



Mining and Metallurgical Society of America

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Submitted Electronically To:

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INSERT DATE

U.S. Forest Service, Payette National Forest
Attn: Linda Jackson, Payette Forest Supervisor
Stibnite Gold Project
500 North Mission Street, Building 2
McCall, ID 83638

RE: Comments on the Payette and Boise National Forests' Supplemental Draft Environmental Impact Statement for the Stibnite Gold Project

Dear Ms. Jackson:

I. Introduction and General Comments

The Mining and Metallurgical Society of America (MMSA) is pleased to have this opportunity to provide our suggestions for the October 2022 Supplemental Draft Environmental Impact Statement (SDEIS) that the Payette and Boise National Forests (Forest Service) prepared for Perpetua Resources Ltd.'s (Perpetua's) proposed Stibnite Gold Project in Valley County, Idaho.

MMSA is a professional organization dedicated to increasing public awareness and understanding about mining and why mined materials are essential to modern society and human well-being. Since its inception in 1908, MMSA has provided valuable information and guidance to federal, state, and local governments on a number of important public policy issues dealing with mining. As minerals are essential to our daily lives, MMSA works cooperatively with other organizations at the state and national levels to ensure that the nation has a secure domestic supply of minerals.

Many MMSA members are expert mining engineers, metallurgists, and environmental professionals who have years of collective experience working on issues germane to the proposed Stibnite Gold Project. A number of our members are also very familiar with EIS documents prepared pursuant to the National Environmental Policy Act (NEPA) and the Forest Service's 36 CFR Part 228 Subpart A surface management regulations governing locatable mineral projects

like the Stibnite Gold Project. Our members' expertise makes MMSA highly qualified to provide informed comments on the Stibnite Gold Project Supplemental DEIS. In October 2020, we submitted detailed comments on the August 2020 Draft EIS, so we have a good understanding of Perpetua's proposed Stibnite Gold Project and a solid foundation for appreciating the refinements to this project that are analyzed in the SDEIS.

As a legacy mine site and a proposed critical minerals mine, the Stibnite Gold Project sits at the intersection of two of MMSA core issues: 1) the policy and technical challenges associated with reclaiming legacy mine sites; and 2) the country's urgent need to reduce our reliance on imports of critical minerals like antimony and to strengthen domestic critical minerals supply chains. MMSA has hosted webinars pertaining to critical minerals and co-sponsored four Abandoned Mine Land Summits with the U.S. Environmental Protection Agency, the Colorado School of Mines, Trout Unlimited, the University of Nevada/Reno, and the University of Arizona, School of Mining & Mineral Resources. We are thus well qualified to review and comment upon the legacy mine issues discussed in the Forest Services' SDEIS for the Stibnite Gold Project.

Although we note that the Stibnite Gold Project is not currently an abandoned site thanks to Perpetua's presence there, the site has a long history of abandonment – including abandonment by the federal government that mined the deposit during World War II and the Korean War. The federal government's wartime mining activities created the environmental problems at Stibnite. Subsequent legal maneuvering including various consent decrees and covenants not to sue have significantly limited the government's future liability exposure. If the Forest Service does not authorize Perpetua's proposal to redevelop, remine, and restore the Stibnite Gold Project, the site will likely revert to an abandoned mine status and the environmental degradation will persist for a long time into the future.

II. Critical Minerals

Our October 2020 comments on the Draft EIS discuss the Nation's need to increase domestic production of critical minerals. Since then, the Ukraine War has heightened awareness that relying on foreign countries – especially adversaries – for energy and minerals can lead to serious supply chain disruptions and severe shortages. With Russia's restricting of its natural gas exports to Europe, the world is witnessing what can happen when a country weaponizes a commodity.

Cutting off the supply chain for antimony is exactly what happened during World War II when Japan invaded China and prevented the Allies from obtaining antimony from Chinese mines. Japan's weaponization of antimony during World War II is what led to the federal government's emergency antimony and tungsten mining at Stibnite. This pre-regulation 1940s-vintage mining helped win the war, is credited with saving one million lives, and shortening the war by one year¹. However, these important victories created the environmental challenges that have gone largely unabated for over 80 years at Stibnite.

¹ “...In the opinion of the Munitions Board, the discovery of that tungsten mine at Stibnite, Idaho, in 1942 [1941] shortened World War II by at least one year and saved the lives of a million American soldiers...” Congressional Record 1956.

Eighty years later, we find ourselves beholden to China for over half of the antimony the U.S. uses each year. According to the U.S. Geological Survey's (USGS') 2022 Mineral Commodity Summaries², no marketable antimony was mined during 2021 in the U.S. We imported 84 percent of the antimony metal and oxide we needed, with most of the imports coming from China.

There have been significant statutory and policy developments since publication of the Draft EIS. Congress has enacted laws and the Biden Administration has announced Executive Orders, released reports, and issued other directives focused on reducing the country's dangerous reliance on foreign adversaries like China for critical minerals and the compelling need to strengthen domestic minerals supply chains. These developments include the following:

- Executive Order 14017 “On America’s Supply Chains,” February 24, 2021;
- The White House’s 100-day Supply Chain Review Report in response to Executive Order 14017, “Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth,” June 2021;
- The Infrastructure Investment and Jobs Act of 2021, Section 40206, which identifies the Federal permitting process “as an impediment to mineral production and U.S. mineral security” and requires the Secretaries of the Interior and Agriculture to prepare a report to address permitting delays;
- President Biden’s use of his authority under Title III of the Defense Production Act directing the Department of Defense to increase domestic mining and processing of critical minerals that are used for storage batteries (March 2022); and
- The Inflation Reduction Act of 2022 which ties electric vehicle tax credits to the use of domestically mined battery metals.

The 100-day review report recommends evaluating whether remining historic mine wastes could become a source of critical minerals. Perpetua’s proposal to remine and redevelop the Stibnite Mine is precisely the kind of remining project recommended in this report. The Stibnite Gold Project involves reprocessing some of the legacy mine wastes to recover gold and antimony. The project also involves remining other legacy mine wastes, which are not economic to reprocess, and relocating them into modern, engineered facilities designed to isolate them from the environment.

Without the proposed redevelopment, these legacy mine wastes will continue leaching metals into area streams and degrading the environment. In 2015, the USGS found that the mine wastes in Meadow Creek, which is one of the drainages in the Stibnite mine area, leach over 700 pounds of antimony and 1,100 pounds of arsenic every year.³

² <https://pubs.er.usgs.gov/publication/mcs2022>

³ Etheridge, A., 2015; Occurrence and Transport of Selected Constituents in Streams near the Stibnite Mining Area, Central Idaho, 2012-14; Scientific Investigations Report, 2015-5166, U.S. Geological Survey.

Mine features in other parts of the project area are also sources of contaminants. Consequently, reprocessing/remining will mitigate these materials as a source of future metal contaminants and will result in significant water quality improvements.

The U.S. Department of Defense’s (DOD’s) December 19, 2022 announcement⁴ of a \$24.8 million critical minerals award to Perpetua illustrates the national importance of the Stibnite Gold Project. DOD granted this award to Perpetua to help the Company complete the environmental and engineering studies necessary to obtain a Final Environmental Impact Statement, a Final Record of Decision, and other ancillary permits for the Stibnite Gold Project. As stated in the DOD announcement, DOD and the Biden Administration have determined the Stibnite Gold Project is needed “to increase the resilience of our critical mineral supply chains while deterring adversarial aggression.”

In addition to responding to the urgent need to strengthen domestic mineral supply chains and to reduce our reliance on foreign minerals, especially from adversarial nations like China and Russia, the Stibnite Gold Project is a trailblazer illustrating how remining can create an opportunity to strengthen the Nation’s critical minerals supply chains and simultaneously cleanup the environment. The successful permitting, construction, and operation of the Stibnite Gold Project would demonstrate the feasibility of remining, which could potentially stimulate private-sector commercial interest in other legacy sites. These win-win aspects of the Stibnite Gold Project create a compelling reason for the Forest Service to approve this project as soon as possible.

III. How Public Comments on the Draft EIS Have Refined the Stibnite Gold Project

Both Perpetua and the Forest Service have gone to extraordinary lengths to solicit and respond to public comments during the NEPA process. The SDEIS evaluates a refined version of the project proposal that was presented in the Draft EIS and illustrates how the NEPA process can improve a project. Perpetua’s refined project proposal results in meaningful environmental benefits that further improve water quality, stream and fish habitat, and public safety. Table 1 lists some of the refinements to the project that Perpetua made in response to the comments on the Draft EIS.

Table 1
Stibnite Gold Project Refinements in Response to Public Comments on the Draft EIS

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| <ul style="list-style-type: none">• Developed management plans for aquatic habitat monitoring, development rock handling, environmental monitoring, emergency response, explosives and blasting, fishways operation, solid and hazardous waste, spill prevention and response, transportation, water quantity and quality;• Responded to requests for more information on the design and construction of the tailings embankment to substantiate that it is designed using downstream construction methods;• Added a composite liner system and underdrain to the tailings impoundment; |
|---|

⁴<https://www.defense.gov/News/Releases/Release/Article/3249350/dod-issues-248m-critical-minerals-award-to-perpetua-resources/>

- Added Stibnite Lake to the closure plan for the Yellow Pine Pit to replace lake habitat and control stream temperature fluctuation;
- Included an active water treatment facility that will operate throughout the mine life and during mine closure until the tailings are consolidated and water treatment is no longer necessary, which is estimated to occur in Mine Year 40;
- Performed additional waste characterization tests to verify the test results presented and evaluated in the Draft EIS;
- Conducted a hydrologic particle tracking study to ensure groundwater discharges to surface water are completely integrated into the Site Wide Water Chemistry model;
- Eliminated the Fiddle Creek Development Rock Storage Facility, which reduces the Stibnite Gold Project's surface disturbance footprint by 168 acres;
- Collected additional data to revise the site hydrological and water balance models;
- Installed a new groundwater pumping well and conducted additional hydraulic aquifer tests to refine the understanding of the hydraulic properties in the project area;
- Increased the sensitivity of the meteoric water balance model to account for variations in elevation, topography, and micro-climate; and
- Updated the Site Wide Water Chemistry model using the new data listed above.

The SDEIS provides the public another opportunity to take a hard look at the Stibnite Gold Project. The combined public comment periods for the Draft EIS and the SDEIS total five months. There can be no doubt that this five-month long combined public comment period satisfies NEPA requirements to engage the public and for the agency to take a hard look at how the project will affect the environment and the mitigation measures to limit adverse impacts. Based on the robust environmental analyses in the Draft EIS and the SDEIS, MMSA urges the Forest Service to complete the NEPA process for the Stibnite Gold Project as quickly as possible.

IV. The Burntlog Route is Clearly Preferable to the Johnson Creek Route Alternative

The Forest Service has selected the Burntlog Route as the Agency Preferred Alternative in the SDEIS. The SDEIS calls this alternative the "2021 Modified Mine Plan (MMP) Alternative." The use of the Burntlog Route as the main transportation route is Perpetua's Proposed Action in its refined Plan of Operations.

Based on the information presented in the SDEIS, MMSA believes this alternative appears to be safer and more environmentally preferable than the Johnson Creek Route Alternative.

Routine use of the Johnson Creek Route would increase the probability of adverse impacts to water quality due to the proximity of this route to fish-bearing streams. Compared to the Burntlog route, the Johnson Creek route would create increased impacts from sedimentation. Also, in the event of a fuel or chemical spill or leak, there would be an increased potential for the spilled substances to reach the stream and harm fish.

The Johnson Creek Route poses some safety concerns. The large avalanche paths along the Johnson Creek route make it an unsafe choice for routine winter use. There are no feasible measures or engineering designs that could be used to reduce these risks. Thus, there would likely be periods when the route would have to be closed during high-risk avalanche conditions. Such road closures would create obvious operational constraints and could also precipitate an emergency if project personnel are unable to leave the mine site or if emergency vehicles cannot reach the site. Additionally, the potential for sudden and unpredicted avalanche events would pose a direct and serious risk to people driving this route during the winter.

V. Recommendation Against the Selection of the No Action Alternative

If the Forest Service was to select the No Action Alternative and reject Perpetua's proposal to substantially improve the Stibnite Mine area, it would essentially result in the preservation of the current *status quo* degraded conditions. This decision would forgo a unique opportunity to take advantage of Perpetua's plan to invest private sector funds in the redevelopment and remediation of this site.

The Forest Service has an obligation to take appropriate steps to improve the environment on the National Forest System lands it manages. If the Forest Service selects the No Action/Do Nothing to Clean Up the Environment Alternative and does not authorize development of the Stibnite Gold Project, the environment will probably remain degraded for the foreseeable future. Under this scenario, Idahoans and U.S. taxpayers could be saddled with the cleanup costs, which would probably delay the cleanup for decades. This outcome would be inconsistent with the Forest Service's mission: "to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations," and its motto: "Caring for the Land and Serving People"⁵.

The No Action Alternative is also inconsistent with the Administration's focus on the importance of developing domestic critical minerals deposits to reduce our reliance on foreign minerals. The DOD's recent Defense Production Act Title III grant to Perpetua is specifically designed to help the Company "complete environmental and engineering studies necessary to obtain a Final Environmental Impact Statement, a Final Record of Decision, and other ancillary permits⁶." It is difficult to conceive that the DOD would have made this investment in the Stibnite Gold Project, which the Department characterizes as: "essential to ensure the timely development of a domestic source of antimony trisulfide for the manufacture of small arms and medium caliber cartridges, as well as many other missile and munition items," if DOD thought the Forest Service

⁵ <https://www.fs.usda.gov/about-agency/meet-forest-service>

⁶ *Op cit.*, <https://www.defense.gov/News/Releases/Release/Article/3249350/dod-issues-248m-critical-minerals-award-to-perpetua-resources/>

might select the No Action Alternative and prevent timely development of the Stibnite Gold Project.

VI. Section 4.9 on Water Quality Impacts Should be Clarified in the Final EIS

Because the project area includes streams with degraded water quality due to the presence of legacy mine wastes and features, the content and clarity of the section describing water quality and the impacts to water quality is one of the most important sections of the document. As mentioned in Section II, the USGS documented that the legacy mine wastes in the Meadow Creek drainage are leaching over 700 pounds of antimony and 1,100 pounds of arsenic every year.⁷ Mine features in other parts of the project area are also sources of contaminants.

Although the discussion in Section 4.9 describing impacts to water quality is very thorough and describes the detailed water quality modeling performed to assess project water quality impacts, the clarity of this section should be improved in the Final EIS. As currently written, this section is confusing because it contains some internally inconsistent narrative statements that conflict with the data presented in this section.

Figures 4.9-21 and 4.9-25 clearly show that the post-operational water quality at YP-SR-2, the monitoring point downgradient from the project, **is predicted to contain 40 percent less arsenic and 58 percent less antimony compared to the existing degraded baseline conditions.** Unfortunately, some of the text in Section 4.9 does not adequately describe these water quality benefits and incorrectly states that water quality will remain the same, suggesting there would be no water quality improvements. The predicted level of reductions in arsenic and antimony downstream of the project area will be a significant water quality improvement and are substantial benefits associated with the Stibnite Gold Project that need to be clearly articulated and highlighted in the Final EIS. The following excerpts from Section 4.9 of the SDEIS illustrate the inconsistencies:

“Downstream of the project on the East Fork SFSR at node YP-SR-2 (below the confluence with Sugar Creek), predicted surface water chemistry *is largely unchanged from existing conditions* with some variability in predicted antimony, arsenic, and mercury concentrations during the operating and initial closure period (**Table 4.9-21** and **Figure 4.9-25**).” (Page 4-251, italics added for emphasis, bold in the original.)

“Under the SGP operations and closure, water quality of surface flow departing from the Operations Area Boundary *would be the same or better than existing baseline conditions*; therefore, there would not be impacts to the quality of downstream waterways...” (Page 4-522, italics added for emphasis.)

The same confusion and lack of clarity exists in the water quality discussion in the Executive Summary, which does not highlight – or even disclose – the water quality benefits resulting from the Stibnite Gold Project. In fact, just the opposite is true. The Executive Summary emphasizes the negative impacts and downplays the positive impacts.

⁷ *Op cit.*, Etheridge, A., 2015; Occurrence and Transport of Selected Constituents in Streams near the Stibnite Mining Area, Central Idaho, 2012-14; Scientific Investigations Report, 2015-5166, U.S. Geological Survey.

It is very important for the Executive Summary to provide an accurate and balanced overview of the SDEIS because most people will probably rely on the Executive Summary to gain an understanding of the proposed project and associated impacts; they will not have the time to read the Final EIS.

MMSA very much appreciates the time and effort that the Forest Service and its third-party contractor devoted to writing the SDEIS and analyzing the enormous amount of baseline data included in the document. We thus attribute the above-described lack of clarity and confusion to the fact that the document was written by a team, with different sections of the document being written by different people. These issues can be rectified in the Final EIS with more careful editing of the entire document to make sure that it is internally consistent.

The Executive Summary and Section 4.9 in the Final EIS could more clearly discuss the water quality improvements resulting from the Stibnite Gold Project by placing more focus on the data shown in Figures 4.9-21 and 4.9-25. Both of these figures illustrate the water quality improvements that will occur downstream from the project – as well as the improvements within the project boundary along Meadow Creek and the East Fork of the South Fork of the Salmon River (East Fork). Adding Figure 4.9-21 to the Executive Summary would be an efficient and easy-to-understand way to illustrate how the project will improve water quality.

VII. Mining Law and Financial Assurance Considerations

Mining Law

The discussion in Section 1.7 of the SDEIS describing the Forest Service’s statutory and regulatory jurisdiction over the Stibnite Gold Project is well written and should be included in the Final EIS. The Forest Service has correctly described its regulatory framework for locatable minerals at 36 CFR Subpart 228A. It is important for the public to understand that these regulations govern all functions, works, and activities on National Forest System lands in connection with prospecting, exploration, development, mining, or processing of mineral resources and all uses reasonably incident thereto, including roads that are constructed and maintained in connection with development and mining of mineral resources, as operations authorized by the U.S. Mining Law (see 36 CFR Section 228.3(a)⁸).

Additionally, MMSA appreciates having the information shown in Figure 3.9-3 that clearly illustrates where the mineralized zones in the project area are located. From this figure, it is easy to see that the areas selected for the tailings impoundment and embankment cover lands that are not mineral in character. Under the Mining Law, this is an appropriate use of land for ancillary

⁸ This is an excerpt from the definition of “operations” at 36 CFR 228.3(a). The full definition states: “*Operations*. All functions, work, and activities in connection with prospecting, exploration, development, mining or processing of mineral resources and all uses reasonably incident thereto, including roads and other means of access on lands subject to the regulations in this part, regardless of whether said operations take place on or off mining claims.” Section 228.2 of these regulations establishes the scope of these regulations as operations conducted under the U.S. Mining Law of 1872 (30 U.S.C. §§ 21a *et seq*).

facilities like tailings and development rock storage areas that are needed to support the mining activities.

Financial Assurance

Many MMSA members have experience using the Standardized Reclamation Cost Estimator (SRCE) software tool that the Forest Service and the Idaho State regulatory agencies will use to calculate the reclamation cost and financial assurance requirement for the Stibnite Gold Project. Based on this experience, we strongly concur with the Forest Service's discussion in Section 2.4.7.17 that correctly explains that the financial assurance amount would be calculated following issuance of the Record of Decision (ROD) "when enough information is available to adequately and accurately perform the calculation."

The Forest Service and the Idaho State agencies will not have sufficient information to use the SRCE to determine how much financial assurance will be required for the Stibnite Gold Project until the Forest Service completes the NEPA analysis and selects its Preferred Alternative, at which point the Plan of Operations for the project will be finalized. The appropriate time for the agencies to calculate the amount of required financial assurance will be after the Forest Service signs the ROD authorizing the project and the state agencies have issued the permits that include a financial assurance component.

VIII. The 2021 MMP Will Pave the Way for a Site-Wide, Comprehensive Cleanup

MMSA encourages the Forest Service to complete the NEPA process and approve the Stibnite Gold Project in 2023 so Idahoans and the entire Nation can capitalize upon the environmental restoration measures described in the Forest Service's Preferred Alternative (e.g., the 2021 MMP Alternative) that are an essential element of Perpetua's plans to redevelop this legacy mine site. The data presented in the SDEIS, especially as effectively synthesized in Figures 4.9-21 and 4.9-25, clearly show the Stibnite Gold Project will improve water quality downstream from the mine. This project will also restore stream and fish habitat and remove the Yellow Pine Pit cascade that has prevented fish migration for over 80 years. Perpetua's plans to reconnect the East Fork through the backfilled Yellow Pine Pit and to construct Stibnite Lake as an additional habitat enhancement measure are emblematic of the Company's environmental stewardship and its commitment to improve the environment at Stibnite.

Recognizing the importance of developing a comprehensive remediation plan, Perpetua, the Forest Service, and the U.S. Environmental Protection Agency (EPA) entered into the Administrative Settlement Agreement and Order on Consent (ASAOC) to perform additional remediation activities involving legacy mine features as discussed in Section 1.3. Under the direction and oversight of the EPA and the Forest Service, Phase I of the ASAOC allows Perpetua to voluntarily eliminate or reduce contaminant sources that are outside of the MMP project area as quickly as possible. Phase I of the ASAOC commenced in July 2022, is expected to be completed by 2025, and is designed to achieve immediate improvements in water quality.

However, the combination of Phase I and the MMP will not address all of the contamination emanating from legacy mine features that remain outside of the MMP operations area. Under the terms of the ASAOC, Perpetua has the option to address these problematic areas by pursuing ASAOC Phases 2 and 3 to remediate the legacy mine features that are not part of the MMP. These phases are contingent upon the Stibnite Gold Project receiving project permits and becoming an operating mine. The potential opportunity to achieve a site-wide, comprehensive cleanup at Stibnite is another compelling reason for the Forest Service to approve this project as soon as possible.

The Stibnite Gold Project presents a win-win opportunity to improve water quality and stream and aquatic habitats without involving taxpayer funds as the remediation efforts will be a part of the Stibnite Gold Project development and operating plan and budget, which will be funded through private sector funds. Additionally, the Stibnite Gold Project will employ hundreds of people throughout the mine life. As described in Section 4.21 of the SDEIS, the project is projected to generate \$29 million in income to local residents and \$72 million statewide, spend \$133 million annually for goods and services in Idaho, create 1,820 direct and indirect jobs during construction, 1,150 direct and indirect jobs during the 15-year operating period, and 190 jobs during closure and reclamation. At the same time, the Stibnite Gold Project would become the Nation's only source of domestically mined antimony, which would diminish China's hegemony over this critical mineral that is essential to our military.

The DOD's press release on the Title III Defense Production Act award to Perpetua states that the antimony at the Stibnite Gold Project is "the sole domestic geologic reserve of antimony that can meet Department of Defense (DoD) requirements."⁹ This statement alone creates a compelling reason for the Forest Service to expedite approving the Stibnite Gold Project.

MMSA appreciates this opportunity to provide the Forest Service with our comments on the SDEIS and our suggestions for the Final EIS. Finalizing the EIS and issuing a ROD authorizing development of the Stibnite Gold Project are the only sensible decisions to correct the environmental problems stemming from the legacy mining activities at Stibnite and to provide our military with an urgently needed source of domestic antimony.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'MGA', followed by a long horizontal flourish.

Mick Gavrilovic
MMSA President

⁹ *Op cit.*, <https://www.defense.gov/News/Releases/Release/Article/3249350/dod-issues-248m-critical-minerals-award-to-perpetua-resources/>