

Pebble EIS Preliminary Draft Chapter 1 and 2
EPA Comments
11/21/18

Thank you for the opportunity to review the preliminary drafts of Chapters 1 and 2 of the Pebble EIS, in accordance with our role as a Cooperating Agency. We do not have any comments to provide on Chapter 1 at this time. Our comments on Chapter 2 are provided in table format below.

We have a number of comments requesting more detail in the description of Alternative 1 (the proposed action) and the other alternatives. In addition, we have significant concerns regarding the rationale for the range of alternatives and lack of inclusion of a tailings dry stack alternative and bulk TSF liner alternative. We have previously provided comments related to our recommendations to analyze these alternatives in the Draft EIS to the Corps in our review of the Draft Appendix B Alternatives Development Process and review of AECOM's dry stack memo. At the October 24, 2018 Cooperating Agency meeting, the Corps and AECOM presented the range of alternatives proposed for analysis in the EIS. At that meeting, we expressed our concerns with lack of both a dry stack alternative and TSF liner alternative included in the EIS, and we requested a follow-up conversation with the Corps and AECOM technical experts to discuss our concerns. The Corps agreed to hold this meeting but has not yet scheduled it. We note that establishing a robust range of alternatives is a foundational issue for NEPA compliance as it effects the scope and scale of other sections of the EIS. Per the Cooperating Agency plan, we would like to collaborate with the Corps to try and resolve our concerns prior to release of the Draft EIS. We therefore reiterate our request for a technical meeting to discuss these tailings storage options. We recommend that along with the EPA, the Corps and AECOM, other cooperating agency experts be invited to participate.

Due to the limited time available for review of Chapter 2 and uncertainty regarding how the Corps intends to address the comments that we have previously provided on Appendix B, our public comments on the Draft EIS may include additional concerns or recommendations.

Page	Section	Existing text (if applicable)	Recommendation
1	2.0	The alternatives development process for the proposed Pebble Project (the project) considers a broad range of alternatives in sufficient detail to address both NEPA and CWA Section 404(b)(1) requirements.	We recommend providing additional explanation regarding the process for evaluating alternatives to comply with the CWA Section 404(b)(1) guidelines. We note that the current alternatives evaluation does not enable comparison of the alternatives for the purpose of compliance with the 404(b)(1) guidelines and to identify the potential least environmentally damaging practicable alternative (LEDPA) for 404 permitting purposes because, for example, there is insufficient information about how all practicable steps have been taken to avoid and minimize aquatic impacts. We understand that the 404(b)(1) guidelines analysis will be included in an appendix, and we request an opportunity to review and provide comments on that appendix prior to release of the Draft EIS.
2	2.2	Alternatives Carried Forward	We recommend that the Draft EIS note that the NEPA

Page	Section	Existing text (if applicable)	Recommendation
		for Detailed Analysis – General comment on identification of preferred alternative	<p>regulations require that agencies identify the preferred alternative in the DEIS if one exists and disclose whether the action agencies have identified that alternative and if not, why not.</p> <p>The three action alternatives proposed to be carried forward for detailed analysis combine various alternative project elements into three discrete alternative packages, and include variants to those alternatives. We note that this approach can be confusing to agency reviewers and members of the public, who may not understand that separate elements/variants can also be combined into a new alternative at the Final EIS or Record of Decision. In addition, we note that it can be difficult for decision makers to understand the environmental trade-offs of various elements when packaged in this way. We recommend that the Corps ensure that the Draft EIS clearly explains the process for packaging alternative elements/variants into complete alternatives and for ultimately selecting a preferred alternative, including explaining that the final preferred alternative could include a combination of the alternatives and variants analyzed in the EIS for the different project components. In addition, we recommend that the analysis of environmental consequences clearly analyze each project element separately, rather than summarizing impacts for an alternative as a whole (e.g., analyze the impacts of the downstream TSF compared to the proposed action, separate from consideration of impacts from North Access Road). This information will be critical to decision makers in alternative selection.</p>
6	2.2.2	“...employ approximately 850 to 2,000 personnel for operations and construction, respectively.”	We recommend clarifying that 2,000 personnel would be employed for 4 years of construction and 850 personnel would be employed for 20 years of operation. In addition, we recommend that the EIS clarify whether these numbers are annual or total estimates for each period.
6	2.2.2	<p>“An 84-mile transportation...”</p> <p>“A 29-mile private two-lane...”</p> <p>“A 37-mile private...”</p> <p>“A 187-mile gas pipeline...”</p>	We recommend verifying the miles provided for each of these project components, as what is stated here differs slightly from the miles given in the updated project description on pages 1 and 2.
6, 7, and 12	2.2.2		We note that the tons of material to be mined and placed in the Tailings Storage Facility varies throughout the document and recommend confirming the correct quantity prior to the release of the DEIS.
7	2.2.2.1	“Fine and coarse-grained soils would be stored southwest of the pit and north of the TSF embankments and	We recommend clarifying how and where these soils/sediments would be stored and managed to ensure they are not mobilized over the 20-year period of the mine life. We also recommend that the EIS clarify

Page	Section	Existing text (if applicable)	Recommendation
		would be used for reclamation during mine closure.”	whether these storage areas are the same as or different from those labeled as the growth media areas in Fig 2-3.
7	2.2.2.1	During this period, 1,300 million tons of mineralized rock and 150 million tons of waste rock and overburden would be mined	We note that the total here is 1.45 billion tons, whereas in other places the total is stated as 1.4 billion tons or 1.3 billion tons. We recommend verifying the correct amount and clarifying where values may be summing a subset of the material.
7	2.2.2.1	Non-potentially acid-generating (NPAG) waste rock would be used in construction of the tailings embankments.	We recommend that the EIS provide the criteria that will be used to distinguish NPAG and non-metal leaching (ML) waste from PAG and ML waste and discuss how the NPAG/PAG determinations will be made during active mining. These details are typically provided in EISs for mining projects and are necessary to evaluate the effectiveness of the NPAG/PAG separation and potential environmental impacts from tailings and waste management.
8	Fig 2-3		We recommend adding text to the document that explains what quarries are and why they are needed (Quarries A, B, C are shown in Fig 2-3, but are not mentioned anywhere in the text).
9	Fig 2-4		We recommend improving the digital simulation to better clarify which features are part of the mine vs. which are natural features (e.g., gray shading for lakes and mine components may be confusing to the readers of the EIS). We also recommend expanding the scale of Fig 2-4 to encompass all components shown in Fig 2-3 (e.g., Quarry B is not included in Fig 2-4).
11	2.2.2.1	“Material would be stockpiled within the pit footprint, or in designated stockpiles, as appropriate.”	We recommend providing additional detail regarding where mineralized material would be stockpiled, as well as showing the locations in Figure 2-3. Figure 2-3 indicates stockpile locations for overburden but does not show mineralized material stockpile locations.
11	2.2.2.1	In the grinding plant, it would be reduced to the consistency of very fine sand. The next step is froth flotation, in which the copper and molybdenum minerals are separated from the remaining material to produce concentrates... See Figure 2-6 showing the process flow diagram.	We recommend that the EIS state here that water and chemicals (reagents) are added during mineral processing and refer to the table that provides the list of reagents that would be used. We recommend expanding Figure 2-6 to show points in the process where water and reagents are added. In addition, this figure shows that some gold will be extracted by gravity separation, but the text never mentions this process, nor does it say how it will be handled. We recommend that the gold extracted in the gravity separation process be accounted for in the description of handling of products leaving the mine site.
11	2.2.2.1	¹ Bulk tailings are comprised	We recommend revising the definitions to remove the

Page	Section	Existing text (if applicable)	Recommendation
		of relatively inert, non-acid-generating fine-grained ground waste rock that remains after economic minerals and pyritic materials have been extracted through ore processing at the mine site. See also pyritic tailings. Pyritic tailings are comprised of potentially acid-generating fine-grained ground waste rock containing the naturally occurring mineral pyrite.	term “waste rock” so as not to confuse tailings with waste rock that is extracted during mining. For example, the term “waste material” is often used instead of waste rock since tailings also contain process reagents and water.
11	2.2.2.1	The TSFs would be designed to meet or exceed the standards of the updated 2017 Guidelines for Cooperation with the Alaska Dam Safety Program (ADSP) prepared by the Alaska Department of Natural Resources (ADNR).	<p>Further information is necessary to support this statement. We recommend that the DEIS provide a table that lists the ADSP standards that are being referred to in this sentence. For each standard that is applicable to the project, the EIS should provide information specific to the bulk TSF, pyritic TSF, and water management pond designs and operations that clearly demonstrate that they meet or exceed the state ADSP standards.</p> <p>In addition, given the size of the dams and importance of downstream aquatic resources, and for the bulk TSF, centerline dam construction methodology (which is not as stable as downstream construction), we recommend that: (1) a Failure Modes Effect Analysis (FMEA) or other type of formal risk assessment be conducted for the dam designs; and (2) the Corps require that the tailings dam designs be independently reviewed per 33 CFR 325.1. FMEA/risk assessment and independent review are recommended best practices from both the Independent Expert Engineering investigation and Review Panel Report on Mount Polley Tailings Storage Facility Breach (2014) and the International Council on Mining and Metals Review of Tailings Management Guidelines and Recommendations for Improvement (Golder 2016) for evaluating safety and stability of tailings dams. Mitigation measures arising out of the risk assessment and independent reviews should be identified and required of the final designs and operating plans. We recommend that the FMEA/risk assessment and independent review occur now so that the results can be disclosed in the DEIS to support the Corps’ hard look, as required by NEPA, at tailings dam stability and safety.</p>
14	2.2.2.1	The main embankment of the bulk TSF would function as a permeable structure to maintain a depressed zone of saturation in the embankment,	We recommend that the EIS describe how the main embankment would be designed, constructed, and operated to maintain both permeability and stability. We also recommend that the document discuss whether 100% of the water flowing through the embankment

Page	Section	Existing text (if applicable)	Recommendation
		and tailings mass in proximity to the embankment.	would be captured and how it would be captured.
14	2.2.2.1	A basin underdrain system would be constructed at various locations throughout the bulk TSF basin to provide preferred drainage paths for seepage flows.	We recommend describing whether the underdrain system would be designed to capture 100% of the TSF seepage. We also recommend providing a figure that shows the number of underdrains and alignment of the underdrain system below the TSF. These details are necessary to evaluate effectiveness of the system and potential groundwater impacts.
14	2.2.2.1	The pyritic TSF would be a fully lined facility.	We recommend that the EIS describe the type of liner that would be used (material and thickness) as well as the construction and waste rock and tailings placement techniques that would occur to ensure liner integrity.
18	2.2.2.1	The south Bulk TSF embankment would be constructed using the downstream construction method to facilitate lining of the upstream face	We recommend clarifying why this particular embankment would be lined and the others in the same TSF would not be.
18	2.2.2.1	The embankments would be constructed using select borrow materials, and include a liner bedding layer, overlain by a liner, on the upstream slope and over the entire internal basin	We recommend that the EIS clarify whether the pyritic TSF will have a drainage system under the liner.
18	2.2.2.1	TSF embankments would be constructed in stages throughout the life of the project, with each stage providing the required capacity until the next stage is completed.	We recommend adding a table or figure that provides the rate of rise for the TSF dams.
18	2.2.2.1	It would be a fully lined facility and would be constructed using quarried rockfill materials. The embankment would be approximately	We recommend disclosing the type of liner that would be used under the water management pond.
11-18	2.2.2.1	General comment on description of tailings management and TSFs	The discussion on tailings management is missing several key elements, which we recommend be added to the description, including: (1) how dust and erosion of the TSF buttresses and beaches will be managed and mitigated; (2) the stability, seepage, and environmental monitoring that would occur to determine whether the dams are performing as designed, and actions that would be taken if they are not; and (3) the emergency action plans that would be developed and how notification would occur in the event of an emergency.
21	2.2.2.1	Table 2-2. Grinding Media,	We recommend providing, in Table 2-2, the annual

Page	Section	Existing text (if applicable)	Recommendation
		Reagents, and Miscellaneous Supplies	<p>quantity of each of the mineral processing reagents that appear in Table 2-1 (e.g., as was done in for fuel and ammonium nitrate). We also note that “Grinding Media” does not appear in Table 2-1 and recommend that these materials be listed in both tables.</p> <p>In addition, please provide the estimated quantities of chemicals that would be used in the water treatment plants.</p>
21	2.2.2.1		In the section for material management and supply, lubricants and diesel fuel are discussed as being stored in secondary containment. We recommend that the document also discuss that multiple chemicals to be used (at the main mine site for water treatment plants and processing and for the port WTP) also require secondary containment (and some will require freeze protection). It will be important for agency decision makers and the public to understand all of the specific chemicals that will be stored using secondary containment.
21	2.2.2.1	The project would develop a comprehensive water management plan that strategically discharges surplus treated water to downgradient streams in a manner that reduces the effect of stream flow fluctuations and minimizes impacts to fish habitat.	We recommend that the water management plan referred to in the text be included in the DEIS, and that Cooperating Agencies have an opportunity to review this plan prior to public release of the DEIS, to allow for evaluation of the effectiveness of the stream flow reduction and fish habitat impact minimization measures. Understanding the effectiveness of these measures is a key factor in evaluating impacts to groundwater, surface water, and aquatic resources. In addition, we recommend that the goal of water management be to manage discharges to match the natural flow regime as much as possible, in addition to reducing the effect of stream flow fluctuations.
22	2.2.2.1	Prior to the operations WTPs being brought on-line, modular WTPs would be used to treat contact water that does not meet discharge requirements.	We recommend describing the water treatment processes that would be used prior to the operations plants being brought on-line, similar to the information disclosed regarding the operations water treatment plants.
23	2.2.2.1	Production Phase Water Treatment	<p>We recommend providing the following additional information in order to evaluate the effectiveness of water treatment and discharge:</p> <ol style="list-style-type: none"> (1) design capacity of the mine area WTPs in comparison to expected and reasonable worst-case flows; (2) additional detail regarding the “multiple independent treatment trains”; (3) discharge (outfall) locations for each of the WTPs; and (4) as mentioned in previous comments, more information on the discharge timing (seasonal or year-around; specifically, how flows will be

Page	Section	Existing text (if applicable)	Recommendation
			distributed among the outfalls).
23	2.2.2.1	<ul style="list-style-type: none"> The pyritic TSF and associated seepage collection ponds would be reclaimed, and surface water runoff from the area discharged to the downstream environment. The main WMP would be reclaimed, and surface water runoff from the area discharged to the downstream environment. 	<p>We recommend that the following be added to these two requirements: “once the runoff has been demonstrated to meet water quality criteria.”</p> <p>A similar statement is found on the next page as a requirement prior to discharge from the reclaimed bulk TSF</p>
24	2.2.2.1		<p>There is no discussion of waste tire disposal during operations, which are notably mentioned on page 2-2 (2-19) as a primary material. We suggest that the discussion in the Updated Project Plan be added here as well for clarity.</p> <p>The Updated Project Description discusses used or damaged parts (Section 3.7 on PDF page 52) as “Used tires and rubber products will be reused to the extent practicable. Additional used tires, along with other damaged parts and worn pipes, will be packaged and back-loaded into empty containers for shipment and disposal off site.”</p>
24	2.2.2.1	Closure/Post-Closure Phase Water Management Plan	<p>We recommend providing the following additional information related to closure/post-closure water treatment:</p> <ol style="list-style-type: none"> (1) Describe the type of water treatment that would occur at closure, as was done for the operations Water Treatment Plants; (2) Closure WTP design capacity in comparison to predicted flows; (3) Estimated quantities of WTP chemicals needed during closure; (4) Discuss where WTP sludge would be disposed and estimated sludge quantities produced annually; and (5) Describe closure WTP outfall location(s) and whether discharges would occur year-around, seasonally, or otherwise be timed.
24	2.2.2.1	“Water quality would be closely monitored, and changes and adjustments to the treatment process would be made as needed.”	We recommend expanding on this point to explain how water quality will be monitored (how often, by whom) and how adjustments will be made.

Page	Section	Existing text (if applicable)	Recommendation
21-23	2.2.2.1	General comment on water management description	<p>We recommend providing the following additional information related to water management:</p> <ol style="list-style-type: none"> (1) Surface water diversions are cited as key BMPs to minimize contact water. Provide figures that show where the surface water diversions will be located in relation to the mine site layout during construction, operations, and closure. (2) Describe the location of each treated water APDES outfall and describe the outfall structure/diffuser. (3) WTP sludges and residuals will be disposed in the pyritic tailings TSF. Discuss how much WTP sludge will be generated and how it will be disposed.
25	2.2.2.1	<p>“Inert mine site materials, such as geomembrane material, piping, and pumps, would be drained and cleaned, as appropriate, and placed into a facility that would be permitted within the submerged waste rock dump in the pit or within the footprint of the reclaimed pyritic tailings facility.”</p> <p>“Material that has residual value or is not suitable for onsite disposal would be hauled offsite for disposal (PLP 2018-RFI 055a).”</p>	<p>In Section 6.1 (PDF page 77-78) of the Updated Project Description, there is discussion of disposal of inert materials from dismantling and removal of site mine features during physical reclamation being “disposed of in an on-site monofill that will be sited within the disturbed footprint, while others will be shipped off site for disposal as appropriate.”</p> <p>The Updated Project Description does not mention any disposal of these types of waste materials into the pit, but it is presented in RFI 055a. The RFI is dated prior to the Updated Project Description file.</p> <p>We suggest clarifying what materials would be disposed of in the pit at closure that could influence how the water is treated prior to release after closure.</p>
25	2.2.2.1	Reclamation and closure of the project falls under the jurisdiction of the ADNRR Division of Mining, Land, and Water, and the Alaska Department of Environmental Conservation.	The list of permits and approvals in Appendix N (Table 7-1) does not appear to include reclamation and closure. We recommend that the required permits and approvals for reclamation and closure be added to the table.
	Figure 2-10 and Figure 2-11	“habitat conditioning”	This term is not defined or explained in the text. We recommend that the EIS describe what it involves.
	Figure 2-11	“Waste sludge to tailings storage facility”	We recommend clarifying whether this is the pyritic TSF or the bulk TSF.
	Figure 2-11		We recommend that it would be helpful to the reader if the line between the RO unit and the biological reactor was red instead of blue, to indicate that it is the RO reject being treated. We note that this is not described in the text of the chapter (but is in the Updated Project Description).
	Figures 2-10		We recommend explaining in the EIS why the rejects from the RO are being treated differently at the two

Page	Section	Existing text (if applicable)	Recommendation
	and 2-11		treatment plants, and how reject will be treated at the port.
28		“Once the level of the pit lake has risen to about 890 feet in elevation, water would be pumped from the pit, treated as required, and discharged to the environment.”	We recommend that the EIS discuss the treatment steps for this process. We also recommend including a discussion of how the pit water would be managed to minimize its anticipated acidity and metal/metalloid load, which would minimize long-term treatment requirements.
25-28	2.2.2.1	General comment on mine site reclamation and closure	<p>We recommend that the following additional information be provided. This information is typically included in mining EISs since reclamation and closure activities should be described in a sufficient level of detail to predict long-term environmental impacts:</p> <ol style="list-style-type: none"> (1) As discussed above, provide more details on closure water treatment (WTP process flowsheet, estimated design flow, discharge outfall location and discharge timing, WTP sludge management); (2) List reclamation standards and objectives and describe the monitoring that would occur to demonstrate that objectives are met; (3) Provide a reclamation schedule that describes when key reclamation actions would occur (e.g., timing for physical reclamation, tailings consolidation, pit filling, and discharge, etc.); and (4) Most jurisdictions require a temporary closure plan that describe actions that would occur in the event the mine ceases operations prior to completion of mining. A temporary closure plan should be provided that describes how mine facilities would be closed in the event of premature or temporary closure. This is particularly relevant for the TSFs, open pit, and for water management.
29	2.2.2.1	Financial Assurance	As discussed in our scoping comments, we recommend that the DEIS disclose the estimated financial assurance amount. This information is necessary to assess the effectiveness of reclamation and closure activities, which is critical to the assessment of environmental consequences of the project at and beyond closure.
29	2.2.2.2	“...whether the streams are fish-bearing....88 culverts; of these, 35 are designated as fish passage culverts.”	We recommend that the EIS clarify whether this means any fish, or anadromous fish specifically, and provide data to support this statement. We note that only 35 of 88 crossed streams having fish seems very low.
	2.2.2.1	General comment on description of Alternative 1 - quarries	The description of the mine site does not discuss the quarries. We recommend that this information be added to section 2.2.2.1, similar to what was included for the material sites along the transportation corridor. Please provide the estimated size of the quarries (acres and depth), the amount of material that would be mined, testing that would occur, location of where the material

Page	Section	Existing text (if applicable)	Recommendation
			will be placed, and how the quarries would be closed.
30	2.2.2.2	Culverts at streams with fish would be designed and sized for fish passage in accordance with ADOT&PF and Alaska Department of Fish and Game (ADF&G) standards.	We recommend that the EIS include a discussion or table that lists the specific standards referred to in this sentence.
38	2.2.2.2	A custom-designed ferry would transit Iliamna Lake between the north and south ferry terminals, carrying inbound supplies from Amakdedori port to the mine site, and returning with copper-gold and molybdenum concentrates, backhauled waste, and empty shipping containers.	We recommend that the document describe the method of personnel transport to and from the site.
38	2.2.2.2	Bilge water would be pumped through oil/water separation equipment installed on the vessel, and then discharged back to Iliamna Lake.	The ferry would require coverage under EPA's Vessel General Permit for discharges such as bilge water. Please see https://www.epa.gov/npdes/vessels-vgp for the current requirements for various sized vessels.
46	Table 2-3		We recommend clarifying whether material usage for the Kokhanok spur road is included in the material site quantities estimates for the port access road or provide a separate listing in the table as was done for the Iliamna spur road.
		All material site tables	We recommend adding supporting information that discusses the methodology for choosing the sites for material source, including: location within the landscape, type and amount of wetland impacts, and individual location analysis for avoidance and minimization of impacts.
47	2.2.2.2	Water Extraction Sites section	We recommend that the document include information on where the water extraction sites are located (e.g., show on maps as done with material sites, or list drainages/specific water bodies in table).
		All water extraction tables	We recommend adding supporting information that discusses how the water withdrawals would impact downstream receiving water quality and quantity, if any impacts are anticipated, and discusses the identification process used to avoid and minimize water quality and quantity issues resulting from the withdrawals.
48	2.2.2.2	"These camps would remain in place until the natural gas line construction is complete."	We recommend that the EIS include an estimate for how long these camps would be in place, and the number of people they would be supporting.
58	2.2.2.3	"Copper-gold concentrate would be transported from the mine site to Amakdedori port	We recommend clarifying that ferry transport will also be needed to get concentrate to the port.

Page	Section	Existing text (if applicable)	Recommendation
		by truck...”	
58	2.2.2.3	The empty containers would be cleaned of any residue on the outside while at the port, and then returned to the laydown pad	We recommend clarifying how this will be accomplished and if there is potential for contaminated wash water to be discharged.
60	2.2.2.3	Port WTP	We recommend describing the WTP design capacity as compared to expected flows and describe the location of the WTP discharge outfall.
60	2.2.2.3	The treated water would be suitable for discharge.	Please clarify that any discharge needs to be authorized by an APDES permit.
60	2.2.2.4	<u>Natural Gas Pipeline</u>	We recommend clarifying whether the pipeline will be a common carrier and whether the four nearby villages have the ability to transport gas for their own use through the line.
60	2.2.2.4	Natural gas pipeline description	The description says the pipeline will be laid on the seafloor crossing the Inlet but also states that the pipeline crossing Iliamna Lake will be buried similar to Cook Inlet Crossing. Please provide clarification and additional detail regarding the method of pipeline installation for crossing of Cook Inlet and Iliamna Lake.
60	2.2.2.4	The pipeline would come ashore at Amakdedori port,	We recommend clarifying whether horizontal directional drilling would be utilized for the pipeline to come onshore at the port. If HDD would not be used, we recommend discussing how it will be ensured that the pipeline would not be a navigational hazard to vessels using the port.
		General comment on description of Alternative 1 - monitoring	The description of Alternative 1 mentions monitoring in several locations but does not provide any details. A monitoring plan is typically provided as part of a mine plan of operations to support EIS development and described in Chapter 2 of the EIS (since it is part of the project description). We recommend that a monitoring plan be included in the Alternative 1 description or provided in an appendix. The monitoring plan should include a sufficient level of detail to demonstrate that it can measure environmental effects and trends. In addition, the monitoring plan should have an adaptive management component and describe changes that would be made to the project design or operations should impacts be different than predicted or if standards are exceeded. The monitoring plan should describe the process and environmental monitoring that would occur during construction, operations, and closure for all project components and include monitoring locations, parameters, frequency, and objectives. Please see our scoping comments related to monitoring.
66	2.2.2.5	“Concentrate would be stored at the port site during the	It is not clear why concentrate would need to be stored at the port site. Please explain/clarify this in the EIS.

Page	Section	Existing text (if applicable)	Recommendation
		winter months.”	
66	2.2.2.5		Please clarify if this variant would also require increased storage of other supplies during winter months (e.g., fuel).
68	2.2.2.6	“A total of 8 waterbodies would be crossed.”	Please clarify if this refers to streams only, or if this also considers other waterbodies (ponds, wetlands).
73	2.2.3	Action Alternative 2 – North Road and Ferry	We recommend that the title of this alternative be revised to include mention of the downstream TSF, so that it is clear to agency decision makers and the public that the road and ferry are not the only changes that distinguish this alternative from Alternative 1.
88	2.2.3.3	Any remaining dredged material and any material from maintenance dredging would be disposed of on-shore in a bermed facility on uplands west of the dock site	We recommend that this section also describe the APDES and any other permits that would be required for the discharge of the drainage from the on-shore dredge pile.
95	2.2.3.5	“...storage of concentrate would be needed during the winter months...”	It is not clear why concentrate would need to be stored along the transportation corridor. Please clarify.
95	2.2.3.5		We recommend that the EIS clarify if this variant would also require increased storage of other supplies during winter months (e.g., fuel).
104	2.2.4.5	Alternative 3 – Concentrate Pipeline Variant	We recommend that the description of this variant specifically disclose the reduction of truck traffic with use of the pipeline (number of truck as compared to Alternative 1).
105	2.2.4.2	Manual isolation and drain valves would be spaced at intervals no greater than 20 miles apart	It is unclear why manual isolation valves would be used for the concentrate pipeline, rather than automatic valves as would be used for the fuel lines. We are concerned that the longer response time associated with manual valves could lead to larger spills of concentrate or process water. Please provide additional detail on the isolation valves that would be used and the ability for timely response to a potential spill event.
109	2.2.4.2	The water quality characteristics of the slurry filtrate water and port area stormwater streams are expected to exceed discharge criteria for pH and metals concentrations to marine waters.	We recommend that the requirements of 40 CFR 440 Subpart J be discussed in the EIS when putting forth this alternative. The slurry filtrate water is process water under these regulations, and as such, it cannot be discharged except under certain circumstances where process water is comingled with wastewater that is allowed to be discharged and only that allowable volume can be authorized.
		General	For all of the alternatives, we recommend including maps of the water extraction sites.
	2.3	Alternatives Eliminated from Further Consideration – Request that additional alternatives be considered	This section refers to Appendix B for the rationale for dismissal of options. The EPA reviewed a draft Appendix B in September 2018 and submitted comments to the Corps on October 3, 2018. We also

Page	Section	Existing text (if applicable)	Recommendation
			<p>submitted follow-up comments related to the dry stack tailings option on October 24, 2018. We have not seen a revised version of Appendix B or a response to the comments that we have previously submitted. We participated in the October 24, 2018 Cooperating Agency meeting where the Corps and AECOM presented the alternatives proposed to be carried forward for detailed analysis in the EIS. However, the meeting did not include a substantive discussion of, or response to, comments that had been submitted. At the end of the Cooperating Agency meeting, we requested a follow-up meeting with the Corps and AECOM technical experts to discuss our outstanding concerns related to several of the tailings options. The meeting has yet to be scheduled.</p> <p>Based on the information presented in Section 2.3, and without a revised version of Appendix B that is responsive to our comments, we continue to have significant concerns about several aspects of the alternatives screening and range of mine site layout and tailings alternatives. For example:</p> <p>Mine site layout and TSF location alternatives - See our October 3, 2018 comments requesting additional discussion in the EIS to support the basis for the proposed mine site layout design and lack of alternatives related to the mine site layout. This is particularly relevant for TSF siting options since Appendix N states that PLP considered more than 35 tailings disposal sites, yet Table 2-21 identified only one possible alternative location for the pyritic TSF. We again request that the Corps evaluate the TSF locations previously considered by PLP against the smaller mine plan – we recommend listing these locations in Appendix B (and showing them on maps) and assessing whether and which of the 35 alternative locations are reasonable and could result in reduced impacts. This information would better support the Corps’ hard look at alternative TSF locations as required by NEPA.</p> <p>Dry stack tailings alternative (TSF-004) – Please see our October 24, 2018 comments on AECOM’s analysis of the dry stack option. Absent a revised analysis of the dry stack option that is responsive to our comments, we continue to recommend that this option be considered as an alternative in the DEIS for the reasons discussed previously.</p> <p>TSF liner (TSF-015) – Please see our October 3, 2018 comments related to the bulk TSF liner option. We continue to recommend that a liner option be considered</p>

Page	Section	Existing text (if applicable)	Recommendation
			<p>as an alternative for the bulk TSF as we have not been convinced that the TSF dam and impoundment could not be engineered accordingly. We understand that including a liner may result in the need for a revised (water-retaining) embankment design. Seepage from the bulk TSF is predicted to exceed water quality standards for some parameters. The proposed action requires long-term post-closure collection and treatment of seepage from the bulk TSF. No alternatives are proposed to minimize seepage or reliance on long-term management of seepage. No information has been provided to demonstrate that the proposed seepage control system for the TSF would collect all of the seepage, which could otherwise impact groundwater. Due to the potential for long-term groundwater impacts from uncollected seepage and the desire to reduce reliance on long term water management and treatment of TSF seepage, we continue to recommend that a liner be included. The Corps recently permitted the placement of a liner for the Donlin Gold Mine TSF, which is of similar size.</p> <p>Effluent outfall locations - It is not clear from the proposed project description that the outfall locations have been optimized to minimize impacts of dewatering. In fact, the project description does not describe the timing or quantities of water that would be discharged at each outfall. Therefore, we continue to recommend that this information be provided and that alternative outfall locations be assessed. See our October 3, 2018 comments.</p> <p>Throughput scenarios - Only one option smaller than the proposed throughput of 180,000 tons per day was considered, and it was dismissed as not reasonable because it would not provide a reasonable return on investment. We recommend that mine sizes between 50,000 tpd and 180,000 tpd be assessed to determine if there are other smaller mine throughputs that could still be practicable while also resulting in reduced impacts. In addition, where indicators such as “positive net present value” or “reasonable return on investment” are being used to screen out alternatives, we recommend that this same information be provided for the proposed action. We also recommend providing more information that defines: (1) the thresholds for positive net present value and reasonable return on investment; (2) the net present value and return on investment for the proposed action; and (3) the estimated net present value and return on investment for options that are eliminated based on these factors.</p>

Page	Section	Existing text (if applicable)	Recommendation
114	2.3	Others were not carried forward as options because they were more properly characterized as potential mitigating measures. Mitigation measures are addressed in Chapter 5, Mitigation. and Tables 2-12 through 2-23, Options Eliminated from Further Consideration	The text of this section states that some of the options were carried forward as mitigating measures. However, the tables do not identify that any of the options were carried forward. We recommend that the option descriptions be revised for those options that were carried forward as either mitigating measures or RFFAs (LAY-006).