



United States Department of the Interior



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Dayne Doucet
Consolidated Mining Permit Lead
Oregon Department of Geology and Mineral Industries
229 Broadalbin Street SW
Albany, OR 97321

Subject: **U.S. Fish and Wildlife Service Comments re: Calico Grassy Mountain Gold Mine Environmental Evaluation**

Dear Mr. Doucet:

Thank you for the opportunity to provide input on the Environmental Evaluation (EE) concerning the proposed Calico Grassy Mountain Gold Mine. The U.S. Fish and Wildlife Service (Service) has several outstanding environmental concerns with the Applicant's proposed action and the thoroughness of the EE. We have organized our comments in the attached Comment Table and expand upon several issues below.

- 1. Information required to rank best available, practicable, and necessary technologies (BAPNT):** The purpose of the EE is to evaluate the impacts of the proposed project and alternatives to identify the least environmentally harmful mining strategies. Importantly, the EE must also provide a review of the best available, practicable, and necessary technologies (BAPNT) to the Technical Review Team (TRT) so members can make informed recommendations to the Oregon Department of Geology and Mineral Industries (DOGAMI) and state agencies tasked with permitting decisions. Oregon Administrative Rules (OARs) 632-037-0118 and 632-037-0010 state that the TRT must "review, determine, and rank the necessary, available and practicable technologies by their potential environmental benefits". To fulfill this responsibility, the TRT must be able to determine if the costs of available and necessary technology are "significantly disproportionate to the potential environmental benefits". Our review of the EE has identified several aspects of the alternatives for which there is inadequate information for the TRT to make the recommendations and determinations as required by law. The EE

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provides little information to allow the TRT to assess the economic feasibility of technologies including thiosulfate processing and alternative water and power sources and configurations (see also below). Rather, technologies are simply evaluated in broad relative terms. Similarly, the ranking of the technologies according to environmental impacts is also conducted at a coarse relative scale. Without quantitative and transparent of those analyses, these rankings do not provide the TRT with adequate information to assess alternatives.

2. Evaluation of thiosulfate as an alternative processing methodology to the

Applicant's proposed use of cyanide: We appreciate that the DOGAMI's consultant, Stantec, has included an evaluation of thiosulfate processing in the EE. However, conflicting and incomplete information is presented about gold processing alternatives in the EE. The EE states that the "thiosulfate leaching process may be a feasible alternative to the use of cyanide" and also that, "no alternative gold extraction processes have been identified as reasonable alternatives to the proposed Project" (p. 2-52 and 2-47). While the EE provided more information about the environmental impacts and risks associated with each processing methodology, the EE states that thiosulfate was eliminated as a result of "further evaluation" that had been conducted (p. 2-52). Yet no details of that "further evaluation" were provided. Additionally, the EE lacks information required by the TRT to assess which is the BAPNT. Specifically, the EE notes that recovery estimates for thiosulfate processing of Grassy Mountain ore have not been specifically developed and cost differentials between the two options are imprecise as presented in the EE. Without this analysis, the TRT cannot determine if the cost of using thiosulfate is "so high it renders a mining operation infeasible" (OAR 632-037-0010).

3. Evaluation of water and power supply alternatives: As with the analysis of alternative gold extraction technologies, the analyses of water and power supply alternatives does not provide actual cost comparisons of alternatives (only relative comparisons are included), nor does it provide a means to evaluate the actual cost of alternatives in relation to the feasibility for the operation and potential environmental benefits.

4. Cumulative Impacts Analysis (CIA): It is unclear why the CIA only included future projects and actions. Per OAR-632-037-0085, "A cumulative impact analysis shall include an assessment of the total cumulative impact on the environment that results from the incremental impact of an action when added with other past, present and reasonably foreseeable future actions". In addition, the Applicant's nearby gold mining claims are directly relevant to the CIA and the EE fails to justify why they were not included in the scope of analysis. Per OAR 632-037-0085, these additional claims meet the definition of a "connected action" given that gold extracted from the Frost claims could be processed at the Grassy Mountain facility. Although in your letter dated July 31, 2023, you stated that DOGAMI will consider a condition specifying that the Grassy Mountain facilities cannot be used to process other ore without a permit modification, DOGAMI has not yet made that determination. Because a permit modification could be granted, the Frost claims could be potential "interdependent parts of a larger action". The potential development of the Frost claims can also be considered a "similar action" as defined in

OAR 632-037-0085 in terms of shared geography and type of disturbance and should also be evaluated because the same environmental resources will be impacted.

- 5. Acid Rock Drainage (ARD):** Greater detail is needed regarding location of sampling and contingency actions in case ARD exceeds guidance values at the site. Appendix D of the EE identified seven potential sources of ARD at the site, though waste rock and ore stockpiles (and potentially the underground mine) provide the mostly likely ARD sources. These sources could leach sulfate, arsenic, cadmium, chromium, copper, fluoride, iron, manganese, selenium, and zinc. Under alkaline conditions, material in the tailings storage facility (which requires amendments with lime to achieve non-acid-generating characteristics) could also leach selenium, chromium, and sulfate. Many of these leachable products can be harmful to aquatic life, depending on concentrations ultimately reaching surface waters. The applicant proposes to conduct quarterly groundwater monitoring for five years followed by semi-annual monitoring for 10 years, and then annual monitoring for 15 years. Testing is also proposed for waste rock for acid-generating potential for the first six months of mine operations. However, the details of this testing are not provided in the EE or associated appendices. We recommend that details regarding the location of ground and surface water be described, along with the exact constituents that will be evaluated with each sample collected. In addition, contingency measures should be added to the EE or in Appendix D describing what corrective actions will be taken if constituents are detected above levels of concern at the sample locations.
- 6. Cyanide Monitoring:** As indicated in previously submitted comments, the Service remains concerned about the lack of detail in the Tailings Chemical Monitoring Plan, and the information provided in Appendix C on Cyanide Chemistry in the EE elevates these concerns. The EE improves on former documents but still does not provide sufficient information to alleviate some environmental concerns. Recommendations to resolve these concerns specifically include:

 - Collect water samples for analysis of Weak Acid Dissociable (WAD) cyanide and pH on a daily basis in the supernatant pond for the first three weeks of operation, as the pond will be very accessible to birds, bats and other ecological receptors.
 - Collect and analyze all other environmental samples (not only tailings and waste rock) on a weekly basis for the first six months of mine operations, at which time sampling frequency could be re-evaluated and adjusted depending on the risk posed to the environment.
 - Collect and analyze free, total, and WAD cyanide from multiple locations in the supernatant pond where wildlife could be exposed (especially near all discharges from spigots in the TSF pond) in water and solids, as differences in cyanide concentrations can vary greatly over short distances.
 - Provide a detailed map where samples will be collected.
 - Target a WAD cyanide concentration at 1 mg/L rather than 15 mg/L, as the Ecological Risk Assessment performed for the supernatant pond (SLR, 2023; CPA Appendix H) suggests that the average (six-month) WAD cyanide concentration of

- the pond should be kept below a concentration of 1 mg/L and the applicant has demonstrated that the detoxification process can achieve a level of 1 mg/L or less.
- Specifically describe the contingency measures that will be adopted when concentrations in the supernatant pond exceed 1 mg/L, 15 mg/L, and 30 mg/L.
 - Immediately report any exceedances of WAD cyanide concentrations over 1 mg/L in the supernatant pond to the Oregon Department of Fish and Wildlife during the initial stages of operation.

We appreciate the ongoing opportunity to participate in, and comment on, the Grassy Mountain project. If you have any questions regarding our review or require any further information, please contact Jackie Cupples (541-962-8593, jacqueline_cupples@fws.gov, La Grande Field Office), Julie Unfried (971-997-1944, julie_unfried@fws.gov, La Grande Field Office), Leah Tai (503-939-4177, leah.tai@fws.gov, Bend Field Office), or Jeremy Buck (503 231-6179, jeremy_buck@fws.gov, Portland Office).

Sincerely,

Marisa Meyer
Field Supervisor

cc:

Tom Segal, Oregon Department of Fish and Wildlife
Phillip Milburn, Oregon Department of Fish and Wildlife
Randy Jones, Oregon Department of Environmental Quality
Jenn Peterson, Oregon Department of Environmental Quality

Attachments:

USFWS Comment Response GrassyMtnEE Sept2024_FINAL_9.19.24.pdf