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Dear Forest Service Chief Moore, Ms. Jackson, Ms. Farnsworth and Mr. Knesek,

Re: Stibnite Mine SEIS Range of Alternatives

The U.S. Forest Service's decision earlier this year to require a supplemental analysis of the proposed Stibnite Mine DEIS is commendable. Many organizations and individuals submitted comments that advocated for more transparent, comprehensive and in-depth analysis in the Supplemental EIS (SEIS).

We would like to take this opportunity to emphasize the need for a more robust range of alternatives to be analyzed in the SEIS that includes: 1) underground mining, 2) segregation and separate disposal options for process wastes, 3) dry stack tailings, and 4) limitations on waste disposal to protect wetlands.

1. Underground Mining

Although Perpetua would prefer to mine the deposit with open-pit methods (based on both their MODPRO and MODPRO2), that preference does not release the Forest Service from its obligation under NEPA to consider underground mining as a potential alternative. As stated in *46 FR 18026*, "Reasonable alternatives include those that are practical or feasible from the

technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.” There is no mention of an underground mining alternative in the DEIS. The only reference to underground mining is in the original Midas Gold Plan of Restoration and Operations (2016, p. G-26).

Furthermore, the failure to consider underground mining as a potential option seems to run counter to the Forest Service Handbook 1909.15, Chapter 10, Section 14, which requires the Agency to, “Ensure that the range of alternatives does not prematurely foreclose options that might protect, restore, and enhance the environment.” Although the potential effects of an underground mine are unknown at this time, there are a number of potential environmental advantages to this approach in comparison to open-pit mining that merit consideration.

- a. ***Reduction in arsenic releases.*** An underground mine alternative could substantially reduce overburden, development rock production, haul road emissions, and arsenic impacts. With respect to arsenic, greater than 55% of total arsenic disturbance is associated with the waste rock (referred to by Perpetua as “development rock”), which there is theoretically much more of in an open-pit scenario versus an underground mining scenario. Moreover, fugitive emissions from use of the waste rock for haul roads and embankment construction account for more than 90% of the airborne arsenic impact. The SEIS should require modeling of ambient toxic air pollutant concentrations and the associated health risk for both on-site and off-site impacts for all alternatives.
- b. ***Reduction in the footprint, depth and hydraulic head on the tailings impoundment liner could reduce the risk of catastrophic failure.*** The current preferred alternative, in which spent cyanide leach solution (and most of the process-related arsenic) is routed to the Tailings Storage Facility (TSF), requires double geomembrane lining and a leak detection system. Perpetua is currently assisting an industry-led mining association effort seeking less protective requirements from the State of Idaho, advocating for an alternate single liner standard. This dramatic reduction of safeguards would be ill-advised as the height of the proposed TSF dam in all current DEIS alternatives presents the greatest threat of both chronic and catastrophic failure for groundwater, surface water, and ecological damage to the river system. There will be several hundred feet of hydraulic head in the proposed TSF, a condition not usually anticipated in cyanide leach operations. In the event of a liner failure, the hydraulic pressure will inject massive amounts of dissolved arsenic and cyanide wastes into the groundwater system, eventually poisoning the river. Additionally, failure of the dam could release millions of tons of accumulated toxins into the headwaters of the South Fork Salmon River, devastating the ecosystem.

A double liner significantly lowers the pressure on the bottommost safety liner, making it much less likely that a leak will contaminate groundwater. Furthermore, if a permeable

layer is placed between the double liners it would not only allow for leak detection, but also allow upper liner leaks to be collected and treated. An underground mine alternative could substantially reduce overburden, development rock production, and more than 50% of arsenic disturbance, relocation, and anticipated water quality impacts. Segregation and separate disposal of the arsenic-rich cyanide wastes from the gold circuit, and sand-filling of mine stopes with antimony processing wastes would substantially reduce the footprint, depth and hydraulic head on the tailings impoundment liner necessary for the toxic wastes and lessen the risk of catastrophic failure. Under this configuration, the vast majority of arsenic released under the current alternatives would remain in situ, the most toxic waste contained in a lower-profile double-lined repository, or disposed underground; markedly reducing risk to human health and the river ecosystem.

The USFS should require alternatives developed from a waste management perspective that emphasize best management practices for toxic waste management over the short and long term, minimal disturbance of stabilized *in situ* contaminants, and the capture, consolidation, and concentration of process wastes that reduce the volume and toxicity reduction of hazardous materials. Development of an underground mine with reduced waste generation and development rock relocation should also be evaluated in relation to a CERCLA cleanup no-action alternative involving a cooperative federal, State, Tribal and industry implemented Superfund remedy for legacy contaminants on and surrounding the site.

2. Tailings Alternatives & Pit Backfill

The DEIS also fails to include alternatives that examine the potential environmental impacts of using dry stack tailings, paste backfill and placing limitations on the tailings footprint to protect important resources. Given the potential benefits of dry stack tailings, and the significant negative impacts of placing the Tailings Storage Facility in the Upper Meadow Creek stream, wetlands, and Riparian Conservation Area (RCA), the Forest Service should develop alternatives that consider alternative tailings disposal (e.g., dry stack and paste backfill), and one that essentially limits tailings production to the volume that can be safely stored without inundating wetlands, RCAs or streams. Thus, the limiting factor for mining would be tailings storage.

We also recommend developing/analyzing an alternative in which the tailings and/or waste rock are relocated back into the main pits (or other geologically stable area). While rehandling this material would require additional expense, the Forest Service should compare this with the cost of dealing with a catastrophic dam failure, contamination, and effects of downstream public health and fisheries issues.

3. On-site/Off-site Smelter

There do not appear to be any domestic smelters capable of processing antimony ores. Processing this ore could require a combined pyro-hydro metallurgical refinery to be built in the U.S., possibly developed near the mine. The prognosis for eventual smelting capabilities being reintroduced at Stibnite should be considered in the SEIS. It should also consider the potential, reasonably foreseeable impacts of transporting the ore to a processing facility outside of the U.S.

In summary, the USFS has an obligation to consider all feasible alternatives for mine development in the NEPA process. With regard to mining and mineral processing methods, the DEIS does not offer meaningful alternatives, only minor adjustments to a single option suggested in the 2014 M3 Preliminary FS, now modified to MODPRO2. Both the Feasibility Study and MODPRO2 focus on mineral economics and address environmental/health considerations as additional costs and impediments to mine development. The post-DEIS applications and regulatory actions undertaken by Perpetua support the conclusion that no other alternatives have received appropriate consideration.

We would like to emphasize that this letter is not intended to serve as an endorsement of an underground mining or other alternative for Stibnite, but rather, as a reasoned request to the Forest Service to simply analyze an appropriate range of alternatives in the SEIS based on the justification provided.

Sincerely,



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