Appendix V

Report Date:November 08, 2022

File:UA178045

Report Number:198605

Quinsam Coal Corporation
950-1090 West Georgia Street
Vancouver BC V6E 3V7

Dear Quinsam Coal Corporation,

Re: An Administrative Penalty Referral, Environmental Management Act UA178045, Quinsam Coal Corporation, Campbell River, BC, Effluent

On July, 26, 2022, Ministry of Environment and Climate Change Strategy (Ministry) Officers Katelyn Dick and Eleanor Cheung (Officers) conducted an on-site inspection of Quinsam Coal Corporation (Quinsam), an underground coal mine (Site) located at 5800 Argonaut Main, Campbell River, BC to verify compliance with Environmental Management Act (EMA) Permit 7008 (Permit). Present during the inspection was Kathleen Russel, (Environment Coordinator, Quinsam) and Cassandra Cyr (Technician, Quinsam).

For your information, this inspection record is being referred for an Administrative Penalty.

Inspection Details:

The inspection period for this report is from August 20, 2021, to July 26, 2022, and included the review of the following documents:

- PE:7008 Quinsam Coal Annual Water Quality Monitoring Report 2021-2022 (2021-2022 Annual Report), Submitted June 30, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (April-June) (Q1 Report), submitted on July 30, 2022, Prepared by Quinsam Coal Corporation;
- PE:7008 Follow-Up Report Unauthorized Discharge DGIR 204584 (DGIR 204584 Follow-Up Report), submitted to the Ministry on September 8, 2021, Prepared by Quinsam Coal Corporation.

Below are the EMA clauses that were assessed for compliance during this inspection, as well as the associated details/findings and any actions required.

Requirement Description:	**Environmental Management Act, Environmental Management Act** 6 (2): Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.

Ministry of Environment and Climate Change Strategy
Compliance and Environmental Enforcement Branch
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Details/Findings:	Seep S During the on-site inspection the Officers observed water flowing from the seep previously documented by the Ministry in Inspection Record (IR) 178045, located near monitoring well QU11-09 M, which flows into the Quinsam River (Photo 1). This seep was previously reported as a seep in the 2020-2021 Annual Report; however, in the 2021-2022 Annual Report it is referred to as potential seepage area (S). As reported in IR 178045, groundwater well (QU11-09) accessing the** mine pool, became artesian and commenced discharge to the Quinsam river. This was discovered by Quinsam on March 17, 2021, and the well was capped on March 19, 2021. Although this stopped the discharge from the well, Quinsam reported in the DGIR 204584 Follow-Up Report "the shallow groundwater aquifer in the area was under pressure and continued to seep from the ground upward into the Quinsam river until approximately July 20, 2021." Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for seep S using timed bucket tests, measured from one to four times a month from in July 2021, September to December 2021, and February to June 2022. The highest estimated flow was 0.0100 m3/s and the lowest was no flow in August of 2021. Appendix I, Table 40 of the 2021-2022 Annual Report and Table 34 of the Q1 Report provide monitoring data for seep S, and samples were collected at least once every month during the inspection period. The results of these samples were reviewed in comparison to the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. It was determined that total arsenic exceeded the guideline of 0.005 mg/L for every sample collected during the inspection period. The greatest concentrations of total arsenic reported was 0.0831 mg/L, and the lowest was 0.0138 mg/L. In the DGIR 204584 Follow-Up Report Quinsam stated they were using data collected upstream from seep S at monitoring site Middle Quinsam Lake outlet (WB), and downstream of seep S at three locations on the Quinsam River (QRDS, QRDS1 and 7SQR) to capture any impacts to the Quinsam River as a result of the seepage. A review of the 2021-2022 Annual Report and the Q1 Report determined that total arsenic levels were higher at monitoring locations QRDS, QRDS1 and 7SQR in comparison to WB. The 5 in 30 average concentrations of total arsenic at WB for summer, fall, and spring monitoring periods were as follows: 0.0002 mg/L, 0.00022 mg/L, and 0.00014 mg/L. The 5 in 30 average concentrations of total arsenic at QRDS 1 for summer, fall, and spring monitoring periods were as follows: 0.00045 mg/L, 0.00029 mg/L, and 0.00069 mg/L. During the on-site inspection Quinsam staff reported that they are now treating this area as a potential mine impacted seep and not a confirmed mine impacted seep. Quinsam staff reported that a new hydrogeological study is needed to understand the source of this water. However, this seep was previously reported to be caused by a rise in mine pool elevation (See IR 178045 and DGIR 204584 Follow-Up Report) and the discharge was previously reported as mine impacted water. The Mining and Coal Mining Industry is a Schedule 1 prescribed industry as defined in the Waste Discharge Regulation (B.C. Reg 54/216). As such, all mine impacted discharges from the Site are required to be authorized under EMA. No authorization has been issued to Quinsam authorizing the discharge of mine impacted effluent from seep S; therefore, Quinsam is out of compliance with EMA.
Compliance:	Out

Actions to be taken:	Ensure that no unauthorized discharges to the environment occur.
Requirement Description:	**Environmental Management Act, Environmental Management Act** 6 (2): Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.

Details/Findings:	S2 Seeps During the inspection period Quinsam identified what they refer to as potential seepage areas. These potential seepage areas also flow into the Quinsam River. They are referred to as S2A and S2B, or collectively as S2. S2A was discovered in September of 2021 and is located near sampling location QRD-02 and groundwater well QU11-05. This potential seep was monitored in September of 2021. In March 2022 Quinsam returned to the area and found that a second flow path had formed (S2B). Further monitoring was initiated. The monitoring of S2A and S2B from March 2022 onward is reported as one S2 data set in Appendix I, Table 41 of the 2021-2022 Annual Report and Table 35 of the Q1 Report. These potential seepages were monitored for pH, conductivity, dissolved sulphate, and total and dissolved metals at least once a month in September of 2021 and March through June of 2022. Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for 2S seeps using timed bucket tests. Of the recorded flow rates the highest reported was for on March 22, 2022, at 0.0100 m3/s for S2 (this data set doesn't clarify which of the two S2 seeps this estimated flow rate is associated with). The lowest flow rates were 0.0005 m3/s at S2A and no flow at S2B, both in June of 2022. Flows were not reported for dates prior to March 22, 2022, and flow rates for both S2A and S2B were decreasing throughout the period in which they were monitored. Sample data for the seeps is reported in Table 41 on page 45 of the 2021-2022 Annual Report and Table 35 on page 41 of the Q1 Report. Samples were reviewed in comparison to the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. All 15 samples collected were determined to exceed the guideline for total arsenic (0.005 mg/L) with the highest concentration at 0.0908 mg/L collected in September of 2021, and the lowest concentration at 0.0393 mg/L collected in April of 2022. Dissolved iron samples exceeded the guideline (0.35 mg/L) for 13 of 15 samples collected. The highest concentration reported was 1.21 mg/L and the lowest was 0.207 mg/L. Six of 15 samples also exceeded the guideline of 1.0 mg/L for total iron. During the on-site inspection the Officers viewed the S2A seep to be flowing (Photo 2). During the on-site inspection Quinsam staff reported that S2A and S2B may be related to the 2-North mine pool as their flow decreases when the mine pool elevation is lowered; but were unable to confirm that discharged effluent was mine contact water. Quinsam staff stated that these potential seeps could also be groundwater from coal seams. The Mining and Coal Mining Industry is a Schedule 1 prescribed industry as defined in the Waste Discharge Regulation (B.C. Reg 54/216). As such, all mine impacted discharges from the Site are required to be authorized under EMA. Seeps S2A and S2B are located within the boundary of the Quinsams Mine Act Permit C-172, and Quinsam is responsible for mine impacted discharges within this area. It is Quinsams responsibility to carry out the necessary studies, conducted by a qualified professional and to the satisfaction of the director, to prove that the discharge is not mine impacted. At this time, no such studies have been provided, and no authorization has been issued to Quinsam authorizing the discharge of effluent from the mine impacted S2 seeps; therefore, Quinsam is out of compliance with EMA.
Compliance:	Out

Actions to be taken:	Ensure that no unauthorized discharges to the environment occur.

Compliance History:

Possible matches based on UA178045 within OTHER and NRIS EP systems:
Other UA178045 2021-08-18 IR 178045 Warning Unauthorized 6(2): Environmental Management Act 6 (2)

The Ministry of Environment Compliance and Enforcement Policy and Procedure (C&E Policy) prescribes common requirements and procedures for all Ministry staff to ensure consistent and risk-based assessment and response to non-compliance. Using the Non-Compliance Decision Matrix, the compliance determination for this inspection has been assessed as Level 2, Category C, AMP.

This inspection resulted in two additional inspection records: IR 194661 and IR198605.

More information about Environmental Compliance, the Non-Compliance Decision Matrix, and reporting and data submission requirements can be found at the links below:
General compliance information:
www.gov.bc.ca/environmentalcompliance
Non-Compliance Decision Matrix information:
www.gov.bc.ca/environment/how-compliance-is-assessed
Reporting and data submission requirements (to be sent to EnvAuthorizationsReporting@gov.bc.ca):
https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply

Please be advised that this inspection report may be published on the provincial government website within 7 days.

Below are attachments related to this inspection.

If you have any questions about this letter, please contact the undersigned.

Yours truly,

Katelyn Dick
Environmental Protection Officer

cc:

Attachments:
1) 2022-10-31 IR198605 Photo Record 7088.pdf 2022-10-31 IR198605 Photo Record

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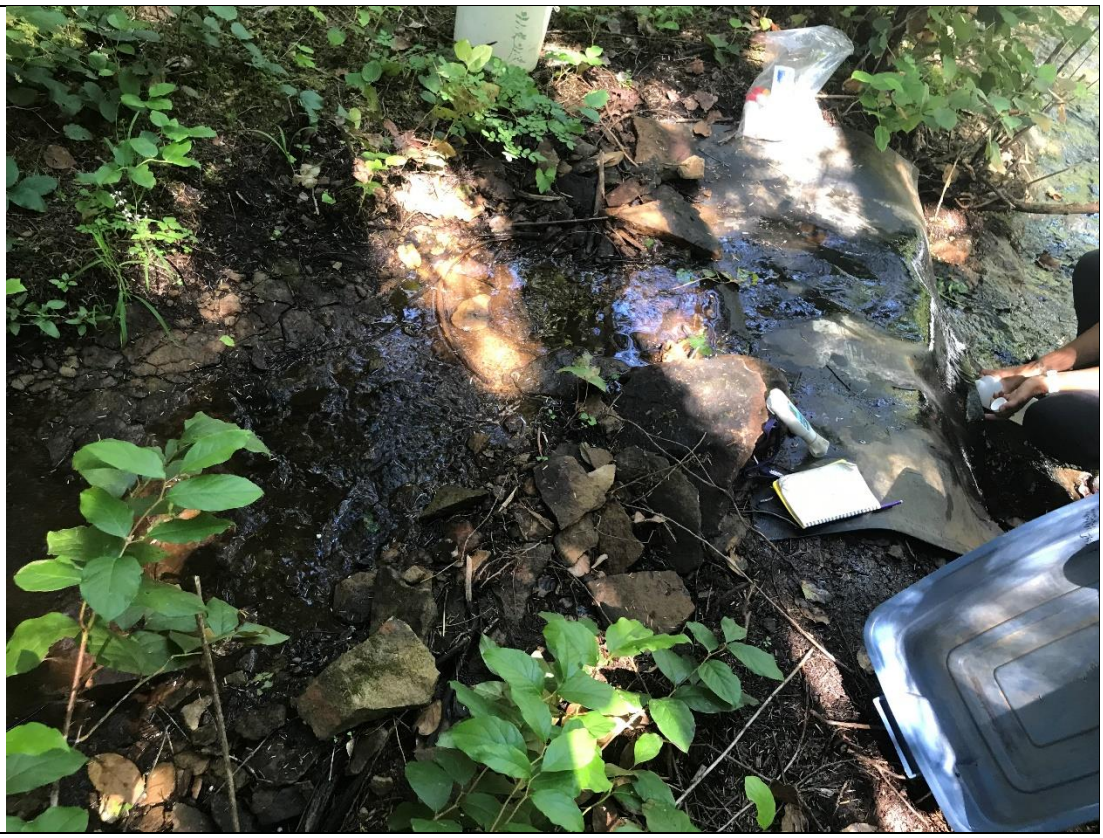
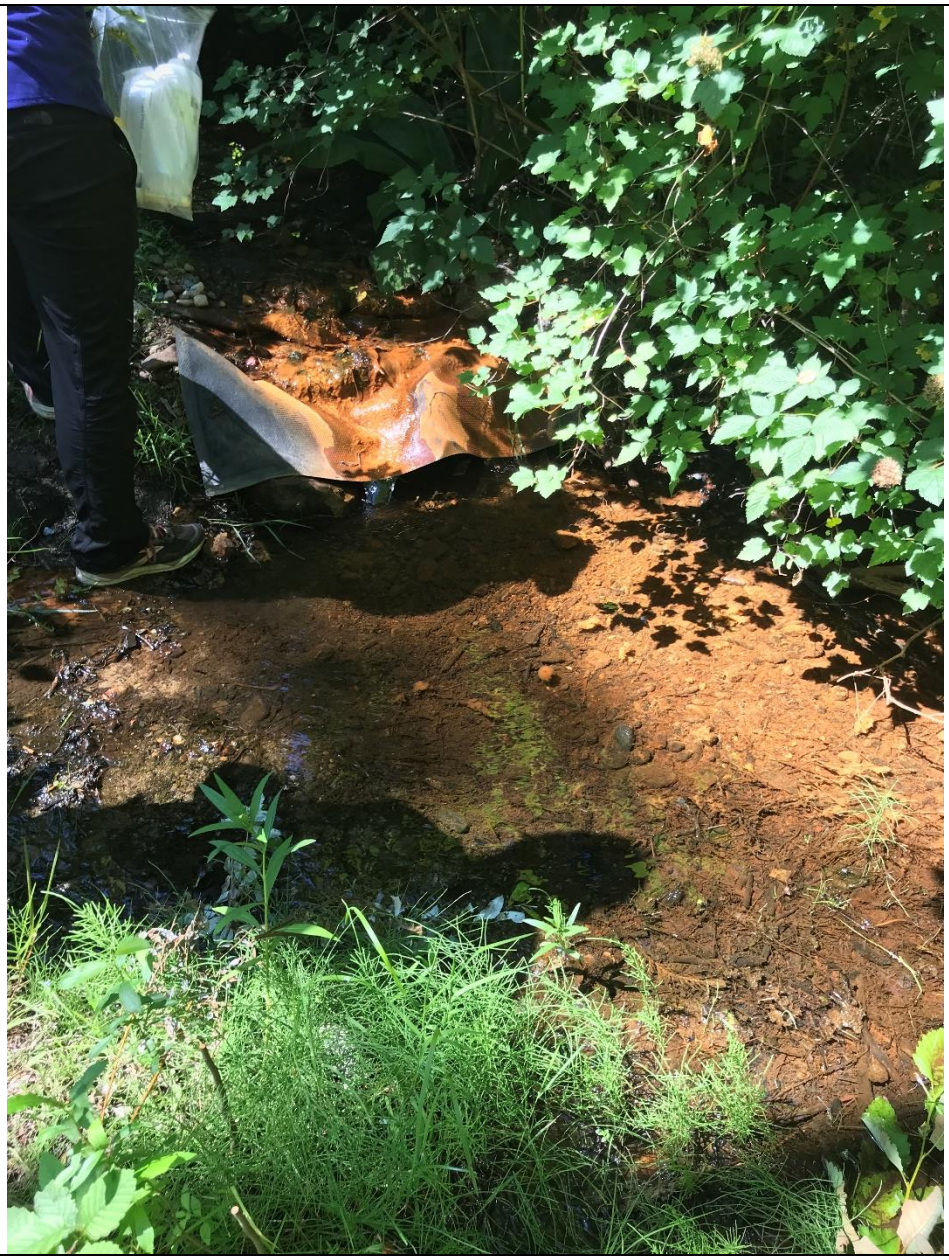
Authorization: UA 178045	Name: Quinsam Coal Corporation
NRIS IR #: 198605	Site Inspection Photos: July 26, 2022

Photo 1: Seepage area S flowing into the Quinsam River. Quinsam staff collecting samples during photo.	

Authorization: UA 178045	Name: Quinsam Coal Corporation
NRIS IR #: 198605	Site Inspection Photos: July 26, 2022

Photo 2: S2 seep area flowing into the Quinsam River	

Document : 2022-10-31 IR198605 Photo Record 7088.pdf
Document comment: 2022-10-31 IR198605 Photo Record

Report Date:November 08, 2022 File:UA178073

Report Number:198616

Quinsam Coal Corporation
950-1090 West Georgia Street
Vancouver BC V6E 3V7

Dear Quinsam Coal Corporation,

Re: An Administrative Penalty Referral, Environmental Management Act UA178073, Quinsam Coal Corporation, Campbell River, BC, Effluent

On July, 26, 2022, Ministry of Environment and Climate Change Strategy (Ministry) Officers Katelyn Dick and Eleanor Cheung (Officers) conducted an on-site inspection of Quinsam Coal Corporation (Quinsam), an underground coal mine (Site) located at 5800 Argonaut Main, Campbell River, BC to verify compliance with Environmental Management Act (EMA) Permit 7008 (Permit). Present during the inspection was Kathleen Russel, (Environment Coordinator, Quinsam) and Cassandra Cyr (Technician, Quinsam).

For your information, this inspection record is being referred for an Administrative Penalty.

Inspection Details:

The inspection period for this report is from July 1, 2021, to July 26, 2022, and included the review of the following documents:

- PE:7008 Quinsam Coal Annual Water Quality Monitoring Report 2021-2022 (2021-2022 Annual Report), Submitted June 30, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (April-June) (Q1 Report), submitted on July 30, 2022, Prepared by Quinsam Coal Corporation;

Below is the EMA clause that was assessed for compliance during this inspection, as well as the associated details/findings and any actions required.

Requirement Description:	**Environmental Management Act, Environmental Management Act** 6 (2): Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.

Details/Findings:	As described in Inspection Record (IR) 178073 Quinsam has a bedrock groundwater seep delivering water from the 2-3 South mine pool and discharging at two sites into Long Lake. LLS is the smaller seep with more consistent flow, and LLSM is considered the primary seep, as flows at this site are typically much higher and more variable compared to LLS. During the on-site inspection Officers observed both seeps to be flowing (Photos 1-5). Page 38 of the 2021-2022 Annual Report states that manual flow measurements are obtained weekly at the two sites LLS and LLSM. At LLS a staff gauge is used to obtain a level at the weir. LLSM is equipped with an H-Flume, flow meter and sensor providing more accurate monitoring of seep discharge. Appendix 1 Table 29 of the 2021-2022 Annual Report and Appendix 1 Table 29 of the Q1 Report show that during the inspection period the LLSM seep site had detectable flow rate periods from July 1, 2021, to August 15, 2021, from September 12, 2021 to September 15, 2021, and from October 24, 2021 to June 30 2022. Flows for LLSM ranged from a maximum rate of 49.10 L/s in December of 2021 to periods of no flow in August, September, and October of 2021. These same tables show that the LLS seep had an estimated flow of 0.600 L/s throughout the entire inspection period with the exception of one week in February of 2022, when they flow was reported at 1.800 L/s. Both seeps are also sampled monthly and samples are analyzed for TSS, hardness, metals total and dissolved, conductivity, pH, alkalinity and acidity, and sulphate as required by Quinsam's Permit. The results of these samples were reviewed in comparison to the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. It was determined that dissolved iron exceeded the guideline of 0.35 mg/L at LLSM in five of 11 samples and at LLS in all 12 samples collected during the inspection period. Total iron exceeded the guideline of 1.0 mg/L at LLS for all 12 of the 12 samples collected during the inspection period. The greatest concentrations of iron measured were 2.43 mg/L at LLS for dissolved iron and 3.05 mg/L for total iron also at LLS. In April of 2018 Quinsam applied for a major permit amendment which included an application to have the Long Lake seeps authorized in the Permit. This amendment was never completed because Quinsam failed to submit their final application package. The Mining and Coal Mining Industry is a Schedule 1 prescribed industry as defined in the Waste Discharge Regulation (B.C. Reg 54/216). As such, all mine-impacted discharges from the Site are required to be authorized under EMA. No authorization has been issued to Quinsam authorizing the discharge of mine impacted effluent from the LLS and LLSM seeps; therefore, Quinsam is out of compliance with EMA.
Compliance:	Out
Actions to be taken:	Ensure that no unauthorized discharges to the environment occur.

Compliance History:
UA178073 2021-08-18 IR 178073 Warning Unauthorized 6(2): Environmental Management Act 6 (2)

The Ministry of Environment Compliance and Enforcement Policy and Procedure (C&E Policy) prescribes common requirements and procedures for all Ministry staff to ensure consistent and risk-based assessment and response to non-compliance. Using the Non-Compliance Decision Matrix, the compliance determination for this inspection has been assessed as Level 2, Category C, AMP.

This inspection resulted in two additional inspection records: IR198605 and IR194661.

More information about Environmental Compliance, the Non-Compliance Decision Matrix, and reporting and data submission requirements can be found at the links below:
General compliance information: www.gov.bc.ca/environmentalcompliance
Non-Compliance Decision Matrix information: www.gov.bc.ca/environment/how-compliance-is-assessed
Reporting and data submission requirements (to be sent to EnvAuthorizationsReporting@gov.bc.ca):

https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply

Please be advised that this inspection report may be published on the provincial government website within 7 days.

Below are attachments related to this inspection.

If you have any questions about this letter, please contact the undersigned.

Yours truly,

Katelyn Dick
Environmental Protection Officer

cc:

Attachments:
1) 2022-10-31 IR198616 Photo Record 7088.pdf 2022-10-31
IR198616 Photo Record 7088

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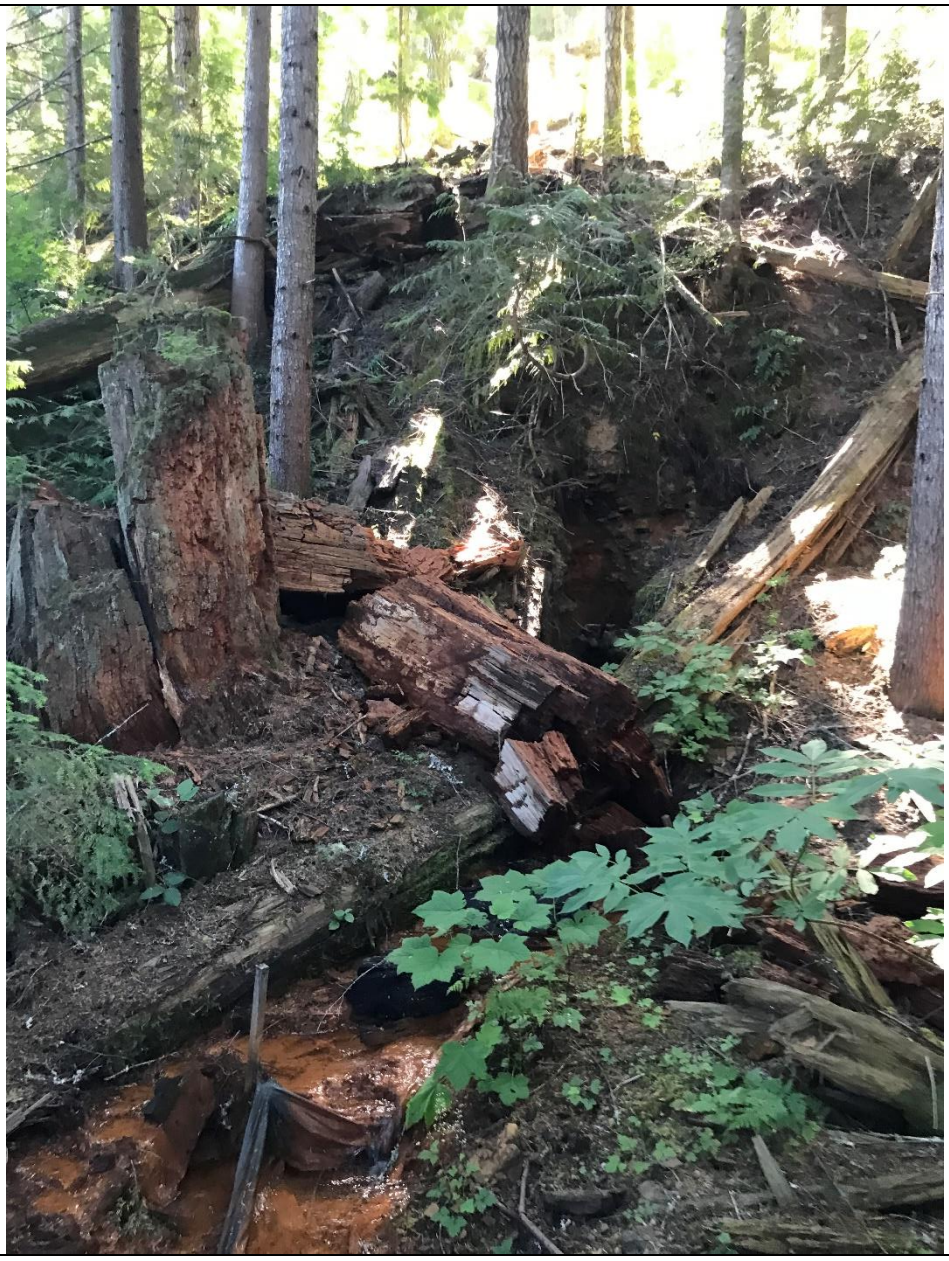
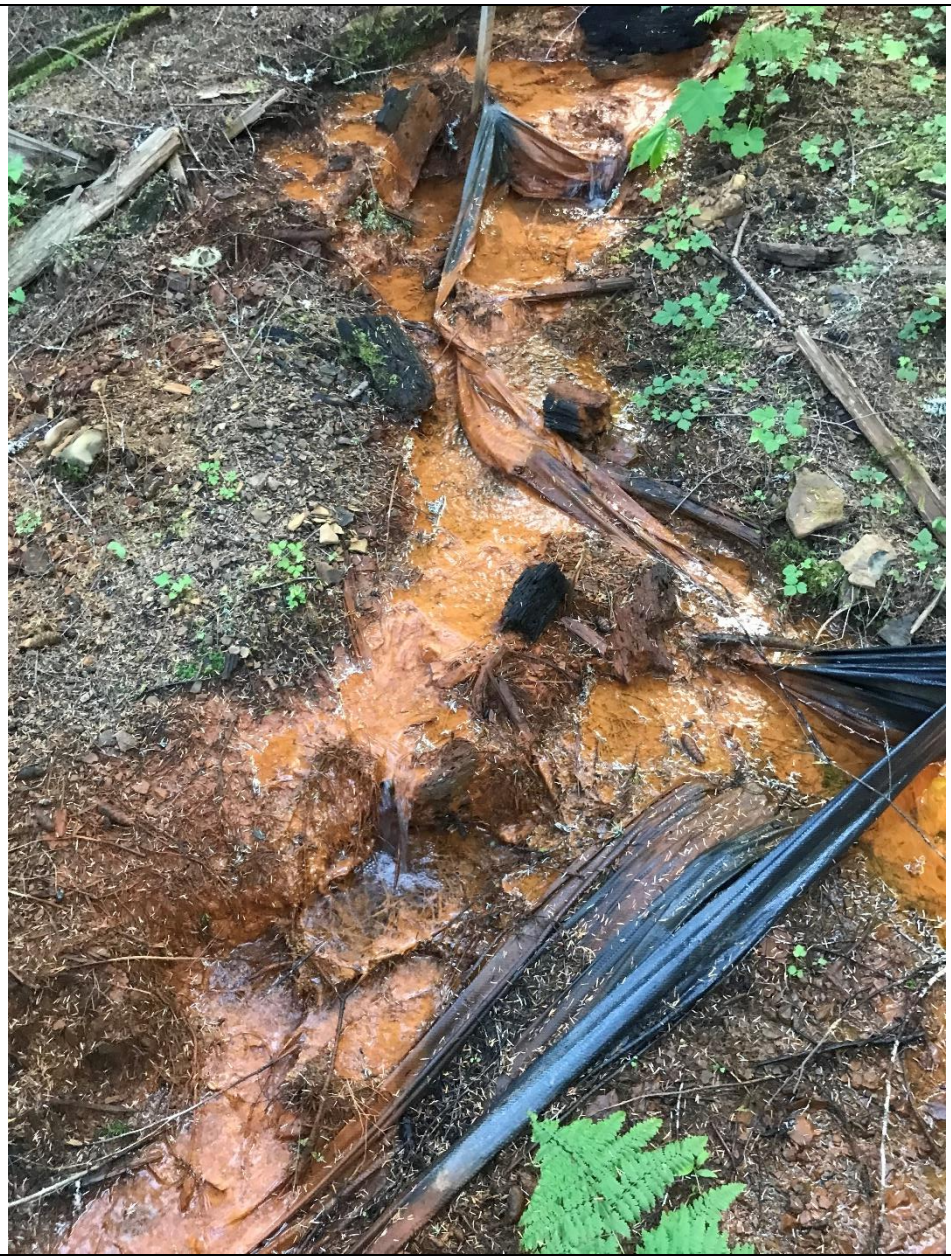
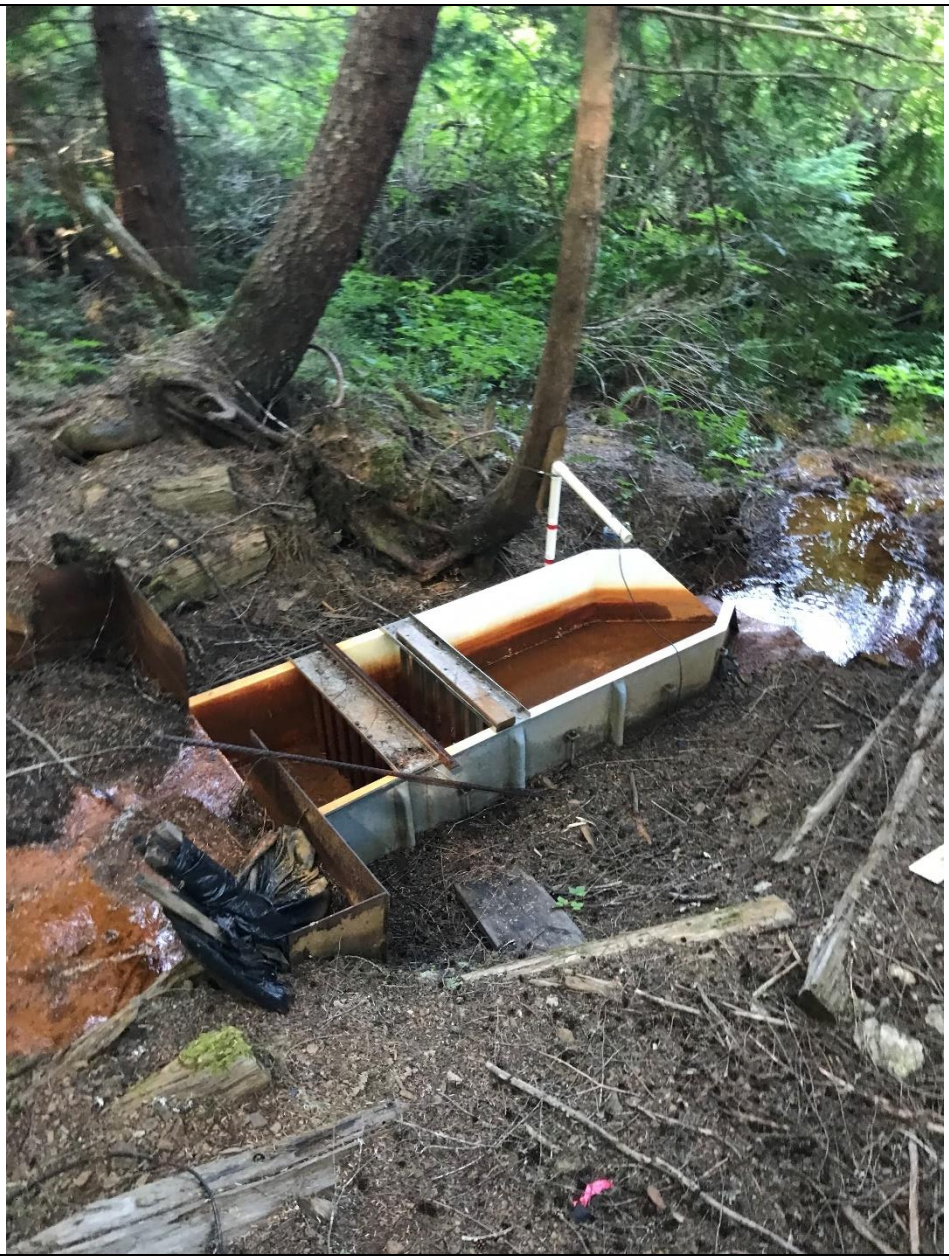
Authorization: UA178073	Quinsam Coal Corporation
NRIS IR #: 198616	Site Inspection Photos: July 26, 2022

Photo 1: LLSM flow path, looking towards the start of the seep	

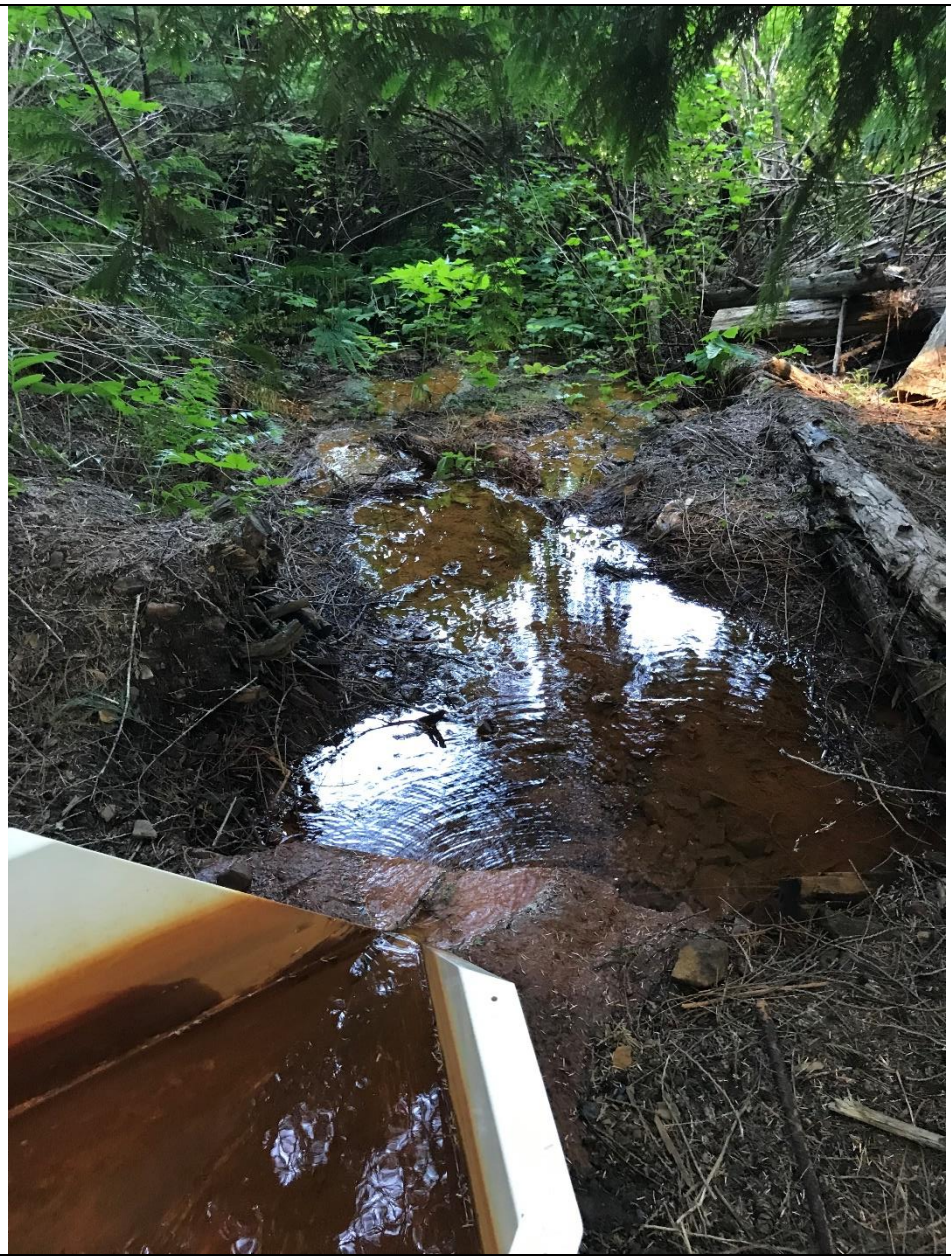
Authorization: UA178073	Quinsam Coal Corporation
NRIS IR #: 198616	Site Inspection Photos: July 26, 2022

Photo 2: LLSM flow path, looking towards the start of the seep	

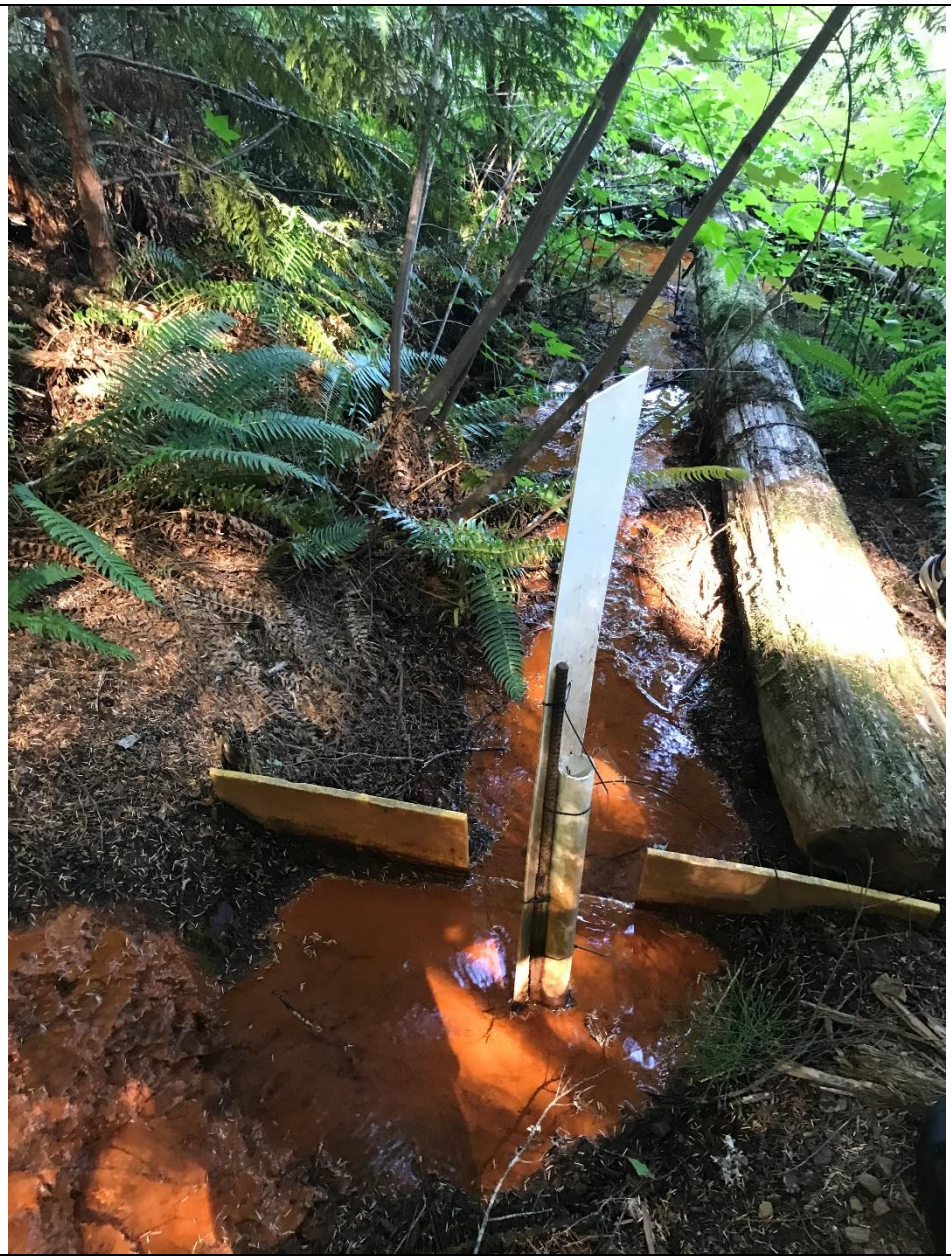
Authorization: UA178073	Quinsam Coal Corporation
NRIS IR #: 198616	Site Inspection Photos: July 26, 2022

Photo 3: LLSM flow path and H flume	

Authorization: UA178073	Quinsam Coal Corporation
NRIS IR #: 198616	Site Inspection Photos: July 26, 2022

Photo 4: LLSM flow path looking towards Long Lake, which is on the other side of the vegetation in the photo	

Authorization: UA178073	Quinsam Coal Corporation
NRIS IR #: 198616	Site Inspection Photos: July 26, 2022

Photo 5: LLS Seep with staff gauge. Flow path leads to Long Lake	

Document : 2022-10-31 IR198616 Photo Record 7088.pdf
Document comment: 2022-10-31 IR198616 Photo Record 7088

Report Date:November 15, 2022

Report Number:194661

File:7008

Quinsam Coal Corporation

950-1090 West Georgia Street
Vancouver BC V6E 3V7

Dear Quinsam Coal Corporation,

Re: An Administrative Penalty Referral, Permit 7008, 5800 Argounaut Main, CR, BC, (West on Hwy 28) Underground Coal Mining Coal Mine, Effluent

On July 26, 2022, Ministry of Environment and Climate Change Strategy (Ministry) Officers Katelyn Dick and Eleanor Cheung (Officers) conducted an on-site inspection of Quinsam Coal Corporation (Quinsam), an underground coal mine (Site) located at 5800 Argonaut Main, Campbell River, BC to verify compliance with Environmental Management Act (EMA) Permit 7008 (Permit). The Permit authorizes the discharge of effluent from a coal mining operation and coal preparation plant to the land with overland flows draining to Middle Quinsam Lake, Long Lake, Iron River, and Quinsam River, subject to the conditions of the Permit. The Permit was issued on December 23,1987, and most recently amended on November 1, 2019. Present during the inspection was Kathleen Russel, (Environment Coordinator, Quinsam) and Cassandra Cyr (Technician, Quinsam).

A Split Sample Audit was conducted on the discharge from settling pond four (E207409) at the time of the inspection. This Split Sample Audit consists of a comparison of the permittee's and Ministry's sampling and analytical procedures and results collected from a homogenized sample. The audit is conducted to provide further validity to the monitoring data provided by the permittee, beyond that of their own QA/QC program. This Audit resulted in a pass, with a Performance Evaluation of 85%.

For your information, this inspection record is being referred for an Administrative Penalty.

Inspection Details:

The inspection period for this report is from August 20, 2021, to July 26, 2022, and included the review of the following documents:

- PE:7008 Quinsam Coal Annual Water Quality Monitoring Report 2021-2022 (2021-2022 Annual Report), Submitted June 30, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (July-September) (Q2 Report), submitted on October 31, 2021, Prepared by Quinsam Coal Corporation;
- PE:7008 QUARTER 3 REPORT Oct- Dec 2021(Q3 Report), submitted on January 31, 2022, Prepared by Quinsam Coal Corporation;
- PE:7008 Quarter 4 Report January through March 2022 (Q4 Report), submitted to the Ministry on April 29, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (April-June) (Q1 Report), submitted on July 30, 2022, Prepared by Quinsam Coal Corporation;
- Monitoring Program Approval, dated September 4, 2020, prepared by the Ministry;
- Quinsam Coal Annual Water Quality Monitoring Report 2020-2021 (2020-2021 Annual Report), dated June 2021, including data from April 1, 2020 to March 31, 2021, Prepared by Quinsam Coal Corporation;
- Non-Compliance Reports (NCRs) submitted for the inspection period;
- Dangerous Goods Incident Reports (DGIRs) submitted for the inspection period;
- PE:7008 Follow-Up Report Unauthorized Discharge DGIR 204584 (DGIR 204584 Follow-Up Report), submitted to the Ministry on September 8, 2021, Prepared by Quinsam Coal Corporation; and,
- 2021 Environmental Procedures Manual (EMP), dated March 2022, Prepared by Quinsam Coal Corporation.

Ministry of Environment and Climate Change Strategy

Compliance and Environmental Enforcement Branch

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Below are the Permit clauses that were assessed for compliance during this inspection, as well as the associated details/findings and any actions required.

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.1** 1.1.1: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.1 The maximum and average authorised rates of discharge are 0.32 m3/s and 0.08 m3/s respectively. The authorised discharge period is 365 d/a.
Details/Findings:	A review of Appendix 1 - Table 25 of the 2021-2022 Annual Report and Appendix 1 - Table 25 of the Q1 Report determined that that the maximum authorized rate of discharge was not exceeded. However, page 37 of the 2021-2022 Annual Report provides the annual average rate of discharge for the 2021-2022 reporting year (April 1, 2021 to March 31, 2022) for E207409, to be 0.107 m3/s which exceeds the average authorized rate.
Compliance:	Out
Actions to be taken:	Ensure the average authorized rate of discharge is not exceeded.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.2** 1.1.2: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.2 The characteristics of the discharge shall not exceed: Parameters: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L; pH, Limit: 6.0 - 8.5, Unit: - ; Ammonia (as N) , Limit: 1.0, Unit: mg/L; Phosphorus (as P) (asterisk - see NOTE 1), Limit: 0.03, Unit: mg/L; NOTE 1: Dissolved; Oil and Grease (total), Limit: 5, Unit: mg/L; Aluminum (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.02, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.3, Unit: mg/L; NOTE 1: Dissolved; Lead (asterisk - see NOTE 1), Limit: 0.05, Unit: mg/L; NOTE 1: Dissolved; Zinc (asterisk - see NOTE 1), Limit: 0.1, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.

Details/Findings:	A review of the Appendix 1 - Table 5, and page 53 of the 2021-2022 Annual Report and Appendix 1 - Table 5 of the Q1 Report determined that all reported data was within the Permit limits. However, Total Suspended Solids (TSS) monitoring was conducted via grab samples during the inspection period; therefore compliance could not be determined with TSS composite sample limits. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that this monitoring was conducted August 2 and September 6 of 2022, and provided monitoring results. Although outside of the inspection period, a review of this data determined that Ammonia and Phosphorus limits were not exceeded.
Compliance:	Not Determined
Actions to be taken:	
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.3** 1.1.3: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.3 The authorised works are surface runoff collection and diversion ditches, plant-site runoff collection box, flocculation facilities, settling pond #4, 2 North pit sump, tailings storage facility, 2 North portal sump, surface and underground pumping facilities and related appurtenances approximately located as shown on attached Site Plan A.
Details/Findings:	During the on-site inspection, the Officers observed settling pond #4 to be located approximately as shown on Site Plan A of the Permit. Quinsam reported via email on September 20, 2022, that the remaining authorized works are approximately located as shown on Site Plan A of the Permit.
Compliance:	In
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.4** 1.1.4: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.4 The authorised works must be complete and in operation on and from the date of this amended permit.

Details/Findings:	On January 5, 2022, Quinsam reported to the Ministry via email that on January 3, 2022, the 5-South pump failed to restart after a power outage. The 5-South dewatering pump is a well pump located 80 meters below the surface with its primary purpose being to transfer water from the 5-South mine into the 2-North mine (3 Mains) where it is discharged to Settling Pond #4. The 5-South pump has not been repaired or replaced and the 2021-2022 Annual Report states that the mine will be allowed to flood to near pre-mine groundwater conditions. This 5-South pump is part of the underground pumping facilities authorized for the north coal mining operation. As this pump has not been in operation since January 3, 2022, Quinsam is out of compliance with this requirement.
Compliance:	Out
Actions to be taken:	Ensure the authorised works are complete and in operation.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.1** 1.2.1: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.1 The maximum and average authorised rates of discharge are 0.46 m3/s and 0.10 m3/s respectively. The authorised discharge period is 365 d/a.
Details/Findings:	A review of the Appendix 1 - Table 26 of the 2021-2022 Annual Report and Appendix 1 - Table 26 of the Q1 Report, determined that the daily maximum rate of discharge was not exceeded. Page 38 of the 2021-2022 Annual Report states that the annual average rate of discharge for the 2021-2022 reporting year (April 1, 2021 to March 31, 2022) for E218582, was 0.021 m3/s.
Compliance:	In

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.2** 1.2.2: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.2 The characteristics of the discharge shall not exceed: Parameters: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L ; pH, Limit: 6.0 - 8.5, Unit: - ; Ammonia (as N) , Limit: 1.0, Unit: mg/L; Phosphorus (as P) (asterisk - see NOTE 1), Limit: 0.03, Unit: mg/L; NOTE 1: Dissolved; Oil and Grease (total), Limit: less than DL (3 asterisk - See NOTE 3), Unit: mg/L; NOTE 3: less than Detection Limit; Aluminum (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.02, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Lead (asterisk - see NOTE 1), Limit: 0.05, Unit: mg/L; NOTE 1: Dissolved; Zinc (asterisk - see NOTE 1), Limit: 0.2, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.
Details/Findings:	A review of the Appendix 1 - Table 10, and page 53 of the 2021-2022 Annual Report, and Appendix 1 - Table 10 of the Q1 Report determined that the permit limit for dissolved iron was exceeded on January 4, 2022, with a result of 1.19 mg/L. Additionally, TSS monitoring was conducted via grab samples during the inspection period; therefore compliance could not be determined with TSS composite sample limits. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that this monitoring was conducted August 3 and September 6 of 2022, and provided monitoring results. Although outside of the inspection period, a review of this data determined that Ammonia and Phosphorus limits were not exceeded.
Compliance:	Out
Actions to be taken:	Ensure that Permit limits are not exceeded.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.3** 1.2.3: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.3 The authorised works are surface runoff collection and diversion ditches, flocculation facilities, settling pond, 3 pit sumps (1S, 2S and 3S Pits), an adit sump (4S Adit), pumping facilities , and related appurtenances approximately located as shown on attached Site Plan B.

Details/Findings:	During the on-site inspection, the Officers observed settling pond 1 to be approximately located as shown on Site Plan B of the Permit. Quinsam reported via email on September 20, 2022, that the 1S pit sump and 4S Adit sump were reclaimed in 2015-2016. As these authorised works are no longer in place as per Site Plan B, Quinsam is out of compliance with this requirement.
Compliance:	Out
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.4** 1.2.4: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.4 The authorised works must be complete and in operation on and from the date of this amended permit.
Details/Findings:	As discussed in the Findings for Permit section 1.2.3 the 1S Pit sump and 4S Adit sump were reclaimed in 2015-2016. As these authorized works are no longer complete and in operation, Quinsam is out of compliance with this requirement.
Compliance:	Out
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.3, 1.3.1** 1.3.1: This subsection applies to the discharge of effluent from the BLOCK 242 COAL MINING OPERATION as shown on attached Site Plan C. The site reference number for this discharge is E225796. 1.3.1 Subject to Subsection 4.4.3 the maximum authorised rate of discharge is 0.0082 m3/s. The authorised discharge period is 365 d/a.
Details/Findings:	During the on-site inspection, Quinsam staff reported that there was no mine activity in the Block 242 Coal Mining Operation. Page 6 of the 2021-2022 Annual Report states that the area is reclaimed. On November 1, 2019, the Ministry amended the Permit to remove monitoring requirements for E225796 from the Permit monitoring program. As there is no discharge from this location, compliance with this requirement was not applicable.
Compliance:	Not Applicable

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.1** 1.4.1: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.1 The maximum authorized rate of discharge is 0.005 m3/s. The authorized discharge period is 365 d/a.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no flow from E292069 during the inspection period. Quinsam reported via email on September 20, 2022, that water is captured at 7-South containment pond and 7SSD (E292069) and pumped back to the 7-South Adit (7SPS). From there water is pumped via 58 Hp pump and pipeline into the 5-South Mine pool. The 5-South Mine pool is received at Settling Pond #4 or 2-North subaqueous PAG-CCR facility. As no discharge occurred during the inspection period, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.2** 1.4.2: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.2 The characteristics of the discharge shall not exceed: Parameter: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L; pH, Limit: 6.0 - 8.0, Unit: - ; Sulphate (asterisk - see NOTE 1) , Limit: 500, Unit: mg/L; NOTE 1: Dissolved; Aluminum (asterisk - see NOTE 1), Limit: 0.1, Unit: mg/L; NOTE 1: Dissolved; Cadmium (asterisk - see NOTE 1), Limit: 0.000045, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.014, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.35, Unit: mg/L; NOTE 1: Dissolved; Selenium (asterisk - see NOTE 1), Limit: 0.016, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.
Details/Findings:	A review of the Appendix 1 - Table 22 and page 53 of the 2021-2022 Annual Report and the Appendix 1 - Table 22 of the Q1 Report determined that Quinsam was in compliance with the Permit limits for effluent quality from the 7 south mining operation (E292069). These samples are collected in the E292069 pond before it is pumped back to 7SPS (E292110). However, as no discharge from this location occurred during the inspection period, compliance with this requirement was not applicable.
Compliance:	Not Applicable

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.3** 1.4.3: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.3 The authorized works are surface runoff collection and diversion ditches, flocculation facilities, one surface settling pond, an adit sump (7S Adit), pumping facilities and related appurtenances approximately located as shown on attached Site Plan D.
Details/Findings:	In an email sent on September 20, 2022, Quinsam confirmed all works were approximately located as shown in Site Plan D of the Permit.
Compliance:	In
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.4** 1.4.4: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.4 The authorized works must be complete and in operation when the discharge commences.
Details/Findings:	Quinsam reported via email on September 20, 2022, there is no discharge from E292069 as it is pumped back to 7SPS, then into the 5-South Mine pool. The 5-South Mine pool is received at Settling Pond #4 or 2-North subaqueous PAG-CCR facility. As the discharge has not commenced compliance with this Section is not applicable.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.4 Wash Plant Effluent** 2.1.4: Wash plant effluent shall not be conveyed to the 2-North pit sump via the wash plant ditch. The Permittee shall keep records of the date, duration and estimated volume of any overflow of the wash plant effluent sump. Subject to review of this data, the Director may request changes to the works.

Details/Findings:	During the on-site inspection Quinsam reported that they have been in care and maintenance throughout the inspection period and that final coal processing ceased in October 2019. Quinsam reported via email on September 20, 2022, that there has been no flow through the wash plant effluent sump; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.5 Settling Pond Solids and Storage Volume** 2.1.5: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 2 300 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	While a staff gauge had been installed at the decant for Settling Pond 4, the accumulation of surface debris and opaque quality of the pond effluent meant it was not possible to determine the water depth below the pond decant (Photo 1). In an email sent on November 8, 2022, Quinsam staff stated that in 2021 a survey of the decant riser, dam and outline of the settling pond was conducted. However, no surveys or other measurements had been undertaken to determine the quantity of settled solids during the inspection period, and no solids had been removed from the settling pond during the inspection period. As the water storage volume was not determined, compliance with this section is not determined.
Compliance:	Not Determined
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.7 Effluent Characteristics (for Total Suspended Solids)** 2.1.7: The characteristics of the effluent with respect to total suspended solids shall be equivalent to or less than the levels specified in Subsection 1.1.2 for discharge rates up to 0.32 m3/s (or as may be redefined by the Director according to Subsection 2.1.1). Variances may be allowed by the Director for higher discharge rates. The Director may as well, in the future, establish a maximum level for total suspended solids during extreme storm events.
Details/Findings:	As described in the findings for Permit section 1.1.2 the TSS samples collected during the inspection period were grab samples and Permit limits are specified for composite samples; therefore, compliance with the characteristics of the effluent with respect to TSS could not be determined.

Compliance:	Not Determined
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.2 South Coal Mining Operation (Settling Pond #1), 2.2.3 Settling Pond Solids and Storage Volume** 2.2.3: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 1400 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	During the on-site inspection, Quinsam staff informed the Officers that no settled solids were removed during the inspection period. In an email sent on November 8, 2022, Quinsam staff stated that in 2021 a survey of the decant riser, dam and outline of the settling pond was conducted. However, no surveys or other measurements had been undertaken to determine the quantity of settled solids during the inspection period. As the water storage volume was not determined during the inspection, compliance with this section was not determined for the inspection period.
Compliance:	Not Determined
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.2 South Coal Mining Operation (Settling Pond #1), 2.2.5 Effluent Characteristics (for Total Suspended Solids** 2.2.5: The characteristics of the effluent with respect to total suspended solids shall be equivalent to or less than the levels specified in Subsection 1.2.2 for discharge rates up to 0.46 m3/s (or as may be redefined by the Director according to Section 2.2.1). Variances may be allowed by the Director for higher discharge rates. The Director may as well, in the future, establish a maximum level for total suspended solids during extreme storm events.
Details/Findings:	As stated in the findings for Permit section 1.2.2, the TSS samples collected during the inspection period were grab samples and Permit limits are specified for composite samples; therefore, compliance with the characteristics of the effluent with respect to TSS could not be determined.
Compliance:	Not Determined

Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.3 Block 242 Coal Mining Operation, 2.3.1 Pumping Rate** 2.3.1: Subject to Subsection 4.4.3 the rate at which effluent may be pumped from the underground sump(s) to the primary settling pond and from the primary settling pond to the secondary settling pond shall not exceed 0.043 m3/s (up to a maximum of 400 m3/d) and 0.0082 m3/s respectively.
Details/Findings:	During the on-site inspection, Quinsam staff reported that there continues to be no mine activity in Block 242 Coal Mining Operation. The 2021-2022 Annual Report states that the site is reclaimed. As there is no discharge, compliance with this Section and the remainder of Section 2.3 is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.1 Rate of Discharge** 2.4.1: The maximum flow of 0.005 m3/s is the peak routed outflow from the settling pond resulting from an assumed response of the maximum equivalent catchment area as defined in subsection 2.4.3 to a design 1 in 10 year return period of 24 hour duration. Additional flow from the 7S adit sump pump must not cause the settling pond to overflow or exceed the maximum flow. The Director may from time to time redefine the maximum routed outflow based upon actual on-site measurements.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no flow from E292069 during the inspection period; therefore, compliance with this requirement as well as Permit sections 2.4.5, 2.4.6, and 2.4.9, is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.2 Pumping Rate** 2.4.2: The Permittee shall keep records of the date, duration and estimated volume when water from the 7 South Adit Sump (7S-Sump) is pumped to the settling pond and submit the records to the Regional Waste Manager upon request.

Details/Findings:	Quinsam reported via email on September 20th, 2020, that to date, no water has ever been routed or pumped or flowed from the 7-South Portal Sump to the settling pond (7SSD); therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.4 Settling Pond Solids and Storage Volume** 2.4.4: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 340 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	In an email sent on November 8, 2022, Quinsam staff stated that the storage volume of the settling pond is is approximately 462.32 m3, and no sediment removal or surveys of the pond were been required during the inspection period.
Compliance:	In
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.8 Contingency Measures** 2.4.8: In the event of a 7-South settling pond discharge permit limit exceedance, the settling pond discharge valve must be closed immediately and the effluent must temporarily be diverted to the 5S mine or 7S mine underground workings, or to another area acceptable to the Director. Details of the contingency measures shall be documented in the Environmental Procedures Manual required under Section 3.2. Additionally, the Permittee shall follow Section 3.9 requirements.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no discharge from E292069 during the inspection period; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable

Requirement Description:	**3. GENERAL REQUIREMENTS, 3.1 Flocculation** 3.1: In order to meet the levels specified for total suspended solids in Subsections 1.1, 1.2, 1.3 and 1.4, it may be necessary to use chemical flocculating agents. The Permittee is required to carry out laboratory testing of the flocculants proposed for toxicity and effectiveness for removing suspended matter. The methodology and details of the testing program are subject to the approval of the Director. Based on the results of laboratory testing the Director may approve a flocculant for use under actual operating conditions. At least one alternate flocculant shall be tested and, if approved by the Director, an adequate supply shall be located within 6 hours travel time from the mine site.
Details/Findings:	During the on-site inspection Quinsam stated that chemical flocculating agents had not been used during the inspection period; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.2 Environmental Procedures Manual** 3.2: An Environmental Procedures Manual shall be maintained by the Permittee as a working document for use by supervisory personnel and a guide to field staff during various stages of the project. The manual should cover all aspects of onsite environmental management applicable to mine construction and operation including but not limited to, the following items: 1) Land clearing, topsoil stripping and road construction; 2) Construction of water diversion and water collection ditches; 3) Flocculation; 4) Macrophyte growth and harvesting in the ponds, drainage ditches and discharge channels; 5) Acid-base accounting and materials handling; 6) Reclamation activities; 7) Construction of waste dumps; 8) Contingency planning for effluent liming, lake aeration and forest fertilization. 9) Settling pond operation under various flow/discharge conditions for the Block 242 coal mining operation as detailed in the Block 242 Mine Water Management Quinsam Coal Mine, AGRA Earth and Environmental Limited, February 1997; 10) Underground pump operation during extreme rainfall events; 11) Settling pond operation for the 7-South mining operation, including details on the contingency measures. The Permittee shall review the Environmental Procedures Manual at least on an annual basis to determine if any changes are required and submit any revisions to the Director for approval. Annual reviews and submission of revisions are due on March 31 of each year.
Details/Findings:	A revised version of the EMP was submitted to the Ministry via email on March 30, 2022. The contents of the EMP were not reviewed as part of the inspection.
Compliance:	In

Requirement Description:	**3. GENERAL REQUIREMENTS, 3.3 Acid Generation Control** 3.3: In order to prevent generation of acid rock drainage and associated environmental problems it is necessary that potentially acid generating materials be identified and be subject to special handling techniques. The frequency of sampling and analysis shall be according to procedures outlined in Mines Act Permit C-172 and the Environmental Procedures Manual. If in the opinion of the Director acid rock generation is developing, the Permittee shall undertake corrective action as outlined in the appropriate section of the Environmental Procedures Manual or take any additional steps which are considered necessary to resolve the problem.
Details/Findings:	Quinsam reported via email on September 20, 2022, that no new potentially acid generating materials were identified during the inspection.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.5 Nutrient Control** 3.5: The mine and coal preparation plant shall be operated such that the discharge of nutrients will not result in excessive algal growth or biomass accumulation which, in turn, could have a negative impact on water quality, fish production, and aesthetic values of Quinsam and Iron River systems. If in the opinion of the Director there is evidence of deterioration in the water quality, which can be attributed to the significant discharge of nutrients from the mine operation, the Permittee may be required to implement any of the mitigative measures outlined in the Environmental Procedures Manual (lake aeration/forest fertilization) or other methods as approved by the Director.
Details/Findings:	The Officers did not observe algal growth or biomass accumulation on the ponds or portions of the lakes and rivers during the on-site inspection.
Compliance:	In
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.7 Spill Reporting** 3.7: All spills to the environment (as defined in the Spill Reporting Regulation) shall be reported immediately in accordance with the Spill Reporting Regulation. Notification shall be via the Provincial Emergency Program at 1-800-663-3456.

Details/Findings:	During the on-site inspection, Quinsam staff confirmed that no spills to the environment occured. A review of the 2021-2022 Annual Report and Q1 report confirmed that no spills occurred. Therefore, compliance with this Section is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.8 Additional Works** 3.8: Based on the results of the monitoring program and/or other information obtained in connection with these discharges, the Permittee may be required to install additional treatment works or take other measures considered necessary. This may include, but is not necessarily limited to, facilities for the removal of nutrients and metals from the effluent or the provision of additional settling pond capacity.
Details/Findings:	During the inspection period, no additional treatment works were required by the Ministry to be installed; therefore, compliance with this Section is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.9 Maintenance of Works, Non-Compliances and Emergency Procedures** 3.9.1: The Permittee shall inspect the authorized works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Permittee which prevents continuing effective operation of the authorized works, the Permittee shall take appropriate remedial action and immediately notify the Regional Waste Manager or a designated Officer.

Details/Findings:	In an email sent on November 8, 2022, Quinsam staff reported that mine staff drive around the site and inspect all roadside ditches, settling ponds and pumps daily. Inspections involve checking for unobstructed flow, clearing debris, ensuring water levels meeting permit limits for water cover and that settling ponds are at safe levels for discharge. These inspections involve checking mine influence water that remains within the authorized works, checking pumps and floats, checking water levels against staff gauges, ensuring flow metes are operating properly and checking the integrity of the dam structures and making observations on water quality if necessary. In this email Quinsam submitted copies of their field inspection notes for January and July of 2022 as requested. On January 5, 2022, Quinsam reported to the Ministry via email that on January 3rd, 2022, the 5-South pump failed to restart after a power outage. The 5-South dewatering pump is a well pump located 80 meters below surface with its primary purpose being to transfer water from the 5-South mine into the 2-North mine (3 Mains) where it is discharged at Settling Pond #4. The Quinsam site electrician determined that the pump required repair but was unable to make the repairs due to the pump's location. The 5-South pump has not been repaired or replaced and the 2021-2022 Annual Report states that the mine will be allowed to flood to near pre-mine groundwater conditions. This 5-South pump is part of the underground pumping facilities, authorized for the north coal mining operation. Quinsam is out of compliance with the requirement to maintain the authorized works in good working order since January 3rd, 2022. This non-compliance is being referred for Administrative Penalty.
Compliance:	Out
Actions to be taken:	Ensure authorized works are inspected regularly and maintained in good working order.
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.9 Maintenance of Works, Non-Compliances and Emergency Procedures, 3.9.2** 3.9.2: In the event of commissioning of the works, operational system modifications, equipment failure, operator error, spill, permit non-compliances or any other condition which may affect the quantity or quality of the discharge such that permit limits may be exceeded, the Permittee shall: take appropriate action to prevent or mitigate pollution, immediately notify the Provincial Emergency Program (PEP) 1-800-663-3456, as soon as possible, conduct sampling and analysis of discharges which may cause non-compliance with the characteristics of the discharge as specified in Section 1 of this permit and provide the results to the Regional Waste Manager or a designated Officer, as soon as practicable (but not later than 30-days after the Permittee became aware of the event), investigate the event and provide a report including results of sampling and analysis, permit non-compliance, corrections to the operational system, root cause of the event and decisions for corrective and preventive action.

Details/Findings:	On January 17, 2022, Quinsam Quinsam received sample results identifying a dissolved iron exceedance on January 4th, 2022, at Settling Pond #1 (EMS ID: 214321). This was reported to the environmental emergencies program on January 17, 2022, and then reported as a non-compliance on January 18, 2022. The final report for this non-compliance was submitted to the Ministry via email on February 15, 2022, and included the possible cause and the results of subsequent sampling. However, the January 3, 2022, 5-south pump failure was not reported to the Ministry until January 5, 2022.This delay in notification cannot be considered immediate. As this inspection determined additional permit non-compliances that were not immediately reported to the Ministry Quinsam is out of compliance with this requirement. The non-compliances that were not reported are several failures to meet monitoring requirements in Section 4 of the Permit and the exceedance of the permitted average rate of discharge for E207409. In addition, no notification was provided to the Ministry for the following non-compliances: - E207409 - The discharge rate exceedance identified in the Findings for Section 1.1.1; - E207409 - Missed monitoring between March 14, 2022, and March 28, 2022, for dissolved sulphate, identified in the Findings for Section 4.1.1 (i); - E207409 - Missed flow rate monitoring from September 9 to 12, 2021, and September 15, 2021, identified in the Findings for Section 4.1.1 (i); - E218582 - Total Metals and total hardness analyses, required to be conducted every two months, was missed between February and May 2022, identified in the Findings for Section 4.1.2 (i); - E297232 - no flow data was recorded during the fall monitoring period of October 7 through November 2, 2021, identified in the Findings for Section 4.2.5; and, - Missed monitoring for the sediment monitoring program identified in the Findings for Section 4.2.7;
Compliance:	Out
Actions to be taken:	Ensure all permit non-compliances are reported in accordance with the requirements of this section.
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.10 Bypasses** 3.10: The Permittee shall ensure that no effluent is discharged without being processed through the authorised works unless prior written approval is received from the Director.

Details/Findings:	Long Lake Seeps As documented in the previous inspection record (IR) 174939 Quinsam has two bedrock groundwater seeps delivering water from the 2-3 South mine pool and discharging into Long Lake. These two seeps are known as LLS (a smaller seep with more consistent flow) and LLSM (the primary seep, as flows at this site are typically much higher and more variable compared to LLS). During the on-site inspection the Officers observed these two seeps to be flowing (Photos 2-6). As these two long lake seep sites discharge effluent from the 2-3 South mine pool into Long Lake without this effluent being processed through settling pond 1, and these discharges occurred during the inspection period, without prior written approval from the Director, this is considered to be an unauthorized bypass. Seep S During the on-site inspection the Officers observed water flowing from the seep previously documented by the Ministry in IR 178045, located near monitoring well QU11-09 M, which flows into the Quinsam River (Photo 7). This seep was previously reported as a seep in the 2020-2021 Annual Report; however, in the 2021-2022 Annual Report it is referred to as potential seepage area S. As reported in IR 178045, issued to Quinsam on November 8, 2021, groundwater well (QU11-09) accessing the River Barrier Pillar mine pool (between the 2 North and 5-South Mine), became artesian and discharged to the Quinsam river, as the water elevation in the 2-North Mine Pool increased. This was discovered by Quinsam on March 17, 2021, and the well was capped on March 19, 2021. Although this stopped the discharge from the well, Quinsam reported in the DGIR 204584 Follow-Up Report "the shallow groundwater aquifer in the area was under pressure and continued to seep from the ground upward into the Quinsam river until approximately July 20, 2021." Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for seep S using timed bucket tests, measured from one to four times a month from in July 2021, September to December 2021, and February to June 2022. The highest estimated flow was 0.0100 m3/s and the lowest was no flow in August of 2021. As effluent was discharged to the Quinsam River without being processed through the authorised works, without prior written approval from the Director during the inspection period, this is considered to be an unauthorized bypass. S2 Seeps In the 2021-2022 Annual Report Quinsam identified what they refer to as potential seepage areas, which also flow into the Quinsam River. They are referred to as S2A and S2B, or collectively as S2. S2A was discovered in September of 2021 while performing sediment and benthic invertebrate sampling on the Quinsam River at sampling location QRD-02 near groundwater well QU11-05. At the time it was referred to as S2. This seep was monitored in September of 2021. In March 2022 Quinsam returned to the S2 site and found that there were now two flow paths referred to as S2A and S2B. Further monitoring was initiated. Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for 2S using timed bucket tests. The seepage areas had documented flow in September of 2021 (S2A) and in March through June of 2022 (S2A and S2B), with flow rates decreasing from March to June. During the on-site inspection the Officers viewed the S2A seep to be flowing (Photo 8). During the on-site inspection Quinsam staff reported that S2A and S2B may be related to the 2-North mine pool as their flow decreases when the mine pool elevation is lowered, but were unable to confirm that discharged effluent was mine contact water without a new hydrogeological studies. However, it is Quinsam's responsibility to carry out the necessary studies to prove that these discharges are not mine impacted. This non-compliance is being referred for Administrative Penalty.

Compliance:	Out
Actions to be taken:	Ensure that no effluent is discharged without being processed through the authorised works unless prior written approval is received from the Director.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409)** 4.1.1 (i): See Attached Document for Section 4.1.1 (i) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the monitoring frequency for TSS at this location (E207409 settling pond 4 discharge) from daily to weekly 24 hour composite samples for decant flow conditions exceeding 0.054 m3/s, and the amendment letter states that dissolved metals analysis must be undertaken monthly. A review of Appendix 1 - Table 5, and Table 25 of the 2021-2022 Annual Report and Appendix 1 - Table 5 and Table 25 of the Q1 Report and email correspondence on November 15, 2022 determined that the following monitoring was missed: - During the 14 day period between March 14, and March 28, 2022, no weekly sample was analyzed for dissolved sulphate. - From September 9 to 12, 2021, and September 15, 2021, no flow rates were recorded. This was reported to be because the flow meter failed to continually operate due to voltage stabilizer failure. - During the entire inspection period no 24-hour composite TSS samples were collected, and grab samples were collected instead. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that monitoring most recently occurred on September 24, 2020; therefore, compliance with this requirement was not applicable during the inspection period.
Compliance:	Out
Actions to be taken:	Ensure monitoring is conducted as per Section 4.1.1 (i) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (ii) Culvert, at Middle Quinsam Lake Road - WC (EMS # E207411)** 4.1.1 (ii): See Attached Document for Section 4.1.1 (ii) Table

Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site Middle Quinsam Lake Road WC (EMS # E207411), and removed the bi-weekly TSS monitoring requirement. A review of the Appendix 1 - Table 9 of the 2021-2022 Annual Report and Appendix 1 - Table 9 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (ii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (iii) 2-North Portal Sump Effluent - SN-P-Sump (EMS # E283433)** 4.1.1 (iii): See Attached Document for Section 4.1.1 (iii) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E283433. A review of Appendix 1 - Table 7 of the 2021-2022 Annual Report and Appendix 1 - Table 7 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (iii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (iv) Additional Sites Monitoring Schedule** 4.1.1 (iv): See Attached Document for Section 4.1.1 (iv) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E292126 (south dyke sump) from the monitoring program, and reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E207412. A review of Appendix 1 - Table 6 and Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 6 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (iv) Table.
Compliance:	In

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (i) Decant - SPD (EMS # E218582)** 4.1.2 (i): See Attached Document for Section 4.1.2 (i) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the monitoring frequency for TSS at this location (E218582 settling pond 1 discharge) from daily to weekly 24 hour composite samples for decant flow conditions exceeding 0.046 m3/s, required that dissolved metals analysis be undertaken monthly. A review of Appendix 1 - Table 10 and Table 26 of the 2021-2022 Annual Report and Appendix 1 - Table 10 and Table 26 of the Q1 Report determined that the total metals and total hardness analyses required to be conducted every two months was missed between February and May 2022. In an email sent on November 15, 2022 it was confirmed that during the inspection period no 24-hour composite TSS samples were collected, and grab samples were collected instead.
Compliance:	Out
Actions to be taken:	Ensure sampling and analysis are conducted as per Section 4.1.2 (i) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (ii) Culvert, Downstream End at Access Road - SPC (EMS #E217014)** 4.1.2 (ii): See Attached Document for Section 4.1.2 (ii) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly, and removed the bi-weekly TSS monitoring requirement for monitoring site E217014 (Culvert, Downstream End at Access Road SPC). A review of the Appendix 1 - Table 18 and Table 26 of the 2021-2022 Annual Report, Appendix 1 - Table 18 and Table 26 of the Q1 Report, and the Q2 Report determined that the no monitoring results were reported for the months of July, August, and September of 2021. However, in an email sent on November 10, 2022, Quinsam staff reported that there was no flow from the culvert from July to October 27, 2021, which resulted in no monitoring data.
Compliance:	In

Actions to be taken:	Ensure data sets indicate when no flow is available to sample.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (iii) South Pit Main Sump Water - 3S (EMS # E217015)** 4.1.2 (iii): See Attached Document for Section 4.1.2 (iii) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E217015. A review of Appendix 1 - Table 17 of the 2021-2022 Annual Report and Appendix 1 - Table 17 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.2 (iii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo)** 4.1.2 (iv): See Attached Document for Section 4.1.2 (iv) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring sites E292128 (1977 bulk sample pit) and E292129 (culvert downstream of 4 south access road) from the monitoring program, and reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E292127. A review of Appendix 1 - Table 15 and Table 28 of the 2021-2022 Annual Report and Appendix 1 - Table 15 and Table 28 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.2 (iv) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.3 Block 242 Coal Mining Operation (i) Decant (EMS # E225796)** 4.1.3 (i): See Attached Document for Section 4.1.3 (i) Table

Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E225796 Block 242 decant from the monitoring program; therefore, compliance with this Section is no longer applicable.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.3 Block 242 Coal Mining Operation (ii) Underground Settling Pond Effluent (EMS # E225797)** 4.1.3 (ii): See Attached Document for Section 4.1.3 (ii) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E225797 Block 242 underground settling pond effluent from the monitoring program; therefore, compliance with this Section is no longer applicable.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.4 7 South Mining Operation (i) Decant - 7SSD (EMS # E292069)** 4.1.4 (i): See Attached Document for Section 4.1.4 (i) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, reduced the monitoring frequency for all parameters at this location (E292069) from monthly to quarterly when no discharge is occurring. A review of Appendix 1 - Table 22 and Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 22 and Table 27 of the Q1 Report determined that no discharge occurred during the inspection period, and quarterly monitoring of ponded water was conducted in compliance with Section 4.1.4 (i) Table.
Compliance:	In

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.4 7 South Mining Operation (ii) 7 South Adit Sump - 7S-Sump (EMS # E292110)** 4.1.4 (ii): See Attached Document for Section 4.1.4 (ii) Table
Details/Findings:	Section 4.1.4 (ii) Table requires daily monitoring of TSS and weekly monitoring of all other parameters when pumping from 7 South Adit sump to 7S settling pond. Quinsam reported via email on September 20, 2022, that confirmed that effluent has never been pumped from the 7-South Adit Sump to 7S settling pond; therefore, compliance with this requirement was not applicable during the inspection period.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.1 Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE** 4.2.1 (i): See Attached Document for Section 4.2.1 (i) Table
Details/Findings:	A review of Appendix 1 - Table 19, Table 29, and Table 32 of the 2021-2022 Annual Report and Appendix 1 - Table 19 and Table 29 of the Q1 Report determined that E292130 was monitored as per Section 4.2.1 (i) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.1 Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc.** 4.2.1 (ii): See Attached Document for Section 4.2.1 (ii) Table
Details/Findings:	A review of Appendix 1 - Table 24 and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 24 and Table 29 of the Q1 Report determined that monitoring at Road Crossing bridge on Stream 1 above the Lower Wetland 7S (EMS # E292109) was conducted as per the requirements of Section 4.2.1 (ii) Table.

Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.2 Seep Monitoring Sites (i) Long Lake Seeps (LLS)** 4.2.2 (i): See Attached Document for Section 4.2.2 (i) Table
Details/Findings:	A review of Appendix 1 - Table 20 and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 20 and Table 29 of the Q1 Report determined that that monitoring of long lake seep LLS was conducted in compliance with Section 4.2.2 (i) Table at monitoring site E292131.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.4 Sediment and Benthic Monitoring Sites** 4.2.4: See Attached Document for Section 4.2.4

Details/Findings:	Part (i) of Section 4.2.4 requires that the permittee shall submit proposed sediment monitoring locations in the 7-South Area 5 receiving environment to the Director by October 1, 2014, for approval. The September 4, 2020, approval letter from the Ministry states that on August 19, 2020, Quinsam submitted an application to address permit clause 4.2.4 (i) and the Ministry subsequently approved two additional monitoring sites to be added to the sediment and benthic invertebrate sampling requirements of the Permit. These sites are: - E297231 - IR6 Upstream of 7-South Area 5 potential impact(s), downstream of 4-South potential impact(s) - E297232 - IR8 - New Lower Iron River site, downstream of IRT6 and the expected inflow of mine impacted water This September 4, 2020, approval letter states "While the submission of proposed locations for sediment and benthic monitoring was due October 1, 2014, it is understood that no mining has yet occurred in Area 5. Therefore, the data collected will represent baseline conditions relative to any impacts from mining in 7-South Area 5." As a result compliance with part (i) of Section 4.2.4 could not be determined. Part (ii) of Section 4.2.4 states that near seep sediment monitoring applicable to No Name Lake and Middle Quinsam Lake seeps sites consist of a set of three samples equally spaced on a 5 m triangular grid. Long Lake near seep sediment monitoring sites consist of a set of six samples equally spaced on a 5 m triangular grid. A review of the 2021-2022 Annual Report determined that sediment monitoring at these locations was not conducted during the inspection period; therefore, Part (ii) of the Section is not applicable for the inspection period.
Compliance:	Not Determined
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.5 Stream Monitoring Requirements** 4.2.5: See Attached Document for Section 4.2.5

Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed the following monitoring sites from the monitoring program: - E286930 (Quinsam River downstream Site 1, upstream 7S operation); - E292112 (lower wetland outlet, at confluence of Quinsam River); and, - E297230 (Iron River upstream of mining operations). The November 1, 2019, letter amendment also altered the monitoring frequencies of the following monitoring sites: - E219412 (Long Lake outlet) monitoring requirements are reduced at this site from weekly to 5-in-30 three times per year (spring, summer and fall) - E297231 (Iron River upstream of 7SA5) and E297232 (Iron River downstream of 7SA5 and 242 inputs): The monitoring frequency at these two sites are reduced from monthly and 5-in-30 three times per year to 5-in-30 two times per year (summer and fall). A review of Appendix 1 - Table 48, Table 49, and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 29 and 41 of the Q1 Report determined that no flow data was recorded during the fall monitoring period of October 7 through November 2 for location E297232. Quinsam reported that this was due to the pressure transducer either being washed away or having a cable served by wildlife. In addition monitoring sites E225798 and E225808 were not monitored during the inspection period. It is acknowledged that Block 242 Mining Operations has been reclaimed, however the receiving monitoring environment monitoring requirements were not removed from the Permit. Permit section 4.3.9 does not apply as mine influenced discharge has occurred from this location in the past.
Compliance:	Out
Actions to be taken:	Ensure monitoring is conducted as required by this Section.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.6 Lake Monitoring Requirements** 4.2.6: See Attached Document for Section 4.2.6 Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, altered the monitoring frequencies of the following monitoring sites: - E217018 (No Name Lake, centre) monitoring requirements are reduced to five samples collected within a 30-day time frame (5-in-30 sampling) in the spring only. - E292118 (Lower Quinsam Lake, centre) monitoring requirements are reduced to 5-in-30 sampling in the spring only. A review of the 2021-2022 Annual Report and the Q1 Report determined that Quinsam conducted all the lake monitoring as required by the Permit. Spring 2022 zooplankton and phytoplankton data was not reviewed in this inspection as it was not submitted at the time of the inspection.

Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.7 Sediment and Benthic Monitoring** 4.2.7: See Attached Document for Section 4.2.7
Details/Findings:	Part (i) of Section 4.2.7 provides general requirements applicable to all sites defined under Section 4.2.4 and part (ii) allows the monitoring program described in 4.2.7 to be conducted over two consecutive years, with upper and lower watershed sites sampled in respective years. Part (iii) requires that sediment and benthic monitoring cycles occur every 3 to 5 years. As per Section 4.2.4 (i) of the Permit two additional sediment and benthic monitoring sites were added to the monitoring program via the September 4, 2020, Ministry Approval letter. These sites are as follows: - E297231 - IR6 Upstream of 7-South Area 5 potential impact(s), downstream of 4-South potential impact(s) - E297232 - IR8 - New Lower Iron River site, downstream of IRT6 and the expected inflow of mine impacted water The full sediment monitoring program was previously conducted in August through October of 2016 and was therefore next required to be completed by 2021 at the latest. During the on-site inspection Quinsam staff reported that they were unable to complete all requirements of the sediment monitoring program as as hiring of a consultant was not approved by the receivership. A review of Appendix X of the 2021-2022 Annual Report determined that monitoring of the Iron River sites listed above was conducted in 2020 and monitoring of the stream monitoring sites listed in Section 4.2.4, all located in the Quinsam River, was conducted in 2021 as per the requirements. However, the monitoring required under this Section was not conducted at the following lake and wetland monitoring sites listed in Section 4.2.4: - No Name Lake Inlet, NNLI (E224246); - No Name Lake Deep, NNLD (EMS # E217018); - No Name Lake Near Seep (EMS # E292114); - No Name Lake Outlet (EMS # E217017); - Middle Quinsam Lake Inlet (EMS # E206901); - Middle Quinsam Lake Deep (EMS # E292115); - Middle Quinsam Lake Near Seep (EMS # E292116); - Middle Quinsam Lake Outlet (EMS # 0900504); - Lower Quinsam Lake Inlet (EMS # E292117); - Lower Quinsam Lake Deep 1 (EMS # E29118); - Lower Quinsam Lake Deep 2 (EMS # E292119); - Lower Quinsam Lake Outlet (EMS # E292120); - Long Lake Inlet (EMS # E292121); - Long Lake Deep (EMS # E292122); - Long Lake Near Seep (EMS # E292123); - Long Lake Outlet (EMS # E219412); - Middle Gooseneck Lake (EMS # 1132502); - Lower Wetland Inlet (EMS # E292124); - Lower Wetland Middle (EMS # E292125); and, - Lower Wetland Outlet (EMS # E292112).

Compliance:	Out
Actions to be taken:	Ensure the sediment and benthic monitoring program is completed as required in the Permit.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.1 Composite Sampling** 4.3.1: The Permittee shall install suitable sampling facilities and obtain 24 hour composite samples of effluent for total suspended solids. Each daily composite sample shall consist of 8 samples taken at three hour intervals. Sampling shall be performed at frequencies specified in Subsections 4.1.1, 4.1.2., 4.1.3 and 4.1.4. The Permittee may also be required to collect hourly composite samples in order to verify compliance with the total suspended solids criteria of 35 mg/l specified in Subsections 1.1.2, 1.2.2, 1.3.2 and 1.4.2. Each hourly composite sample shall consist of 4 samples taken at 15 minute intervals. Proper care should be taken in sampling, storing, and transporting the samples to adequately control temperature and avoid contamination or breakage. The Permittee shall collect a grab sample instead of a composite sample when weather conditions result in freezing conditions, rendering collection of composite samples not feasible.
Details/Findings:	Through email correspondence on November 15, 2022, it was determined that no 24 hour composite samples of effluent were collected for TSS analysis during the inspection period, and instead grab samples were collected. This non-compliance occurred due to misinterpreted Permit language from the November 1, 2019, amendment. Quinsam interpreted the amendment to mean that composite samples were no longer required and grab samples could be collected instead. This amendment states that monitoring frequency for TSS at E207409 and E218582 is reduced from daily to weekly. The amendment does not change the type of sample required to be collected, and states that all other conditions of permit 7008 remain in effect, including all monitoring requirements not specifically amended herein. Therefore, Quinsam is required to collect 24 hour composite samples of effluent for TSS at the locations required in the Permit and failure to do so is a non-compliance.
Compliance:	Out
Actions to be taken:	Ensure sampling is performed at frequencies specified in Subsections 4.1.1.

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.2 Continuous Flow Recording** 4.3.2: The Permittee shall provide and maintain suitable flow measuring devices and maintain a continuous record of the rate at which the effluent is discharged from the settling ponds authorised in Subsections 1.1.3, 1.2.3, 1.4.3 and from the secondary settling pond authorised in Subsection 1.3.3.
Details/Findings:	The secondary settling pond authorised in Subsection 1.3.3. has been reclaimed and monitoring requirements for this location (E225796) were removed during the November 1, 2019, Permit amendment. Therefore, monitoring is no longer required at this location. As reported above in the Findings for Section 4.1.1(i), a continuous record of the rate at which the effluent was discharged from settling pond 4 (E207409) was not maintained during from September 9 to 12, 2021, and on September 15, 2021.
Compliance:	Out
Actions to be taken:	Ensure that continuous flow monitoring is undertaken in accordance with the requirements of this section.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.5 Monitoring of Seeps** 4.3.5: The Permittee is required to sample in-pit, out-of-pit, underground mine, coal, and waste rock seeps. The location and frequency of sampling will be determined by the Director. Analyses will be obtained for pH, sulphate (d), and metals (t+d). Sediment sampling may also be required at seeps, as and when requested by the Director.

Details/Findings:	As discussed in the Findings for section 3.10, five seeps have been documented at Quinsam. Long Lake Seeps Section 4.2.2 of the Permit provides a sampling frequency for the LLS with EMS ID E292131. The 2021-2022 Annual Report and the Q1 Report use this EMS ID to report both LLS and LLSM monitoring data. Samples of these two seeps are analyzed for pH, dissolved sulphate, and total and dissolved metals during the inspection period. Seep S The director has not specified a monitoring location and frequency for this seep, however Appendix I, Table 40 of the 2021-2022 Annual Report and Table 34 of the Q1 Report provides monitoring data for seep S, and samples were collected at least once every month, and analyzed for pH, dissolved sulphate, and total and dissolved metals during the inspection period. 2S Seeps (S2A and S2B) Seep S2A was discovered in September of 2021 and seep S2B was discovered in March 2022. The director has not specified a monitoring locations and frequencies for these seeps; however, monitoring of S2A and S2B from March 2022 onward is reported as one S2 data set in Appendix I, Table 41 of the 2021-2022 Annual Report and Table 35 of the Q1 Report. These seeps were monitored for pH, dissolved sulphate, and total and dissolved metals at least once a month in September of 2021, and in March through June of 2022.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.6 Groundwater Observation Wells** 4.3.6: The Permittee may be required to install groundwater observation wells in the vicinity of pits 2N, 1S, 2S, 3S, 4S, 5S, Block 242 and 7S. The number, location and structural details of these wells will be subject to the approval of the Director. As an alternative to the 2N, 1S, 2S, 3S, 4S, 5S and 7S wells, the Permittee may establish monitoring sites at the underground sumps subject to the approval of the Director.
Details/Findings:	A review of the 2021-2022 Annual Report determined that a list of all groundwater wells and underground sumps with a description of each was provided in Table 31. According to the 2021-2022 Annual Report wells and sumps are located 2N, 1S, 2S, 3S, 4S, Block 242, and 7S. The number, location and structural details of these wells was determined outside of the inspection period and compliance with the requirement for these details to be approved by the Director was not assessed in this inspection.
Compliance:	Not Determined

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.7 Monitoring of Drainage Ditches and Water Channels** 4.3.7: Visual inspection of drainage ditches and water channels within the mining operational areas shall be carried out by Environmental Protection staff as part of the regular inspections for the entire mine operation. Based on these monitoring results the Permittee may be required to take measures to minimize soil erosion.
Details/Findings:	No measures to minimize soil erosion were required during the inspection period.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.8 Precipitation Monitoring** 4.3.8: The Permittee shall maintain a suitable rain gauge at a location approved by the Director and measure and record the daily accumulated precipitation.
Details/Findings:	Appendix I, Table 30 of the 2021-2022 Annual Report and Appendix I, Table 30 of the Q1 Report included daily accumulated precipitation records for the inspection period.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.5 Reporting** 4.5.1 (i): The Permittee shall submit the results of the monitoring program to the Director on a quarterly basis within thirty days following the previous quarter of monitoring. Based on these results, the monitoring program may be increased or decreased at the discretion of the Director. The format and content of the quarterly report is subject to the approval the Director. An annual review and interpretative report shall be prepared and submitted by the Permittee by June 30 of each year. The report will include, but is not necessarily limited to, the following items: 1) A summary of monitoring results for the previous twelve months. 2) Spills or other unusual events. 3) Changes in the environment resulting from mining activity. 4) Summary of completed, in progress activities or studies relevant to the permitted discharges, associated authorized works and the receiving environment relevant to the reporting period. 5) Projected activities for the coming year which may have an impact on the environment. The format and content of the annual report is subject to the approval of the Environmental Technical Review Committee and the Director. 4.5.1 Through the duration of mining in 7-South Area 5, quarterly and annual reports shall include a summary of: i. Quality and quantity of water pumped from the 7-South Area 5 development with potential to reach Settling Pond 4.

Details/Findings:	The Q2 Report was submitted late on October 31, 2021, and the Q3 Report was submitted on late January 31, 2022. The Q4 and Q1 Reports were submitted within thirty days following the previous quarter of monitoring. The 2021-2022 Annual Report was submitted June 30, 2022. A review of this report determined that it included items 1) though 5).
Compliance:	Out
Actions to be taken:	Ensure the quarterly reports are submitted within thirty days following the previous quarter of monitoring.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.5 Reporting** 4.5.1 (i): The Permittee shall submit the results of the monitoring program to the Director on a quarterly basis within thirty days following the previous quarter of monitoring. Based on these results, the monitoring program may be increased or decreased at the discretion of the Director. The format and content of the quarterly report is subject to the approval the Director. An annual review and interpretative report shall be prepared and submitted by the Permittee by June 30 of each year. The report will include, but is not necessarily limited to, the following items: 1) A summary of monitoring results for the previous twelve months. 2) Spills or other unusual events. 3) Changes in the environment resulting from mining activity. 4) Summary of completed, in progress activities or studies relevant to the permitted discharges, associated authorized works and the receiving environment relevant to the reporting period. 5) Projected activities for the coming year which may have an impact on the environment. The format and content of the annual report is subject to the approval of the Environmental Technical Review Committee and the Director. 4.5.1 Through the duration of mining in 7-South Area 5, quarterly and annual reports shall include a summary of: i. Quality and quantity of water pumped from the 7-South Area 5 development with potential to reach Settling Pond 4.
Details/Findings:	Quinsam is in care and maintenance and no mining occurred at 7-South Area 5 during the inspection period; therefore, compliance with requirements i. through iv. is not applicable.
Compliance:	Not Applicable

Compliance History:
2021-08-18 IR 174939 AMP: AUTHORISED DISCHARGES 1.1.2; 1.1.4; 1.2.3; 1.2.4, Bypasses 3.10, Effluent Characteristics (for Total Suspended Solids) 2.1.7, Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc 4.2.1 (ii), Maintenance of Works, Non-Compliances and Emergency Procedures 3.9.1; 3.9.2, Settling Pond Solids and Storage Volume 2.1.5, South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv)
2020-10-20 IR 159669 Warning 120(6): AUTHORISED DISCHARGES 1.1.1; 1.2.2, Bypasses 3.10, Composite Sampling 4.3.1, Continuous Flow Recording 4.3.2, Effluent Characteristics (for Total Suspended Solids 2.2.5, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), Lake Monitoring Requirements 4.2.6, Maintenance of Works, Non-Compliances and Emergency Procedures 3.9.1, Reporting 4.5.1 (i), Settling Pond Solids and Storage Volume 2.4.4, South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv), Stream Monitoring Requirements 4.2.5
2019-09-19 IR 139588 Advisory: Acid Generation Control 3.3, AUTHORISED DISCHARGES 1.1.1; 1.1.2, Bypasses 3.10, Composite Sampling 4.3.1, Environmental Procedures Manual 3.2, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409) 4.1.1 (i), Reporting 4.5.1 (i), South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), Stream Monitoring Requirements 4.2.5
2018-10-11 IR 106411 Advisory: AUTHORISED DISCHARGES 1.1.1; 1.1.4; 1.2.2; 1.2.4; 1.4.3, Bypasses 3.10, Composite Sampling 4.3.1, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc 4.2.1 (ii), Lake Monitoring Requirements 4.2.6, North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409) 4.1.1 (i), North Coal Mining and Coal Preparation Plant Operation (ii) Culvert, at Middle Quinsam Lake Road - WC (EMS # E207411) 4.1.1 (ii), Reporting 4.5.1 (i), South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv), Stream Monitoring Requirements 4.2.5
2017-09-19 IR 70993 Warning 120(6): AUTHORISED DISCHARGES 1.1.1; 1.1.2; 1.1.3; 1.1.4; 1.2.2; 1.2.3; 1.2.4; 1.4.2; 1.4.3; 1.4.4, Composite Sampling 4.3.1, Continuous Flow Recording 4.3.2

The Ministry of Environment Compliance and Enforcement Policy and Procedure (C&E Policy) prescribes common requirements and procedures for all Ministry staff to ensure consistent and risk-based assessment and response to non-compliance. Using the Non-Compliance Decision Matrix, the compliance determination for this inspection has been assessed as Level 2, Category C, AMP.

This inspection resulted in two additional inspection records: IR198605 and IR198616.

More information about Environmental Compliance, the Non-Compliance Decision Matrix, and reporting and data submission requirements can be found at the links below:

General compliance information:
www.gov.bc.ca/environmentalcompliance
Non-Compliance Decision Matrix information:
www.gov.bc.ca/environment/how-compliance-is-assessed
Reporting and data submission requirements (to be sent to EnvAuthorizationsReporting@gov.bc.ca):
https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply

Please be advised that this inspection report may be published on the provincial government website within 7 days.

Below are attachments related to this inspection.

If you have any questions about this letter, please contact the undersigned.

Yours truly,

Katelyn Dick

Ministry of Environment and Climate Change Strategy
Compliance and Environmental Enforcement Branch
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2080-A
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Nanaimo BC V9E 6J9
Telephone: 250 751 3100
Facsimile: 250 751 3103
Website: www.gov.bc.ca/env

Environmental Protection Officer

cc:

Attachments:

1) 2015 06 23 Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.pdf Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.
2) 2015 06 23 Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.pdf Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.
3) 2022-10-31 IR194661 Photo Record 7088.pdf 2022-10-31 IR194661 Photo Record 7088
4) 2022-11-08 IR194661 AMP.pdf 2022-11-08 IR194661 AMP

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4. MONITORING AND REPORTING REQUIREMENTS

4.1 Effluent and In-Mine Releases

4.1.1 North Coal Mining and Coal Preparation Plant Operation

i) Decant – WD (EMS # E207409)

Parameters	No Decant Flow	Decant Flow <0.054 m^3/s	Decant Flow >0.054 m^3/s
Flow	continuous	continuous	continuous
Total Suspended Solids (TSS) (24 Hour Composite Sample, See 4.3.1)	monthly	weekly	daily
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	monthly	monthly	monthly
Sulphate (d)	monthly	weekly	weekly
Oil and grease	every 2 months	every 2 months	every 2 months
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)	
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)	

ii) Culvert, at Middle Quinsam Lake Road – WC (EMS # E207411)

Parameters	No Decant Flow	WD Decant Flow <0.054 m^3/s	WD Decant Flow >0.054 m^3/s
TSS	monthly (when culvert flowing)	monthly (when culvert flowing)	every 2 weeks (when culvert flowing)
Conductivity, pH	weekly	weekly	weekly
Hardness, metals (t) and (d)	-	every 2 months	every 2 months
Sulphate (d)	monthly	monthly	monthly

iii) 2-North Portal Sump Effluent – 2N-P-Sump (EMS # E283433)

Parameters	No Decant Flow	WD Decant Flow <0.054 m^3/s	WD Decant Flow >0.054 m^3/s
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	-	monthly	monthly
Hardness, metals (t) and (d), sulphate, (d)	monthly	monthly	monthly

iv) Additional Sites Monitoring Schedule

Parameters	2-North Pit Sump CCR Cover (WP)	South Dyke Sump (SDS)
EMS #	E207412	E292126
TSS	monthly	-
Conductivity, pH	weekly	weekly
Alkalinity and acidity	monthly	quarterly
Hardness, metals (t) and (d)	monthly	quarterly
Sulphate (d)	monthly	quarterly

Date issued: December 23, 1987
Date amended: June 23, 2015
(most recent)

Luc Lachance, P.Eng.
for Director, *Environmental Management Act*
Permit Number: 7008

4.1.2 South Coal Mining Operation

i) Decant – SPD (EMS # E218582)

Parameters	No Decant Flow	Decant SPC Flow <0.046 m^3/s	Decant SPC Flow >0.046 m^3/s
Flow	continuous	continuous	continuous
TSS (24 Hour Composite Sample, See 4.3.1)	monthly	weekly	daily
Conductivity, pH	weekly	weekly	weekly
Hardness, metals (t) and (d), alkalinity and acidity, oil and grease	every 2 months	every 2 months	every 2 months
Sulphate (d)	monthly	weekly	weekly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)	
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)	

ii) Culvert, Downstream End at Access Road – SPC (EMS #E217014)

Parameters	No Decant Flow	SPD Decant Flow <0.046 m^3/s	SPD Decant Flow >0.046 m^3/s
TSS	monthly (when culvert flowing)	monthly (when culvert flowing)	every 2 weeks (when culvert flowing)
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity, sulphate (d)	monthly	monthly	monthly

Date issued: December 23, 1987
Date amended: June 23, 2015
(most recent)

Luc Lachance, P.Eng.
for Director, *Environmental Management Act*
Permit Number: 7008

iii) South Pit Main Sump Water – 3S (EMS # E217015)

Parameters	No Decant Flow	SPD Decant Flow $<0.046\ m^3/s$	SPD Decant Flow $>0.046\ m^3/s$
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity, sulphate (d)	monthly	monthly	monthly

iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo)

Parameters	2 South Pit In Pit Water Cover (2S)	1977 Bulk Sample Pit (3S77)	Culvert Downstream of 4 South Access Road (4S-Lo)
EMS #	E292127	E292128	E292129
Flow	Continuous (inflow and outflow)	-	-
TSS	-	-	-
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	monthly	quarterly	monthly
Hardness, metals (t) and (d), sulphate (d)	monthly	quarterly	monthly (when flowing)

4.1.3 Block 242 Coal Mining Operation

i) Decant (EMS # E225796)

Parameters	No Decant Flow	Decant Flow
TSS (24 Hour Composite Sample, See 4.3.1),	monthly	weekly
Alkalinity and acidity, hardness, metals (t) and (d), Oil and Grease	every 2 months	monthly
Sulphate (d), pH, conductivity	monthly	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)

ii) Underground Settling Pond Effluent (EMS # E225797)

Parameters	No Decant Flow	Decant Flow
pH	monthly	weekly
Alkalinity and acidity, metals (t) and (d), sulphate (d)	monthly	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	every 2 months	every 2 months

4.1.4 7 South Mining Operation

i) Decant – 7SSD (EMS # E292069)

Parameters	No Decant Flow	Decant Flow
Flow	Continuous	Continuous
TSS	monthly – from the ponded water	daily
Hardness, metals (t) and (d)	monthly – from the ponded water	weekly
pH, conductivity, alkalinity and acidity, sulphate (d), organic carbon (d)	monthly – from the ponded water	weekly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	2 time/year (conducted during fall first flush event and in the spring freshet)

ii) 7 South Adit Sump – 7S-Sump (EMS # E292110)

Parameters	7 South Adit Sump (7S-Sump)
TSS	daily when pumping to 7S Settling Pond
Conductivity, pH, alkalinity and acidity	weekly when pumping to 7S Settling Pond
Hardness, metals (t) and (d)	weekly when pumping to 7S Settling Pond
Sulphate (d)	weekly when pumping to 7S Settling Pond

Legend:

(t) = total
(d) = dissolved

Note 1: For monitoring tied to decant flow, the decant flow referenced at the column heading must

be established for a minimum of 15 minutes before the corresponding monitoring regime is required. All samples are grab samples unless specified otherwise within the matrices.

Note 2: When the flows referenced at the column heading are established according to Note 1 the corresponding monitoring regime will be required, as specified in the matrices, and be continued for at least one specified period following the recession of the flow below the tabled level.

Note 3: Decant samples required under Subsections 4.1.1 i), 4.2.1 i), 4.3.1 i) and Subsection 4.4.1 i) during periods of no decant flow shall be taken at a point in each settling pond adjacent to the decant.

4.2 Receiving Environment Monitoring Sites and Monitoring Requirements

4.2.1 Initial Dilution Zone Monitoring Sites

i) Long Lake Entrance – LLE

Parameters	Long Lake Entrance (LLE)
EMS #	E292130
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	monthly
Sulphate (d)	weekly

Document : 2015 06 23 Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.pdf
Document comment: Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.

be established for a minimum of 15 minutes before the corresponding monitoring regime is required. All samples are grab samples unless specified otherwise within the matrices.

Note 2: When the flows referenced at the column heading are established according to Note 1 the corresponding monitoring regime will be required, as specified in the matrices, and be continued for at least one specified period following the recession of the flow below the tabled level.

Note 3: Decant samples required under Subsections 4.1.1 i), 4.2.1 i), 4.3.1 i) and Subsection 4.4.1 i) during periods of no decant flow shall be taken at a point in each settling pond adjacent to the decant.

4.2 Receiving Environment Monitoring Sites and Monitoring Requirements

4.2.1 Initial Dilution Zone Monitoring Sites

i) Long Lake Entrance – LLE

Parameters	Long Lake Entrance (LLE)
EMS #	E292130
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	monthly
Sulphate (d)	weekly

ii) Road Crossing bridge on Stream 1 above the Lower Wetland – 7S (EMS # E292109)*

Parameters	No Decant Flow	Decant Flow
Flow	Continuous	Continuous
TSS	monthly – when there is flow at surface	weekly – when there is flow at surface
Hardness, metals (t) and (d)	monthly – when there is flow at surface	weekly – when there is flow at surface
Conductivity, pH	monthly	weekly
Alkalinity and acidity, sulphate (d), organic carbon (d)	monthly	monthly
7 day *Ceriodaphnia dubia* chronic toxicity test	-	2 time/year (conducted during fall first flush event and in the spring freshet)

*Sampling at 7SSD and 7S is to be conducted concurrently to allow for data interpretation and mass balance calculations.

4.2.2 Seep Monitoring Sites

i) Long Lake Seeps (LLS)

Parameters	Long Lake Seep (LLS)
EMS #	E292131
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Sulphate (d)	monthly

4.2.3 Receiving Water (Streams and Lakes) Monitoring Sites

Streams	Lakes
North Mining Operation	
Quinsam River at Argonaut Road (WA) (EMS # 0126402) Outflow from Middle Quinsam Lake (WB) (EMS # 0900504)	Middle Quinsam Lake Centre (EMS # E206618)
South Mining Operation	
Long Lake Outlet (LLO) (EMS # E219412) No Name Lake Outlet (NNO) (EMS # E217017)	Long Lake at Centre (LLM) (EMS # E206619) No Name Lake (NNL) (EMS # E217018)
Block 242 Mining Operation	
Iron River upstream of 242 influence (EMS #E225798) Iron River downstream of 242 influence (EMS # E225808)	Lower Quinsam Lake (LQL) (EMS # E292118)
7-South Mining Operation (Areas 1 to 4)	
Quinsam River upstream of 7 South Mining Operation (QRDS1) (EMS # E286930) Quinsam River downstream of 7 South Mining Operation (7SQR) (EMS # E292113) Lower Wetland Outlet at the confluence of Quinsam River (LWO) (EMS # E292112)	Lower Quinsam Lake (LQL) (EMS # E292118)
7-South Area 5 Mining Operation	
Iron River upstream of mining operations (IR1) (EMS #E297230) Iron River upstream of 7SA5 (IR6) (EMS # E297231) Iron River downstream of 7SA5 and 242 inputs (IR8) (EMS # E297232) Quinsam River downstream of confluence with Iron River (IRQR) (EMS # E299256)	Lower Quinsam Lake (LQL) (EMS # E292118)

4.2.4 Sediment and Benthic Monitoring Sites

Lake and Wetland Monitoring Sites	
No Name Lake (NNL)	No Name Lake Inlet, NNLI (EMS # E224246) No Name Lake Deep, NNLD (EMS # E217018) No Name Lake Near Seep (EMS # E292114) No Name Lake Outlet (EMS # E217017)
Middle Quinsam Lake (MQL)	Middle Quinsam Lake Inlet (EMS # E206901) Middle Quinsam Lake Deep (EMS # E292115) Middle Quinsam Lake Near Seep (EMS # E292116) Middle Quinsam Lake Outlet (EMS # 0900504)
Lower Quinsam Lake (LQL)	Lower Quinsam Lake Inlet (EMS # E292117) Lower Quinsam Lake Deep 1 (EMS # E29118) Lower Quinsam Lake Deep 2 (EMS # E292119) Lower Quinsam Lake Outlet (EMS # E292120)
Long Lake (LL)	Long Lake Inlet (EMS # E292121) Long Lake Deep (EMS # E292122) Long Lake Near Seep (EMS # E292123) Long Lake Outlet (EMS # E219412)
Gooseneck Lake (GNL)	Middle Gooseneck Lake (EMS # 1132502)
Lower Wetland	Lower Wetland Inlet (EMS # E292124) Lower Wetland Middle (EMS # E292125) Lower Wetland Outlet (EMS # E292112)
Stream Monitoring Sites	
Quinsam River at Argonaut Road (WA)	(EMS # 0126402)
Quinsam River upstream of 7 South Mining Operation (QRDS1)	(EMS # E286930)
Quinsam River downstream of 7 South Mining Operation (7SQR)	(EMS # E292113)

i) The permittee shall submit proposed sediment monitoring locations in the 7-South Area 5 receiving environment to the Director by October 1, 2014 for approval.

ii) Near seep sediment monitoring applicable to No Name Lake and Middle Quinsam Lake seeps sites consist of a set of three samples equally spaced on a 5 m triangular grid. Long Lake near seep sediment monitoring sites consist of a set of six samples equally spaced on a 5 m triangular grid.

4.2.5 Stream Monitoring Requirements

i) General Requirements Applicable to All Sites Defined Under Section 4.2.3

Parameters	Schedule
Flow, total suspended solids (TSS), hardness, total and dissolved metals, conductivity, pH, alkalinity and acidity, sulphate (d)	5 in 30 (3 times/year)*
Ammonia (t), nitrate/nitrite, phosphorus (t)	every 3 years (conducted during low flow period (August to early September)

Legend:
(t) = total
(d) = dissolved
*5 in 30 refers to 5 weekly samples collected within a 30 day period

ii) Long Lake Outlet sampling requirement for dissolved sulphate is weekly until Long Lake Seep Treatment plant is authorized.

iii) Quinsam River upstream of 7 South Mining Operation (QRDS1) sampling requirements for sulphate (d) is weekly for a period approved by the Director following commissioning of the 7-South mining operation discharge.

iv) Flow is only required at WB, LLO, WA and IR8.

v) Iron River monitoring shall include monthly sampling to supplement the 5 in 30 sampling. The Director may allow cessation of monthly sampling (retaining 5 in 30 sampling), if the permittee can identify the yearly periods of worst-case water quality to the satisfaction of the Director. The earliest that monthly sampling shall be considered for cessation is 2016.

4.2.6 Lake Monitoring Requirements

i) General Requirements Applicable to All Sites Defined Under Section 4.2.3

Parameters	Annual Schedule
(1) Temperature, conductivity, pH, dissolved Oxygen (DO), saturation, oxidation reduction potential (ORP)	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
(2) Turbidity	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
(2) Phosphorus (t), alkalinity	One sampling event concurrent to a 5 in 30* event (3 times/year, spring turnover, stratification period and fall turnover)
(2) Hardness, total and dissolved metals, sulphate (d)	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
BIOLOGICAL MONITORING	
(3) chlorophyll "a" (4) Phytoplankton (5) Zooplankton	One sampling event concurrent to a 5 in 30* event (3 times/year, spring turnover, stratification period and fall turnover)

Legend:

(t) = total
(d) = dissolved
*5 in 30 refers to 5 weekly samples collected within a 30 day period

(1) Profile at 1 metre intervals from surface to bottom
(2) Four depths: 1 metre, 4 metres, 9 metres, and 1 metre from bottom
(3) One depth: 1 metre below surface
(4) One depth: 1 metre below surface; analyzed for count and identification
(5) 10 metre vertical tow; analyzed for count and identification

ii) Lower Quinsam Lake monitoring shall be done according to Subsection 4.2.6 for a period approved by the Director following commissioning of the 7-

South mining operation discharge.

4.2.7 Sediment and Benthic Monitoring Requirements

i) General requirements applicable to all sites defined under section 4.2.4

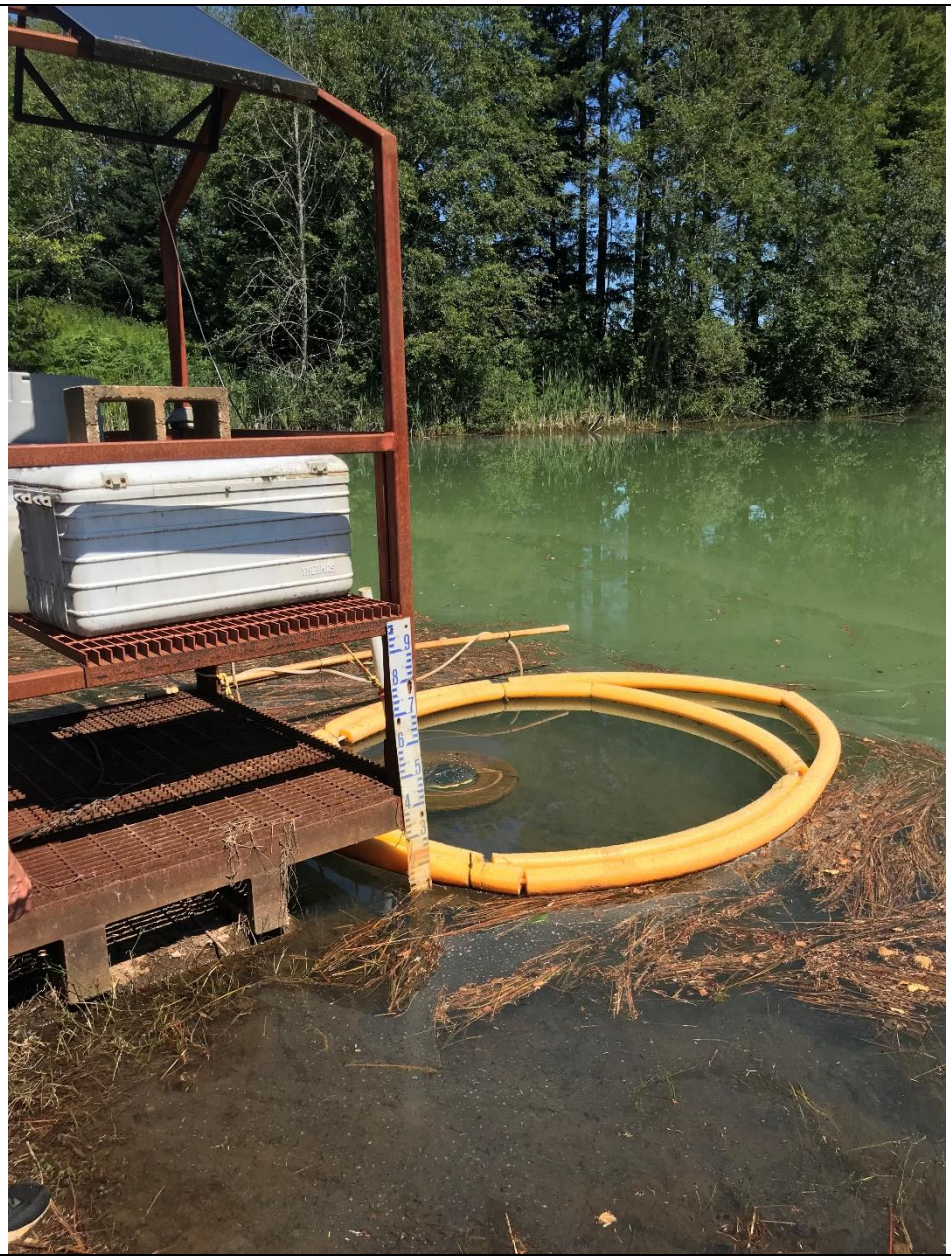
Parameters
LAKE WATER CHEMISTRY PROFILE
Temp, DO, specific conductivity, pH, ORP
WATER CHEMISTRY
Hardness, turbidity, sulphate (d), metals (t) and (d), polycyclic aromatic hydrocarbons Mid lake sites – grab samples at two depths: near bottom and surface of lake for all sites except for deep sites where an additional sample will be collected at 5 m below surface Stream sites, wetlands and lake inlet/outlets – grab samples just below surface
SEDIMENT CHEMISTRY
moisture, pH, particle size, total organic carbon (TOC), total metals, polycyclic aromatic hydrocarbons
BIOLOGICAL MONITORING
Benthic invertebrates at all stream monitoring sites listed in subsection 4.2.4, as per Canadian Aquatic Biomonitoring Network (CABIN) methodology
Benthic community taxonomy and count for all lake and wetland monitoring sites listed in subsection 4.2.4

ii) The monitoring program described in 4.2.7 may be conducted over two consecutive years, with upper and lower watershed sites sampled in respective years. Under this program, monitoring site WB (EMS # 0900504) shall serve as the lowest site in the upper watershed.

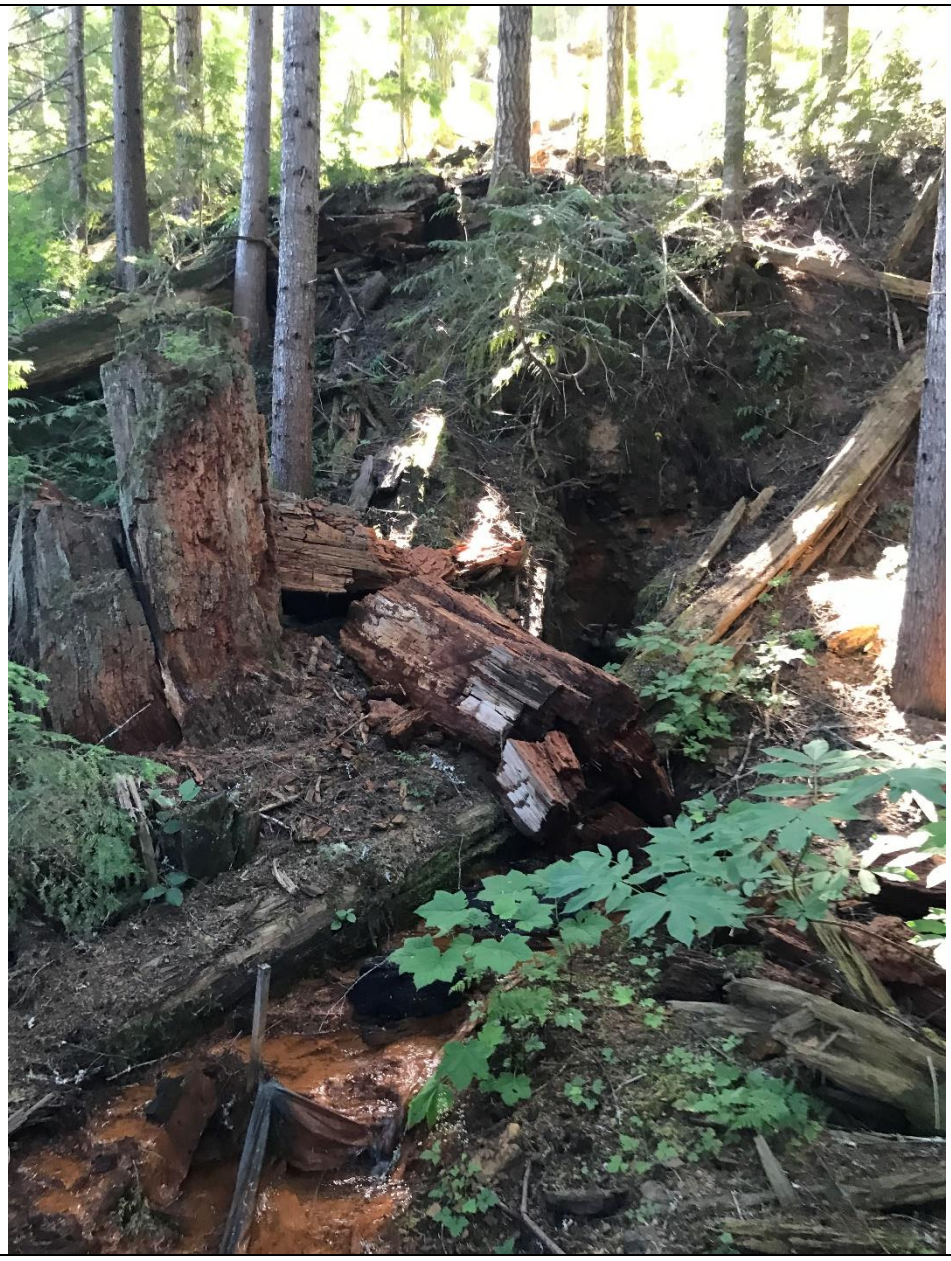
iii) Sediment and benthic monitoring cycles are required every 3 to 5 years. The first assessment will be completed in 2015-2016. Following the first monitoring cycle, the sediment and biological monitoring program will be revised based on the outcomes of previous years' assessments. The permittee will submit the results of the sediment and biological monitoring program along with recommendations for the subsequent monitoring cycle by an appropriately qualified professional. Recommendations will be reviewed and approved and/or modified by the director.

Document : 2015 06 23 Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.pdf
Document comment: Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.

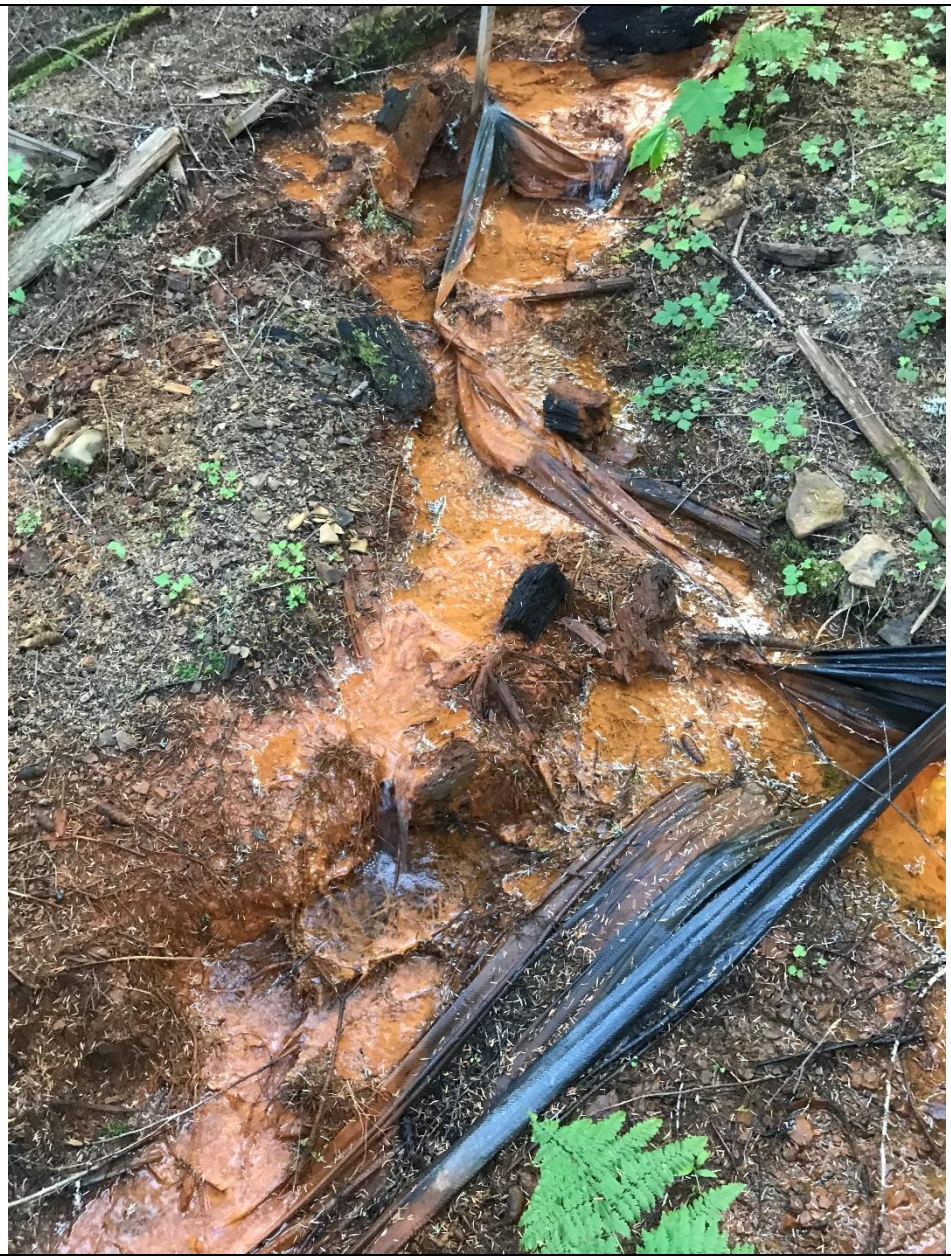
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 1: Settling Pond 4 decant	

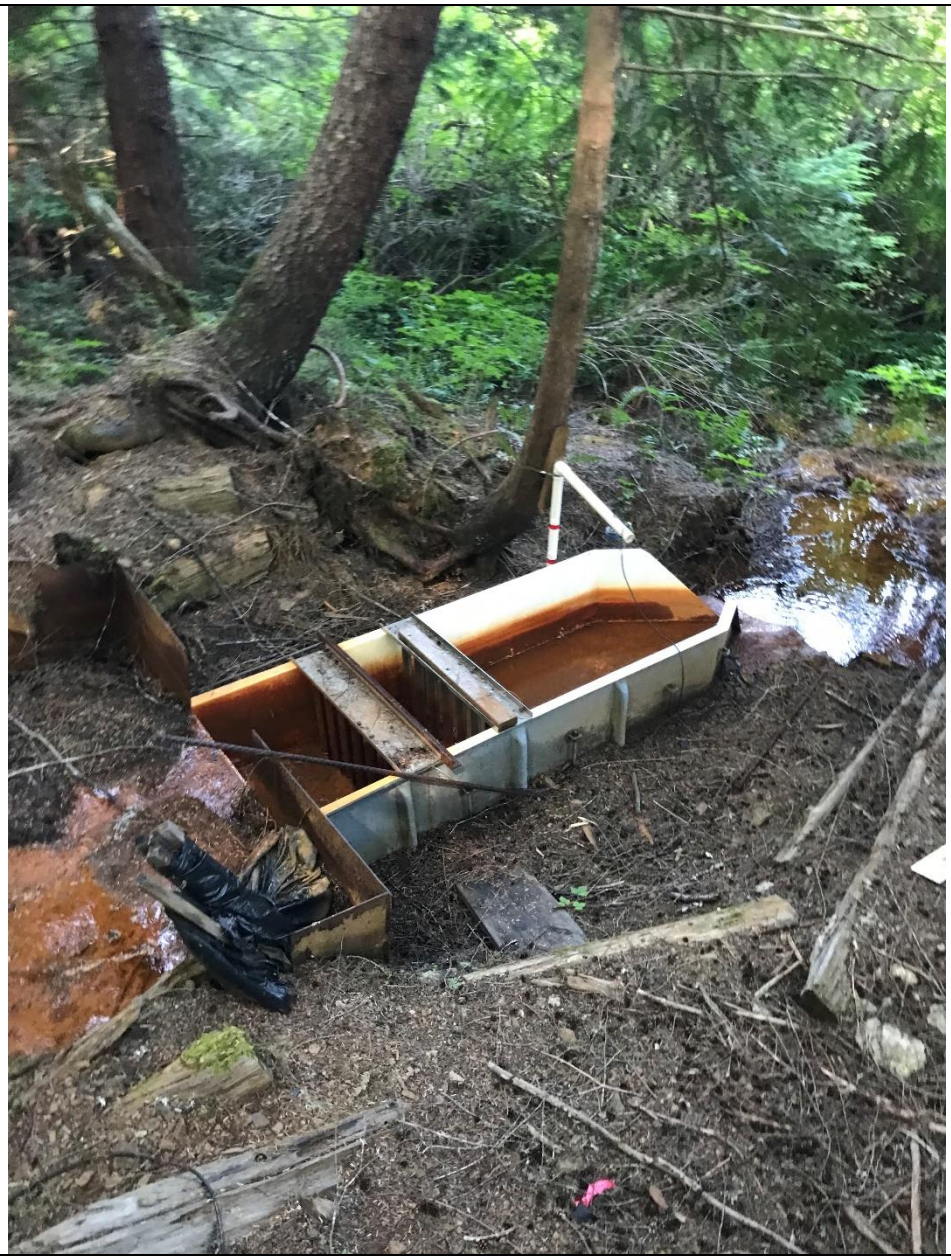
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 2: LLSM flow path, looking towards the start of the seep	

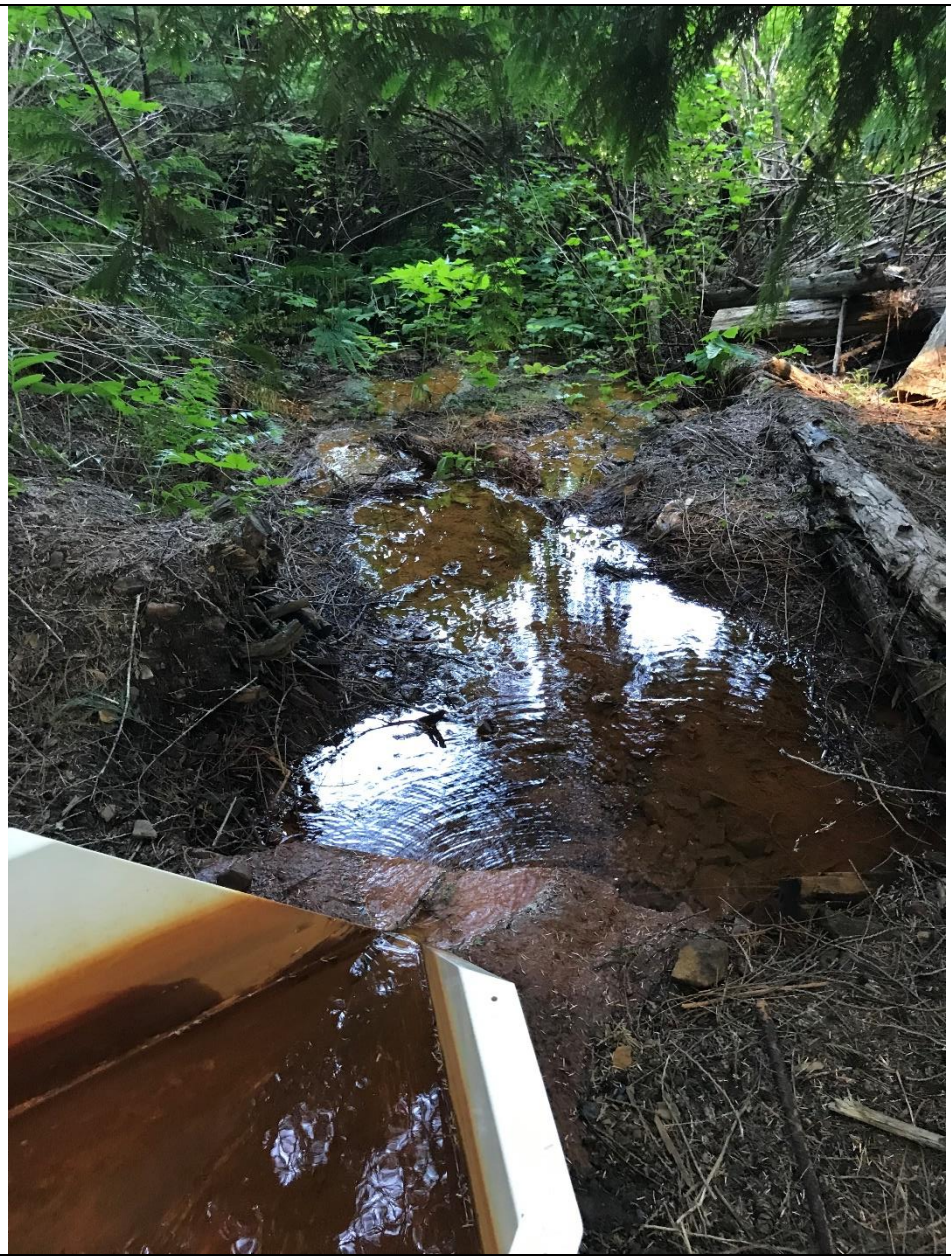
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 3: LLSM flow path, looking towards the start of the seep	

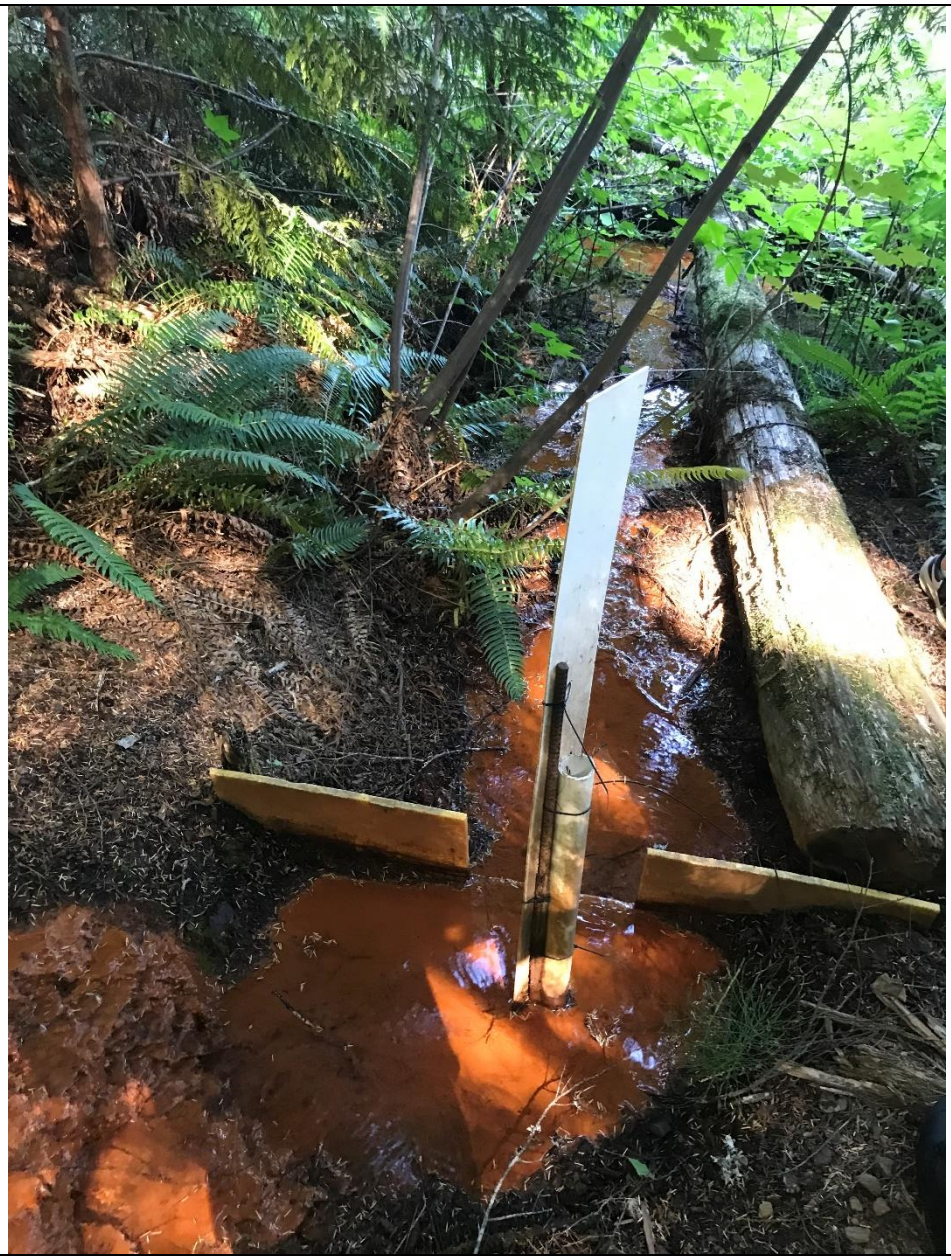
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 4: LLSM flow path and H flume	

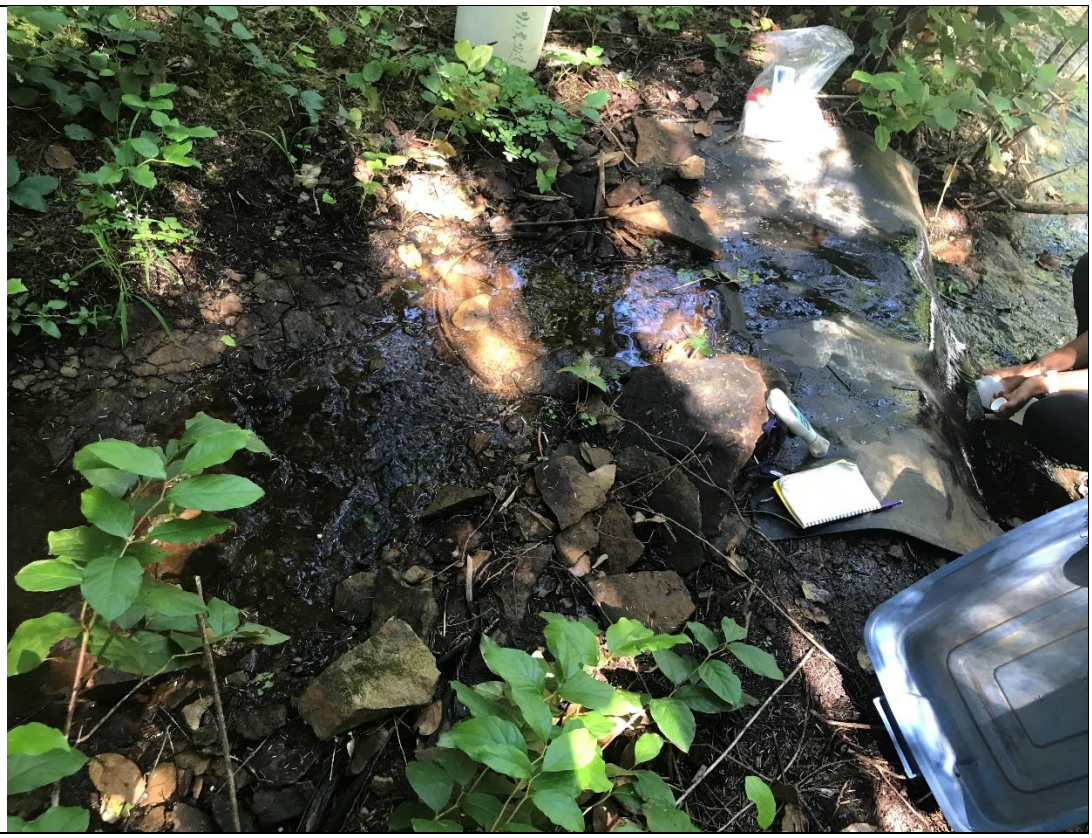
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 5: LLSM flow path looking towards Long Lake, which is on the other side of the vegetation in the photo	

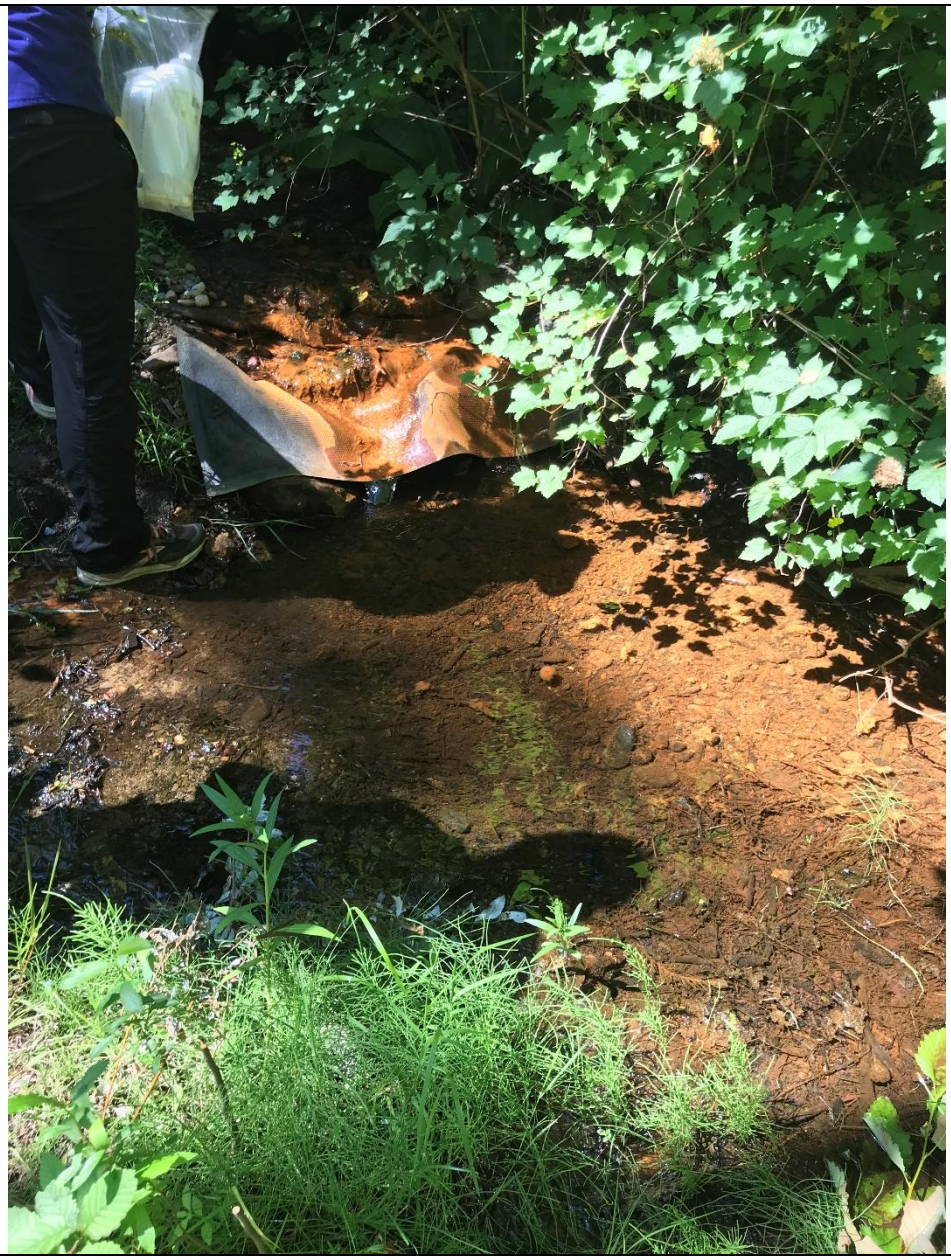
Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 6: LLS Seep with staff gauge. Flow path leads to Long Lake	

Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 7: Potential seepage area S flowing into the Quinsam River. Quinsam staff collecting samples during photo.	

Authorization: 7008	Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 8: S2 potential seep area flowing into the Quinsam River	

Document : 2022-10-31 IR194661 Photo Record 7088.pdf
Document comment: 2022-10-31 IR194661 Photo Record 7088

Report Date:November 08, 2022

Report Number:194661

File:7008

Quinsam Coal Corporation

950-1090 West Georgia Street
Vancouver BC V6E 3V7

Dear Quinsam Coal Corporation,

Re: An Administrative Penalty Referral, Permit 7008, 5800 Argounaut Main, CR, BC, (West on Hwy 28) Underground Coal Mining Coal Mine, Effluent

On July 26, 2022, Ministry of Environment and Climate Change Strategy (Ministry) Officers Katelyn Dick and Eleanor Cheung (Officers) conducted an on-site inspection of Quinsam Coal Corporation (Quinsam), an underground coal mine (Site) located at 5800 Argonaut Main, Campbell River, BC to verify compliance with Environmental Management Act (EMA) Permit 7008 (Permit). The Permit authorizes the discharge of effluent from a coal mining operation and coal preparation plant to the land with overland flows draining to Middle Quinsam Lake, Long Lake, Iron River, and Quinsam River, subject to the conditions of the Permit. The Permit was issued on December 23,1987, and most recently amended on November 1, 2019. Present during the inspection was Kathleen Russel, (Environment Coordinator, Quinsam) and Cassandra Cyr (Technician, Quinsam).

A Split Sample Audit was conducted on the discharge from settling pond four (E207409) at the time of the inspection. This Split Sample Audit consists of a comparison of the permittee's and Ministry's sampling and analytical procedures and results collected from a homogenized sample. The audit is conducted to provide further validity to the monitoring data provided by the permittee, beyond that of their own QA/QC program. This Audit resulted in a pass, with a Performance Evaluation of 85%.

For your information, this inspection record is being referred for an Administrative Penalty.

Inspection Details:

The inspection period for this report is from August 20, 2021, to July 26, 2022, and included the review of the following documents:

- PE:7008 Quinsam Coal Annual Water Quality Monitoring Report 2021-2022 (2021-2022 Annual Report), Submitted June 30, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (July-September) (Q2 Report), submitted on October 31, 2021, Prepared by Quinsam Coal Corporation;
- PE:7008 QUARTER 3 REPORT Oct- Dec 2021(Q3 Report), submitted on January 31, 2022, Prepared by Quinsam Coal Corporation;
- PE:7008 Quarter 4 Report January through March 2022 (Q4 Report), submitted to the Ministry on April 29, 2022, Prepared by Quinsam Coal Corporation;
- Quinsam Coal Corporations Quarterly Report (April-June) (Q1 Report), submitted on July 30, 2022, Prepared by Quinsam Coal Corporation;
- Monitoring Program Approval, dated September 4, 2020, prepared by the Ministry;
- Quinsam Coal Annual Water Quality Monitoring Report 2020-2021 (2020-2021 Annual Report), dated June 2021, including data from April 1, 2020 to March 31, 2021, Prepared by Quinsam Coal Corporation;
- Non-Compliance Reports (NCRs) submitted for the inspection period;
- Dangerous Goods Incident Reports (DGIRs) submitted for the inspection period;
- PE:7008 Follow-Up Report Unauthorized Discharge DGIR 204584 (DGIR 204584 Follow-Up Report), submitted to the Ministry on September 8, 2021, Prepared by Quinsam Coal Corporation; and,
- 2021 Environmental Procedures Manual (EMP), dated March 2022, Prepared by Quinsam Coal Corporation.

Ministry of Environment and Climate Change Strategy

Compliance and Environmental Enforcement Branch

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Below are the Permit clauses that were assessed for compliance during this inspection, as well as the associated details/findings and any actions required.

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.1** 1.1.1: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.1 The maximum and average authorised rates of discharge are 0.32 m3/s and 0.08 m3/s respectively. The authorised discharge period is 365 d/a.
Details/Findings:	A review of Appendix 1 - Table 25 of the 2021-2022 Annual Report and Appendix 1 - Table 25 of the Q1 Report determined that that the maximum authorized rate of discharge was not exceeded. However, page 37 of the 2021-2022 Annual Report provides the annual average rate of discharge for the 2021-2022 reporting year (April 1, 2021 to March 31, 2022) for E207409, to be 0.107 m3/s which exceeds the average authorized rate.
Compliance:	Out
Actions to be taken:	Ensure the average authorized rate of discharge is not exceeded.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.2** 1.1.2: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.2 The characteristics of the discharge shall not exceed: Parameters: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L; pH, Limit: 6.0 - 8.5, Unit: - ; Ammonia (as N) , Limit: 1.0, Unit: mg/L; Phosphorus (as P) (asterisk - see NOTE 1), Limit: 0.03, Unit: mg/L; NOTE 1: Dissolved; Oil and Grease (total), Limit: 5, Unit: mg/L; Aluminum (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.02, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.3, Unit: mg/L; NOTE 1: Dissolved; Lead (asterisk - see NOTE 1), Limit: 0.05, Unit: mg/L; NOTE 1: Dissolved; Zinc (asterisk - see NOTE 1), Limit: 0.1, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.

Details/Findings:	A review of the Appendix 1 - Table 5, and page 53 of the 2021-2022 Annual Report and Appendix 1 - Table 5 of the Q1 Report determined that all reported data was within the Permit limits. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that this monitoring was conducted August 2 and September 6 of 2022, and provided monitoring results. Although outside of the inspection period, a review of this data determined that Ammonia and Phosphorus limits were not exceeded.
Compliance:	In
Actions to be taken:	
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.3** 1.1.3: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.3 The authorised works are surface runoff collection and diversion ditches, plant-site runoff collection box, flocculation facilities, settling pond #4, 2 North pit sump, tailings storage facility, 2 North portal sump, surface and underground pumping facilities and related appurtenances approximately located as shown on attached Site Plan A.
Details/Findings:	During the on-site inspection, the Officers observed settling pond #4 to be located approximately as shown on Site Plan A of the Permit. Quinsam reported via email on September 20, 2022, that the remaining authorized works are approximately located as shown on Site Plan A of the Permit.
Compliance:	In
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.1, 1.1.4** 1.1.4: This subsection applies to the discharge of effluent from the NORTH COAL MINING OPERATION AND COAL PREPARATION PLANT as shown on attached Site Plan A. The site reference number for this discharge is E207409. 1.1.4 The authorised works must be complete and in operation on and from the date of this amended permit.

Details/Findings:	On January 5, 2022, Quinsam reported to the Ministry via email that on January 3, 2022, the 5-South pump failed to restart after a power outage. The 5-South dewatering pump is a well pump located 80 meters below the surface with its primary purpose being to transfer water from the 5-South mine into the 2-North mine (3 Mains) where it is discharged to Settling Pond #4. The 5-South pump has not been repaired or replaced and the 2021-2022 Annual Report states that the mine will be allowed to flood to near pre-mine groundwater conditions. This 5-South pump is part of the underground pumping facilities authorized for the north coal mining operation. As this pump has not been in operation since January 3, 2022, Quinsam is out of compliance with this requirement.
Compliance:	Out
Actions to be taken:	Ensure the authorised works are complete and in operation.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.1** 1.2.1: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.1 The maximum and average authorised rates of discharge are 0.46 m3/s and 0.10 m3/s respectively. The authorised discharge period is 365 d/a.
Details/Findings:	A review of the Appendix 1 - Table 26 of the 2021-2022 Annual Report and Appendix 1 - Table 26 of the Q1 Report, determined that the daily maximum rate of discharge was not exceeded. Page 38 of the 2021-2022 Annual Report states that the annual average rate of discharge for the 2021-2022 reporting year (April 1, 2021 to March 31, 2022) for E218582, was 0.021 m3/s.
Compliance:	In

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.2** 1.2.2: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.2 The characteristics of the discharge shall not exceed: Parameters: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L ; pH, Limit: 6.0 - 8.5, Unit: - ; Ammonia (as N) , Limit: 1.0, Unit: mg/L; Phosphorus (as P) (asterisk - see NOTE 1), Limit: 0.03, Unit: mg/L; NOTE 1: Dissolved; Oil and Grease (total), Limit: less than DL (3 asterisk - See NOTE 3), Unit: mg/L; NOTE 3: less than Detection Limit; Aluminum (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.02, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.5, Unit: mg/L; NOTE 1: Dissolved; Lead (asterisk - see NOTE 1), Limit: 0.05, Unit: mg/L; NOTE 1: Dissolved; Zinc (asterisk - see NOTE 1), Limit: 0.2, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.
Details/Findings:	A review of the Appendix 1 - Table 10, and page 53 of the 2021-2022 Annual Report, and Appendix 1 - Table 10 of the Q1 Report determined that the permit limit for dissolved iron was exceeded on January 4, 2022, with a result of 1.19 mg/L. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that this monitoring was conducted August 3 and September 6 of 2022, and provided monitoring results. Although outside of the inspection period, a review of this data determined that Ammonia and Phosphorus limits were not exceeded.
Compliance:	Out
Actions to be taken:	Ensure that Permit limits are not exceeded.
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.3** 1.2.3: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.3 The authorised works are surface runoff collection and diversion ditches, flocculation facilities, settling pond, 3 pit sumps (1S, 2S and 3S Pits), an adit sump (4S Adit), pumping facilities , and related appurtenances approximately located as shown on attached Site Plan B.

Details/Findings:	During the on-site inspection, the Officers observed settling pond 1 to be approximately located as shown on Site Plan B of the Permit. Quinsam reported via email on September 20, 2022, that the 1S pit sump and 4S Adit sump were reclaimed in 2015-2016. As these authorised works are no longer in place as per Site Plan B, Quinsam is out of compliance with this requirement.
Compliance:	Out
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.2, 1.2.4** 1.2.4: This subsection applies to the discharge of effluent from the SOUTH COAL MINING OPERATION as shown on attached Site Plan B. The site reference number for this discharge is E218582. 1.2.4 The authorised works must be complete and in operation on and from the date of this amended permit.
Details/Findings:	As discussed in the Findings for Permit section 1.2.3 the 1S Pit sump and 4S Adit sump were reclaimed in 2015-2016. As these authorized works are no longer complete and in operation, Quinsam is out of compliance with this requirement.
Compliance:	Out
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.3, 1.3.1** 1.3.1: This subsection applies to the discharge of effluent from the BLOCK 242 COAL MINING OPERATION as shown on attached Site Plan C. The site reference number for this discharge is E225796. 1.3.1 Subject to Subsection 4.4.3 the maximum authorised rate of discharge is 0.0082 m3/s. The authorised discharge period is 365 d/a.
Details/Findings:	During the on-site inspection, Quinsam staff reported that there was no mine activity in the Block 242 Coal Mining Operation. Page 6 of the 2021-2022 Annual Report states that the area is reclaimed. On November 1, 2019, the Ministry amended the Permit to remove monitoring requirements for E225796 from the Permit monitoring program. As there is no discharge from this location, compliance with this requirement was not applicable.
Compliance:	Not Applicable

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.1** 1.4.1: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.1 The maximum authorized rate of discharge is 0.005 m3/s. The authorized discharge period is 365 d/a.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no flow from E292069 during the inspection period. Quinsam reported via email on September 20, 2022, that water is captured at 7-South containment pond and 7SSD (E292069) and pumped back to the 7-South Adit (7SPS). From there water is pumped via 58 Hp pump and pipeline into the 5-South Mine pool. The 5-South Mine pool is received at Settling Pond #4 or 2-North subaqueous PAG-CCR facility. As no discharge occurred during the inspection period, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.2** 1.4.2: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.2 The characteristics of the discharge shall not exceed: Parameter: Total Suspended Solids (daily composite), Limit: 25, Unit: mg/L; Total Suspended Solids (hourly composite), Limit: 35, Unit: mg/L; pH, Limit: 6.0 - 8.0, Unit: - ; Sulphate (asterisk - see NOTE 1) , Limit: 500, Unit: mg/L; NOTE 1: Dissolved; Aluminum (asterisk - see NOTE 1), Limit: 0.1, Unit: mg/L; NOTE 1: Dissolved; Cadmium (asterisk - see NOTE 1), Limit: 0.000045, Unit: mg/L; NOTE 1: Dissolved; Copper (asterisk - see NOTE 1), Limit: 0.014, Unit: mg/L; NOTE 1: Dissolved; Iron (asterisk - see NOTE 1), Limit: 0.35, Unit: mg/L; NOTE 1: Dissolved; Selenium (asterisk - see NOTE 1), Limit: 0.016, Unit: mg/L; NOTE 1: Dissolved; Rainbow Trout Bioassay (Oncorhynchus mykiss), Limit: (double asterisk - see NOTE 2), Unit: - ; NOTE 2: No mortalities at 100 percent effluent concentration after 96 hours.
Details/Findings:	A review of the Appendix 1 - Table 22 and page 53 of the 2021-2022 Annual Report and the Appendix 1 - Table 22 of the Q1 Report determined that Quinsam was in compliance with the Permit limits for effluent quality from the 7 south mining operation (E292069). These samples are collected in the E292069 pond before it is pumped back to 7SPS (E292110). However, as no discharge from this location occurred during the inspection period, compliance with this requirement was not applicable.
Compliance:	Not Applicable

Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.3** 1.4.3: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.3 The authorized works are surface runoff collection and diversion ditches, flocculation facilities, one surface settling pond, an adit sump (7S Adit), pumping facilities and related appurtenances approximately located as shown on attached Site Plan D.
Details/Findings:	In an email sent on September 20, 2022, Quinsam confirmed all works were approximately located as shown in Site Plan D of the Permit.
Compliance:	In
Requirement Description:	**1. AUTHORISED DISCHARGES, 1.4, 1.4.4** 1.4.4: This subsection applies to the discharge of effluent from the 7 SOUTH MINING OPERATION as shown on attached Site Plan D and E. The site reference number for this discharge is E292069. 1.4.4 The authorized works must be complete and in operation when the discharge commences.
Details/Findings:	Quinsam reported via email on September 20, 2022, there is no discharge from E292069 as it is pumped back to 7SPS, then into the 5-South Mine pool. The 5-South Mine pool is received at Settling Pond #4 or 2-North subaqueous PAG-CCR facility. As the discharge has not commenced compliance with this Section is not applicable.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.4 Wash Plant Effluent** 2.1.4: Wash plant effluent shall not be conveyed to the 2-North pit sump via the wash plant ditch. The Permittee shall keep records of the date, duration and estimated volume of any overflow of the wash plant effluent sump. Subject to review of this data, the Director may request changes to the works.

Details/Findings:	During the on-site inspection Quinsam reported that they have been in care and maintenance throughout the inspection period and that final coal processing ceased in October 2019. Quinsam reported via email on September 20, 2022, that there has been no flow through the wash plant effluent sump; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.5 Settling Pond Solids and Storage Volume** 2.1.5: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 2 300 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	While a staff gauge had been installed at the decant for Settling Pond 4, the accumulation of surface debris and opaque quality of the pond effluent meant it was not possible to determine the water depth below the pond decant (Photo 1). In an email sent on November 8, 2022, Quinsam staff stated that in 2021 a survey of the decant riser, dam and outline of the settling pond was conducted. However, no surveys or other measurements had been undertaken to determine the quantity of settled solids during the inspection period, and no solids had been removed from the settling pond during the inspection period. As the water storage volume was not determined, compliance with this section is not determined.
Compliance:	Not Determined
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.1 North Coal Mining and Coal Preparation Plant Operation (Settling Pond #4), 2.1.7 Effluent Characteristics (for Total Suspended Solids)** 2.1.7: The characteristics of the effluent with respect to total suspended solids shall be equivalent to or less than the levels specified in Subsection 1.1.2 for discharge rates up to 0.32 m3/s (or as may be redefined by the Director according to Subsection 2.1.1). Variances may be allowed by the Director for higher discharge rates. The Director may as well, in the future, establish a maximum level for total suspended solids during extreme storm events.
Details/Findings:	As described in the findings for Permit section 1.1.2 the total suspended solids limit was not exceeded during the inspection period.

Compliance:	In
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.2 South Coal Mining Operation (Settling Pond #1), 2.2.3 Settling Pond Solids and Storage Volume** 2.2.3: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 1400 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	During the on-site inspection, Quinsam staff informed the Officers that no settled solids were removed during the inspection period. In an email sent on November 8, 2022, Quinsam staff stated that in 2021 a survey of the decant riser, dam and outline of the settling pond was conducted. However, no surveys or other measurements had been undertaken to determine the quantity of settled solids during the inspection period. As the water storage volume was not determined during the inspection, compliance with this section was not determined for the inspection period.
Compliance:	Not Determined
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.2 South Coal Mining Operation (Settling Pond #1), 2.2.5 Effluent Characteristics (for Total Suspended Solids** 2.2.5: The characteristics of the effluent with respect to total suspended solids shall be equivalent to or less than the levels specified in Subsection 1.2.2 for discharge rates up to 0.46 m3/s (or as may be redefined by the Director according to Section 2.2.1). Variances may be allowed by the Director for higher discharge rates. The Director may as well, in the future, establish a maximum level for total suspended solids during extreme storm events.
Details/Findings:	As stated in the findings for Permit section 1.2.2, the total suspended solids limit was not exceeded during the inspection period.
Compliance:	In

Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.3 Block 242 Coal Mining Operation, 2.3.1 Pumping Rate** 2.3.1: Subject to Subsection 4.4.3 the rate at which effluent may be pumped from the underground sump(s) to the primary settling pond and from the primary settling pond to the secondary settling pond shall not exceed 0.043 m3/s (up to a maximum of 400 m3/d) and 0.0082 m3/s respectively.
Details/Findings:	During the on-site inspection, Quinsam staff reported that there continues to be no mine activity in Block 242 Coal Mining Operation. The 2021-2022 Annual Report states that the site is reclaimed. As there is no discharge, compliance with this Section and the remainder of Section 2.3 is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.1 Rate of Discharge** 2.4.1: The maximum flow of 0.005 m3/s is the peak routed outflow from the settling pond resulting from an assumed response of the maximum equivalent catchment area as defined in subsection 2.4.3 to a design 1 in 10 year return period of 24 hour duration. Additional flow from the 7S adit sump pump must not cause the settling pond to overflow or exceed the maximum flow. The Director may from time to time redefine the maximum routed outflow based upon actual on-site measurements.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no flow from E292069 during the inspection period; therefore, compliance with this requirement as well as Permit sections 2.4.5, 2.4.6, and 2.4.9, is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.2 Pumping Rate** 2.4.2: The Permittee shall keep records of the date, duration and estimated volume when water from the 7 South Adit Sump (7S-Sump) is pumped to the settling pond and submit the records to the Regional Waste Manager upon request.

Details/Findings:	Quinsam reported via email on September 20th, 2020, that to date, no water has ever been routed or pumped or flowed from the 7-South Portal Sump to the settling pond (7SSD); therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.4 Settling Pond Solids and Storage Volume** 2.4.4: Settled solids which have accumulated in the settling pond shall be removed as required to maintain a minimum water depth below the pond decant of 1.0 m and a minimum water storage volume of 340 m3. The removed solids shall be disposed of in a manner approved by the Director.
Details/Findings:	In an email sent on November 8, 2022, Quinsam staff stated that the storage volume of the settling pond is is approximately 462.32 m3, and no sediment removal or surveys of the pond were been required during the inspection period.
Compliance:	In
Requirement Description:	**2. SPECIFIC REQUIREMENTS, 2.4 7 South Mining Operation Settling Pond, 2.4.8 Contingency Measures** 2.4.8: In the event of a 7-South settling pond discharge permit limit exceedance, the settling pond discharge valve must be closed immediately and the effluent must temporarily be diverted to the 5S mine or 7S mine underground workings, or to another area acceptable to the Director. Details of the contingency measures shall be documented in the Environmental Procedures Manual required under Section 3.2. Additionally, the Permittee shall follow Section 3.9 requirements.
Details/Findings:	A review of the Appendix 1 - Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 27 of the Q1 Report determined that there was no discharge from E292069 during the inspection period; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable

Requirement Description:	**3. GENERAL REQUIREMENTS, 3.1 Flocculation** 3.1: In order to meet the levels specified for total suspended solids in Subsections 1.1, 1.2, 1.3 and 1.4, it may be necessary to use chemical flocculating agents. The Permittee is required to carry out laboratory testing of the flocculants proposed for toxicity and effectiveness for removing suspended matter. The methodology and details of the testing program are subject to the approval of the Director. Based on the results of laboratory testing the Director may approve a flocculant for use under actual operating conditions. At least one alternate flocculant shall be tested and, if approved by the Director, an adequate supply shall be located within 6 hours travel time from the mine site.
Details/Findings:	During the on-site inspection Quinsam stated that chemical flocculating agents had not been used during the inspection period; therefore, compliance with this requirement is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.2 Environmental Procedures Manual** 3.2: An Environmental Procedures Manual shall be maintained by the Permittee as a working document for use by supervisory personnel and a guide to field staff during various stages of the project. The manual should cover all aspects of onsite environmental management applicable to mine construction and operation including but not limited to, the following items: 1) Land clearing, topsoil stripping and road construction; 2) Construction of water diversion and water collection ditches; 3) Flocculation; 4) Macrophyte growth and harvesting in the ponds, drainage ditches and discharge channels; 5) Acid-base accounting and materials handling; 6) Reclamation activities; 7) Construction of waste dumps; 8) Contingency planning for effluent liming, lake aeration and forest fertilization. 9) Settling pond operation under various flow/discharge conditions for the Block 242 coal mining operation as detailed in the Block 242 Mine Water Management Quinsam Coal Mine, AGRA Earth and Environmental Limited, February 1997; 10) Underground pump operation during extreme rainfall events; 11) Settling pond operation for the 7-South mining operation, including details on the contingency measures. The Permittee shall review the Environmental Procedures Manual at least on an annual basis to determine if any changes are required and submit any revisions to the Director for approval. Annual reviews and submission of revisions are due on March 31 of each year.
Details/Findings:	A revised version of the EMP was submitted to the Ministry via email on March 30, 2022. The contents of the EMP were not reviewed as part of the inspection.
Compliance:	In

Requirement Description:	**3. GENERAL REQUIREMENTS, 3.3 Acid Generation Control** 3.3: In order to prevent generation of acid rock drainage and associated environmental problems it is necessary that potentially acid generating materials be identified and be subject to special handling techniques. The frequency of sampling and analysis shall be according to procedures outlined in Mines Act Permit C-172 and the Environmental Procedures Manual. If in the opinion of the Director acid rock generation is developing, the Permittee shall undertake corrective action as outlined in the appropriate section of the Environmental Procedures Manual or take any additional steps which are considered necessary to resolve the problem.
Details/Findings:	Quinsam reported via email on September 20, 2022, that no new potentially acid generating materials were identified during the inspection.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.5 Nutrient Control** 3.5: The mine and coal preparation plant shall be operated such that the discharge of nutrients will not result in excessive algal growth or biomass accumulation which, in turn, could have a negative impact on water quality, fish production, and aesthetic values of Quinsam and Iron River systems. If in the opinion of the Director there is evidence of deterioration in the water quality, which can be attributed to the significant discharge of nutrients from the mine operation, the Permittee may be required to implement any of the mitigative measures outlined in the Environmental Procedures Manual (lake aeration/forest fertilization) or other methods as approved by the Director.
Details/Findings:	The Officers did not observe algal growth or biomass accumulation on the ponds or portions of the lakes and rivers during the on-site inspection.
Compliance:	In
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.7 Spill Reporting** 3.7: All spills to the environment (as defined in the Spill Reporting Regulation) shall be reported immediately in accordance with the Spill Reporting Regulation. Notification shall be via the Provincial Emergency Program at 1-800-663-3456.

Details/Findings:	During the on-site inspection, Quinsam staff confirmed that no spills to the environment occured. A review of the 2021-2022 Annual Report and Q1 report confirmed that no spills occurred. Therefore, compliance with this Section is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.8 Additional Works** 3.8: Based on the results of the monitoring program and/or other information obtained in connection with these discharges, the Permittee may be required to install additional treatment works or take other measures considered necessary. This may include, but is not necessarily limited to, facilities for the removal of nutrients and metals from the effluent or the provision of additional settling pond capacity.
Details/Findings:	During the inspection period, no additional treatment works were required by the Ministry to be installed; therefore, compliance with this Section is not applicable for the inspection period.
Compliance:	Not Applicable
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.9 Maintenance of Works, Non-Compliances and Emergency Procedures** 3.9.1: The Permittee shall inspect the authorized works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Permittee which prevents continuing effective operation of the authorized works, the Permittee shall take appropriate remedial action and immediately notify the Regional Waste Manager or a designated Officer.

Details/Findings:	In an email sent on November 8, 2022, Quinsam staff reported that mine staff drive the site and inspect all roadside ditches, settling ponds and pumps daily. Inspections involve checking for unobstructed flow, clearing debris, ensuring water levels meeting permit limits for water cover and that settling ponds are at safe levels for discharge. These inspections involve checking mine influence water that remains within the authorized works, checking pumps and floats, checking water levels against staff gauges, ensuring flow metes are operating properly and checking the integrity of the dam structures and making observations on water quality if necessary. In this email Quinsam submitted copies of their field inspection notes for January and July of 2022 as requested. On January 5, 2022, Quinsam reported to the Ministry via email that on January 3rd, 2022, the 5-South pump failed to restart after a power outage. The 5-South dewatering pump is a well pump located 80 meters below surface with its primary purpose being to transfer water from the 5-South mine into the 2-North mine (3 Mains) where it is discharged at Settling Pond #4. The Quinsam site electrician determined that the pump required repair but was unable to make the repairs due to the pump's location. The 5-South pump has not been repaired or replaced and the 2021-2022 Annual Report states that the mine will be allowed to flood to near pre-mine groundwater conditions. This 5-South pump is part of the underground pumping facilities, authorized for the north coal mining operation. Quinsam is out of compliance with the requirement to maintain the authorized works in good working order since January 3rd, 2022. This non-compliance is being referred for Administrative Penalty.
Compliance:	Out
Actions to be taken:	Ensure authorized works are inspected regularly and maintained in good working order.
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.9 Maintenance of Works, Non-Compliances and Emergency Procedures, 3.9.2** 3.9.2: In the event of commissioning of the works, operational system modifications, equipment failure, operator error, spill, permit non-compliances or any other condition which may affect the quantity or quality of the discharge such that permit limits may be exceeded, the Permittee shall: take appropriate action to prevent or mitigate pollution, immediately notify the Provincial Emergency Program (PEP) 1-800-663-3456, as soon as possible, conduct sampling and analysis of discharges which may cause non-compliance with the characteristics of the discharge as specified in Section 1 of this permit and provide the results to the Regional Waste Manager or a designated Officer, as soon as practicable (but not later than 30-days after the Permittee became aware of the event), investigate the event and provide a report including results of sampling and analysis, permit non-compliance, corrections to the operational system, root cause of the event and decisions for corrective and preventive action.

Details/Findings:	On January 17, 2022, Quinsam Quinsam received sample results identifying a dissolved iron exceedance on January 4th, 2022, at Settling Pond #1 (EMS ID: 214321). This was reported to the environmental emergencies program on January 17, 2022, and then reported as a non-compliance on January 18, 2022. The final report for this non-compliance was submitted to the Ministry via email on February 15, 2022, and included the possible cause and the results of subsequent sampling. However, the January 3, 2022, 5-south pump failure was not reported to the Ministry until January 5, 2022.This delay in notification cannot be considered immediate. As this inspection determined additional permit non-compliances that were not immediately reported to the Ministry Quinsam is out of compliance with this requirement. The non-compliances that were not reported are several failures to meet monitoring requirements in Section 4 of the Permit and the exceedance of the permitted average rate of discharge for E207409. In addition, no notification was provided to the Ministry for the following non-compliances: - E207409 - The discharge rate exceedance identified in the Findings for Section 1.1.1; - E207409 - Missed monitoring between March 14, 2022, and March 28, 2022, for TSS and or dissolved sulphate, identified in the Findings for Section 4.1.1 (i); - E207409 - Missed flow rate monitoring from September 9 to 12, 2021, and September 15, 2021, identified in the Findings for Section 4.1.1 (i); - E218582 - Three weekly TSS sample events were missed between July 12 and August 9, 2021, identified in the Findings for Section 4.1.2 (i); - E218582 - Two weekly TSS sample events were missed between August 9 and September 1, 2021, identified in the Findings for Section 4.1.2 (i); - E218582 - Two weekly TSS sample events were missed between September 1 and September 27, 2021, identified in the Findings for Section 4.1.2 (i); - E218582 - Total Metals and total hardness analyses, required to be conducted every two months, was missed between February and May 2022, identified in the Findings for Section 4.1.2 (i); - E217014 - No monitoring results reported for the months of July, August, and September of 2021, resulting in missed monthly samples for conductivity, pH, dissolved sulphate, alkalinity, and acidity, identified in the Findings for Section 4.1.2 (ii); - E217014 - one missed sample for hardness, and total and dissolved metals between July, and September of 2021, identified in the Findings for Section 4.1.2 (ii); - E217014 - missed TSS monitoring in November 2021, identified in the Findings for Section 4.1.2 (ii); - LLE - Weekly dissolved sulphate samples were missed from July 5, 2021, to August 9, 2021 (four weeks), identified in the Findings for Section 4.2.1 (i); - LLE - Weekly dissolved sulphate samples were missed from August 23, 2021, to September 20, 2021 (four weeks), identified in the Findings for Section 4.2.1 (i); - E292109 - continuous flow monitoring data was missing for the month of June 2022, identified in the Findings for Section 4.2.1 (ii); - E297232 - no flow data was recorded during the fall monitoring period of October 7 through November 2, 2021, identified in the Findings for Section 4.2.5; and, - Missed monitoring for the sediment monitoring program identified in the Findings for Section 4.2.7;
Compliance:	Out

Actions to be taken:	Ensure all permit non-compliances are reported in accordance with the requirements of this section.
Requirement Description:	**3. GENERAL REQUIREMENTS, 3.10 Bypasses** 3.10: The Permittee shall ensure that no effluent is discharged without being processed through the authorised works unless prior written approval is received from the Director.

Details/Findings:	Long Lake Seeps As documented in the previous inspection record (IR) 174939 Quinsam has two bedrock groundwater seeps delivering water from the 2-3 South mine pool and discharging into Long Lake. These two seeps are known as LLS (a smaller seep with more consistent flow) and LLSM (the primary seep, as flows at this site are typically much higher and more variable compared to LLS). During the on-site inspection the Officers observed these two seeps to be flowing (Photos 2-6). As these two long lake seep sites discharge effluent from the 2-3 South mine pool into Long Lake without this effluent being processed through settling pond 1, and these discharges occurred during the inspection period, without prior written approval from the Director, this is considered to be an unauthorized bypass. Seep S During the on-site inspection the Officers observed water flowing from the seep previously documented by the Ministry in IR 178045, located near monitoring well QU11-09 M, which flows into the Quinsam River (Photo 7). This seep was previously reported as a seep in the 2020-2021 Annual Report; however, in the 2021-2022 Annual Report it is referred to as potential seepage area S. As reported in IR 178045, issued to Quinsam on November 8, 2021, groundwater well (QU11-09) accessing the River Barrier Pillar mine pool (between the 2 North and 5-South Mine), became artesian and discharged to the Quinsam river, as the water elevation in the 2-North Mine Pool increased. This was discovered by Quinsam on March 17, 2021, and the well was capped on March 19, 2021. Although this stopped the discharge from the well, Quinsam reported in the DGIR 204584 Follow-Up Report "the shallow groundwater aquifer in the area was under pressure and continued to seep from the ground upward into the Quinsam river until approximately July 20, 2021." Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for seep S using timed bucket tests, measured from one to four times a month from in July 2021, September to December 2021, and February to June 2022. The highest estimated flow was 0.0100 m3/s and the lowest was no flow in August of 2021. As effluent was discharged to the Quinsam River without being processed through the authorised works, without prior written approval from the Director during the inspection period, this is considered to be an unauthorized bypass. S2 Seeps In the 2021-2022 Annual Report Quinsam identified what they refer to as potential seepage areas, which also flow into the Quinsam River. They are referred to as S2A and S2B, or collectively as S2. S2A was discovered in September of 2021 while performing sediment and benthic invertebrate sampling on the Quinsam River at sampling location QRD-02 near groundwater well QU11-05. At the time it was referred to as S2. This seep was monitored in September of 2021. In March 2022 Quinsam returned to the S2 site and found that there were now two flow paths referred to as S2A and S2B. Further monitoring was initiated. Appendix I, Table 29 of the 2021-2022 Annual Report and Table 29 of the Q1 Report provide estimated flow data for 2S using timed bucket tests. The seepage areas had documented flow in September of 2021 (S2A) and in March through June of 2022 (S2A and S2B), with flow rates decreasing from March to June. During the on-site inspection the Officers viewed the S2A seep to be flowing (Photo 8). During the on-site inspection Quinsam staff reported that S2A and S2B may be related to the 2-North mine pool as their flow decreases when the mine pool elevation is lowered, but were unable to confirm that discharged effluent was mine contact water without a new hydrogeological studies. However, it is Quinsam's responsibility to carry out the necessary studies to prove that these discharges are not mine impacted. This non-compliance is being referred for Administrative Penalty.

Compliance:	Out
Actions to be taken:	Ensure that no effluent is discharged without being processed through the authorised works unless prior written approval is received from the Director.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409)** 4.1.1 (i): See Attached Document for Section 4.1.1 (i) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the monitoring frequency for TSS at this location (E207409 settling pond 4 discharge) from daily to weekly for decant flow conditions exceeding 0.054 m3/s, and the amendment letter states that dissolved metals analysis must be undertaken monthly. A review of Appendix 1 - Table 5, and Table 25 of the 2021-2022 Annual Report and Appendix 1 - Table 5 and Table 25 of the Q1 Report determined that the following monitoring was missed: - During the 14 day period between March 14, and March 28, 2022, no weekly sample was analyzed for TSS or dissolved sulphate. - From September 9 to 12, 2021, and September 15, 2021, no flow rates were recorded. This was reported to be because the flow meter failed to continually operate due to voltage stabilizer failure. Monitoring for Ammonia and Phosphorus is required once every three years during the low flow period (August to early September). Quinsam reported via email on September 20th, 2022, that monitoring most recently occurred on September 24, 2020; therefore, compliance with this requirement was not applicable during the inspection period.
Compliance:	Out
Actions to be taken:	Ensure monitoring is conducted as per Section 4.1.1 (i) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (ii) Culvert, at Middle Quinsam Lake Road - WC (EMS # E207411)** 4.1.1 (ii): See Attached Document for Section 4.1.1 (ii) Table

Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site Middle Quinsam Lake Road WC (EMS # E207411), and removed the bi-weekly TSS monitoring requirement. A review of the Appendix 1 - Table 9 of the 2021-2022 Annual Report and Appendix 1 - Table 9 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (ii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (iii) 2-North Portal Sump Effluent - SN-P-Sump (EMS # E283433)** 4.1.1 (iii): See Attached Document for Section 4.1.1 (iii) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E283433. A review of Appendix 1 - Table 7 of the 2021-2022 Annual Report and Appendix 1 - Table 7 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (iii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.1 North Coal Mining and Coal Preparation Plant Operation (iv) Additional Sites Monitoring Schedule** 4.1.1 (iv): See Attached Document for Section 4.1.1 (iv) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E292126 (south dyke sump) from the monitoring program, and reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E207412. A review of Appendix 1 - Table 6 and Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 6 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.1 (iv) Table.
Compliance:	In

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (i) Decant - SPD (EMS # E218582)** 4.1.2 (i): See Attached Document for Section 4.1.2 (i) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the monitoring frequency for TSS at this location (E218582 settling pond 1 discharge) from daily to weekly for decant flow conditions exceeding 0.046 m3/s, required that dissolved metals analysis be undertaken monthly. A review of Appendix 1 - Table 10 and Table 26 of the 2021-2022 Annual Report and Appendix 1 - Table 10 and Table 26 of the Q1 Report determined that the following monitoring was missed: - Three weekly TSS sample events were missed between July 12 and August 9, 2021; - Two weekly TSS sample events were missed between August 9 and September 1, 2021; - Two weekly TSS sample events were missed between September 1 and September 27, 2021; and, - Total Metals and total hardness analyses required to be conducted every two months was missed between February and May 2022.
Compliance:	Out
Actions to be taken:	Ensure sampling and analysis are conducted as per Section 4.1.2 (i) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (ii) Culvert, Downstream End at Access Road - SPC (EMS #E217014)** 4.1.2 (ii): See Attached Document for Section 4.1.2 (ii) Table

Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E217014 (Culvert, Downstream End at Access Road SPC). A review of the Appendix 1 - Table 18 and Table 26 of the 2021-2022 Annual Report, Appendix 1 - Table 18 and Table 26 of the Q1 Report, and the Q2 Report determined that the following monitoring was missed: -No monitoring results were reported for the months of July, August, and September of 2021, resulting in missed monthly samples for conductivity, pH, dissolved sulphate, alkalinity, and acidity. This also resulted in one missed sample for hardness and total and dissolved metals. - TSS monitoring is required to be conducted every 2 weeks when SPD (E218582) Decant Flow is greater than 0.046 m3/s. In the month of November 2021, the average flow rate for E218582 was 0.07 m3/s and only one sample event occurred that month.
Compliance:	Out
Actions to be taken:	Ensure sampling and analysis are conducted as per Section 4.1.2 (ii) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (iii) South Pit Main Sump Water - 3S (EMS # E217015)** 4.1.2 (iii): See Attached Document for Section 4.1.2 (iii) Table
Details/Findings:	The November 1, 2019, letter amendment reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E217015. A review of Appendix 1 - Table 17 of the 2021-2022 Annual Report and Appendix 1 - Table 17 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.2 (iii) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.2 South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo)** 4.1.2 (iv): See Attached Document for Section 4.1.2 (iv) Table

Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring sites E292128 (1977 bulk sample pit) and E292129 (culvert downstream of 4 south access road) from the monitoring program, and reduced the frequency of pH and conductivity monitoring from weekly to monthly for monitoring site E292127. A review of Appendix 1 - Table 15 and Table 28 of the 2021-2022 Annual Report and Appendix 1 - Table 15 and Table 28 of the Q1 Report determined that monitoring was conducted in compliance with Section 4.1.2 (iv) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.3 Block 242 Coal Mining Operation (i) Decant (EMS # E225796)** 4.1.3 (i): See Attached Document for Section 4.1.3 (i) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E225796 Block 242 decant from the monitoring program; therefore, compliance with this Section is no longer applicable.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.3 Block 242 Coal Mining Operation (ii) Underground Settling Pond Effluent (EMS # E225797)** 4.1.3 (ii): See Attached Document for Section 4.1.3 (ii) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed monitoring site E225797 Block 242 underground settling pond effluent from the monitoring program; therefore, compliance with this Section is no longer applicable.
Compliance:	Not Applicable

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.4 7 South Mining Operation (i) Decant - 7SSD (EMS # E292069)** 4.1.4 (i): See Attached Document for Section 4.1.4 (i) Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, reduced the monitoring frequency for all parameters at this location (E292069) from monthly to quarterly when no discharge is occurring. A review of Appendix 1 - Table 22 and Table 27 of the 2021-2022 Annual Report and Appendix 1 - Table 22 and Table 27 of the Q1 Report determined that no discharge occurred during the inspection period, and quarterly monitoring of ponded water was conducted in compliance with Section 4.1.4 (i) Table.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.1 Effluent and In-Mine Releases, 4.1.4 7 South Mining Operation (ii) 7 South Adit Sump - 7S-Sump (EMS # E292110)** 4.1.4 (ii): See Attached Document for Section 4.1.4 (ii) Table
Details/Findings:	Section 4.1.4 (ii) Table requires daily monitoring of TSS and weekly monitoring of all other parameters when pumping from 7 South Adit sump to 7S settling pond. Quinsam reported via email on September 20, 2022, that confirmed that effluent has never been pumped from the 7-South Adit Sump to 7S settling pond; therefore, compliance with this requirement was not applicable during the inspection period.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.1 Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE** 4.2.1 (i): See Attached Document for Section 4.2.1 (i) Table

Details/Findings:	A review of Appendix 1 - Table 19, Table 29, and Table 32 of the 2021-2022 Annual Report and Appendix 1 - Table 19 and Table 29 of the Q1 Report determined that the following monitoring was missed: - Weekly dissolved sulphate samples were missed from July 5, 2021, to August 9, 2021 (four weeks); and, - Weekly dissolved sulphate samples were missed from August 23, 2021, to September 20, 2021 (four weeks).
Compliance:	Out
Actions to be taken:	Ensure sampling and analysis are conducted as per Section 4.2.1 (i) Table.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.1 Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc.** 4.2.1 (ii): See Attached Document for Section 4.2.1 (ii) Table
Details/Findings:	A review of Appendix 1 - Table 24 and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 24 and Table 29 of the Q1 Report determined that continuous flow monitoring data was missing for the month of June 2022. All other monitoring at Road Crossing bridge on Stream 1 above the Lower Wetland 7S (EMS # E292109) was conducted as per the requirements of Section 4.2.1 (ii) Table.
Compliance:	Out
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.2 Seep Monitoring Sites (i) Long Lake Seeps (LLS)** 4.2.2 (i): See Attached Document for Section 4.2.2 (i) Table
Details/Findings:	A review of Appendix 1 - Table 20 and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 20 and Table 29 of the Q1 Report determined that that monitoring of long lake seep LLS was conducted in compliance with Section 4.2.2 (i) Table at monitoring site E292131.

Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.4 Sediment and Benthic Monitoring Sites** 4.2.4: See Attached Document for Section 4.2.4
Details/Findings:	Part (i) of Section 4.2.4 requires that the permittee shall submit proposed sediment monitoring locations in the 7-South Area 5 receiving environment to the Director by October 1, 2014, for approval. The September 4, 2020, approval letter from the Ministry states that on August 19, 2020, Quinsam submitted an application to address permit clause 4.2.4 (i) and the Ministry subsequently approved two additional monitoring sites to be added to the sediment and benthic invertebrate sampling requirements of the Permit. These sites are: - E297231 - IR6 Upstream of 7-South Area 5 potential impact(s), downstream of 4-South potential impact(s) - E297232 - IR8 - New Lower Iron River site, downstream of IRT6 and the expected inflow of mine impacted water This September 4, 2020, approval letter states "While the submission of proposed locations for sediment and benthic monitoring was due October 1, 2014, it is understood that no mining has yet occurred in Area 5. Therefore, the data collected will represent baseline conditions relative to any impacts from mining in 7-South Area 5." As a result compliance with part (i) of Section 4.2.4 could not be determined. Part (ii) of Section 4.2.4 states that near seep sediment monitoring applicable to No Name Lake and Middle Quinsam Lake seeps sites consist of a set of three samples equally spaced on a 5 m triangular grid. Long Lake near seep sediment monitoring sites consist of a set of six samples equally spaced on a 5 m triangular grid. A review of the 2021-2022 Annual Report determined that sediment monitoring at these locations was not conducted during the inspection period; therefore, Part (ii) of the Section is not applicable for the inspection period.
Compliance:	Not Determined
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.5 Stream Monitoring Requirements** 4.2.5: See Attached Document for Section 4.2.5

Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, removed the following monitoring sites from the monitoring program: - E286930 (Quinsam River downstream Site 1, upstream 7S operation); - E292112 (lower wetland outlet, at confluence of Quinsam River); and, - E297230 (Iron River upstream of mining operations). The November 1, 2019, letter amendment also altered the monitoring frequencies of the following monitoring sites: - E219412 (Long Lake outlet) monitoring requirements are reduced at this site from weekly to 5-in-30 three times per year (spring, summer and fall) - E297231 (Iron River upstream of 7SA5) and E297232 (Iron River downstream of 7SA5 and 242 inputs): The monitoring frequency at these two sites are reduced from monthly and 5-in-30 three times per year to 5-in-30 two times per year (summer and fall). A review of Appendix 1 - Table 48, Table 49, and Table 29 of the 2021-2022 Annual Report and Appendix 1 - Table 29 and 41 of the Q1 Report determined that no flow data was recorded during the fall monitoring period of October 7 through November 2 for location E297232. Quinsam reported that this was due to the pressure transducer either being washed away or having a cable served by wildlife. In addition monitoring sites E225798 and E225808 were not monitored during the inspection period. It is acknowledged that Block 242 Mining Operations has been reclaimed, however the receiving monitoring environment monitoring requirements were not removed from the Permit. Permit section 4.3.9 does not apply as mine influenced discharge has occurred from this location in the past.
Compliance:	Out
Actions to be taken:	Ensure monitoring is conducted as required by this Section.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.6 Lake Monitoring Requirements** 4.2.6: See Attached Document for Section 4.2.6 Table
Details/Findings:	The letter amendment issued by the Ministry on November 1, 2019, altered the monitoring frequencies of the following monitoring sites: - E217018 (No Name Lake, centre) monitoring requirements are reduced to five samples collected within a 30-day time frame (5-in-30 sampling) in the spring only. - E292118 (Lower Quinsam Lake, centre) monitoring requirements are reduced to 5-in-30 sampling in the spring only. A review of the 2021-2022 Annual Report and the Q1 Report determined that Quinsam conducted all the lake monitoring as required by the Permit. Spring 2022 zooplankton and phytoplankton data was not reviewed in this inspection as it was not submitted at the time of the inspection.

Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.2 Receiving Environment Monitoring Sites and Monitoring Requirements, 4.2.7 Sediment and Benthic Monitoring** 4.2.7: See Attached Document for Section 4.2.7
Details/Findings:	Part (i) of Section 4.2.7 provides general requirements applicable to all sites defined under Section 4.2.4 and part (ii) allows the monitoring program described in 4.2.7 to be conducted over two consecutive years, with upper and lower watershed sites sampled in respective years. Part (iii) requires that sediment and benthic monitoring cycles occur every 3 to 5 years. As per Section 4.2.4 (i) of the Permit two additional sediment and benthic monitoring sites were added to the monitoring program via the September 4, 2020, Ministry Approval letter. These sites are as follows: - E297231 - IR6 Upstream of 7-South Area 5 potential impact(s), downstream of 4-South potential impact(s) - E297232 - IR8 - New Lower Iron River site, downstream of IRT6 and the expected inflow of mine impacted water The full sediment monitoring program was previously conducted in August through October of 2016 and was therefore next required to be completed by 2021 at the latest. During the on-site inspection Quinsam staff reported that they were unable to complete all requirements of the sediment monitoring program as as hiring of a consultant was not approved by the receivership. A review of Appendix X of the 2021-2022 Annual Report determined that monitoring of the Iron River sites listed above was conducted in 2020 and monitoring of the stream monitoring sites listed in Section 4.2.4, all located in the Quinsam River, was conducted in 2021 as per the requirements. However, the monitoring required under this Section was not conducted at the following lake and wetland monitoring sites listed in Section 4.2.4: - No Name Lake Inlet, NNLI (E224246); - No Name Lake Deep, NNLD (EMS # E217018); - No Name Lake Near Seep (EMS # E292114); - No Name Lake Outlet (EMS # E217017); - Middle Quinsam Lake Inlet (EMS # E206901); - Middle Quinsam Lake Deep (EMS # E292115); - Middle Quinsam Lake Near Seep (EMS # E292116); - Middle Quinsam Lake Outlet (EMS # 0900504); - Lower Quinsam Lake Inlet (EMS # E292117); - Lower Quinsam Lake Deep 1 (EMS # E29118); - Lower Quinsam Lake Deep 2 (EMS # E292119); - Lower Quinsam Lake Outlet (EMS # E292120); - Long Lake Inlet (EMS # E292121); - Long Lake Deep (EMS # E292122); - Long Lake Near Seep (EMS # E292123); - Long Lake Outlet (EMS # E219412); - Middle Gooseneck Lake (EMS # 1132502); - Lower Wetland Inlet (EMS # E292124); - Lower Wetland Middle (EMS # E292125); and, - Lower Wetland Outlet (EMS # E292112).

Compliance:	Out
Actions to be taken:	Ensure the sediment and benthic monitoring program is completed as required in the Permit.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.1 Composite Sampling** 4.3.1: The Permittee shall install suitable sampling facilities and obtain 24 hour composite samples of effluent for total suspended solids. Each daily composite sample shall consist of 8 samples taken at three hour intervals. Sampling shall be performed at frequencies specified in Subsections 4.1.1, 4.1.2., 4.1.3 and 4.1.4. The Permittee may also be required to collect hourly composite samples in order to verify compliance with the total suspended solids criteria of 35 mg/l specified in Subsections 1.1.2, 1.2.2, 1.3.2 and 1.4.2. Each hourly composite sample shall consist of 4 samples taken at 15 minute intervals. Proper care should be taken in sampling, storing, and transporting the samples to adequately control temperature and avoid contamination or breakage. The Permittee shall collect a grab sample instead of a composite sample when weather conditions result in freezing conditions, rendering collection of composite samples not feasible.
Details/Findings:	During the on-site inspection the Officers viewed the composite samplers to be in place. However, as discussed in the Findings for Sections 4.1.1(i), 4.1.2(i), and 4.1.2 (ii), sampling was not performed at the required frequencies; therefore, Quinsam is out of compliance with this requirement.
Compliance:	Out
Actions to be taken:	Ensure sampling is performed at frequencies specified in Subsections 4.1.1, 4.1.2., 4.1.3 and 4.1.4.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.2 Continuous Flow Recording** 4.3.2: The Permittee shall provide and maintain suitable flow measuring devices and maintain a continuous record of the rate at which the effluent is discharged from the settling ponds authorised in Subsections 1.1.3, 1.2.3, 1.4.3 and from the secondary settling pond authorised in Subsection 1.3.3.

Details/Findings:	The secondary settling pond authorised in Subsection 1.3.3. has been reclaimed and monitoring requirements for this location (E225796) were removed during the November 1, 2019, Permit amendment. Therefore, monitoring is no longer required at this location As reported above in the Findings for Section 4.1.1(i), a continuous record of the rate at which the effluent was discharged from settling pond 4 (E207409) was not maintained during from September 9 to 12, 2021, and on September 15, 2021.
Compliance:	Out
Actions to be taken:	Ensure that continuous flow monitoring is undertaken in accordance with the requirements of this section.
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.5 Monitoring of Seeps** 4.3.5: The Permittee is required to sample in-pit, out-of-pit, underground mine, coal, and waste rock seeps. The location and frequency of sampling will be determined by the Director. Analyses will be obtained for pH, sulphate (d), and metals (t+d). Sediment sampling may also be required at seeps, as and when requested by the Director.
Details/Findings:	As discussed in the Findings for section 3.10, five seeps have been documented at Quinsam. Long Lake Seeps Section 4.2.2 of the Permit provides a sampling frequency for the LLS with EMS ID E292131. The 2021-2022 Annual Report and the Q1 Report use this EMS ID to report both LLS and LLSM monitoring data. Samples of these two seeps are analyzed for pH, dissolved sulphate, and total and dissolved metals during the inspection period. Seep S The director has not specified a monitoring location and frequency for this seep, however Appendix I, Table 40 of the 2021-2022 Annual Report and Table 34 of the Q1 Report provides monitoring data for seep S, and samples were collected at least once every month, and analyzed for pH, dissolved sulphate, and total and dissolved metals during the inspection period. 2S Seeps (S2A and S2B) Seep S2A was discovered in September of 2021 and seep S2B was discovered in March 2022. The director has not specified a monitoring locations and frequencies for these seeps; however, monitoring of S2A and S2B from March 2022 onward is reported as one S2 data set in Appendix I, Table 41 of the 2021-2022 Annual Report and Table 35 of the Q1 Report. These seeps were monitored for pH, dissolved sulphate, and total and dissolved metals at least once a month in September of 2021, and in March through June of 2022.

Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.6 Groundwater Observation Wells** 4.3.6: The Permittee may be required to install groundwater observation wells in the vicinity of pits 2N, 1S, 2S, 3S, 4S, 5S, Block 242 and 7S. The number, location and structural details of these wells will be subject to the approval of the Director. As an alternative to the 2N, 1S, 2S, 3S, 4S, 5S and 7S wells, the Permittee may establish monitoring sites at the underground sumps subject to the approval of the Director.
Details/Findings:	A review of the 2021-2022 Annual Report determined that a list of all groundwater wells and underground sumps with a description of each was provided in Table 31. According to the 2021-2022 Annual Report wells and sumps are located 2N, 1S, 2S, 3S, 4S, Block 242, and 7S. The number, location and structural details of these wells was determined outside of the inspection period and compliance with the requirement for these details to be approved by the Director was not assessed in this inspection.
Compliance:	Not Determined
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.7 Monitoring of Drainage Ditches and Water Channels** 4.3.7: Visual inspection of drainage ditches and water channels within the mining operational areas shall be carried out by Environmental Protection staff as part of the regular inspections for the entire mine operation. Based on these monitoring results the Permittee may be required to take measures to minimize soil erosion.
Details/Findings:	No measures to minimize soil erosion were required during the inspection period.
Compliance:	Not Applicable
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.3 Additional Monitoring Requirements, 4.3.8 Precipitation Monitoring** 4.3.8: The Permittee shall maintain a suitable rain gauge at a location approved by the Director and measure and record the daily accumulated precipitation.

Details/Findings:	Appendix I, Table 30 of the 2021-2022 Annual Report and Appendix I, Table 30 of the Q1 Report included daily accumulated precipitation records for the inspection period.
Compliance:	In
Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.5 Reporting** 4.5.1 (i): The Permittee shall submit the results of the monitoring program to the Director on a quarterly basis within thirty days following the previous quarter of monitoring. Based on these results, the monitoring program may be increased or decreased at the discretion of the Director. The format and content of the quarterly report is subject to the approval the Director. An annual review and interpretative report shall be prepared and submitted by the Permittee by June 30 of each year. The report will include, but is not necessarily limited to, the following items: 1) A summary of monitoring results for the previous twelve months. 2) Spills or other unusual events. 3) Changes in the environment resulting from mining activity. 4) Summary of completed, in progress activities or studies relevant to the permitted discharges, associated authorized works and the receiving environment relevant to the reporting period. 5) Projected activities for the coming year which may have an impact on the environment. The format and content of the annual report is subject to the approval of the Environmental Technical Review Committee and the Director. 4.5.1 Through the duration of mining in 7-South Area 5, quarterly and annual reports shall include a summary of: i. Quality and quantity of water pumped from the 7-South Area 5 development with potential to reach Settling Pond 4.
Details/Findings:	The Q2 Report was submitted late on October 31, 2021, and the Q3 Report was submitted on late January 31, 2022. The Q4 and Q1 Reports were submitted within thirty days following the previous quarter of monitoring. The 2021-2022 Annual Report was submitted June 30, 2022. A review of this report determined that it included items 1) though 5).
Compliance:	Out
Actions to be taken:	Ensure the quarterly reports are submitted within thirty days following the previous quarter of monitoring.

Requirement Description:	**4. MONITORING AND REPORTING REQUIREMENTS, 4.5 Reporting** 4.5.1 (i): The Permittee shall submit the results of the monitoring program to the Director on a quarterly basis within thirty days following the previous quarter of monitoring. Based on these results, the monitoring program may be increased or decreased at the discretion of the Director. The format and content of the quarterly report is subject to the approval the Director. An annual review and interpretative report shall be prepared and submitted by the Permittee by June 30 of each year. The report will include, but is not necessarily limited to, the following items: 1) A summary of monitoring results for the previous twelve months. 2) Spills or other unusual events. 3) Changes in the environment resulting from mining activity. 4) Summary of completed, in progress activities or studies relevant to the permitted discharges, associated authorized works and the receiving environment relevant to the reporting period. 5) Projected activities for the coming year which may have an impact on the environment. The format and content of the annual report is subject to the approval of the Environmental Technical Review Committee and the Director. 4.5.1 Through the duration of mining in 7-South Area 5, quarterly and annual reports shall include a summary of: i. Quality and quantity of water pumped from the 7-South Area 5 development with potential to reach Settling Pond 4.
Details/Findings:	Quinsam is in care and maintenance and no mining occurred at 7-South Area 5 during the inspection period; therefore, compliance with requirements i. through iv. is not applicable.
Compliance:	Not Applicable

Compliance History:

2021-08-18 IR 174939 AMP: AUTHORISED DISCHARGES 1.1.2; 1.1.4; 1.2.3; 1.2.4, Bypasses 3.10, Effluent Characteristics (for Total Suspended Solids) 2.1.7, Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc 4.2.1 (ii), Maintenance of Works, Non-Compliances and Emergency Procedures 3.9.1; 3.9.2, Settling Pond Solids and Storage Volume 2.1.5, South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv)
2020-10-20 IR 159669 Warning 120(6): AUTHORISED DISCHARGES 1.1.1; 1.2.2, Bypasses 3.10, Composite Sampling 4.3.1, Continuous Flow Recording 4.3.2, Effluent Characteristics (for Total Suspended Solids 2.2.5, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), Lake Monitoring Requirements 4.2.6, Maintenance of Works, Non-Compliances and Emergency Procedures 3.9.1, Reporting 4.5.1 (i), Settling Pond Solids and Storage Volume 2.4.4, South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv), Stream Monitoring Requirements 4.2.5
2019-09-19 IR 139588 Advisory: Acid Generation Control 3.3, AUTHORISED DISCHARGES 1.1.1; 1.1.2, Bypasses 3.10, Composite Sampling 4.3.1, Environmental Procedures Manual 3.2, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409) 4.1.1 (i), Reporting 4.5.1 (i), South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), Stream Monitoring Requirements 4.2.5
2018-10-11 IR 106411 Advisory: AUTHORISED DISCHARGES 1.1.1; 1.1.4; 1.2.2; 1.2.4; 1.4.3, Bypasses 3.10, Composite Sampling 4.3.1, Initial Dilution Zone Monitoring Sites (i) Long Lake Entrance - LLE 4.2.1 (i), Initial Dilution Zone Monitoring Sites (ii) Road Crossing-etc 4.2.1 (ii), Lake Monitoring Requirements 4.2.6, North Coal Mining and Coal Preparation Plant Operation (i) Decent - WD (EMS # E207409) 4.1.1 (i), North Coal Mining and Coal Preparation Plant Operation (ii) Culvert, at Middle Quinsam Lake Road - WC (EMS # E207411) 4.1.1 (ii), Reporting 4.5.1 (i), South Coal Mining Operation (i) Decant - SPD (EMS # E218582) 4.1.2 (i), South Coal Mining Operation (iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo) 4.1.2 (iv), Stream Monitoring Requirements 4.2.5
2017-09-19 IR 70993 Warning 120(6): AUTHORISED DISCHARGES 1.1.1; 1.1.2; 1.1.3; 1.1.4; 1.2.2; 1.2.3; 1.2.4; 1.4.2; 1.4.3; 1.4.4, Composite Sampling 4.3.1, Continuous Flow Recording 4.3.2

The Ministry of Environment Compliance and Enforcement Policy and Procedure (C&E Policy) prescribes common requirements and procedures for all Ministry staff to ensure consistent and risk-based assessment and response to non-compliance. Using the Non-Compliance Decision Matrix, the compliance determination for this inspection has been assessed as Level 2, Category C, AMP.

This inspection resulted in two additional inspection records: IR198605 and IR198616.

More information about Environmental Compliance, the Non-Compliance Decision Matrix, and reporting and data submission requirements can be found at the links below:

General compliance information: www.gov.bc.ca/environmentalcompliance
Non-Compliance Decision Matrix information: www.gov.bc.ca/environment/how-compliance-is-assessed
Reporting and data submission requirements (to be sent to EnvAuthorizationsReporting@gov.bc.ca):

Please be advised that this inspection report may be published on the provincial government website within 7 days.

Below are attachments related to this inspection.

If you have any questions about this letter, please contact the undersigned.

Yours truly,

Katelyn Dick

Ministry of Environment and Climate Change Strategy

Compliance and Environmental Enforcement Branch

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Facsimile: 250 751 3103
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Environmental Protection Officer

cc:

Attachments:

1) 2015 06 23 Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.pdf Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.
2) 2015 06 23 Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.pdf Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.
3) 2022-10-31 IR194661 Photo Record 7088.pdf 2022-10-31 IR194661 Photo Record 7088

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4. MONITORING AND REPORTING REQUIREMENTS

4.1 Effluent and In-Mine Releases

4.1.1 North Coal Mining and Coal Preparation Plant Operation

i) Decant – WD (EMS # E207409)

Parameters	No Decant Flow	Decant Flow <0.054 m^3/s	Decant Flow >0.054 m^3/s
Flow	continuous	continuous	continuous
Total Suspended Solids (TSS) (24 Hour Composite Sample, See 4.3.1)	monthly	weekly	daily
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	monthly	monthly	monthly
Sulphate (d)	monthly	weekly	weekly
Oil and grease	every 2 months	every 2 months	every 2 months
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)	
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)	

ii) Culvert, at Middle Quinsam Lake Road – WC (EMS # E207411)

Parameters	No Decant Flow	WD Decant Flow <0.054 m^3/s	WD Decant Flow >0.054 m^3/s
TSS	monthly (when culvert flowing)	monthly (when culvert flowing)	every 2 weeks (when culvert flowing)
Conductivity, pH	weekly	weekly	weekly
Hardness, metals (t) and (d)	-	every 2 months	every 2 months
Sulphate (d)	monthly	monthly	monthly

iii) 2-North Portal Sump Effluent – 2N-P-Sump (EMS # E283433)

Parameters	No Decant Flow	WD Decant Flow <0.054 m^3/s	WD Decant Flow >0.054 m^3/s
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	-	monthly	monthly
Hardness, metals (t) and (d), sulphate, (d)	monthly	monthly	monthly

iv) Additional Sites Monitoring Schedule

Parameters	2-North Pit Sump CCR Cover (WP)	South Dyke Sump (SDS)
EMS #	E207412	E292126
TSS	monthly	-
Conductivity, pH	weekly	weekly
Alkalinity and acidity	monthly	quarterly
Hardness, metals (t) and (d)	monthly	quarterly
Sulphate (d)	monthly	quarterly

Date issued: December 23, 1987
Date amended: June 23, 2015
(most recent)

Luc Lachance, P.Eng.
for Director, *Environmental Management Act*
Permit Number: 7008

4.1.2 South Coal Mining Operation

i) Decant – SPD (EMS # E218582)

Parameters	No Decant Flow	Decant SPC Flow <0.046 m^3/s	Decant SPC Flow >0.046 m^3/s
Flow	continuous	continuous	continuous
TSS (24 Hour Composite Sample, See 4.3.1)	monthly	weekly	daily
Conductivity, pH	weekly	weekly	weekly
Hardness, metals (t) and (d), alkalinity and acidity, oil and grease	every 2 months	every 2 months	every 2 months
Sulphate (d)	monthly	weekly	weekly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)	
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)	

ii) Culvert, Downstream End at Access Road – SPC (EMS #E217014)

Parameters	No Decant Flow	SPD Decant Flow <0.046 m^3/s	SPD Decant Flow >0.046 m^3/s
TSS	monthly (when culvert flowing)	monthly (when culvert flowing)	every 2 weeks (when culvert flowing)
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity, sulphate (d)	monthly	monthly	monthly

Date issued: December 23, 1987
Date amended: June 23, 2015
(most recent)

Luc Lachance, P.Eng.
for Director, *Environmental Management Act*
Permit Number: 7008

iii) South Pit Main Sump Water – 3S (EMS # E217015)

Parameters	No Decant Flow	SPD Decant Flow $<0.046\ m^3/s$	SPD Decant Flow $>0.046\ m^3/s$
Hardness, metals (t) and (d)	every 2 months	every 2 months	every 2 months
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity, sulphate (d)	monthly	monthly	monthly

iv) Additional Monitoring Sites Schedule (2S, 3S77, 4S-Lo)

Parameters	2 South Pit In Pit Water Cover (2S)	1977 Bulk Sample Pit (3S77)	Culvert Downstream of 4 South Access Road (4S-Lo)
EMS #	E292127	E292128	E292129
Flow	Continuous (inflow and outflow)	-	-
TSS	-	-	-
Conductivity, pH	weekly	weekly	weekly
Alkalinity and acidity	monthly	quarterly	monthly
Hardness, metals (t) and (d), sulphate (d)	monthly	quarterly	monthly (when flowing)

4.1.3 Block 242 Coal Mining Operation

i) Decant (EMS # E225796)

Parameters	No Decant Flow	Decant Flow
TSS (24 Hour Composite Sample, See 4.3.1),	monthly	weekly
Alkalinity and acidity, hardness, metals (t) and (d), Oil and Grease	every 2 months	monthly
Sulphate (d), pH, conductivity	monthly	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	1 time/year (conducted during fall first flush event)

ii) Underground Settling Pond Effluent (EMS # E225797)

Parameters	No Decant Flow	Decant Flow
pH	monthly	weekly
Alkalinity and acidity, metals (t) and (d), sulphate (d)	monthly	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	every 2 months	every 2 months

4.1.4 7 South Mining Operation

i) Decant – 7SSD (EMS # E292069)

Parameters	No Decant Flow	Decant Flow
Flow	Continuous	Continuous
TSS	monthly – from the ponded water	daily
Hardness, metals (t) and (d)	monthly – from the ponded water	weekly
pH, conductivity, alkalinity and acidity, sulphate (d), organic carbon (d)	monthly – from the ponded water	weekly
Ammonia (t), nitrate/nitrite, phosphorus (t)	-	every 3 years (conducted during low flow period (August to early September)
Rainbow Trout Bioassay (Oncorhynchus mykiss)	-	2 time/year (conducted during fall first flush event and in the spring freshet)

ii) 7 South Adit Sump – 7S-Sump (EMS # E292110)

Parameters	7 South Adit Sump (7S-Sump)
TSS	daily when pumping to 7S Settling Pond
Conductivity, pH, alkalinity and acidity	weekly when pumping to 7S Settling Pond
Hardness, metals (t) and (d)	weekly when pumping to 7S Settling Pond
Sulphate (d)	weekly when pumping to 7S Settling Pond

Legend:

(t) = total
(d) = dissolved

Note 1: For monitoring tied to decant flow, the decant flow referenced at the column heading must

be established for a minimum of 15 minutes before the corresponding monitoring regime is required. All samples are grab samples unless specified otherwise within the matrices.

Note 2: When the flows referenced at the column heading are established according to Note 1 the corresponding monitoring regime will be required, as specified in the matrices, and be continued for at least one specified period following the recession of the flow below the tabled level.

Note 3: Decant samples required under Subsections 4.1.1 i), 4.2.1 i), 4.3.1 i) and Subsection 4.4.1 i) during periods of no decant flow shall be taken at a point in each settling pond adjacent to the decant.

4.2 Receiving Environment Monitoring Sites and Monitoring Requirements

4.2.1 Initial Dilution Zone Monitoring Sites

i) Long Lake Entrance – LLE

Parameters	Long Lake Entrance (LLE)
EMS #	E292130
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	monthly
Sulphate (d)	weekly

Document : 2015 06 23 Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.pdf
Document comment: Tables PE 7008 - Section 4.1.1, 4.1.2, 4.1.3, 4.1.4.

be established for a minimum of 15 minutes before the corresponding monitoring regime is required. All samples are grab samples unless specified otherwise within the matrices.

Note 2: When the flows referenced at the column heading are established according to Note 1 the corresponding monitoring regime will be required, as specified in the matrices, and be continued for at least one specified period following the recession of the flow below the tabled level.

Note 3: Decant samples required under Subsections 4.1.1 i), 4.2.1 i), 4.3.1 i) and Subsection 4.4.1 i) during periods of no decant flow shall be taken at a point in each settling pond adjacent to the decant.

4.2 Receiving Environment Monitoring Sites and Monitoring Requirements

4.2.1 Initial Dilution Zone Monitoring Sites

i) Long Lake Entrance – LLE

Parameters	Long Lake Entrance (LLE)
EMS #	E292130
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Ammonia (t), nitrate/nitrite, phosphorus (t)	monthly
Sulphate (d)	weekly

ii) Road Crossing bridge on Stream 1 above the Lower Wetland – 7S (EMS # E292109)*

Parameters	No Decant Flow	Decant Flow
Flow	Continuous	Continuous
TSS	monthly – when there is flow at surface	weekly – when there is flow at surface
Hardness, metals (t) and (d)	monthly – when there is flow at surface	weekly – when there is flow at surface
Conductivity, pH	monthly	weekly
Alkalinity and acidity, sulphate (d), organic carbon (d)	monthly	monthly
7 day *Ceriodaphnia dubia* chronic toxicity test	-	2 time/year (conducted during fall first flush event and in the spring freshet)

*Sampling at 7SSD and 7S is to be conducted concurrently to allow for data interpretation and mass balance calculations.

4.2.2 Seep Monitoring Sites

i) Long Lake Seeps (LLS)

Parameters	Long Lake Seep (LLS)
EMS #	E292131
Flow	weekly
TSS	monthly
Conductivity, pH, alkalinity and acidity	monthly
Hardness, metals (t) and (d)	monthly
Sulphate (d)	monthly

4.2.3 Receiving Water (Streams and Lakes) Monitoring Sites

Streams	Lakes
North Mining Operation	
Quinsam River at Argonaut Road (WA) (EMS # 0126402) Outflow from Middle Quinsam Lake (WB) (EMS # 0900504)	Middle Quinsam Lake Centre (EMS # E206618)
South Mining Operation	
Long Lake Outlet (LLO) (EMS # E219412) No Name Lake Outlet (NNO) (EMS # E217017)	Long Lake at Centre (LLM) (EMS # E206619) No Name Lake (NNL) (EMS # E217018)
Block 242 Mining Operation	
Iron River upstream of 242 influence (EMS #E225798) Iron River downstream of 242 influence (EMS # E225808)	Lower Quinsam Lake (LQL) (EMS # E292118)
7-South Mining Operation (Areas 1 to 4)	
Quinsam River upstream of 7 South Mining Operation (QRDS1) (EMS # E286930) Quinsam River downstream of 7 South Mining Operation (7SQR) (EMS # E292113) Lower Wetland Outlet at the confluence of Quinsam River (LWO) (EMS # E292112)	Lower Quinsam Lake (LQL) (EMS # E292118)
7-South Area 5 Mining Operation	
Iron River upstream of mining operations (IR1) (EMS #E297230) Iron River upstream of 7SA5 (IR6) (EMS # E297231) Iron River downstream of 7SA5 and 242 inputs (IR8) (EMS # E297232) Quinsam River downstream of confluence with Iron River (IRQR) (EMS # E299256)	Lower Quinsam Lake (LQL) (EMS # E292118)

4.2.4 Sediment and Benthic Monitoring Sites

Lake and Wetland Monitoring Sites	
No Name Lake (NNL)	No Name Lake Inlet, NNLI (EMS # E224246) No Name Lake Deep, NNLD (EMS # E217018) No Name Lake Near Seep (EMS # E292114) No Name Lake Outlet (EMS # E217017)
Middle Quinsam Lake (MQL)	Middle Quinsam Lake Inlet (EMS # E206901) Middle Quinsam Lake Deep (EMS # E292115) Middle Quinsam Lake Near Seep (EMS # E292116) Middle Quinsam Lake Outlet (EMS # 0900504)
Lower Quinsam Lake (LQL)	Lower Quinsam Lake Inlet (EMS # E292117) Lower Quinsam Lake Deep 1 (EMS # E29118) Lower Quinsam Lake Deep 2 (EMS # E292119) Lower Quinsam Lake Outlet (EMS # E292120)
Long Lake (LL)	Long Lake Inlet (EMS # E292121) Long Lake Deep (EMS # E292122) Long Lake Near Seep (EMS # E292123) Long Lake Outlet (EMS # E219412)
Gooseneck Lake (GNL)	Middle Gooseneck Lake (EMS # 1132502)
Lower Wetland	Lower Wetland Inlet (EMS # E292124) Lower Wetland Middle (EMS # E292125) Lower Wetland Outlet (EMS # E292112)
Stream Monitoring Sites	
Quinsam River at Argonaut Road (WA)	(EMS # 0126402)
Quinsam River upstream of 7 South Mining Operation (QRDS1)	(EMS # E286930)
Quinsam River downstream of 7 South Mining Operation (7SQR)	(EMS # E292113)

i) The permittee shall submit proposed sediment monitoring locations in the 7-South Area 5 receiving environment to the Director by October 1, 2014 for approval.

ii) Near seep sediment monitoring applicable to No Name Lake and Middle Quinsam Lake seeps sites consist of a set of three samples equally spaced on a 5 m triangular grid. Long Lake near seep sediment monitoring sites consist of a set of six samples equally spaced on a 5 m triangular grid.

4.2.5 Stream Monitoring Requirements

i) General Requirements Applicable to All Sites Defined Under Section 4.2.3

Parameters	Schedule
Flow, total suspended solids (TSS), hardness, total and dissolved metals, conductivity, pH, alkalinity and acidity, sulphate (d)	5 in 30 (3 times/year)*
Ammonia (t), nitrate/nitrite, phosphorus (t)	every 3 years (conducted during low flow period (August to early September)

Legend:
(t) = total
(d) = dissolved
*5 in 30 refers to 5 weekly samples collected within a 30 day period

ii) Long Lake Outlet sampling requirement for dissolved sulphate is weekly until Long Lake Seep Treatment plant is authorized.

iii) Quinsam River upstream of 7 South Mining Operation (QRDS1) sampling requirements for sulphate (d) is weekly for a period approved by the Director following commissioning of the 7-South mining operation discharge.

iv) Flow is only required at WB, LLO, WA and IR8.

v) Iron River monitoring shall include monthly sampling to supplement the 5 in 30 sampling. The Director may allow cessation of monthly sampling (retaining 5 in 30 sampling), if the permittee can identify the yearly periods of worst-case water quality to the satisfaction of the Director. The earliest that monthly sampling shall be considered for cessation is 2016.

4.2.6 Lake Monitoring Requirements

i) General Requirements Applicable to All Sites Defined Under Section 4.2.3

Parameters	Annual Schedule
(1) Temperature, conductivity, pH, dissolved Oxygen (DO), saturation, oxidation reduction potential (ORP)	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
(2) Turbidity	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
(2) Phosphorus (t), alkalinity	One sampling event concurrent to a 5 in 30* event (3 times/year, spring turnover, stratification period and fall turnover)
(2) Hardness, total and dissolved metals, sulphate (d)	5 in 30* (3 times/year, spring turnover, stratification period and fall turnover)
BIOLOGICAL MONITORING	
(3) chlorophyll "a" (4) Phytoplankton (5) Zooplankton	One sampling event concurrent to a 5 in 30* event (3 times/year, spring turnover, stratification period and fall turnover)

Legend:

(t) = total
(d) = dissolved
*5 in 30 refers to 5 weekly samples collected within a 30 day period

(1) Profile at 1 metre intervals from surface to bottom
(2) Four depths: 1 metre, 4 metres, 9 metres, and 1 metre from bottom
(3) One depth: 1 metre below surface
(4) One depth: 1 metre below surface; analyzed for count and identification
(5) 10 metre vertical tow; analyzed for count and identification

ii) Lower Quinsam Lake monitoring shall be done according to Subsection 4.2.6 for a period approved by the Director following commissioning of the 7-

South mining operation discharge.

4.2.7 Sediment and Benthic Monitoring Requirements

i) General requirements applicable to all sites defined under section 4.2.4

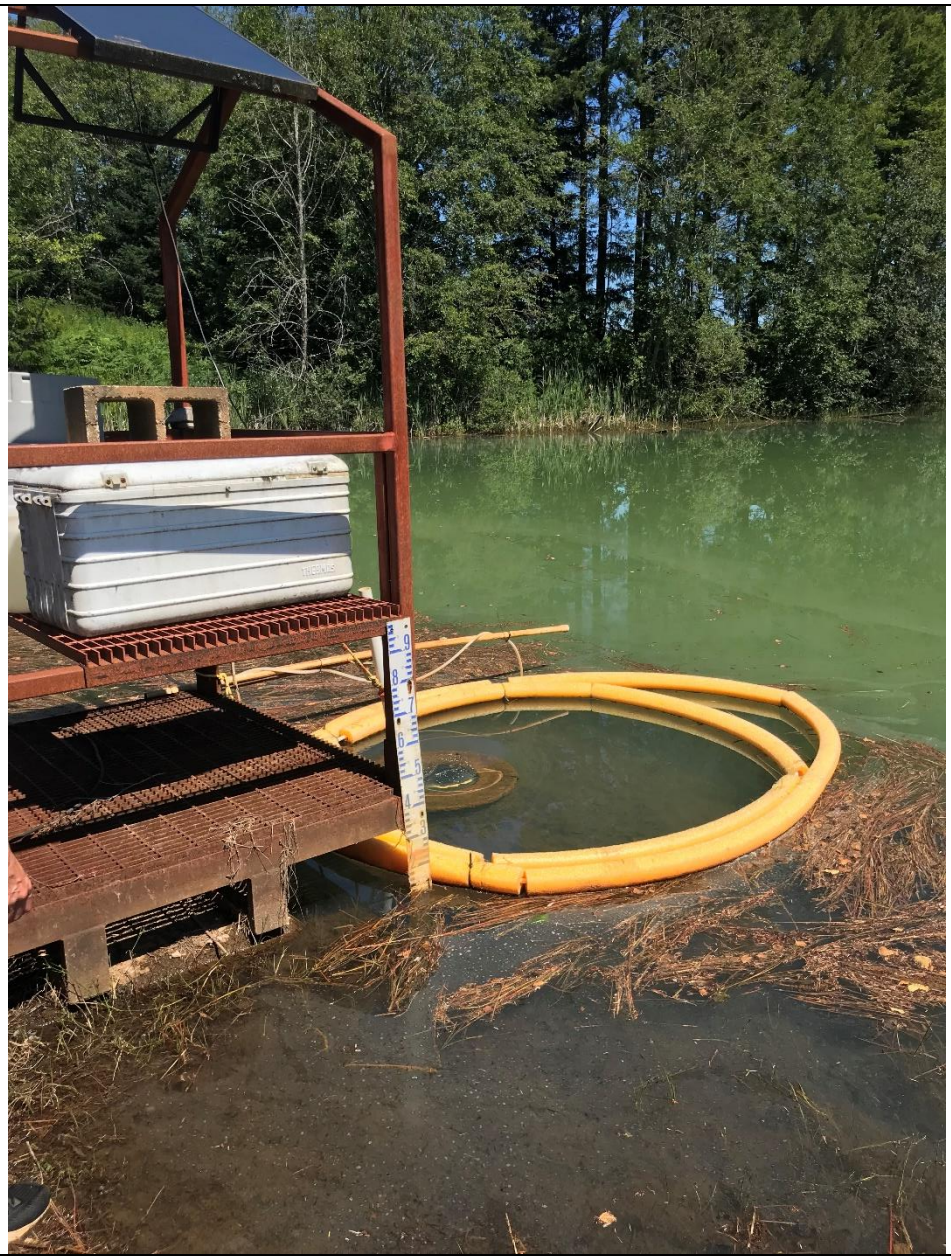
Parameters
LAKE WATER CHEMISTRY PROFILE
Temp, DO, specific conductivity, pH, ORP
WATER CHEMISTRY
Hardness, turbidity, sulphate (d), metals (t) and (d), polycyclic aromatic hydrocarbons Mid lake sites – grab samples at two depths: near bottom and surface of lake for all sites except for deep sites where an additional sample will be collected at 5 m below surface Stream sites, wetlands and lake inlet/outlets – grab samples just below surface
SEDIMENT CHEMISTRY
moisture, pH, particle size, total organic carbon (TOC), total metals, polycyclic aromatic hydrocarbons
BIOLOGICAL MONITORING
Benthic invertebrates at all stream monitoring sites listed in subsection 4.2.4, as per Canadian Aquatic Biomonitoring Network (CABIN) methodology
Benthic community taxonomy and count for all lake and wetland monitoring sites listed in subsection 4.2.4

ii) The monitoring program described in 4.2.7 may be conducted over two consecutive years, with upper and lower watershed sites sampled in respective years. Under this program, monitoring site WB (EMS # 0900504) shall serve as the lowest site in the upper watershed.

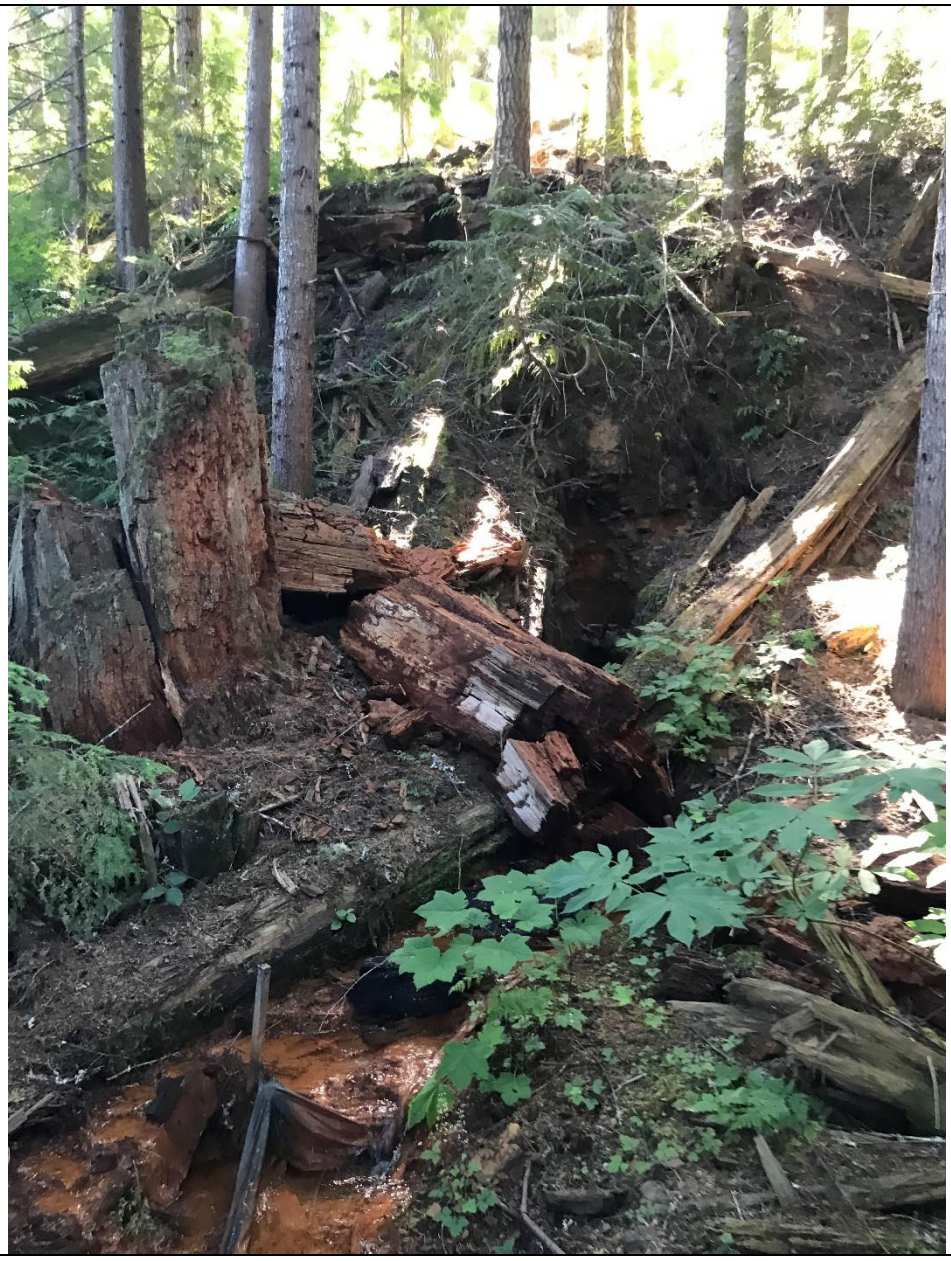
iii) Sediment and benthic monitoring cycles are required every 3 to 5 years. The first assessment will be completed in 2015-2016. Following the first monitoring cycle, the sediment and biological monitoring program will be revised based on the outcomes of previous years' assessments. The permittee will submit the results of the sediment and biological monitoring program along with recommendations for the subsequent monitoring cycle by an appropriately qualified professional. Recommendations will be reviewed and approved and/or modified by the director.

Document : 2015 06 23 Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.pdf
Document comment: Tables PE 7008 - Section 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6.

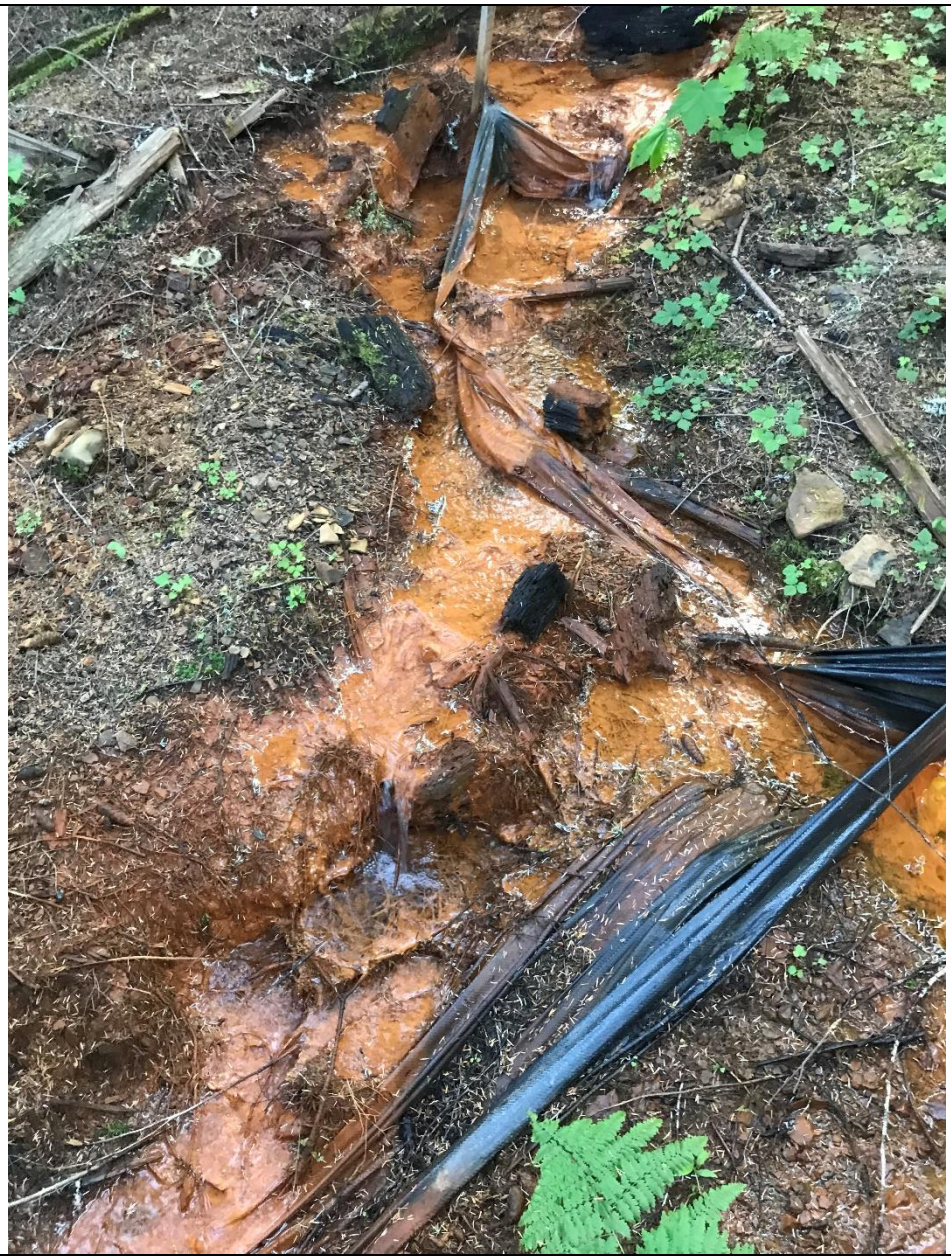
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 1: Settling Pond 4 decant	

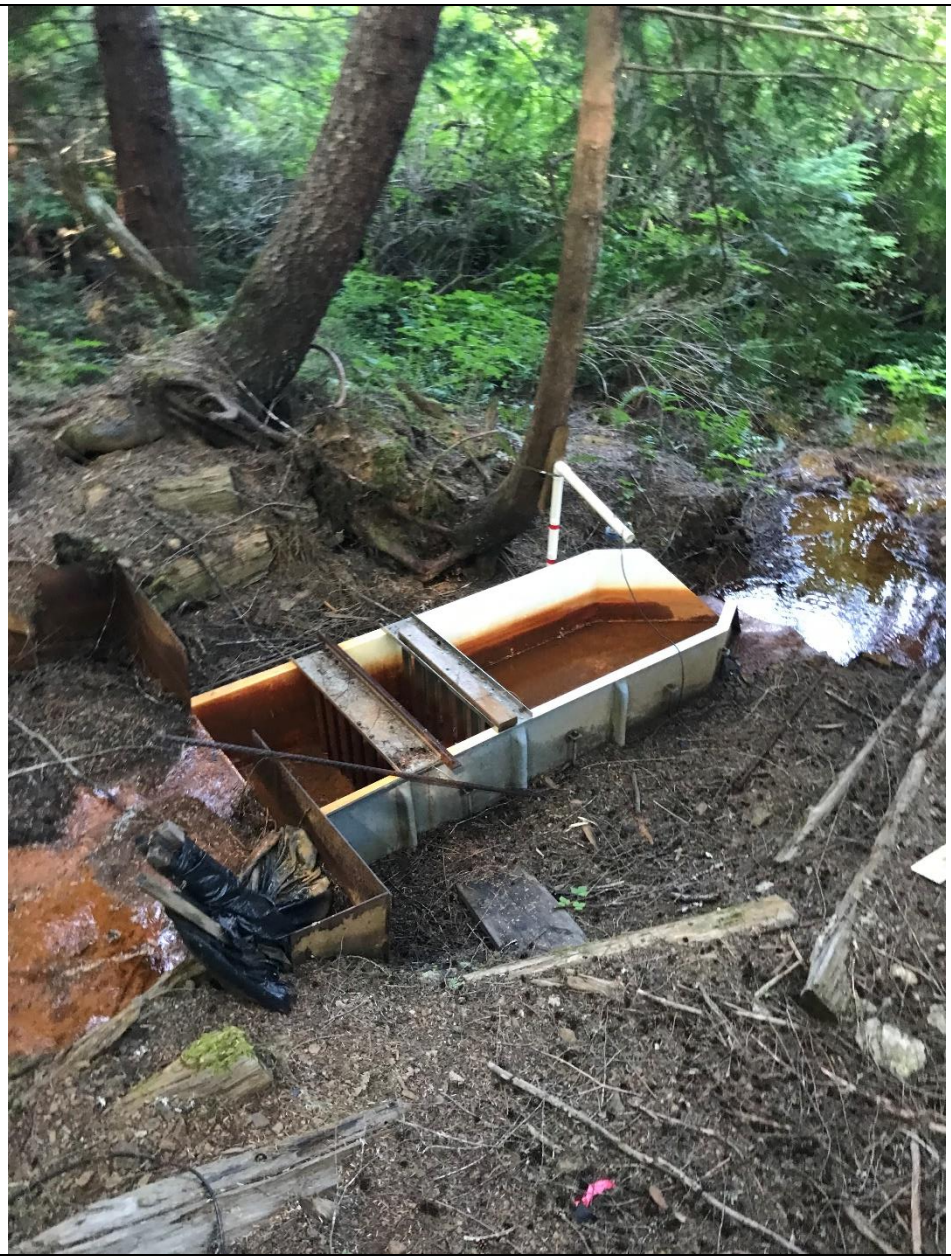
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 2: LLSM flow path, looking towards the start of the seep	

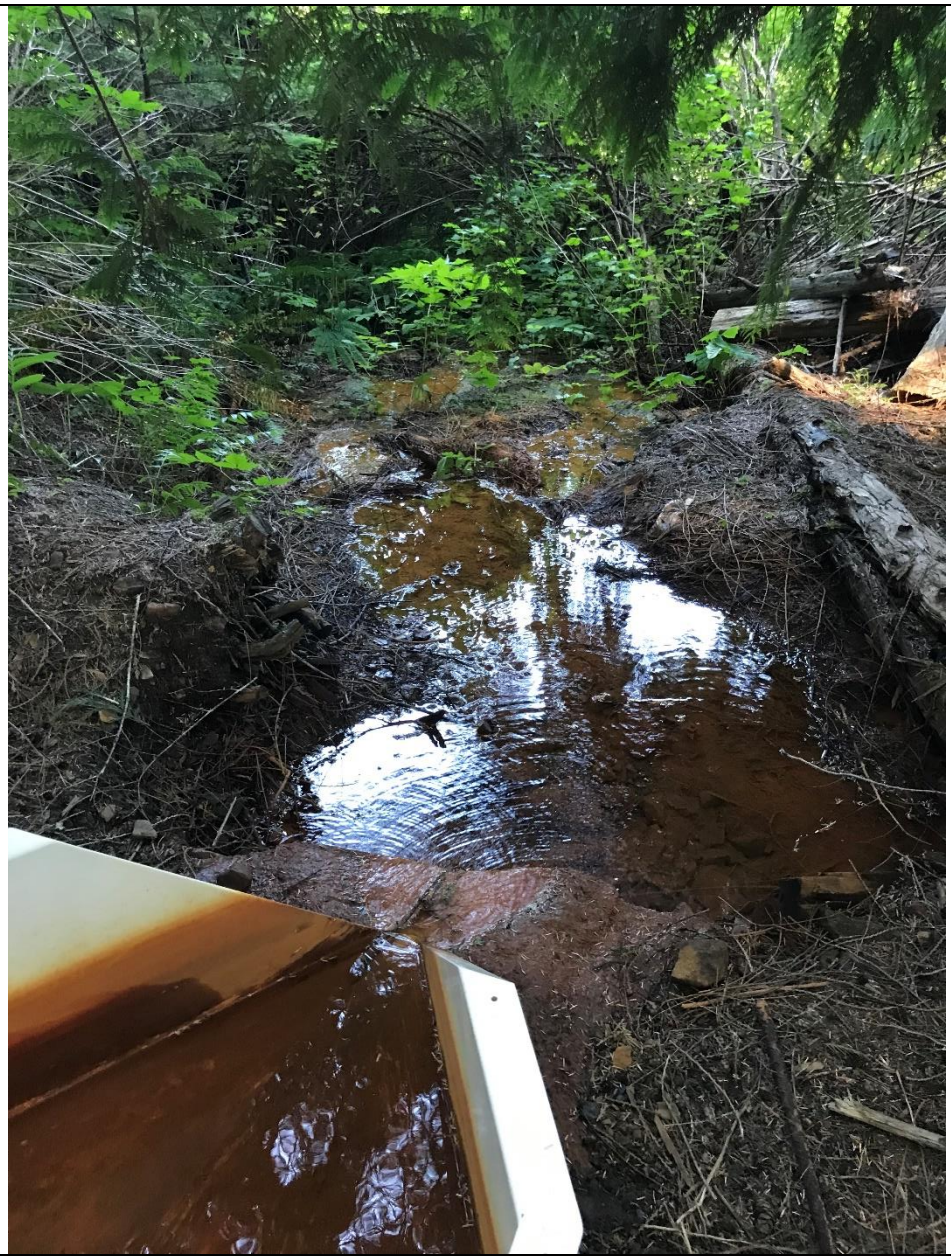
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 3: LLSM flow path, looking towards the start of the seep	

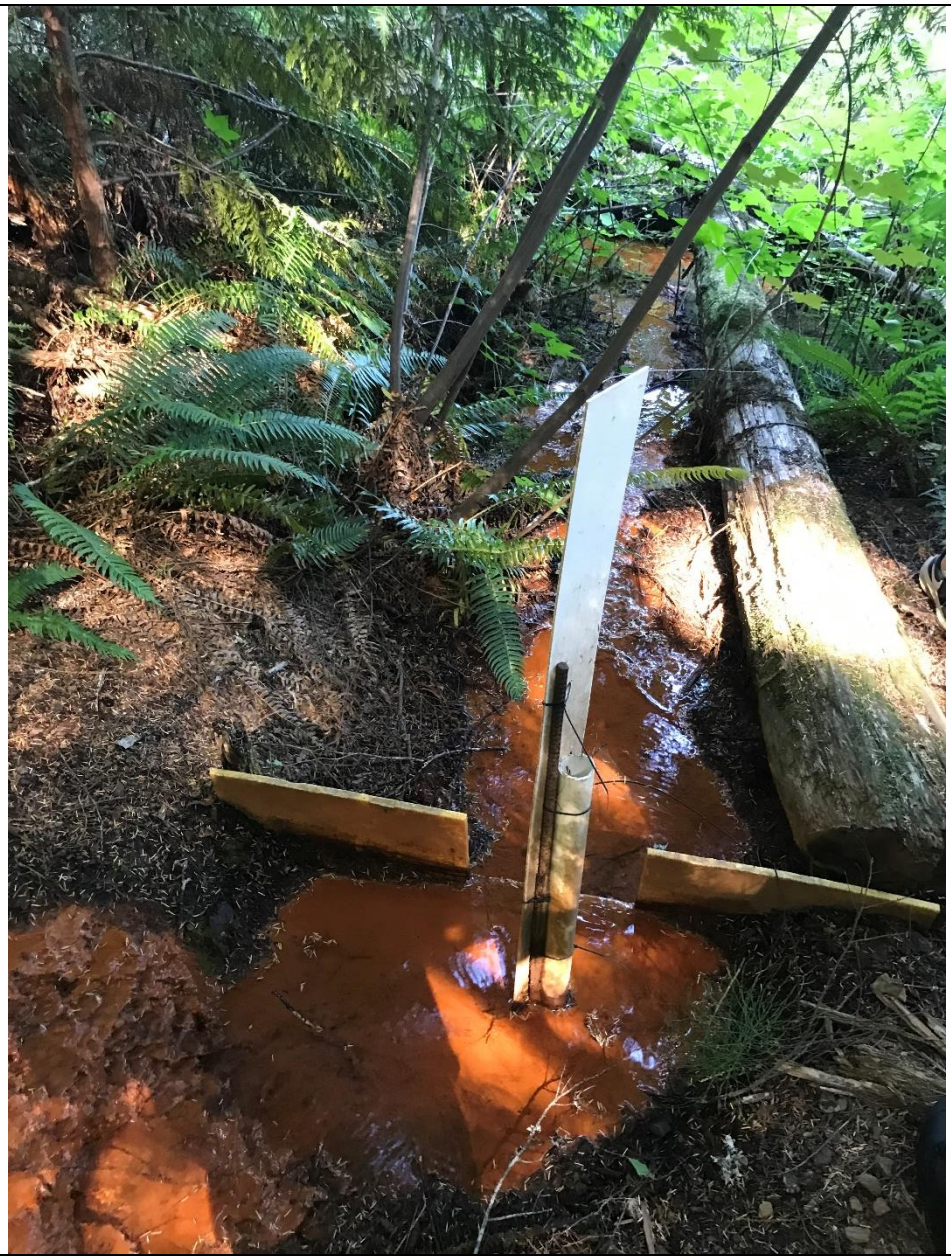
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 4: LLSM flow path and H flume	

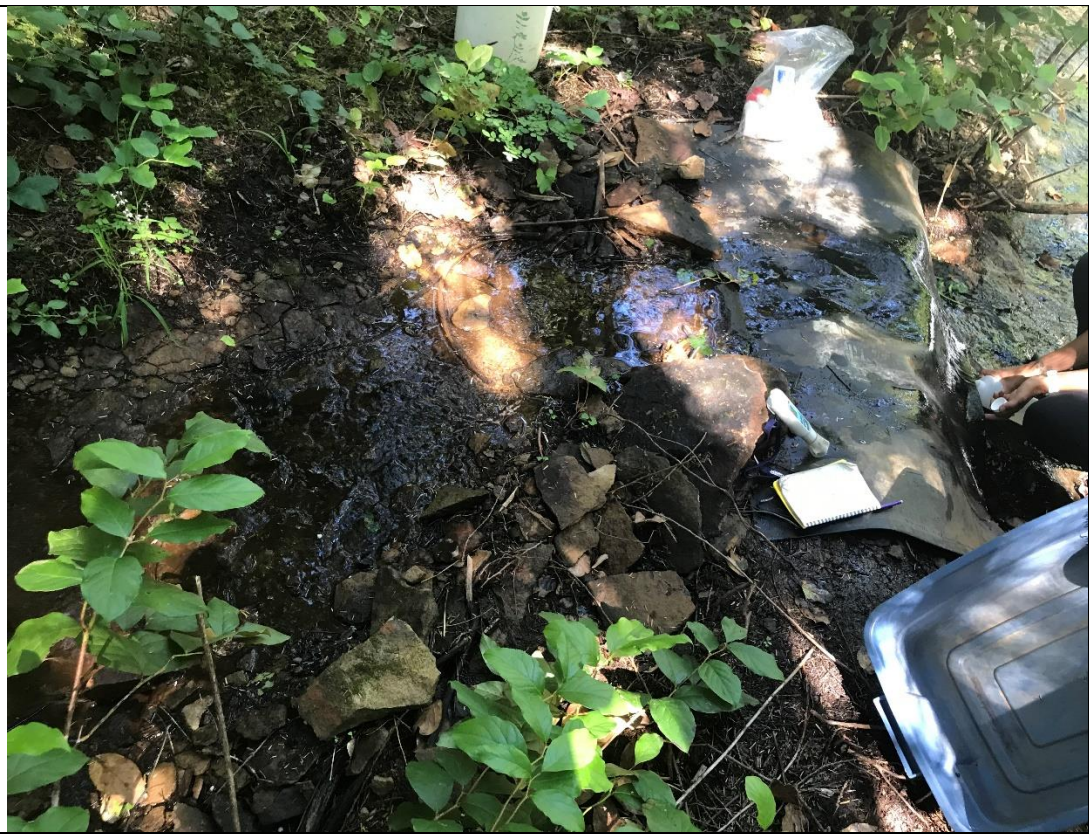
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 5: LLSM flow path looking towards Long Lake, which is on the other side of the vegetation in the photo	

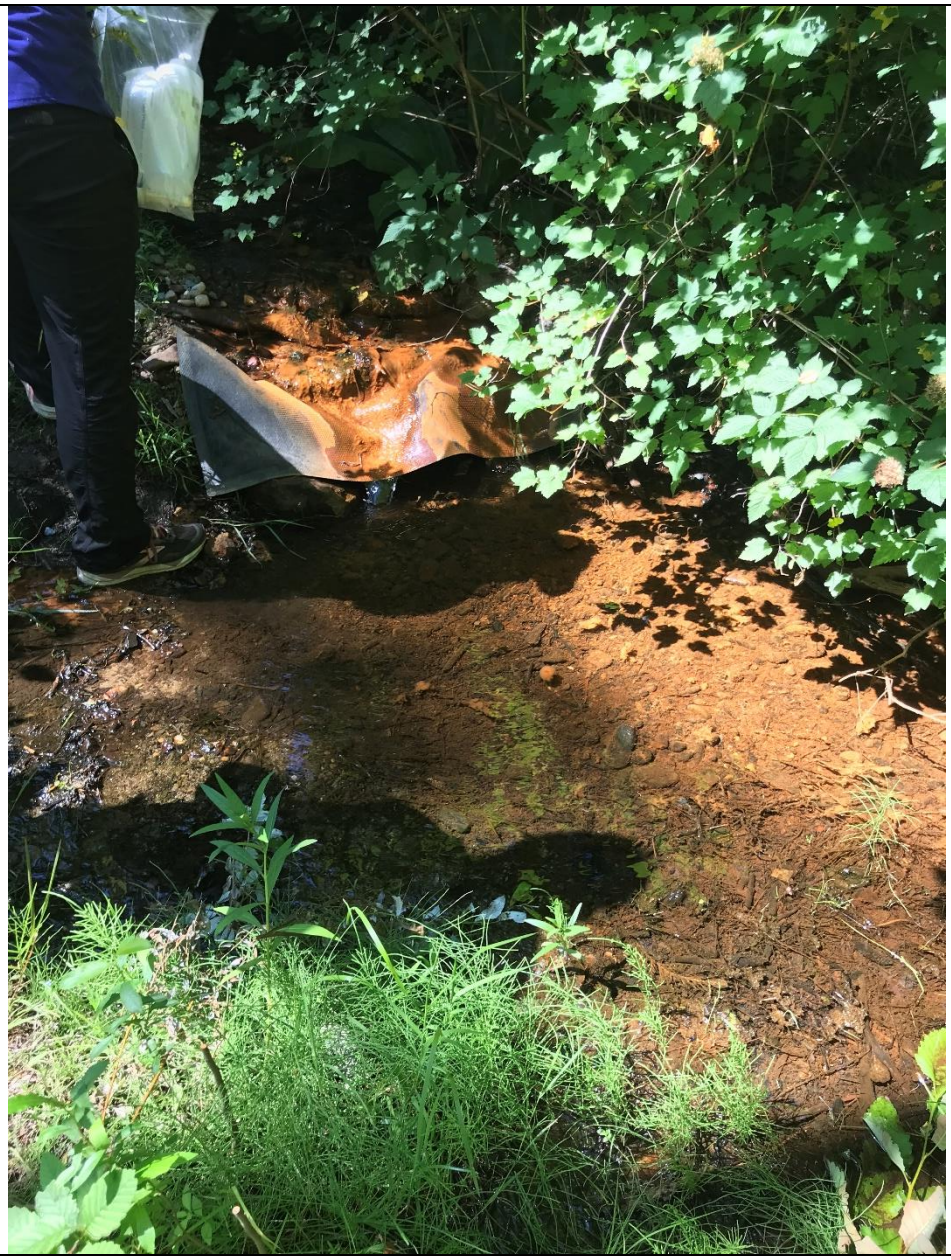
Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 6: LLS Seep with staff gauge. Flow path leads to Long Lake	

Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 7: Potential seepage area S flowing into the Quinsam River. Quinsam staff collecting samples during photo.	

Authorization: 7008	Client Name: Quinsam Coal Corporation
NRIS IR #: 194661	Site Inspection Photos date: July 26, 2022

Photo 8: S2 potential seep area flowing into the Quinsam River	

Document : 2022-10-31 IR194661 Photo Record 7088.pdf
Document comment: 2022-10-31 IR194661 Photo Record 7088

Document : 2022-11-08 IR194661 AMP.pdf
Document comment: 2022-11-08 IR194661 AMP