

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

Reviewer: NARF Technical Team
Date: December 21, 2018
Chapter: Chapter 4: Environmental Consequences
Section: Section 4.14 Soils
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Comments

Please revisit our previous comments concerning reclamation descriptions that are applicable to the descriptions of the reclaimed features in this section.

Section 4.14.2.1 Mine Site. Dust Control. According to the environmental impact statement (EIS), “The bulk TSF would have tailings beaches, which would be susceptible to wind erosion and fugitive dust emissions throughout operations. The bulk TSF would eventually be reclaimed through contouring of surfaces and application of growth media for revegetation and surface stabilization, eliminating the beaches as a dust source following closure activities.” The EIS should identify and describe best management practices (BMPs) to control bulk tailing storage facility (TSF) fugitive dust during operations and continuing through the active and passive TSF closure phase until the described reclamation can be completed. Mines frequently employ BMPs to address fugitive dust during these periods. BMPs can include the use of water sprays, waste rock covers, chemical controls, and other means to effectively reduce dust from TSFs. These BMPs need to be recognized as necessary during mine reclamation and closure and when a mine temporarily ceases operations, and BMPs should be included as part of a contingency in financial assurance provisions.

Erosion. Water management structures (e.g., berms, channels, collection ditches) would be designed to accommodate a 100-year, 24-hour rainfall event. Sediment control ponds would be designed to treat a 10-year, 24-hour rain event and safely accommodate a 200-year, 24-hour rainfall event.

To address climate change as well as ensure that BMPs are conservatively applied, we recommend that a 200-year return interval be used for sizing of all water management structures. This is a common regulatory practice in Canada including in British Columbia and the

Yukon, and it is recommended by most engineering firms to their clients as a cost-effective means to ensure against the risk of damage to stormwater systems.

For any permanent and post-operation structures, we recommend using a design return interval of 500 years to similarly ensure against the risk over the long term of damage to these critical structures. The need for monitoring and maintenance of these structures, as well as the financial assurance to do so in perpetuity, should also be recognized in this section.

According to the EIS, *"Although reclaimed infrastructure would be designed to withstand anomalous storm events (e.g., 100-year, 24-hour rain event), monitoring would be necessary immediately after any occurrence."* As noted in our previous comments, a 100-year storm event is not "anomalous" but represents instead the minimum design standard. In our experience a 100-year storm event could be expected to be exceeded every 20 years or more frequently based on the currently recognized inadequacies of NOAA data to predict future storm events.

Section 4.14.5 Key Issues/Impacts Summary. Mine Site. Table 4.14-6 indicates "Erosion" duration pre-activity levels within 100 years, Potential: Inherent. Does this infer that the EIS is predicting that the site erosion characteristics will return to pre-activity levels within 100 years? Is this with or without continued maintenance? Explain "Potential: Inherent."

Section 4.14.6 Cumulative Effects (Soil).

According to the EIS, *"Project buildout would result in additional soil disturbance acreages not included under Alternative 1:*

- *Increased pit footprint*
- *Increased TSF and waste rock storage capacity*
- *Additional processing infrastructure.*
- *Construction of a new port site with diesel fuel and concentrate pipeline(s) extending to the mine site*

The additional acreage of disturbance to wetlands at the mine site would in the combined Kaktuli and Upper Talarik Creek watersheds. The buildout would correspond to an increase in magnitude and local extent of disturbance impacts" (underline added). The buildout and its impacts should be described in detail similar to the way other information was provided in this section for the proposed action and alternatives. Describing the impacts as "increased" does not provide a substantive or meaningful analysis of the impacts.