File: 30200-20/TENCO-05-06

Reference: 394052

November 23, 2022

SENT VIA EMAIL

Dan Farmer
Chief Operating Officer
Telkwa Coal Limited
Suite 1410 - 409 Granville Street
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Dear Dan Farmer:

This letter outlines additional information required by the Environmental Assessment Office (EAO) to complete our assessment of potential effects of the Tenas Project on water quality, water quantity, and other related valued components.

Background

Technical experts on the working group, the Wet'suwet'en, and members of the public have all emphasized the importance of ensuring potential effects of the Tenas Project on water quality, water quantity, fish, fish habitat, and human health and safety, are adequately understood. In consideration of input and technical advice received from numerous parties during the Application Review phase to date, the EAO is of the view that additional information outlined in the water information requests is necessary to understand the nature and extent of potential effects of the Tenas Project on water-related valued components.

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Water Information Requests

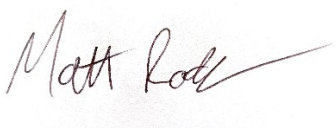
The EAO considered the views of Telkwa Coal Limited (TCL) and the advice of technical experts, particularly from the Ministry of Environment and Climate Change Strategy (ENV) and the Ministry of Energy, Mines and Low Carbon Innovation (EMLI), to develop the attached water information requests. Please carefully review these information requests, which I am issuing pursuant to Section 18.1 of the Section 11 Order, dated June 25, 2019, and work closely with the EAO, ENV, EMLI, and other relevant parties such as Indigenous groups to develop substantive responses.

Transition to the 2018 BC *Environmental Assessment Act* and Next Steps

As you are aware, on October 22, 2022, the Tenas Project transitioned to a review under the 2018 *Environmental Assessment Act* (2018) (the Act). The EAO is currently working with TCL and other environmental assessment (EA) participants to finalize and issue a Transition Order that outlines changes to the procedures of the EA and additional information required by the EAO to conduct our effects assessment. I note that the Act includes an Effects Assessment and Recommendation phase, during which the EAO will work closely with EA participants to draft our assessment report, recommendation, and other referral materials for provincial decision makers. TCL must adequately respond to the water information requests, and any other information requests that may be issued by the EAO, before the Effects Assessment and Recommendation phase can begin.

If you have any questions about any part of this letter, please contact me at Matthew.Rodgers@gov.bc.ca or 250 893-2841. I look forward to continuing to work with TCL on the Tenas EA under the Act.

With thanks,



Matt Rodgers

A/Project Assessment Director

Attachment: Tenas Project Information Requests: Water

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cc:

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Water Quality

References

- Memo entitled *Telkwa Project Groundwater IR Responses* (August 15, 2022) submitted by TCL
- Chapters 3 and 4 of the EA Certificate Application; multiple sections
- Appendix 1.0-AA of the EA Certificate Application, report entitled *FINAL Tenas Project Dam Breach Assessment Report* dated April 2021 by SRK
- Memo entitled *Tenas Project Environmental Certificate Application – Ministry of Energy, Mines and Low Carbon Innovation – Round 1 Geotechnical Review* dated June 23, 2022 by EMLI.
- Tenas Project Responses to EMLI Geotch_Aug12.pdf, *"Memo – Tenas Project – EMLI Geotechnical Review Responses"*, dated August 12, 2022, by Telkwa Coal Limited.
- Memo entitled *Tenas Project Environmental Certificate Application – Ministry of Energy, Mines and Low Carbon Innovation – Round 2 Geotechnical Review* dated October 7, 2022 by EMLI
- Attachment 178-1_CompReview_DamSites_10_July17.pdf., "*Tenas Project – Comprehensive Review of Potential Sites for Dams*" undated by Telkwa Coal Limited.

Rationale

BC Ministry of Environment and Climate Change Strategy (ENV)

- Reviewers have identified that the current Application shows potential for significant adverse effects to water quality and aquatic biota as there is insufficient water quality mitigation measures to protect the receiving environment.
    - The predicted water quality and the approach to use a few small watercourses as effluent conveyance will result in residual effects to aquatic valued components (VCs) that cannot be reliably managed in BC *Environmental Management Act* permitting.
- The Water and Load Balance Model (WLBM) is key to assessing the effectiveness of mitigation against effects to many VCs, including water quality.
    - Source control and mitigation or treatment options included in the WLBM do not demonstrate that Water Quality Guidelines (WQG) will be met near discharge locations and will lead to exceedance of WQGs over many kilometres of multiple watercourses.
    - Significant uncertainty remains in WLBM calibration, preventing a scientifically defensible effects assessment.
    - Model nodes need to be appropriately located near planned discharge locations rather than many kilometers downstream.
    - Model input values and resulting predictions *for the same management structures* are inconsistent between the WLBM and the Groundwater model.
    - The WLBM is missing data from **all** planned discharges.

    - Seasonal and monthly variability of background water quality concentrations may affect predicted water quality parameter concentrations.
- Alternative treatment options capable of meeting WQGs at appropriately sited discharge locations are missing from the Application.
- Site-specific selenium data to support residual effects characterization of selenium bioaccumulation is missing from the Application.
- Recent sensitivity analysis of the semi-permeable pond liner to conduct additional water quality predictions is missing from the Application.
- Site Performance Objectives (SPOs) are proposed throughout the Application as triggers for construction of alternative effluent treatment systems.
    - SPOs cannot be implemented until a permit is finalized and alternative effluent treatment systems have not yet been designed for the site.
    - Reviewers cannot conclude with confidence that protective alternative mitigation exists and will be effectively implemented when needed.

BC Ministry of Energy, Mines, and Low Carbon Innovation (EMLI)

EMLI Geoscience:

- The metal leaching/acid rock drainage (ML/ARD) Management Plan in Section 6.4 specifies that all materials excavated from zones 1a and 2/3 will be managed as potentially acid-generating (PAG). Material from zones 5, 55, and 6 were characterized as non-PAG but will be initially classified and managed as PAG unless testing can demonstrate otherwise. To facilitate the shorter turnaround times that are required to make operational decisions for placement of blasted rock, rejects, and other materials, the results of the geochemical characterisation are used to develop operational proxies for determining NP and AP in an onsite laboratory that will be equipped with a Leco furnace. Section 6.1.3 of the ML/ARD Management Plan specifies an NPR of 1.2 is proposed to classify PAG mine rock at the Project. Clarifications and justifications on the ML ARD management plan and use of NPR 1.2 and 2 criteria as cutoff for verification and planning purposes should be provided.
- The geochemical characterization report defines non-PAG material based on weighed NPR of 1.2. If the application of a weighted average NPR of 1.2 to define non-PAG and PAG zones is not conservative, it may impact the quantity of PAG waste rock to manage and configuration of the project during the life of mine. Additional information should therefore be presented by the proponent to demonstrate the conservativeness of this approach.
    - EMLI understands that the neutralization potential ratio (NPR) cutoff of NPR = 1.2 did not account for other factors that may affect the on-set of acid rock drainage (ARD), such as available NP blended PAG and non-PAG strata in an unsaturated embankment or pile. An evaluation of these other factors with an average weighted NPR less than 2.0 was not provided.
- EMLI does not support the application of the concept that an entire zone can be designated PAG or non-PAG based on an average weighed NPR. Application of an average weighed NPR implies that a portion of the material from that unit will become acid generating at some point in the future. Although the overall drainage from that storage area may be pH-neutral due to mixing with the non-PAG portion of the unit or non-PAG material from another unit, the current

Management Plan does not address blending and the current source terms do not account for a blended non-PAG/PAG rock piles or covers that are exposed to allow advanced stage weathering and acidic hot-spots within the pile. Additional information should therefore be presented by the proponent to support the conservativeness of this approach and demonstrate how it will be addressed in the ML/ARD management plan and applied in water quality model predictions.

- EMLI understands that the App 13.5 reports that calcite precipitation is likely to occur in seepage from mine site facilities and in site water management ponds in varying degrees during operations, closure, and post-closure. However, predictions indicate that calcite precipitation is not expected to occur downstream of the proposed project footprint based on current observations and baseline concentrations. Additional information should be provided on:
    - The demonstration that calcite precipitation is not expected to occur downstream of the proposed project including all seepage and surface pathways.
    - The mechanisms that might lead to calcite precipitation.
    - Proposed calcite monitoring, management plan, and contingency measures to prevent or treat the onset of calcite precipitation downstream of the project discharge.
- The current sampling frequency does not provide adequate information to define or refine PAG volume estimates beyond what they have specified in the ML/ARD Management Plan. Monitoring the geochemical characterization of ore, waste, and overburden must be based on proper sampling frequency representative of the proportional volume of sampled materials.
- The metal leaching potential of overburden may not be driven by the same processes as sulphidic mine rock ARD and as a result, basic static testing [e.g. acid base accounting (ABA) and metal content] alone may not quantify the risk associated with overburden. The proposed geochemical characterization and monitoring program must also include testing methods to assess the metal leaching potential.
- The ability to maintain a consistent water cover and to coordinate staged flooding and PAG placement was not demonstrated within the WLBM inputs or through contingencies in the waste management plan or mine plan.

- Additional sensitivities are needed to refine the water quality modelling predictions :
    - Exposed PAG rock in the management pond during a period of early closure;
    - PAG rock exposures on pit wall;
    - Upper-case prediction that is representative of challenging blasting conditions that could lead to higher nitrogen loading to blasted rock.
- Additional conceptual design of alternative treatment options, mitigation measures, and management structures are needed to prevent the discharge of water that is not suitable for release to the environment.

Geotechnical:

- Completion of an alternative means of undertaking the proposed project with respect to options for tailings management that considers technology, siting, and water balance has not been demonstrated.
- The proponent does not identify the processed rock waste as tailings and does not identify the North, East, and West Management Ponds as tailings storage facilities (TSFs). As per the Health, Safety and Reclamation Code for Mines in British Columbia (the Code), the definition of "tailings" is: "the residue remaining from the preparation of a concentrate of minerals or coal,";

and a “tailings storage facility” (TSF) is: “a facility that stores tailings”. As per these definitions, the “processed rock” described in the Application is considered tailings and the North, East and West Management Ponds are TSFs.

  - TSFs have different minimum requirements than water dams in BC, including, but not limited to, minimum factors of safety, minimum design requirements for larger flood (return event and duration) and seismic events, downstream slopes, and many other requirements related to water management, performance, monitoring and surveillance, governance, etc.

- Results of the Dam Breach Analysis (DBA) does not clearly support the selected Consequence Classification Ratings for Dams or the seismic design criteria required by the Code given that the DBA reports that over 100 people could be impacted or at risk in the event of a breach of one of more of the management pond embankments. The Consequence Classification and seismic design criteria are lower than what is anticipated from the results of the Dam Breach Analysis, which could result in use of design criteria that are not consistent with regulatory requirements or accepted industry practice.

Information Requests

Theme	Comment #	Information Request
ENV		
Surface Water Quality	307	Consider the impacts of exceeded BC water quality guidelines (WQGs), particularly to aquatic biota and resident fish populations, at a local scale rather than regional scale.
Mitigation Measures and Treatment Options	350 and 351 New	1. Provide additional mitigation measures to address the significant exceedance of WQGs in frequency and duration for selenium, nitrite, sulphate and dissolved cadmium in Four Creek and Tenas Creek. 2. Provide design alternative treatment options which are capable of meeting WQGs near appropriately sited discharge locations. Describe the reliability, control-effectiveness, and treatment efficiency of each mitigation option including the currently proposed option – refer to BC ENV Best Achievable Technology (BAT) guidance. BAT assessments are required prior to the development of Initial Dilution Zones (IDZs) – also refer to BC IDZ development guidance. When considering discharge standards, follow these best practices and minimum standards: a) The discharge must not be acutely toxic. b) If the untreated effluent contains constituents that exceed 80% of an applicable WQG, BMPs and BAT must be applied. Chronic WQG for the protection of freshwater aquatic life are most typically used as the guideline. However, if more sensitive uses or values are downstream (e.g. drinking water, irrigation, livestock, wildlife) the most protective WQG will be applied. c) If the effluent still does not meet WQGs, repeat step (b). Document this iterative process. d) If the effluent still does not meet WQGs after all reasonable BMPs and BAT are applied, an IDZ may be considered during the permitting process. Some chronic toxicity may be tolerated in the IDZ, but water quality should meet WQGs at the end of the IDZ. An IDZ will not be considered during permitting without an adequate BAT assessment. e) If the water quality at the end of the IDZ still exceeds chronic WQGs, an SPO may be considered during the permitting process. SPOs must be protective of the site-specific environment. An SPO will not be considered during permitting without an adequate BAT assessment. Within the bounds of the above best practices and minimum standards, the proponent and their qualified professionals (QPs) are normally best suited to consider which site-specific factors should be evaluated regarding feasibility, reliability, control effectiveness, and cost effectiveness. To improve efficiency, it may be useful to have a conversation with the EPO on the file once an outline for the BAT assessment has been developed. In practice, the depth and detail of the BAT assessment submittal will be proportionate to the projected effluent quality. If the selected BAT will achieve BC WQGs at the point of discharge, the submittal can be brief and will likely be readily advanced. If the selected BAT is not capable of meeting BC WQGs in the

		receiving environment, the submittal must be more substantial and will be subjected to a more intensive review, as it must justify the greater risk to the environment. Some of the technologies TCL has proposed to consider during the BAT assessment are likely to be effective mitigation measures for the Tenas project. TCL may need to consider a set (a series or train) of technologies to address all contaminants of concern. During an EA process, technologies must be at a readiness level of 7 to be considered as primary mitigation. At permitting, technologies must be at a readiness level of 8 or 9 to be considered as primary mitigation. ENV and EMLI consider some of the proposed technologies to be below the appropriate technology readiness level (TRL) for the Tenas project. The proponent may conduct a Technology Readiness Assessment (TRA) (refer to technical guidance 21 on the Mining and Smelting Guidance webpage) for consideration by ENV and EMLI to demonstrate the technological readiness of any proposed technology. TCL is encouraged to engage with ENV and EMLI prior to undertaking a TRA.
Pond Liner Design and Surface Water Quality	356	Have a QP run three new WLBM scenarios: 1. Reduce the seepages through the management pond liners by 90% relative to the project case (with a commensurate increase in surface discharge). This scenario simulates blinding of the pond liners. 2. Reduce the seepages through the management pond liners by 90% and assume low flow conditions (modified alternate case 5: 7Q10 low flow). 3. Reduce the seepages through the management pond liners by 90% and assume high source term conditions (modified alternate case 2: high source terms). Add a new node to the WLBM in Goathorn Creek, 100m downstream of the confluence with the tributary into which the effluent is discharged. For the 3 scenarios listed above, for each node where a parameter is predicted to exceed a chronic BC WQG PAL, graphically illustrate water quality (for the exceeding parameters only) at those nodes from baseline through to post closure. On each graph, show the chronic BC WQG for the most sensitive use or value. [Figures 2.2-2.4 of Appx 4.3 (WLBM report) show Four Creek joining Goathorn Creek at WQS05, instead of WQS06. Is this an error in the diagram? If so, has this error been incorporated into the model?]
Water and Load Balance Model (WLBM)	New	Have a QP add additional model nodes to represent conditions at: • Tributary receiving discharge above confluence with Goathorn Creek • Goathorn Creek below confluence with tributary receiving discharge Have a QP provide water quantity and quality results for these nodes over the life of mine for the following assessment cases: • Project Case • Alternative Case 1, 2, 3, 4 and 5 Have a QP provide water quality results in figures and table with comparison to relevant water quality guidelines, as provided in Appendix F & G of Appendix 4.3-A of the application.

		Have a QP clarify if the background water quality inputs used in the model were annual median values or if monthly (or seasonal) median values were used (section 3.10.1 of Appendix 04.3-A, the Water & Load Balance Modeling Report). If monthly or seasonal background concentrations were used, please provide a table describing their values and ranges. If monthly or seasonal median values were ***not*** used, have a QP re-run the Project Assessment Case and Alternative Assessment Case 5 (see Table 2-3 in Appendix 04.3-A) to generate water quality predictions using either monthly (or seasonal) median background values or the annual 95th percentile of background; present results in a format similar to Appendix F of Appendix 04.3-A.
WLBM: Discharge sources	New	Table 6.2-1 of the Discharge Management Plan lists many surface discharges that are not incorporated into the WLBM. The WLBM application considers the discharges from the Tenas Control Pond, the Management Ponds, and the Rail Infrastructure Pond. 1. For all other discharges, indicate where each is characterized in the Application, including: source term assessment; water quality predictions; frequency and duration of discharge; mitigation strategies (include liner permeability where applicable); identification of parameters of concern; and residual effects assessment. 2. For all unlined ponds and other discharges to ground, evaluate the discharge following the guidance in ENV's Authorizing Point and Non-point source discharges to ground[1].
WLBM: groundwater model inputs	New	There are several inconsistencies in values between Table 3-16 and Table 3-17 and the corresponding groundwater tables in Appendix 4.4-A (Tables 6-6, 6-7 and 6-11) which have provided contradictory information and predictions related to seepage throughout the life of mine, specifically related to selenium loading. 1. Have a QP provide water balance and water quality results using inputs from the Groundwater Model provided as part of the Application.
WLBM: stochastic model	New	Section 3.1.2 describes the stochastic model used in Alternative Case 6, but this section does not demonstrate that the stochastic model adequately reproduces the temperature and precipitation variation defined in the baseline characterization (Appendix 1-R). 1. Have a QP provide plots and tables showing the selected stochastic model parameters produce temperature and precipitation distributions that are representative of the baseline characterization. 2. Have a QP provide a rationale to demonstrate 100 model realizations are sufficient to describe climate variability and indicate the range of return periods modeled by this set of realizations.
WLBM: annual water balance tables	New	Have a QP provide annual water balance tables for major mine facilities (Open Pit, East, West and North Management Ponds, Tenas Control Pond) quantifying all modeled inflows, outflows and storage for Operations and Post Closure under a range of climate conditions (e.g. average, wet and dry).
Derived Meteorology	293	Monthly linear relationships do not demonstrate a relationship approaching 1:1 which would indicate the synthetic approximates the measured data. 1. Have a QP clarify if monthly relationships were used to further adjust the derived synthetic record to improve the fit to the measured data;

[1] Available from: https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/guidance-documents/7276_env_rob_dtg_factsheet.pdf

		2. Have a QP provide a figure showing concurrent cumulative precipitation records (i.e. double mass curve) and a table with monthly and annual precipitation from both the measured record and final derived/synthetic record(s) that was: a. used as input to the WLBM; and used to characterize site precipitation and estimate extreme precipitation (if separate records were used, present both).
Derived Hydrology	294	Given the minor difference in drainage area between Goathorn-Hydro and Goathorn (08EE008) (1% difference), the selected linear regression (Fig 4-16) describes a surprisingly large difference in unit discharge. Have a QP use an updated regression (scale by drainage area or refined with published data) to describe and quantify the bias that was introduced into the baseline characterization, model calibration, and results and impact assessment by the selected regression.
Derived Hydrology: rainfall-runoff model	295, 296	The rainfall – runoff model, used in the WLBM to predict runoff from unimpacted and reclaimed watersheds, appears to underpredict the median and range of flow conditions by a sizeable margin in Goathorn Creek, Tenas Creek and Telkwa River when compared to the synthetic records. The rainfall-runoff model also appears to poorly match the hydrograph shape, specifically the magnitude and timing of the freshet and the summer low flows when compared to the measured record. This poor calibration introduces considerable uncertainty into the water management and water quality predictions based on the WLBM results. 1. Have a QP provide a robust demonstration that the model is sufficiently calibrated to available measured and synthetic datasets with a focus on common flow conditions (the annual range of average flow conditions). Where modeled results deviate considerably from baseline characterization, describe and quantity the impact to predicted surface discharge quantity and quality, and predicted water quality in the receiving environment over the life of mine and for the applicable assessment cases caused by model bias. OR 2. Have a QP recalibrate the rainfall-runoff model to provide the evidence outlined above. Describe the impact on surface water discharge quantity and quality, water management (waste management pond water levels), and receiving environment water quality over the life of mine. Provide revised results in a format consistent with Appendix F and G Appendix 4.3-A of the application for all assessment cases.
Selenium Data	New	Have a qualified professional identify lentic areas in the receiving environment which may receive selenium from mine operations, and ensure that background concentrations of selenium in water, sediment, invertebrate, and fish tissues are collected and compiled in those lentic areas.
EMLI Geoscience		
Metal Leaching (ML)/Acid Rock Drainage (ARD)	140, 142, 143, 146, and 148	The ML/ARD Management Plan Section 6.4 specifies that all materials excavated from zones 1a and 2/3 will be managed as PAG. Material from zones 5, 55, and 6 were characterized as non-PAG but will be initially classified and managed as PAG unless testing can demonstrate otherwise. To facilitate the shorter turnaround times that are required to make operational decisions for placement of blasted rock, rejects, and other materials, the results of the geochemical characterization are used to develop

Management Plan		operational proxies for determining NP and AP in an onsite laboratory that will be equipped with a Leco furnace. Section 6.1.3 of the ML/ARD Management Plan specifies an average weighted NPR of 1.2 is proposed to classify PAG mine rock at the Project. 1. Provide clarifications and justifications for the proposed ML ARD management plan and use of weighed average NPR 1.2 and 2 criteria as cutoff for verification and planning purposes. 2. Clarify what NPR criterion of 1.2 or 2 will be applied to manage waste material from zones 5, 55, and 6 and define them as non-PAG or PAG. 3. Based on responses to comments EMLI 140, 142, 143, and 146 indicate if updates to the proposed Metal Leaching (ML) Acid Rock Drainage (ARD) management plan are needed to address blending of material. 4. Provide contingencies in the waste management plan or mine plan to maintain a consistent water cover and to coordinate staged flooding and PAG placement.
ML/ARD Geochemical Characterization	143	EMLI understands that the weighed average NPR cutoff of NPR = 1.2 to define non-PAG zones 5, 55, and 6. This did not account for other factors that may affect the on-set of ARD, such as available NP, blended PAG, and non-PAG strata in an unsaturated embankment or pile. 1. Provide an extended evaluation of these other factors if an average weighted NPR less than 2.0 is applied. 2. Provide a demonstration of the conservativeness of application of an average weighted NPR of 1.2
Alternative Treatment Options	176	Provide conceptual design of alternative treatment options, mitigation measures, and management structures that can prevent the discharge of water that is not suitable for release to the environment (e.g., does not meet BC WQGs or another objective established by BC ENV).
ML/ARD Monitoring	136	Indicate what additional sampling and characterization studies are planned to meet sample frequency and representativity from BC ML/ARD Guidelines[2]. For instance, Zone 4 is underrepresented in the static test database.
ML/ARD Geochemical Characterization	140, 142, 143, 146 145	1. To address overestimation of available NP, please specify the best-fit linear regression of the data in Figure 8 and do not fix the line through the origin. A review of Figure 8 of Appendix 1.0-M that illustrates the relationship between TIC-Fe Corrected and Modified NP also indicates that the Modified NP may on occasion overestimate available NP and as a result, revising the NPR criterion to the minimum NPR cut-off value of 1.2 may result in PAG rock being managed as Non-PAG mine rock. a) Provide a greater range of percentile values in Table 2-4 and provide discussion of how spatially extensive a full PAG interval would be encountered for each zone in the pit. b) Propose a more conservative development of the Tenas mine rock NP designation and the ARD criterion of NP/AP = 1.2. 2. Conduct a geochemical characterization and monitoring program using methods to assess the ML potential. a) Specify what additional methods will be employed as part of the geochemical characterization and monitoring program to characterize the metal/contaminant leaching potential at the expected pH of the material on the mine site. 3. Evaluate the metal/contaminant leaching potential and duration at the expected pH from the samples already collected to characterize the overburden.

[2] Available from: https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/permitting/ml-ard

Geochemical Source Terms	153	EMLI understands that precipitation of mineral phases, and the predicted concentrations, will be validated through operational water quality monitoring. 1. Specify how the minerals or other attenuation processes identified through speciation modelling will be confirmed by mineralogical or geochemical characterization of the material. 2. Describe the field or laboratory studies that will be conducted to validate these assumptions (e.g. field barrel program).
Water Quality Modelling	154, 157, and 161	1. Prepare a sensitivity within the WLBM to evaluate how a 4-meter thickness of PAG rock left exposed in a management pond during a period of early closure would affect water quality. 2. Provide a sensitivity in the water quality model to allow PAG exposures on pit wall to understand how exposure of PAG may affect downstream water quality. Develop an upper-case prediction that is representative of challenging blasting conditions that could lead to higher nitrogen loading to blasted rock.
Geochemical Source Terms	154 164	1. Clarify what loading rates were used for developing mine rock source terms, including differences in Table 2-6 and Attachment 2 and Table A-4. 3. Provide annual non-PAG material quantities required to construct the embankments and the location of where this material will be sourced.
Discharge Management Plan – Calcite Precipitation	174	EMLI understands that, based on the conclusions made in Appendix 13.5-K, calcite precipitation is likely to occur in seepage from mine site facilities and in site water management ponds in varying degrees during operations, closure, and post-closure. However, predictions indicate that calcite precipitation is not expected to occur downstream of the proposed project footprint based on current observations and baseline concentrations. 1. What are the uncertainty and gaps around the current assessment that calcite precipitation is not expected to occur downstream of the proposed project footprint based on current observations and baseline concentrations? Please describe how the baseline observations and related conclusions relate to the projected load from the mine and propose recommendations to address these uncertainties and gaps. 2. Please update the calcite conceptual model provided in App 13.5K to include seepage pathways through groundwater or provide a rationale for its omission. 3. Provide clarifications on the mechanisms and likelihood of calcite precipitation in the immediate downstream environment including all pathways (i.e. surface and groundwater) below the end-of-pipe discharge location in Goathorn Creek. 4. Provide details of the calcite monitoring and management plan to prevent onset of calcite precipitation downstream of the project discharge and contingency measures to be implemented if specific triggers on the mine site are reached.
EMLI Geotechnical		
Tailings Management	171	The report *FINAL Tenas Project Dam Breach Assessment Report* dated April 2021, by SRK (Canada) Ltd., included as Appendix 1.0-AA of the Application, has not been appropriately sealed in accordance with Engineers and Geoscientists BC requirements. 1. Provide appropriately sealed documents, as required, including the Dam Breach Analysis included as Appendix 1.0-AA of the Application.

Tailings Management	178	Applications must include an alternatives assessment for the Management Ponds/Tailings Storage Facilities as per the *Application Information Requirements Template – Tailings Management Requirements for Mining Projects Undergoing an Environmental Assessment*[3] and the alternatives assessment completed should be consistent with the *Guidelines for the Assessment of Alternative for Mine Waste Disposal*[4]. 1. Provide a detailed review of tailings storage alternatives assessed to support the proposed mine plan.
Dam Safety and Analysis	181	1. Provide justification for the selection of the failure scenarios considered, including descriptions of the findings of all cascading failure modes/scenarios assessed. 2. Provide justification for selection of a "Very High" Consequence Classification given the findings of the Dam Breach Analysis that over 100 people could be impacted or at risk in the event of potential failure or breach of one or more of the management pond embankments. a. Include the relevant TSF regulations and guidelines that support this determination. b. Indicate what evaluation of possible environmental impacts due to the release of the contents of the North, West or East Management Ponds was used as a basis for selection of Consequence Classification. The environmental impacts should be consistent with the current understanding of the project (PAG tailings, etc.) and include appropriate references to the sources of information considered. 3. Provide justification for selection of the TSF design flood events (Inflow Design Flood and Environmental Design Flood). Include the relevant TSF regulations and guidelines that support this design event selection. 4. Provide justification for selection of an earthquake with a return period of 1 in 2,475 years for the Management Ponds/TSFs stability assessment. Include the relevant TSF regulations and guidelines that support this design event selection.

[3] Available from: https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/eao-guidance-tailings-management.pdf

[4] Available from: https://www.canada.ca/en/environment-climate-change/services/managing-pollution/publications/guidelines-alternatives-mine-waste-disposal/chapter-1.html