ID#	Reviewing Agency / Group	Reviewer	Date NWP Received	Discipline / Topic	Chapter / Document	Section / Subsection Number or Appendix Number	Section / Subsection Title (if provided)	Statement/Topic in Document or Omission from Document	Comment Type	Round 1 Reviewer Comment
	EPA	Carolyn Gleason		Water Quality	11	11.1.1	Regulatory and Policy Setting	Paragraph 2	Comment	The B.C. Ministry of Environment & Climate Change Strategy has announced an upcoming amendment to the Elk Valley Area Based Management Plan. Please clarify how this mine will be incorporated into the plan and how cumulative impacts will be assessed. EPA broadly recommends that all cumulative mine-related water quality impacts to US waters from the Elk Valley be considered in the development of both the project environmental impact analysis and the amendment of the regional managment plan before their finalization.

	EPA	Carolyn Gleason		Executive Summary	0	E.9.2.2	Changes to the Environment that Would Occur on Federal or Transboundary Lands	Paragraph 2	Comment	This section summarizes the project's potential transboundary impacts to multiple United States resource areas including surface water quality and fish habitats. While we recognize that this section is a summary based on project models and estimates, EPA notes that the boundary conditions for these models typically end before the US/Canada boarder and do not consider the relevant US environmental quality standards past those points. Therefore, the statements on 'minimal' predicted impacts to these US resources in this section do not have a clear basis. We recommend redeveloping the transboundary impacts summaries throughout the document to reflect US environmental quality standards and consensus on resource impacts. Where possible we also recommend consulting with US tribal communities and resource experts in order to comment on the weight of individual impacts.

	EPA	Carolyn Gleason		Water Quality	11	11.5.2.2.4	Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 3	Comment	Acid-base accounting (ABA) is mentioned in the context of water quality predictions, however, the context of this information isn't placed within the larger context of static and dynamics tests utilized to predict water quality impacts. Please add a description (or reference to another document) that describes the full suite of tests that were performed to assess ML/ARD and if these results are consistent with the findings from the ABA. While ABA can be used as a guide to identify which material could potentially release contaminants of concern, they are often less definitive than dynamic tests such as humidity cell tests—especially since many contaminants of concern such as selenium can be mobile under neutral pH conditions. As such, there can a disconnect between selenium mobilization and ABA test results since these two parameters are not always directly linked.
	EPA	Carolyn Gleason		Water Quality	11	11.5.2.2.4	Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 4	Comment	The text mentions that the following elements are elevated: antimony, barium, molybdenum, copper, nickel, zinc, nickel, cobalt, arsenic, mercury, and cadmium. However, elevated is a relative term—what are they elevated compared to? Global crustal average? Regional background? Regulatory Criteria? Please add a clarification regarding the use of the term "elevated".

	EPA	Carolyn Gleason		Water Quality	11	11.5.2.2.4	Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 4	Comment	The test states "However, laboratory test results did not indicate any significant upward trends in release rates for these parameters, and trace element concentrations were comparable to those observed elsewhere in the Elk Valley." Please provide additional information so that this statement can be properly evaluated. First, what tests were used to identify temporal trends in release rates? Over what time period is this temporal trend being described? What leaching rates were available "elsewhere in Elk Valley" is this referring to background leaching rates or leaching rates from other mine sites?
	EPA	Carolyn Gleason		Water Quality	11	11.5.3.4	Mitigation Measures for Change in Surface Water Quality from Disposal of Mine	Paragraph 1	Comment	Given that selenium isn't a metal and does not require acidic conditions to be more, does the term ML/ARD include selenium leaching?
	EPA	Carolyn Gleason		Soil	8	8.5.3.2.2	Mitigation Measures for Changes to Soil Quality	Paragraph 8	Comment	The text states that "The aim of the layered design is to mitigate against the oxidation of pyrite to prevent the release of selenium and nitrate in the long term." The release of elevated levels of selenium does not require the presence of acidic conditions; therefore, it is unclear how mitigation against pyrite oxidation will also result in limited release of selenium.

	EPA	Carolyn Gleason		Regulatory	11	11.1.1	Regulatory and Policy Setting	Paragraph 3	Comment	The document references the Lake Koocanusa Monitoring and Research Working Group in several places, including in this Section, Paragraph 3. Per a letter dated 12/11/23, BC ENV and MT DEQ stated that the working group has reached its conclusion and will no longer continue. Any references to the future of the working group should be removed from the document.
	EPA	Carolyn Gleason		Water Quality	11	11.5.4.1.1	Water Quality Model, Screening of Contaminants of Potential Concern	Paragraph 1	Clarification	The text states "Parameters without established guidelines were not screened or considered further in the assessment". Please clearly identify what those parameters are and describe this as a source of uncertainty in this screen.
	EPA	Carolyn Gleason		Water Quality	11	11.5.4.1.1	Water Quality Model, Screening of Contaminants of Potential Concern	Paragraph 2	Clarification	The text states "The result of the screening analyses were used to focus the assessment moving forward and reduced the number of contaminants of potential concern from 43 to the following 6 parameters". Please provide more information in the text about how decisions were made to eliminate 37 contaminants of potential concern. This could possibly be done by including and referencing a detailed summary table.

	EPA	Carolyn Gleason		Water Quality	11	11.5.4.2.1	Results - Grave Creek, Selenium	Paragraph 2	Clarification	The text states "Downstream of the confluence with Harmer Creek at the prediction nodes GC-2 and GC-1, selenium concentrations for both the 50th and 95th percentile scenarios slightly exceed the long-term chronic B.C. WQG." Based on Figures 11.5-6 and 11.5-7, it appears as though these exceedances are approximately an order of magnitude or more. How is a slight exceedance defined?
	EPA	Carolyn Gleason		Water Quality	11	11.5.4.3.1	Change in surface Water Quality from Disposal of Mine Rock and Coal Rejects, Determination of Significance	Paragraph 1	Comment	The text states "The proposed engineered mine rock layering design is the Best Achievable Control Technology (BACT) to reduce selenium and nitrate leaching from the Mine Rock Storage Facility and is anticipated to be at least an order of magnitude more effective than other technologies currently being implemented in the Elk Valley." Table 11.5-3 however notes that the effectiveness of the layering design in protecting surface water quality is unknown (page 11-61). EPA therefore recommends prioritizing the implementation of treatment technologies such as active water treatment which have substantial scientific evidence supporting their effectiveness at reducing selenium and nitrate concentrations in affected mine waters over technologies which have yet to be broadly tested and proven effective over the long-term in this application.

	EPA	Carolyn Gleason		Water Quality	11	11.6.2.1	Spatial Boundaries	Paragraph 3	Comment	This paragraph suggests that transboundary effects to Lake Koocanusa that could result from the project are negligible because they are predicted to be within the range of "natural variation". We recommend quantifying both the magnitude of these transboundary effects and the "natural variation" that is being mentioned here. We also reccomend detailing which dataset was used to determine the range of natural variation and whether this estimate includes the effects of upstream mining operations. Are current selenium inputs to Lake Koocanusa considered natural in this context?
	EPA	Carolyn Gleason		Water Quality	11	11.5.4.2.5	Results- Lake Koocanusa	Paragraph 3	Comment	It is unclear if the modeled water quality predictions for selenium in Lake Koocanusa conform with the 0.8 µg/L site-specific selenium water quality standard set by the Montana Department of Environmental Quality in 2022. The significance of these modeled impacts are only compared to the 2 µg/L selenium water quality standards set by BC water quality goals. Due to the transboundary nature of Lake Koocanusa EPA recommends that both water quality standards be referenced in the assessment and used to describe the relative impacts of the project. We also recommend that US water quality standards be used as complementary attainment goals alongside BC

										standards when developing water treatment strategies for the project.
	EPA	Carolyn Gleason		Fish and Fish Habitat Assessment	12	12.4.2.1.1	Lotic Systems, Fish Habitat	Paragraph 2	Comment	The text states "The FHAP surveys for WAL1, WAL2, and ALE8 to ALE10 occurred in August 2014". Are habitat surveys done approximately 10 years ago still relevant? Can they still be considered baseline conditions?
	EPA	Carolyn Gleason		Fish and Fish Habitat Assessment	12	12.4.2.2.1	Alexander and West Alexander Creeks, Aquatic Health, Fish Tissue	Paragraph 1	Comment	This paragraph discusses selenium concentrations in fish tissues and compares those values to B.C. and U.S. EPA guidelines. Recommend specifying what fish tissues were sampled/analyzed (e.g., filet, whole body, egg-ovary). This is important when determining what guideline to compare the values to.
	EPA	Carolyn Gleason		Fish and Fish Habitat Assessment	12	12.4.2.2.4	Lentic Ecosystems, Aquatic Health, Benthic	Paragraph 1	Comment	This paragraph discusses selenium concentrations in benthic invertebrate tissues and compares those values to B.C. and U.S. EPA guidelines. The U.S. EPA guideline mentioned in this paragraph of 8.5 mg/kg dw is applicable

							Invertebrate Tissue			to whole body fish tissues not to benthic invertebrate tissues. Recommend removing this comparison.
	EPA	Carolyn Gleason		Project Description	3	3.7.5.1	Non-Contact Runoff Water Management Plans	Paragraph 1	Comment	The text states that non-contact water diversion channel construction is unfeasible due to a number of reasons and that non-contact water (i.e. snow melt and runoff) would be managed along with surface runoff from mine disturbed areas. Diversion of clean water around all or a portion of mining operations is a commonly applied best practice at modern mining operations and the document does not adequately describe why it is unfeasible. Diversions are critically important pollution prevention best practices to reduce the amount of water coming into contact with mined materials and ultimately needing treatment before discharge - especially for situations such as here where treatment would be costly and could be needed over the very long term. In addition, EPA notes that the January 2022 Proposed Coal Mine Effluent Regulations (CMER) by Environment and Climate Change Canada (ECCC) introduces a prohibition on dilution for new mines and that this would not be allowed under that regulation. EPA recommends that non-contact water diversions be utilized and ECCC's prohibition on dilution for new mines be

										evaluated as a condition in this environmental assessment.
	EPA	Carolyn Gleason		Project Description	3	3.7.5.3	Mine Site Drainage	Paragraph 1	Comment	The text states that environmental compliance parameters have not been established but would be established during the permitting process and expected to be similar to adjacent Teck operations. EPA notes that the January 2022 Proposed Coal Mine Effluent Regulations (CMER) by Environment and Climate Change Canada (ECCC) introduces a effluent requirements for new mines that are separate from existing permitted Teck mines. In addition, we have heard from BC that the requirements in Teck's permit will be updated following adoption of new BC

										objective. Therefore, EPA recommends that ECCC's CMER criteria for new mines and potential new BC criteria be evaluated as a condition in this environmental assessment.
	EPA	Carolyn Gleason		Surface Water Quality Assessment	11	11.2.3.1	Spatial Boundaries	Paragraph 4 and Figure 11.2-2	Comment	The Aquatic RSA (used in this Chapter and the entire document) is defined and shown on Figure 11.2-2 as the Elk River watershed and the portion of Lake Koocanusa located north of the Canada-USA border. EPA recommends the boundary is extended to the Libby Dam to fully assess impacts to fish within the Lake Koocanusa waterbody and whether MDEQ water quality standards will be met due to cumulative effects of the Crown Mountain project contributions along with other mines within the Elk Valley. We recommend incorporating the impacts of the Crown Mountain project at full production capacity into the Area Based Management Plan.

	EPA	Carolyn Gleason		Federal Jurisdiction	32	32.3.3.2.6	Surface Water Quality	Paragraph 1	Comment	The text states that changes to surface water quality is predicted to be minimal, including transboundary effects into the U.S.A. This document does not appear to evaluate cumulative effects of this mine and other mines contributions to surface water impacts within Lake Koocanusa. EPA recommends that this document include a cumulative effects analysis.
	EPA	Carolyn Gleason		Federal Jurisdiction	32	32.3.3.2.7	Fish and Fish Habitat	Paragraph 2	Comment	The text states that effects to fish and fish habitat are expected to be minimal within Lake Koocanusa. This document does not appear to evaluate cumulative effects of this mine and other mines contributions to surface water impacts within Lake Koocanusa. EPA recommends that this document include a cumulative effects analysis.
	EPA	Carolyn Gleason		Engagement	4	4.6.7	International Engagement		Comment	The document states that EAO's primary way of engaging with interested parties in the U.S., including Tribes, was through the Lake Koocanusa Monitoring and Research Working Group (LKMRWG). We appreciate the previous engagement through this working group and recommend the IAAC additionally engage U.S. Tribes on this project specifically, and include a discussion of this engagement in the document. The document summarizes indigenous interests of First Nations in Canada, but does not address interests of Tribes in Idaho and Montana that value of these waterbodies. We also recommend

										information from this working group (e.g., baseline data from the U.S. Geological Survey) be considered in project planning.
	EPA	Carolyn Gleason		Degree of adverse impacts	Executive Summary	Table E.11-1	Summary of Significance Determination for Residual and Cumulative Effects		Comment	Recommend including a column for "degree of severity for adverse impacts" in Table E.11-1 (Summary of Significance Determination for Residual and Cumulative Effects), like Table E.11-2.

	EPA	Carolyn Gleason		Post-closure monitoring	Chapter 33				Comment	The document gives an overview of post-operational activities and states that “The Landform Design and Reclamation Plan is designed to meet British Columbia reclamation and closure regulations that require that the owner prepare a reclamation and closure plan showing specific end-land uses and that it be updated at regular intervals (five years) over the life of mine" (Exec Summary). Our review did not find a description of post-operational monitoring. We recommend the document include post-operational monitoring to ensure downstream waters are protected even after mining operations are completed. Provide information related to closure and post-closure in the document, including: infrastructure maintenance and monitoring requirements and emergency planning; how water that comes into contact with the open pits, waste rock, and tailings will be managed and if long-term water treatment will be needed; and, how and where the waterbodies would be monitored to demonstrate protection of water quality and aquatic resources (e.g., meeting Idaho and Montana water quality standards).

	EPA	Carolyn Gleason		Groundwater	9	9.4.3.5.2	Conceptual Groundwater Model	Figure 9.4-15	Comment	This figure and section depict the hydrogeological conceptual model for baseline conditions. A similar figure is not presented for post-mining conditions in Section 9. However, a post mining conditions conceptual model is shown in Appendix B (Figure 4-8) of Appendix 9A [page 323/325 of the pdf]). This figure in Appendix 9A should be used to discuss post mining hydrogeological conditions in Section 9. In particular, it shows the bottom of the waste rock disposal facility is predicted to be saturated at the bottom of the valley fill (in the West Alexander Creek channel). How does this affect the predictions of the performance of the layer-cake waste rock disposal design in reducing selenium and nitrate leaching? Portions of the waste rock disposal facility would be saturated with unsaturated material above.
	EPA	Carolyn Gleason		Groundwater	9	9.4.3.5.3	Groundwater flow	Figure 9.4-15	Comment	West Alexander Creek is shown to be a gaining stream. Post mining, not only would it be predicted for groundwater to discharge to its former creek channel and saturate the bottom of the waste rock disposal facility (this is depicted in the groundwater modeling results in Figure B-23 of Appendix 9A [page 271/325 of the pdf]), but surface water diversions around the waste rock disposal facility would not capture and divert this groundwater. This upwelling groundwater under the waste rock disposal facility would turn into leachate

										potentially elevated in selenium, depending on the success of the layer-cake disposal method.
	EPA	Carolyn Gleason		Surface Water	11	11.5.3.4	Mitigation Measures for Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 1	Comment	The column testing report cited is in Appendix 3C, not Appendix 3-B
	EPA	Carolyn Gleason		Surface Water	11	11.5.3.4	Mitigation Measures for Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 1	Comment	The report cited (Appendix 3C) discusses column testing results for the layer cake disposal method. It indicates varying degrees of selenium reduction in test columns that were highly sensitive to moderate concentrations of oxygen, and that did not work well under atmospheric concentrations of oxygen. Most of the waste rock disposal facility will not be fully saturated, which leaves uncertainty in how anoxic they will truly become. Further, the residence time in the columns were 74.8 days and 138.5 days. How does this residence time

										translate to what might be expected in the field at full scale?
	EPA	Carolyn Gleason		Surface Water	11	11.5.3.4	Mitigation Measures for Change in Surface Water Quality from Disposal of Mine Rock and Coal Rejects	Paragraph 4	Comment	The text discusses waste rock disposed in the open pits that fill with groundwater will remain saturated. Will additional waste rock be placed at an elevation above the spill level of the pits that would remain unsaturated? How would that affect potential leaching of selenium?
	EPA	Carolyn Gleason		Appendix 11C Geochemical Baseline	App 11C	5.1.6	Laboratory Kinetic Tests	Figure 5.35	Comment	This plot of pH versus Se should be plotted with selenium concentrations on a logarithmic scale (similar to the plots for the other metals) so that the concentrations clustered at the lower range can be distinguished and compared to lower concentration comparison criteria that might be relevant.