

**Proposed Pebble Project
Preliminary Draft Environmental Impact Statement
Review Comments**

Reviewer: NARF Technical Team
Date: December 21, 2018
Chapter: Chapter 4: Environmental Consequences
Section: 4.18 Water and Sediment Quality
Document: Sec4.18_WaterSedQual_FINAL

Comments

Section 4.18 Water and Sediment Quality. Given the critical nature of this section in terms of evaluating the potential impacts of the proposed Pebble Project, we have attempted to evaluate this section in the same manner that we would expect to review the draft environmental impact statement (EIS), starting with the review of the associated Appendix. Where necessary to obtain information not contained in the Appendix or main body of the EIS, we would rely on the information referenced in either the EIS or Appendix. However, in this case, the first document referenced in Appendix K4.18 Water and Sediment Quality is *Knight Piésold (2018a)*, which is not listed in the references provided in Section 9 of the EIS and could not be located on the USACE project website. As a result, the ability of the cooperating agencies to provide a substantive and meaningful review of this section is highly compromised.

Initial review of Section 4.18 found that it relies heavily on Appendix K4.18, and that Appendix K4.18 relies heavily on Knight Piésold 2018a and other references. It is also notable that the section identifies other key information such as geochemistry contained in Section 3.18 and the basis for the estimated water flows in Section 4.16. This results in the presentation of information in Section 4.18 that is very difficult to follow and ultimately to comprehend. Consideration should be given to using an approach that incorporates a Conceptual Site Model (CSM) into the discussion as well as a summary of the results that is more comprehensible and focused on the outcome of the analysis in terms of impacts and proposed mitigation. *If a CSM is not provided, it will be necessary to develop a CSM or something similar to support a substantive and meaningful review of this section and provide comments on the results.*

K4.18.1.1 Operations. According to the EIS, *"The mine plan module estimates the amount of water to be managed at the mine site during the operations phase of the mine under a full range of historic climate conditions. Climate variability is incorporated in the model using a 76-year synthetic time series of monthly temperature and precipitation values to simulate the cyclical*

nature of the climate record. The model generated 76 unique sets of monthly water flow and storage results for each year. Three of these model runs were selected to represent dry, average, and wet climate conditions and illustrate the range of potential flows for the mine site under these varying conditions."

The Appendix and EIS need to address the following questions:

1. What were the historic climate conditions that were used as input to the model (i.e., location, duration, periodicity, data quality)?
2. How are the data treated? Were the data averaged or maintained as individual daily data values in the model?
3. What is the basis for the 76-year synthetic time series? How does it account for future climate variability? What do the dry, average, and wet climate conditions represent (e.g. 20-year expected high and low)? Does the model address back-to-back wet years and or back-to-back dry years?
4. What if future conditions do not mimic past conditions? What evidence is there that past climate cycles over the past 100 or more years will not be severely impacted by climate change such that they no longer are useful for predicting future climate?
5. In the same paragraph the term "relatively" is used to describe dry, average, and wet climate conditions. Are the "relative" conditions the same as those named, but not described, previously in the same paragraph?

According to the EIS, *"Table K4.18-2 provides the predicted water quality from various geochemical sources at the mine site that were used as inputs to the water quality model."* No discussion is provided identifying the source of the data used. For example, were the data collected from geochemical characterization tests such as Humidity Cell Tests? How were values (such as peak values and average values) selected from tests? The table notes suggest 95th percentile terms, but no discussion is provided on the results.