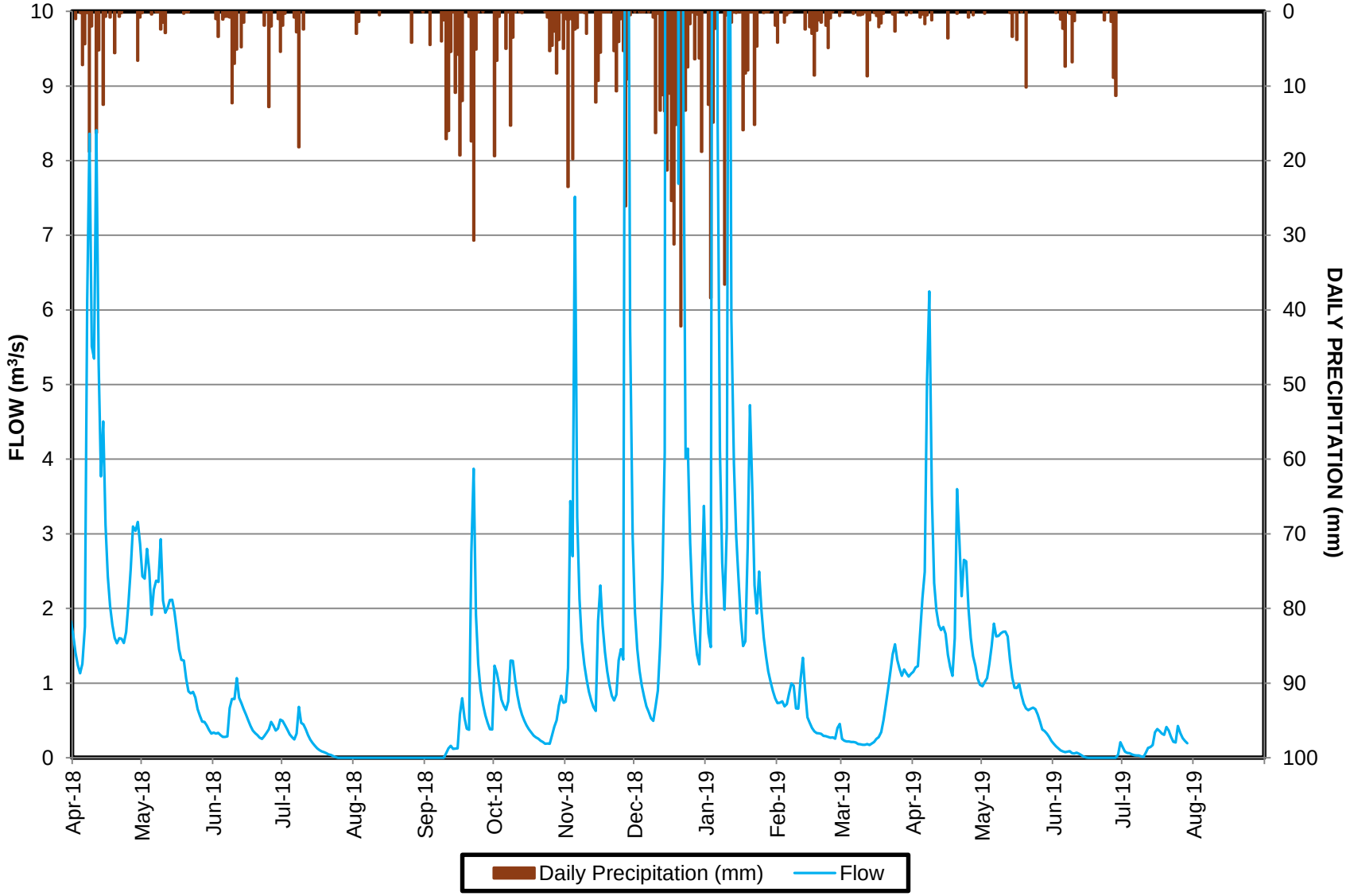
FLOW vs PRECIPITATION

Long Lake Outlet (LLO)



QUINSAM COAL

GRAPH 5
FLOW vs PRECIPITATION
Iron River - IR8



GRAPH 6

DISCHARGE vs PRECIPITATION

Long Lake Seep Middle - LLSM